



**Instruction**  
Conductor Series

## **Conductor NT**

INFI 90® OPEN Operation/Configuration





---

This instruction covers the operation of the Conductor NT version 2.3 and 4.0 software. Conductor NT operates in the Windows NT<sup>®</sup> version 4.0 operating system. It communicates with the Symphony Enterprise Management and Control System and the INFI 90 OPEN Strategic Enterprise Management System via the INICI01, INICI03, INICI12, IMMCP02, HNCC, or INPCI02 connected to the INFI-NET<sup>®</sup> or Plant-Loop system.

The Conductor NT provides an operator interface to the Bailey distributed control systems.

Special features of the Conductor NT include:

- Configuration and online changing of the tag database.
  - Changing the operating parameters of tags.
  - Tag summaries application.
  - Module details application.
  - Block details application.
  - Server diagnostics application.
-



## List of Effective Pages

---

Total number of pages in this instruction is 194, consisting of the following:

| Page No.                | Change Date       |
|-------------------------|-------------------|
| Preface                 | 14 September 2000 |
| List of Effective Pages | 14 September 2000 |
| iii through xiv         | Original          |
| 1-1 through 1-4         | Original          |
| 2-1 through 2-54        | Original          |
| 3-1 through 3-7         | Original          |
| 4-1 through 4-5         | Original          |
| 5-1 through 5-5         | Original          |
| 6-1 through 6-4         | Original          |
| 7-1 through 7-10        | Original          |
| 8-1 through 8-45        | Original          |
| 9-1 through 9-16        | Original          |
| 10-1 through 10-2       | Original          |
| 11-1 through 11-23      | Original          |
| Index-1 through Index-5 | Original          |

---

**NOTE:** Changed text or tables are indicated by a vertical bar adjacent to the changed area. Changed figures are indicated by a vertical bar next to the figure caption. The date appears beside the page number.

---

# Table of Contents



|                                            |                |
|--------------------------------------------|----------------|
| <b>Section 1 Introduction .....</b>        | <b>1-1</b>     |
| Overview .....                             | 1-1            |
| Intended User .....                        | 1-1            |
| Functional Description .....               | 1-1            |
| Faceplates.....                            | 1-2            |
| Block Details .....                        | 1-2            |
| Module Details .....                       | 1-2            |
| Operating Parameters.....                  | 1-2            |
| Server Diagnostics.....                    | 1-2            |
| Tag Summaries .....                        | 1-3            |
| Document Conventions .....                 | 1-3            |
| Reference Documents.....                   | 1-4            |
| <br><b>Section 2 Faceplates .....</b>      | <br><b>2-1</b> |
| Introduction.....                          | 2-1            |
| Control Faceplates .....                   | 2-1            |
| Control Inhibit .....                      | 2-2            |
| Common Control Faceplate Attributes .....  | 2-2            |
| Status Messages .....                      | 2-4            |
| Loop Control .....                         | 2-4            |
| Station Faceplate .....                    | 2-5            |
| Station Control.....                       | 2-8            |
| Mode .....                                 | 2-8            |
| Set Point.....                             | 2-9            |
| Ratio Index.....                           | 2-9            |
| Control Output.....                        | 2-10           |
| Device Control .....                       | 2-10           |
| Remote Control Memory Faceplate.....       | 2-10           |
| RCM Control .....                          | 2-12           |
| Changing the Output State.....             | 2-12           |
| Remote Manual Set Constant Faceplate.....  | 2-13           |
| RMSC Control .....                         | 2-14           |
| Changing the Value .....                   | 2-14           |
| Device Driver Faceplate .....              | 2-15           |
| DD Control.....                            | 2-17           |
| Changing the Output State.....             | 2-17           |
| Multistate Device Driver Faceplate.....    | 2-18           |
| MSDD Control.....                          | 2-20           |
| Changing the Output State.....             | 2-20           |
| Remote Motor Control Block Faceplate ..... | 2-21           |
| RMCB Control .....                         | 2-24           |
| Changing the Output State.....             | 2-24           |



## Table of Contents (continued)

---

### **Section 2 Faceplates** (continued)

|                                                   |      |
|---------------------------------------------------|------|
| Data Acquisition Functions.....                   | 2-24 |
| Data Acquisition Faceplates .....                 | 2-25 |
| Data Acquisition Tags .....                       | 2-25 |
| Control Inhibit .....                             | 2-26 |
| Common Data Acquisition Faceplate Attributes..... | 2-26 |
| Analog Faceplate Attributes .....                 | 2-26 |
| Digital Faceplate Attributes .....                | 2-29 |
| Data Acquisition Analog Faceplate .....           | 2-31 |
| DAANG Faceplate Attributes .....                  | 2-31 |
| DAANG Control.....                                | 2-34 |
| Selecting the Source Mode.....                    | 2-34 |
| Changing the User Inserted Value .....            | 2-35 |
| Data Acquisition Digital Faceplate.....           | 2-35 |
| DADIG Faceplate Attributes .....                  | 2-35 |
| DADIG Control.....                                | 2-37 |
| Selecting the Source Mode.....                    | 2-37 |
| Changing the User Inserted State .....            | 2-38 |
| Text String Faceplate .....                       | 2-38 |
| TEXTSTR Faceplate Attributes .....                | 2-38 |
| TEXTSTR Control.....                              | 2-41 |
| Changing the Mode .....                           | 2-41 |
| Inputting a Text String.....                      | 2-42 |
| Setting the Alarm State .....                     | 2-44 |
| Conductor NT Faceplates .....                     | 2-44 |
| Analog Export .....                               | 2-44 |
| Digital Export .....                              | 2-45 |
| Module Status .....                               | 2-46 |
| INFI 90 OPEN Scanner Tag .....                    | 2-47 |
| Point Display .....                               | 2-48 |
| Accessing the Point Display.....                  | 2-48 |
| Point Display Appearance .....                    | 2-49 |
| Tag Name.....                                     | 2-49 |
| Tag Description .....                             | 2-50 |
| Status Area .....                                 | 2-50 |
| Info Pushbutton .....                             | 2-51 |
| BLKTune Pushbutton.....                           | 2-52 |
| Process Display Area .....                        | 2-53 |
| Automatic Fail-Over for Redundant Computer.....   | 2-53 |
| Manually Activate Primary Computer .....          | 2-53 |
| Active Status.....                                | 2-53 |

---

## Table of Contents (continued)

|                                             |            |
|---------------------------------------------|------------|
| <b>Section 3 Block Details .....</b>        | <b>3-1</b> |
| Introduction.....                           | 3-1        |
| Specifications Tab .....                    | 3-2        |
| Block Button .....                          | 3-2        |
| Tunable Blocks .....                        | 3-4        |
| Properties Option .....                     | 3-5        |
| Output Tab .....                            | 3-6        |
| Description Tab.....                        | 3-7        |
| Print Block Details .....                   | 3-7        |
| <b>Section 4 Module Details .....</b>       | <b>4-1</b> |
| Introduction.....                           | 4-1        |
| General Tab .....                           | 4-1        |
| Status Tab .....                            | 4-2        |
| Problems Tab .....                          | 4-3        |
| Technical Tab .....                         | 4-4        |
| <b>Section 5 Operating Parameters .....</b> | <b>5-1</b> |
| Introduction.....                           | 5-1        |
| General Tab .....                           | 5-1        |
| INFI 90 Tab .....                           | 5-2        |
| Tag Specific Tab .....                      | 5-2        |
| Red Tag Tab .....                           | 5-4        |
| Substitute Button .....                     | 5-5        |
| <b>Section 6 Server Diagnostics .....</b>   | <b>6-1</b> |
| Introduction.....                           | 6-1        |
| General Tab .....                           | 6-2        |
| Messages Tab.....                           | 6-2        |
| Tags Tab .....                              | 6-2        |
| <b>Section 7 Tag Summaries .....</b>        | <b>7-1</b> |
| Introduction.....                           | 7-1        |
| Using Tag Summaries .....                   | 7-1        |
| Designing a Query .....                     | 7-2        |
| SQL View .....                              | 7-3        |
| Arithmetic Operators .....                  | 7-5        |
| Where Clause .....                          | 7-6        |
| Comparison Operators.....                   | 7-6        |
| Wildcards and the Like Clause .....         | 7-7        |



---

## Table of Contents (continued)

---

### **Section 7 Tag Summaries** (continued)

|                             |      |
|-----------------------------|------|
| Logical Operators .....     | 7-8  |
| Order By Clause.....        | 7-8  |
| Query Results.....          | 7-9  |
| Print Results.....          | 7-10 |
| Query File Operations ..... | 7-10 |

---

### **Section 8 Tag Configuration** .....8-1

|                                                   |      |
|---------------------------------------------------|------|
| Introduction .....                                | 8-1  |
| Tags .....                                        | 8-1  |
| Available Tags List .....                         | 8-3  |
| File Options .....                                | 8-4  |
| Print .....                                       | 8-4  |
| Purge Deleted Tags .....                          | 8-5  |
| Edit Options .....                                | 8-5  |
| Edit Tag.....                                     | 8-5  |
| Move to Server .....                              | 8-5  |
| New Tag.....                                      | 8-6  |
| INFI 90 OPEN Tab Fields.....                      | 8-6  |
| General.....                                      | 8-12 |
| INFI 90 .....                                     | 8-14 |
| Digital.....                                      | 8-16 |
| Remote Control Memory .....                       | 8-17 |
| Scanner .....                                     | 8-17 |
| Server .....                                      | 8-19 |
| Copy Tag .....                                    | 8-20 |
| Change Operating Status Tag.....                  | 8-20 |
| Search.....                                       | 8-21 |
| View Options .....                                | 8-22 |
| Sort .....                                        | 8-22 |
| Filter .....                                      | 8-23 |
| Operating Status Filters.....                     | 8-23 |
| ADP Panel .....                                   | 8-24 |
| Default Group Assignment .....                    | 8-25 |
| COM Port Configuration.....                       | 8-26 |
| Tools .....                                       | 8-26 |
| Import Trends.....                                | 8-26 |
| @aGlance Importer .....                           | 8-28 |
| INFI 90 OPEN Import/Export Tag Configuration..... | 8-29 |
| Import .....                                      | 8-30 |
| Export .....                                      | 8-32 |
| Configure Text .....                              | 8-32 |

---

## Table of Contents (continued)

---

|                                                       |             |
|-------------------------------------------------------|-------------|
| <b>Section 8 Tag Configuration</b> (continued)        |             |
| Indexed Text .....                                    | 8-33        |
| Tag Descriptors .....                                 | 8-35        |
| Alarm Priority Text .....                             | 8-37        |
| Substitutable Text .....                              | 8-38        |
| Remote Motor Control Text .....                       | 8-39        |
| Available Servers .....                               | 8-41        |
| Global Alarm Acknowledgment .....                     | 8-41        |
| Receiving Global Acknowledgments from the Loop .....  | 8-42        |
| Sending Global Acknowledgments to the Loop .....      | 8-42        |
| Global Silence Messages.....                          | 8-42        |
| Receiving Global Silence Messages from the Loop ..... | 8-42        |
| Sending Global Silence Messages to the Loop.....      | 8-42        |
| Database Utilities (DBUtils) Application.....         | 8-43        |
| Transfer Tag Data Function .....                      | 8-43        |
| Set Host Name Function .....                          | 8-43        |
| Destroy Server Function .....                         | 8-44        |
| Create Server Function .....                          | 8-44        |
| Set System Description Function .....                 | 8-45        |
| Database Maintenance Functions.....                   | 8-45        |
| Compact Database .....                                | 8-45        |
| Empty Database .....                                  | 8-45        |
| Set as Design Master .....                            | 8-45        |
| <b>Section 9 Tag.Atoms</b> .....                      | <b>9-1</b>  |
| Atom Suffixes.....                                    | 9-1         |
| Tag.Atom List.....                                    | 9-1         |
| <b>Section 10 Event Bits Mapping Utility</b> .....    | <b>10-1</b> |
| Introduction.....                                     | 10-1        |
| Accessing Event Bit Mapping.....                      | 10-1        |
| Mapping Event Bits.....                               | 10-2        |
| <b>Section 11 SOE Logs</b> .....                      | <b>11-1</b> |
| Introduction.....                                     | 11-1        |
| Description .....                                     | 11-1        |
| Specific Features.....                                | 11-2        |
| Initialization at Startup .....                       | 11-3        |
| Trigger Tag Monitoring .....                          | 11-4        |
| Reports Collection .....                              | 11-5        |
| Auto Report Generation.....                           | 11-6        |

---



## Table of Contents (continued)

### Section 11 SOE Logs (continued)

|                                                            |       |
|------------------------------------------------------------|-------|
| Displaying and Printing Reports on Demand .....            | 11-7  |
| Logging and Redundancy .....                               | 11-7  |
| Distributed Architecture .....                             | 11-7  |
| Rochester Architecture .....                               | 11-9  |
| Distributed Logging Hardware .....                         | 11-10 |
| Rochester Logging Hardware .....                           | 11-10 |
| External Interfaces and Function Blocks .....              | 11-11 |
| Log Configuration Database .....                           | 11-12 |
| Log Configuration Utility .....                            | 11-12 |
| Log Configuration Window .....                             | 11-13 |
| Log Configuration Menus .....                              | 11-14 |
| Configuring Reports .....                                  | 11-14 |
| Configuring Recorders .....                                | 11-16 |
| Configuring Digital Points .....                           | 11-17 |
| Deleting Configuration Database Records .....              | 11-18 |
| Configuring the Report Spreadsheet .....                   | 11-19 |
| Backup and Restore .....                                   | 11-20 |
| Distributed Function Code Example .....                    | 11-20 |
| Configuring the Rochester SER .....                        | 11-21 |
| Rochester ISM-1 Commands to Configure Prefault Logs .....  | 11-22 |
| Rochester ISM-1 Commands to Configure Postfault Logs ..... | 11-22 |
| Other Rochester ISM-1 Commands .....                       | 11-23 |

## List of Figures

| No.   | Title                                      | Page |
|-------|--------------------------------------------|------|
| 2-1.  | Control Station Faceplate .....            | 2-5  |
| 2-2.  | Remote Control Memory Faceplate .....      | 2-11 |
| 2-3.  | Remote Manual Set Constant Faceplate ..... | 2-14 |
| 2-4.  | Device Driver Faceplate .....              | 2-16 |
| 2-5.  | Multistate Device Driver Faceplate .....   | 2-18 |
| 2-6.  | Remote Motor Control Block Faceplate ..... | 2-22 |
| 2-7.  | Analog Faceplate .....                     | 2-27 |
| 2-8.  | Analog Annunciator Faceplate .....         | 2-28 |
| 2-9.  | Digital Faceplate .....                    | 2-29 |
| 2-10. | Digital Annunciator Faceplate .....        | 2-30 |
| 2-11. | Data Acquisition Analog Faceplate .....    | 2-32 |
| 2-12. | Data Acquisition Digital Faceplate .....   | 2-36 |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                            | <b>Page</b> |
|------------|-----------------------------------------|-------------|
| 2-13.      | Text String Faceplate .....             | 2-39        |
| 2-14.      | Analog Export Faceplate .....           | 2-45        |
| 2-15.      | Digital Export Faceplate .....          | 2-46        |
| 2-16.      | Module Status Faceplate .....           | 2-47        |
| 2-17.      | INFI 90 OPEN Scanner Faceplate .....    | 2-48        |
| 2-18.      | Analog Module Point Display .....       | 2-50        |
| 2-19.      | Operating Parameters Window .....       | 2-51        |
| 2-20.      | Block Details Window .....              | 2-52        |
| 3-1.       | Block Details Window .....              | 3-1         |
| 3-2.       | Block Address Window .....              | 3-3         |
| 3-3.       | Jump History List Window .....          | 3-3         |
| 3-4.       | Tunable Specification Window .....      | 3-4         |
| 3-5.       | Specification Properties Window .....   | 3-5         |
| 3-6.       | Output Tab .....                        | 3-6         |
| 3-7.       | Description Tab .....                   | 3-7         |
| 4-1.       | Module Details Window .....             | 4-1         |
| 4-2.       | Status Tab .....                        | 4-3         |
| 4-3.       | Problems Tab .....                      | 4-3         |
| 4-4.       | Technical Tab .....                     | 4-4         |
| 5-1.       | Operating Parameters Window .....       | 5-2         |
| 5-2.       | INFI 90 Tab .....                       | 5-3         |
| 5-3.       | Tag Specific Tab .....                  | 5-3         |
| 5-4.       | Red Tag Tab .....                       | 5-4         |
| 5-5.       | Set Red Tag Dialog Box .....            | 5-4         |
| 5-6.       | Substitute Window .....                 | 5-5         |
| 6-1.       | Server Diagnostics Property Sheet ..... | 6-1         |
| 6-2.       | Message Tab .....                       | 6-3         |
| 6-3.       | Tags Tab .....                          | 6-3         |
| 7-1.       | Select Query Window .....               | 7-1         |
| 7-2.       | Tag Summaries Window .....              | 7-2         |
| 7-3.       | Query Design Window .....               | 7-3         |
| 7-4.       | SQL Query Window .....                  | 7-4         |
| 7-5.       | Query Results .....                     | 7-9         |
| 8-1.       | Available Tags List Window .....        | 8-4         |
| 8-2.       | General Tab .....                       | 8-13        |
| 8-3.       | INFI 90 Tab .....                       | 8-15        |
| 8-4.       | Digital Tab .....                       | 8-16        |
| 8-5.       | Remote Control Memory Window .....      | 8-17        |
| 8-6.       | Scanner Tab .....                       | 8-18        |
| 8-7.       | Server Tab .....                        | 8-20        |
| 8-8.       | Sort Window .....                       | 8-22        |
| 8-9.       | Tag List Filtering Window .....         | 8-23        |
| 8-10.      | Trend Importer Default Window .....     | 8-27        |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                                                          | <b>Page</b> |
|------------|-----------------------------------------------------------------------|-------------|
| 8-11.      | @aGlance Importer .....                                               | 8-28        |
| 8-12.      | Tag Importer Default Window .....                                     | 8-30        |
| 8-13.      | Tag Importer Window with Check Boxes .....                            | 8-31        |
| 8-14.      | Index Text Window .....                                               | 8-33        |
| 8-15.      | Substitutable Text Tab Page .....                                     | 8-39        |
| 8-16.      | RCMB Text Tag.....                                                    | 8-40        |
| 8-17.      | Available Servers Window .....                                        | 8-41        |
| 8-18.      | Database Utilities .....                                              | 8-44        |
| 9-1.       | Tag.atom Tree Structure.....                                          | 9-2         |
| 10-1.      | Event Bit Map Window.....                                             | 10-1        |
| 11-1.      | Distributed SOE Logging System Architecture.....                      | 11-8        |
| 11-2.      | Rochester (FC 99) SOE Logging System Architecture .....               | 11-9        |
| 11-3.      | SOE Log Configuration Database Structure .....                        | 11-13       |
| 11-4.      | SOE Configuration Window .....                                        | 11-13       |
| 11-5.      | SOE Report Configuration Window .....                                 | 11-14       |
| 11-6.      | SOE Recorder Configuration Window .....                               | 11-17       |
| 11-7.      | SOE Digital Point Configuration Window.....                           | 11-18       |
| 11-8.      | Sample SOE Report as Displayed in Excel.....                          | 11-19       |
| 11-9.      | Sample Distributed SOE Function Code Configuration (IMSEM01) .....    | 11-20       |
| 11-10.     | Sample Distributed SOE Function Code Configuration (Controller) ..... | 11-21       |

## List of Tables

| <b>No.</b> | <b>Title</b>                                                      | <b>Page</b> |
|------------|-------------------------------------------------------------------|-------------|
| 1-1.       | Reference Documents .....                                         | 1-4         |
| 2-1.       | Control Tags.....                                                 | 2-1         |
| 2-2.       | Control Inhibit Indications (Control Tags).....                   | 2-2         |
| 2-3.       | Alarm Status Descriptors (Two Character).....                     | 2-4         |
| 2-4.       | Station Modes .....                                               | 2-7         |
| 2-5.       | RMCB Feedback Signal to Feedback Indicator Relationship.....      | 2-23        |
| 2-6.       | Data Acquisition Tags .....                                       | 2-25        |
| 2-7.       | Control Inhibit Indications (Data Acquisition Tags).....          | 2-26        |
| 2-8.       | DAANG Faceplate Next High and Next Low Alarm Limit Criteria ..... | 2-33        |
| 2-9.       | Locked and Unlocked Indicators (DAANG).....                       | 2-34        |
| 2-10.      | Locked and Unlocked Indicators (DADIG).....                       | 2-37        |
| 2-11.      | TEXTSTR Faceplate Operating Conditions.....                       | 2-42        |
| 2-12.      | Group Status Conditions .....                                     | 2-50        |
| 4-1.       | Module Status Bytes.....                                          | 4-4         |
| 7-1.       | Arithmetic Operators .....                                        | 7-5         |

## List of Tables (continued)

| <b>No.</b> | <b>Title</b>                                                | <b>Page</b> |
|------------|-------------------------------------------------------------|-------------|
| 7-2.       | Comparison Operators .....                                  | 7-6         |
| 7-3.       | Wildcard Characters .....                                   | 7-7         |
| 7-4.       | Data Sheet View Translation Example .....                   | 7-10        |
| 8-1.       | Tag Types.....                                              | 8-2         |
| 8-2.       | General Tab Fields .....                                    | 8-6         |
| 8-3.       | INFI 90 Tab Fields .....                                    | 8-7         |
| 8-4.       | Analog Tab Fields.....                                      | 8-7         |
| 8-5.       | Data Aqu. Analog Tab Fields .....                           | 8-8         |
| 8-6.       | Digital, Digital Report and Rem Ctrl Memory Tab Fields..... | 8-8         |
| 8-7.       | Station Tab Fields .....                                    | 8-9         |
| 8-8.       | Device Driver Tab Fields.....                               | 8-9         |
| 8-9.       | Multistate Device Driver Tab Fields .....                   | 8-9         |
| 8-10.      | Module Tab Fields .....                                     | 8-10        |
| 8-11.      | Rem Motor Ctrl Block Tab Fields .....                       | 8-10        |
| 8-12.      | Rem Manual Set Const Tab Fields .....                       | 8-10        |
| 8-13.      | Scanner Tab Fields .....                                    | 8-11        |
| 8-14.      | Text String Tab Fields .....                                | 8-12        |
| 8-15.      | Server Tab Fields .....                                     | 8-12        |
| 8-16.      | Address Values .....                                        | 8-15        |
| 8-17.      | Operating Status Descriptions.....                          | 8-21        |
| 8-18.      | Engineering Unit Descriptors .....                          | 8-35        |
| 8-19.      | Logic State Descriptors.....                                | 8-37        |
| 8-20.      | Alarm Priorities.....                                       | 8-38        |
| 9-1.       | Analog .....                                                | 9-2         |
| 9-2.       | Analog Base .....                                           | 9-3         |
| 9-3.       | Analog Export .....                                         | 9-3         |
| 9-4.       | ASCII STRING .....                                          | 9-3         |
| 9-5.       | Base .....                                                  | 9-4         |
| 9-6.       | DAANG .....                                                 | 9-4         |
| 9-7.       | DADIG .....                                                 | 9-6         |
| 9-8.       | Device Driver .....                                         | 9-6         |
| 9-9.       | Device Driver Base .....                                    | 9-6         |
| 9-10.      | Digital.....                                                | 9-6         |
| 9-11.      | Digital Base .....                                          | 9-7         |
| 9-12.      | Digital Export.....                                         | 9-7         |
| 9-13.      | Enhanced Analog Base.....                                   | 9-7         |
| 9-14.      | Enhanced Analog In .....                                    | 9-8         |
| 9-15.      | Enhanced Digital Base .....                                 | 9-8         |
| 9-16.      | Export Base .....                                           | 9-8         |
| 9-17.      | Import Base .....                                           | 9-9         |
| 9-18.      | Module Status.....                                          | 9-9         |
| 9-19.      | MSDD.....                                                   | 9-9         |
| 9-20.      | RCM .....                                                   | 9-10        |



# List of Tables (continued)

| <i>No.</i> | <i>Title</i>      | <i>Page</i> |
|------------|-------------------|-------------|
| 9-21.      | RCM Base .....    | 9-10        |
| 9-22.      | RMCB .....        | 9-10        |
| 9-23.      | RMSC.....         | 9-11        |
| 9-24.      | Server.....       | 9-11        |
| 9-25.      | Station .....     | 9-13        |
| 9-26.      | Text Tag .....    | 9-13        |
| 9-27.      | UDXR Base .....   | 9-14        |
| 9-28.      | Server Base ..... | 9-14        |
| 9-29.      | Tag Base .....    | 9-15        |

---

## Support Services



---

Bailey will provide assistance in the operation and repair of its products. Requests for sales or application services should be made to your nearest sales or service office. Bailey can also provide installation, repair and maintenance contract services.

When ordering parts, use nomenclature or part numbers and part descriptions from equipment manuals. Parts without a description must be ordered from the nearest sales or service office. Recommended spare parts lists, including prices are available through the nearest sales or service office.

Bailey has modern training facilities available for training your personnel. On-site training is also available. Contact your nearest Bailey sales office for specific information and scheduling.

Additional copies of this instruction, or other instructions, can be obtained from the nearest Bailey sales office at a reasonable charge.

---



## Trademarks and Registrations

---

Registrations and trademarks used in this document include:

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| <sup>TM</sup> @aGlance/IT | Trademark of Intuitive Technology Corporation.            |
| ® INF1 90                 | Registered trademark of Elsasg Bailey Process Automation. |
| ® INF1-NET                | Registered trademark of Elsasg Bailey Process Automation. |
| ® Microsoft               | Registered trademark of Microsoft corporation.            |
| <sup>TM</sup> Symphony    | Trademark of Elsasg Bailey Process Automation             |
| ® Windows NT              | Registered trademark of Microsoft corporation.            |

---



---

This instruction covers the operation of the Conductor NT version 2.3 and 4.0 software. Conductor NT operates in the Windows NT<sup>®</sup> version 4.0 operating system. It communicates with the Symphony Enterprise Management and Control System and the INFI 90 OPEN Strategic Enterprise Management System via the INICI01, INICI03, INICI12, IMMCP02, HNCC, or INPCI02 connected to the INFI-NET<sup>®</sup> or Plant-Loop system.

The Conductor NT provides an operator interface to the Bailey distributed control systems.

Special features of the Conductor NT include:

- Configuration and online changing of the tag database.
  - Changing the operating parameters of tags.
  - Tag summaries application.
  - Module details application.
  - Block details application.
  - Server diagnostics application.
-



## List of Effective Pages

---

Total number of pages in this instruction is 194, consisting of the following:

| Page No.                | Change Date       |
|-------------------------|-------------------|
| Preface                 | 14 September 2000 |
| List of Effective Pages | 14 September 2000 |
| iii through xiv         | Original          |
| 1-1 through 1-4         | Original          |
| 2-1 through 2-54        | Original          |
| 3-1 through 3-7         | Original          |
| 4-1 through 4-5         | Original          |
| 5-1 through 5-5         | Original          |
| 6-1 through 6-4         | Original          |
| 7-1 through 7-10        | Original          |
| 8-1 through 8-45        | Original          |
| 9-1 through 9-16        | Original          |
| 10-1 through 10-2       | Original          |
| 11-1 through 11-23      | Original          |
| Index-1 through Index-5 | Original          |

---

**NOTE:** Changed text or tables are indicated by a vertical bar adjacent to the changed area. Changed figures are indicated by a vertical bar next to the figure caption. The date appears beside the page number.

---

# Table of Contents



|                                            |            |
|--------------------------------------------|------------|
| <b>Section 1 Introduction .....</b>        | <b>1-1</b> |
| Overview .....                             | 1-1        |
| Intended User .....                        | 1-1        |
| Functional Description .....               | 1-1        |
| Faceplates.....                            | 1-2        |
| Block Details .....                        | 1-2        |
| Module Details .....                       | 1-2        |
| Operating Parameters.....                  | 1-2        |
| Server Diagnostics.....                    | 1-2        |
| Tag Summaries .....                        | 1-3        |
| Document Conventions .....                 | 1-3        |
| Reference Documents.....                   | 1-4        |
| <br>                                       |            |
| <b>Section 2 Faceplates .....</b>          | <b>2-1</b> |
| Introduction.....                          | 2-1        |
| Control Faceplates .....                   | 2-1        |
| Control Inhibit .....                      | 2-2        |
| Common Control Faceplate Attributes .....  | 2-2        |
| Status Messages .....                      | 2-4        |
| Loop Control .....                         | 2-4        |
| Station Faceplate .....                    | 2-5        |
| Station Control.....                       | 2-8        |
| Mode .....                                 | 2-8        |
| Set Point.....                             | 2-9        |
| Ratio Index.....                           | 2-9        |
| Control Output.....                        | 2-10       |
| Device Control .....                       | 2-10       |
| Remote Control Memory Faceplate.....       | 2-10       |
| RCM Control .....                          | 2-12       |
| Changing the Output State.....             | 2-12       |
| Remote Manual Set Constant Faceplate.....  | 2-13       |
| RMSC Control .....                         | 2-14       |
| Changing the Value .....                   | 2-14       |
| Device Driver Faceplate .....              | 2-15       |
| DD Control.....                            | 2-17       |
| Changing the Output State.....             | 2-17       |
| Multistate Device Driver Faceplate.....    | 2-18       |
| MSDD Control.....                          | 2-20       |
| Changing the Output State.....             | 2-20       |
| Remote Motor Control Block Faceplate ..... | 2-21       |
| RMCB Control .....                         | 2-24       |
| Changing the Output State.....             | 2-24       |



## Table of Contents (continued)

---

### **Section 2 Faceplates** (continued)

|                                                   |      |
|---------------------------------------------------|------|
| Data Acquisition Functions.....                   | 2-24 |
| Data Acquisition Faceplates .....                 | 2-25 |
| Data Acquisition Tags .....                       | 2-25 |
| Control Inhibit .....                             | 2-26 |
| Common Data Acquisition Faceplate Attributes..... | 2-26 |
| Analog Faceplate Attributes .....                 | 2-26 |
| Digital Faceplate Attributes .....                | 2-29 |
| Data Acquisition Analog Faceplate .....           | 2-31 |
| DAANG Faceplate Attributes .....                  | 2-31 |
| DAANG Control.....                                | 2-34 |
| Selecting the Source Mode.....                    | 2-34 |
| Changing the User Inserted Value .....            | 2-35 |
| Data Acquisition Digital Faceplate.....           | 2-35 |
| DADIG Faceplate Attributes .....                  | 2-35 |
| DADIG Control.....                                | 2-37 |
| Selecting the Source Mode.....                    | 2-37 |
| Changing the User Inserted State .....            | 2-38 |
| Text String Faceplate .....                       | 2-38 |
| TEXTSTR Faceplate Attributes .....                | 2-38 |
| TEXTSTR Control.....                              | 2-41 |
| Changing the Mode .....                           | 2-41 |
| Inputting a Text String.....                      | 2-42 |
| Setting the Alarm State .....                     | 2-44 |
| Conductor NT Faceplates .....                     | 2-44 |
| Analog Export .....                               | 2-44 |
| Digital Export .....                              | 2-45 |
| Module Status .....                               | 2-46 |
| INFI 90 OPEN Scanner Tag .....                    | 2-47 |
| Point Display .....                               | 2-48 |
| Accessing the Point Display.....                  | 2-48 |
| Point Display Appearance .....                    | 2-49 |
| Tag Name.....                                     | 2-49 |
| Tag Description .....                             | 2-50 |
| Status Area.....                                  | 2-50 |
| Info Pushbutton .....                             | 2-51 |
| BLKTune Pushbutton.....                           | 2-52 |
| Process Display Area .....                        | 2-53 |
| Automatic Fail-Over for Redundant Computer.....   | 2-53 |
| Manually Activate Primary Computer .....          | 2-53 |
| Active Status.....                                | 2-53 |

---

## Table of Contents (continued)

|                                             |            |
|---------------------------------------------|------------|
| <b>Section 3 Block Details .....</b>        | <b>3-1</b> |
| Introduction.....                           | 3-1        |
| Specifications Tab .....                    | 3-2        |
| Block Button .....                          | 3-2        |
| Tunable Blocks .....                        | 3-4        |
| Properties Option .....                     | 3-5        |
| Output Tab .....                            | 3-6        |
| Description Tab.....                        | 3-7        |
| Print Block Details .....                   | 3-7        |
| <b>Section 4 Module Details .....</b>       | <b>4-1</b> |
| Introduction.....                           | 4-1        |
| General Tab .....                           | 4-1        |
| Status Tab .....                            | 4-2        |
| Problems Tab .....                          | 4-3        |
| Technical Tab .....                         | 4-4        |
| <b>Section 5 Operating Parameters .....</b> | <b>5-1</b> |
| Introduction.....                           | 5-1        |
| General Tab .....                           | 5-1        |
| INFI 90 Tab .....                           | 5-2        |
| Tag Specific Tab .....                      | 5-2        |
| Red Tag Tab .....                           | 5-4        |
| Substitute Button .....                     | 5-5        |
| <b>Section 6 Server Diagnostics .....</b>   | <b>6-1</b> |
| Introduction.....                           | 6-1        |
| General Tab .....                           | 6-2        |
| Messages Tab.....                           | 6-2        |
| Tags Tab .....                              | 6-2        |
| <b>Section 7 Tag Summaries .....</b>        | <b>7-1</b> |
| Introduction.....                           | 7-1        |
| Using Tag Summaries .....                   | 7-1        |
| Designing a Query .....                     | 7-2        |
| SQL View .....                              | 7-3        |
| Arithmetic Operators .....                  | 7-5        |
| Where Clause .....                          | 7-6        |
| Comparison Operators.....                   | 7-6        |
| Wildcards and the Like Clause .....         | 7-7        |



## Table of Contents (continued)

---

### **Section 7 Tag Summaries** (continued)

|                             |      |
|-----------------------------|------|
| Logical Operators .....     | 7-8  |
| Order By Clause.....        | 7-8  |
| Query Results.....          | 7-9  |
| Print Results.....          | 7-10 |
| Query File Operations ..... | 7-10 |

---

### **Section 8 Tag Configuration** .....8-1

|                                                   |      |
|---------------------------------------------------|------|
| Introduction .....                                | 8-1  |
| Tags .....                                        | 8-1  |
| Available Tags List .....                         | 8-3  |
| File Options .....                                | 8-4  |
| Print .....                                       | 8-4  |
| Purge Deleted Tags .....                          | 8-5  |
| Edit Options .....                                | 8-5  |
| Edit Tag.....                                     | 8-5  |
| Move to Server .....                              | 8-5  |
| New Tag.....                                      | 8-6  |
| INFI 90 OPEN Tab Fields.....                      | 8-6  |
| General.....                                      | 8-12 |
| INFI 90 .....                                     | 8-14 |
| Digital.....                                      | 8-16 |
| Remote Control Memory .....                       | 8-17 |
| Scanner .....                                     | 8-17 |
| Server .....                                      | 8-19 |
| Copy Tag .....                                    | 8-20 |
| Change Operating Status Tag.....                  | 8-20 |
| Search.....                                       | 8-21 |
| View Options .....                                | 8-22 |
| Sort .....                                        | 8-22 |
| Filter .....                                      | 8-23 |
| Operating Status Filters.....                     | 8-23 |
| ADP Panel .....                                   | 8-24 |
| Default Group Assignment .....                    | 8-25 |
| COM Port Configuration.....                       | 8-26 |
| Tools .....                                       | 8-26 |
| Import Trends.....                                | 8-26 |
| @aGlance Importer .....                           | 8-28 |
| INFI 90 OPEN Import/Export Tag Configuration..... | 8-29 |
| Import .....                                      | 8-30 |
| Export .....                                      | 8-32 |
| Configure Text .....                              | 8-32 |

---

## Table of Contents (continued)

---

|                                                       |             |
|-------------------------------------------------------|-------------|
| <b>Section 8 Tag Configuration</b> (continued)        |             |
| Indexed Text .....                                    | 8-33        |
| Tag Descriptors .....                                 | 8-35        |
| Alarm Priority Text .....                             | 8-37        |
| Substitutable Text .....                              | 8-38        |
| Remote Motor Control Text .....                       | 8-39        |
| Available Servers .....                               | 8-41        |
| Global Alarm Acknowledgment .....                     | 8-41        |
| Receiving Global Acknowledgments from the Loop .....  | 8-42        |
| Sending Global Acknowledgments to the Loop .....      | 8-42        |
| Global Silence Messages.....                          | 8-42        |
| Receiving Global Silence Messages from the Loop ..... | 8-42        |
| Sending Global Silence Messages to the Loop.....      | 8-42        |
| Database Utilities (DBUtils) Application.....         | 8-43        |
| Transfer Tag Data Function .....                      | 8-43        |
| Set Host Name Function .....                          | 8-43        |
| Destroy Server Function .....                         | 8-44        |
| Create Server Function .....                          | 8-44        |
| Set System Description Function .....                 | 8-45        |
| Database Maintenance Functions.....                   | 8-45        |
| Compact Database .....                                | 8-45        |
| Empty Database .....                                  | 8-45        |
| Set as Design Master .....                            | 8-45        |
| <b>Section 9 Tag.Atoms</b> .....                      | <b>9-1</b>  |
| Atom Suffixes.....                                    | 9-1         |
| Tag.Atom List.....                                    | 9-1         |
| <b>Section 10 Event Bits Mapping Utility</b> .....    | <b>10-1</b> |
| Introduction.....                                     | 10-1        |
| Accessing Event Bit Mapping.....                      | 10-1        |
| Mapping Event Bits.....                               | 10-2        |
| <b>Section 11 SOE Logs</b> .....                      | <b>11-1</b> |
| Introduction.....                                     | 11-1        |
| Description .....                                     | 11-1        |
| Specific Features.....                                | 11-2        |
| Initialization at Startup .....                       | 11-3        |
| Trigger Tag Monitoring .....                          | 11-4        |
| Reports Collection .....                              | 11-5        |
| Auto Report Generation.....                           | 11-6        |

---



## Table of Contents (continued)

### Section 11 SOE Logs (continued)

|                                                            |       |
|------------------------------------------------------------|-------|
| Displaying and Printing Reports on Demand .....            | 11-7  |
| Logging and Redundancy .....                               | 11-7  |
| Distributed Architecture .....                             | 11-7  |
| Rochester Architecture .....                               | 11-9  |
| Distributed Logging Hardware .....                         | 11-10 |
| Rochester Logging Hardware .....                           | 11-10 |
| External Interfaces and Function Blocks .....              | 11-11 |
| Log Configuration Database .....                           | 11-12 |
| Log Configuration Utility .....                            | 11-12 |
| Log Configuration Window .....                             | 11-13 |
| Log Configuration Menus .....                              | 11-14 |
| Configuring Reports .....                                  | 11-14 |
| Configuring Recorders .....                                | 11-16 |
| Configuring Digital Points .....                           | 11-17 |
| Deleting Configuration Database Records .....              | 11-18 |
| Configuring the Report Spreadsheet .....                   | 11-19 |
| Backup and Restore .....                                   | 11-20 |
| Distributed Function Code Example .....                    | 11-20 |
| Configuring the Rochester SER .....                        | 11-21 |
| Rochester ISM-1 Commands to Configure Prefault Logs .....  | 11-22 |
| Rochester ISM-1 Commands to Configure Postfault Logs ..... | 11-22 |
| Other Rochester ISM-1 Commands .....                       | 11-23 |

## List of Figures

| No.   | Title                                      | Page |
|-------|--------------------------------------------|------|
| 2-1.  | Control Station Faceplate .....            | 2-5  |
| 2-2.  | Remote Control Memory Faceplate .....      | 2-11 |
| 2-3.  | Remote Manual Set Constant Faceplate ..... | 2-14 |
| 2-4.  | Device Driver Faceplate .....              | 2-16 |
| 2-5.  | Multistate Device Driver Faceplate .....   | 2-18 |
| 2-6.  | Remote Motor Control Block Faceplate ..... | 2-22 |
| 2-7.  | Analog Faceplate .....                     | 2-27 |
| 2-8.  | Analog Annunciator Faceplate .....         | 2-28 |
| 2-9.  | Digital Faceplate .....                    | 2-29 |
| 2-10. | Digital Annunciator Faceplate .....        | 2-30 |
| 2-11. | Data Acquisition Analog Faceplate .....    | 2-32 |
| 2-12. | Data Acquisition Digital Faceplate .....   | 2-36 |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                            | <b>Page</b> |
|------------|-----------------------------------------|-------------|
| 2-13.      | Text String Faceplate .....             | 2-39        |
| 2-14.      | Analog Export Faceplate .....           | 2-45        |
| 2-15.      | Digital Export Faceplate .....          | 2-46        |
| 2-16.      | Module Status Faceplate .....           | 2-47        |
| 2-17.      | INFI 90 OPEN Scanner Faceplate .....    | 2-48        |
| 2-18.      | Analog Module Point Display .....       | 2-50        |
| 2-19.      | Operating Parameters Window .....       | 2-51        |
| 2-20.      | Block Details Window .....              | 2-52        |
| 3-1.       | Block Details Window .....              | 3-1         |
| 3-2.       | Block Address Window .....              | 3-3         |
| 3-3.       | Jump History List Window .....          | 3-3         |
| 3-4.       | Tunable Specification Window .....      | 3-4         |
| 3-5.       | Specification Properties Window .....   | 3-5         |
| 3-6.       | Output Tab .....                        | 3-6         |
| 3-7.       | Description Tab .....                   | 3-7         |
| 4-1.       | Module Details Window .....             | 4-1         |
| 4-2.       | Status Tab .....                        | 4-3         |
| 4-3.       | Problems Tab .....                      | 4-3         |
| 4-4.       | Technical Tab .....                     | 4-4         |
| 5-1.       | Operating Parameters Window .....       | 5-2         |
| 5-2.       | INFI 90 Tab .....                       | 5-3         |
| 5-3.       | Tag Specific Tab .....                  | 5-3         |
| 5-4.       | Red Tag Tab .....                       | 5-4         |
| 5-5.       | Set Red Tag Dialog Box .....            | 5-4         |
| 5-6.       | Substitute Window .....                 | 5-5         |
| 6-1.       | Server Diagnostics Property Sheet ..... | 6-1         |
| 6-2.       | Message Tab .....                       | 6-3         |
| 6-3.       | Tags Tab .....                          | 6-3         |
| 7-1.       | Select Query Window .....               | 7-1         |
| 7-2.       | Tag Summaries Window .....              | 7-2         |
| 7-3.       | Query Design Window .....               | 7-3         |
| 7-4.       | SQL Query Window .....                  | 7-4         |
| 7-5.       | Query Results .....                     | 7-9         |
| 8-1.       | Available Tags List Window .....        | 8-4         |
| 8-2.       | General Tab .....                       | 8-13        |
| 8-3.       | INFI 90 Tab .....                       | 8-15        |
| 8-4.       | Digital Tab .....                       | 8-16        |
| 8-5.       | Remote Control Memory Window .....      | 8-17        |
| 8-6.       | Scanner Tab .....                       | 8-18        |
| 8-7.       | Server Tab .....                        | 8-20        |
| 8-8.       | Sort Window .....                       | 8-22        |
| 8-9.       | Tag List Filtering Window .....         | 8-23        |
| 8-10.      | Trend Importer Default Window .....     | 8-27        |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                                                          | <b>Page</b> |
|------------|-----------------------------------------------------------------------|-------------|
| 8-11.      | @aGlance Importer .....                                               | 8-28        |
| 8-12.      | Tag Importer Default Window .....                                     | 8-30        |
| 8-13.      | Tag Importer Window with Check Boxes .....                            | 8-31        |
| 8-14.      | Index Text Window .....                                               | 8-33        |
| 8-15.      | Substitutable Text Tab Page .....                                     | 8-39        |
| 8-16.      | RCMB Text Tag.....                                                    | 8-40        |
| 8-17.      | Available Servers Window .....                                        | 8-41        |
| 8-18.      | Database Utilities .....                                              | 8-44        |
| 9-1.       | Tag.atom Tree Structure.....                                          | 9-2         |
| 10-1.      | Event Bit Map Window.....                                             | 10-1        |
| 11-1.      | Distributed SOE Logging System Architecture.....                      | 11-8        |
| 11-2.      | Rochester (FC 99) SOE Logging System Architecture .....               | 11-9        |
| 11-3.      | SOE Log Configuration Database Structure .....                        | 11-13       |
| 11-4.      | SOE Configuration Window .....                                        | 11-13       |
| 11-5.      | SOE Report Configuration Window .....                                 | 11-14       |
| 11-6.      | SOE Recorder Configuration Window .....                               | 11-17       |
| 11-7.      | SOE Digital Point Configuration Window.....                           | 11-18       |
| 11-8.      | Sample SOE Report as Displayed in Excel.....                          | 11-19       |
| 11-9.      | Sample Distributed SOE Function Code Configuration (IMSEM01) .....    | 11-20       |
| 11-10.     | Sample Distributed SOE Function Code Configuration (Controller) ..... | 11-21       |

## List of Tables

| <b>No.</b> | <b>Title</b>                                                      | <b>Page</b> |
|------------|-------------------------------------------------------------------|-------------|
| 1-1.       | Reference Documents .....                                         | 1-4         |
| 2-1.       | Control Tags.....                                                 | 2-1         |
| 2-2.       | Control Inhibit Indications (Control Tags).....                   | 2-2         |
| 2-3.       | Alarm Status Descriptors (Two Character).....                     | 2-4         |
| 2-4.       | Station Modes .....                                               | 2-7         |
| 2-5.       | RMCB Feedback Signal to Feedback Indicator Relationship.....      | 2-23        |
| 2-6.       | Data Acquisition Tags .....                                       | 2-25        |
| 2-7.       | Control Inhibit Indications (Data Acquisition Tags).....          | 2-26        |
| 2-8.       | DAANG Faceplate Next High and Next Low Alarm Limit Criteria ..... | 2-33        |
| 2-9.       | Locked and Unlocked Indicators (DAANG).....                       | 2-34        |
| 2-10.      | Locked and Unlocked Indicators (DADIG).....                       | 2-37        |
| 2-11.      | TEXTSTR Faceplate Operating Conditions.....                       | 2-42        |
| 2-12.      | Group Status Conditions .....                                     | 2-50        |
| 4-1.       | Module Status Bytes.....                                          | 4-4         |
| 7-1.       | Arithmetic Operators .....                                        | 7-5         |

## List of Tables (continued)

| <b>No.</b> | <b>Title</b>                                                | <b>Page</b> |
|------------|-------------------------------------------------------------|-------------|
| 7-2.       | Comparison Operators .....                                  | 7-6         |
| 7-3.       | Wildcard Characters .....                                   | 7-7         |
| 7-4.       | Data Sheet View Translation Example .....                   | 7-10        |
| 8-1.       | Tag Types.....                                              | 8-2         |
| 8-2.       | General Tab Fields .....                                    | 8-6         |
| 8-3.       | INFI 90 Tab Fields .....                                    | 8-7         |
| 8-4.       | Analog Tab Fields.....                                      | 8-7         |
| 8-5.       | Data Aqu. Analog Tab Fields .....                           | 8-8         |
| 8-6.       | Digital, Digital Report and Rem Ctrl Memory Tab Fields..... | 8-8         |
| 8-7.       | Station Tab Fields .....                                    | 8-9         |
| 8-8.       | Device Driver Tab Fields.....                               | 8-9         |
| 8-9.       | Multistate Device Driver Tab Fields .....                   | 8-9         |
| 8-10.      | Module Tab Fields .....                                     | 8-10        |
| 8-11.      | Rem Motor Ctrl Block Tab Fields .....                       | 8-10        |
| 8-12.      | Rem Manual Set Const Tab Fields .....                       | 8-10        |
| 8-13.      | Scanner Tab Fields .....                                    | 8-11        |
| 8-14.      | Text String Tab Fields .....                                | 8-12        |
| 8-15.      | Server Tab Fields .....                                     | 8-12        |
| 8-16.      | Address Values .....                                        | 8-15        |
| 8-17.      | Operating Status Descriptions.....                          | 8-21        |
| 8-18.      | Engineering Unit Descriptors .....                          | 8-35        |
| 8-19.      | Logic State Descriptors.....                                | 8-37        |
| 8-20.      | Alarm Priorities.....                                       | 8-38        |
| 9-1.       | Analog .....                                                | 9-2         |
| 9-2.       | Analog Base .....                                           | 9-3         |
| 9-3.       | Analog Export .....                                         | 9-3         |
| 9-4.       | ASCII STRING .....                                          | 9-3         |
| 9-5.       | Base .....                                                  | 9-4         |
| 9-6.       | DAANG .....                                                 | 9-4         |
| 9-7.       | DADIG .....                                                 | 9-6         |
| 9-8.       | Device Driver .....                                         | 9-6         |
| 9-9.       | Device Driver Base .....                                    | 9-6         |
| 9-10.      | Digital.....                                                | 9-6         |
| 9-11.      | Digital Base .....                                          | 9-7         |
| 9-12.      | Digital Export.....                                         | 9-7         |
| 9-13.      | Enhanced Analog Base.....                                   | 9-7         |
| 9-14.      | Enhanced Analog In .....                                    | 9-8         |
| 9-15.      | Enhanced Digital Base .....                                 | 9-8         |
| 9-16.      | Export Base .....                                           | 9-8         |
| 9-17.      | Import Base .....                                           | 9-9         |
| 9-18.      | Module Status.....                                          | 9-9         |
| 9-19.      | MSDD.....                                                   | 9-9         |
| 9-20.      | RCM .....                                                   | 9-10        |



# List of Tables (continued)

| <i>No.</i> | <i>Title</i>      | <i>Page</i> |
|------------|-------------------|-------------|
| 9-21.      | RCM Base .....    | 9-10        |
| 9-22.      | RMCB .....        | 9-10        |
| 9-23.      | RMSC.....         | 9-11        |
| 9-24.      | Server.....       | 9-11        |
| 9-25.      | Station .....     | 9-13        |
| 9-26.      | Text Tag .....    | 9-13        |
| 9-27.      | UDXR Base .....   | 9-14        |
| 9-28.      | Server Base ..... | 9-14        |
| 9-29.      | Tag Base .....    | 9-15        |

---

## Support Services



---

Bailey will provide assistance in the operation and repair of its products. Requests for sales or application services should be made to your nearest sales or service office. Bailey can also provide installation, repair and maintenance contract services.

When ordering parts, use nomenclature or part numbers and part descriptions from equipment manuals. Parts without a description must be ordered from the nearest sales or service office. Recommended spare parts lists, including prices are available through the nearest sales or service office.

Bailey has modern training facilities available for training your personnel. On-site training is also available. Contact your nearest Bailey sales office for specific information and scheduling.

Additional copies of this instruction, or other instructions, can be obtained from the nearest Bailey sales office at a reasonable charge.

---



## Trademarks and Registrations

---

Registrations and trademarks used in this document include:

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| <sup>TM</sup> @aGlance/IT | Trademark of Intuitive Technology Corporation.           |
| ® INF1 90                 | Registered trademark of Elsig Bailey Process Automation. |
| ® INF1-NET                | Registered trademark of Elsig Bailey Process Automation. |
| ® Microsoft               | Registered trademark of Microsoft corporation.           |
| <sup>TM</sup> Symphony    | Trademark of Elsig Bailey Process Automation             |
| ® Windows NT              | Registered trademark of Microsoft corporation.           |

---



---

This instruction covers the operation of the Conductor NT version 2.3 and 4.0 software. Conductor NT operates in the Windows NT<sup>®</sup> version 4.0 operating system. It communicates with the Symphony Enterprise Management and Control System and the INFI 90 OPEN Strategic Enterprise Management System via the INICI01, INICI03, INICI12, IMMCP02, HNCC, or INPCI02 connected to the INFI-NET<sup>®</sup> or Plant-Loop system.

The Conductor NT provides an operator interface to the Bailey distributed control systems.

Special features of the Conductor NT include:

- Configuration and online changing of the tag database.
  - Changing the operating parameters of tags.
  - Tag summaries application.
  - Module details application.
  - Block details application.
  - Server diagnostics application.
-



## List of Effective Pages

---

Total number of pages in this instruction is 194, consisting of the following:

| <b>Page No.</b>         | <b>Change Date</b> |
|-------------------------|--------------------|
| Preface                 | 14 September 2000  |
| List of Effective Pages | 14 September 2000  |
| iii through xiv         | Original           |
| 1-1 through 1-4         | Original           |
| 2-1 through 2-54        | Original           |
| 3-1 through 3-7         | Original           |
| 4-1 through 4-5         | Original           |
| 5-1 through 5-5         | Original           |
| 6-1 through 6-4         | Original           |
| 7-1 through 7-10        | Original           |
| 8-1 through 8-45        | Original           |
| 9-1 through 9-16        | Original           |
| 10-1 through 10-2       | Original           |
| 11-1 through 11-23      | Original           |
| Index-1 through Index-5 | Original           |

---

**NOTE:** Changed text or tables are indicated by a vertical bar adjacent to the changed area. Changed figures are indicated by a vertical bar next to the figure caption. The date appears beside the page number.

---

# Table of Contents



|                                            |            |
|--------------------------------------------|------------|
| <b>Section 1 Introduction .....</b>        | <b>1-1</b> |
| Overview .....                             | 1-1        |
| Intended User .....                        | 1-1        |
| Functional Description .....               | 1-1        |
| Faceplates.....                            | 1-2        |
| Block Details .....                        | 1-2        |
| Module Details .....                       | 1-2        |
| Operating Parameters.....                  | 1-2        |
| Server Diagnostics.....                    | 1-2        |
| Tag Summaries .....                        | 1-3        |
| Document Conventions .....                 | 1-3        |
| Reference Documents.....                   | 1-4        |
| <br>                                       |            |
| <b>Section 2 Faceplates .....</b>          | <b>2-1</b> |
| Introduction.....                          | 2-1        |
| Control Faceplates .....                   | 2-1        |
| Control Inhibit .....                      | 2-2        |
| Common Control Faceplate Attributes .....  | 2-2        |
| Status Messages .....                      | 2-4        |
| Loop Control .....                         | 2-4        |
| Station Faceplate .....                    | 2-5        |
| Station Control.....                       | 2-8        |
| Mode .....                                 | 2-8        |
| Set Point.....                             | 2-9        |
| Ratio Index.....                           | 2-9        |
| Control Output.....                        | 2-10       |
| Device Control .....                       | 2-10       |
| Remote Control Memory Faceplate.....       | 2-10       |
| RCM Control .....                          | 2-12       |
| Changing the Output State.....             | 2-12       |
| Remote Manual Set Constant Faceplate.....  | 2-13       |
| RMSC Control .....                         | 2-14       |
| Changing the Value .....                   | 2-14       |
| Device Driver Faceplate .....              | 2-15       |
| DD Control.....                            | 2-17       |
| Changing the Output State.....             | 2-17       |
| Multistate Device Driver Faceplate .....   | 2-18       |
| MSDD Control.....                          | 2-20       |
| Changing the Output State.....             | 2-20       |
| Remote Motor Control Block Faceplate ..... | 2-21       |
| RMCB Control .....                         | 2-24       |
| Changing the Output State.....             | 2-24       |



## Table of Contents (continued)

---

### **Section 2 Faceplates** (continued)

|                                                   |      |
|---------------------------------------------------|------|
| Data Acquisition Functions.....                   | 2-24 |
| Data Acquisition Faceplates .....                 | 2-25 |
| Data Acquisition Tags .....                       | 2-25 |
| Control Inhibit .....                             | 2-26 |
| Common Data Acquisition Faceplate Attributes..... | 2-26 |
| Analog Faceplate Attributes .....                 | 2-26 |
| Digital Faceplate Attributes .....                | 2-29 |
| Data Acquisition Analog Faceplate .....           | 2-31 |
| DAANG Faceplate Attributes .....                  | 2-31 |
| DAANG Control.....                                | 2-34 |
| Selecting the Source Mode.....                    | 2-34 |
| Changing the User Inserted Value .....            | 2-35 |
| Data Acquisition Digital Faceplate.....           | 2-35 |
| DADIG Faceplate Attributes .....                  | 2-35 |
| DADIG Control.....                                | 2-37 |
| Selecting the Source Mode.....                    | 2-37 |
| Changing the User Inserted State .....            | 2-38 |
| Text String Faceplate .....                       | 2-38 |
| TEXTSTR Faceplate Attributes .....                | 2-38 |
| TEXTSTR Control.....                              | 2-41 |
| Changing the Mode .....                           | 2-41 |
| Inputting a Text String.....                      | 2-42 |
| Setting the Alarm State .....                     | 2-44 |
| Conductor NT Faceplates .....                     | 2-44 |
| Analog Export .....                               | 2-44 |
| Digital Export .....                              | 2-45 |
| Module Status .....                               | 2-46 |
| INFI 90 OPEN Scanner Tag .....                    | 2-47 |
| Point Display .....                               | 2-48 |
| Accessing the Point Display.....                  | 2-48 |
| Point Display Appearance .....                    | 2-49 |
| Tag Name.....                                     | 2-49 |
| Tag Description .....                             | 2-50 |
| Status Area .....                                 | 2-50 |
| Info Pushbutton .....                             | 2-51 |
| BLKTune Pushbutton.....                           | 2-52 |
| Process Display Area .....                        | 2-53 |
| Automatic Fail-Over for Redundant Computer.....   | 2-53 |
| Manually Activate Primary Computer .....          | 2-53 |
| Active Status.....                                | 2-53 |

---

## Table of Contents (continued)

|                                             |            |
|---------------------------------------------|------------|
| <b>Section 3 Block Details .....</b>        | <b>3-1</b> |
| Introduction.....                           | 3-1        |
| Specifications Tab .....                    | 3-2        |
| Block Button .....                          | 3-2        |
| Tunable Blocks .....                        | 3-4        |
| Properties Option .....                     | 3-5        |
| Output Tab .....                            | 3-6        |
| Description Tab.....                        | 3-7        |
| Print Block Details .....                   | 3-7        |
| <b>Section 4 Module Details .....</b>       | <b>4-1</b> |
| Introduction.....                           | 4-1        |
| General Tab .....                           | 4-1        |
| Status Tab .....                            | 4-2        |
| Problems Tab .....                          | 4-3        |
| Technical Tab .....                         | 4-4        |
| <b>Section 5 Operating Parameters .....</b> | <b>5-1</b> |
| Introduction.....                           | 5-1        |
| General Tab .....                           | 5-1        |
| INFI 90 Tab .....                           | 5-2        |
| Tag Specific Tab .....                      | 5-2        |
| Red Tag Tab .....                           | 5-4        |
| Substitute Button .....                     | 5-5        |
| <b>Section 6 Server Diagnostics .....</b>   | <b>6-1</b> |
| Introduction.....                           | 6-1        |
| General Tab .....                           | 6-2        |
| Messages Tab.....                           | 6-2        |
| Tags Tab .....                              | 6-2        |
| <b>Section 7 Tag Summaries .....</b>        | <b>7-1</b> |
| Introduction.....                           | 7-1        |
| Using Tag Summaries .....                   | 7-1        |
| Designing a Query .....                     | 7-2        |
| SQL View .....                              | 7-3        |
| Arithmetic Operators .....                  | 7-5        |
| Where Clause .....                          | 7-6        |
| Comparison Operators.....                   | 7-6        |
| Wildcards and the Like Clause .....         | 7-7        |



## Table of Contents (continued)

---

### **Section 7 Tag Summaries** (continued)

|                             |      |
|-----------------------------|------|
| Logical Operators .....     | 7-8  |
| Order By Clause.....        | 7-8  |
| Query Results.....          | 7-9  |
| Print Results.....          | 7-10 |
| Query File Operations ..... | 7-10 |

---

### **Section 8 Tag Configuration** .....8-1

|                                                   |      |
|---------------------------------------------------|------|
| Introduction .....                                | 8-1  |
| Tags .....                                        | 8-1  |
| Available Tags List .....                         | 8-3  |
| File Options .....                                | 8-4  |
| Print .....                                       | 8-4  |
| Purge Deleted Tags .....                          | 8-5  |
| Edit Options .....                                | 8-5  |
| Edit Tag.....                                     | 8-5  |
| Move to Server .....                              | 8-5  |
| New Tag.....                                      | 8-6  |
| INFI 90 OPEN Tab Fields.....                      | 8-6  |
| General.....                                      | 8-12 |
| INFI 90 .....                                     | 8-14 |
| Digital.....                                      | 8-16 |
| Remote Control Memory .....                       | 8-17 |
| Scanner .....                                     | 8-17 |
| Server .....                                      | 8-19 |
| Copy Tag .....                                    | 8-20 |
| Change Operating Status Tag.....                  | 8-20 |
| Search.....                                       | 8-21 |
| View Options .....                                | 8-22 |
| Sort .....                                        | 8-22 |
| Filter .....                                      | 8-23 |
| Operating Status Filters.....                     | 8-23 |
| ADP Panel .....                                   | 8-24 |
| Default Group Assignment .....                    | 8-25 |
| COM Port Configuration.....                       | 8-26 |
| Tools .....                                       | 8-26 |
| Import Trends.....                                | 8-26 |
| @aGlance Importer .....                           | 8-28 |
| INFI 90 OPEN Import/Export Tag Configuration..... | 8-29 |
| Import .....                                      | 8-30 |
| Export .....                                      | 8-32 |
| Configure Text .....                              | 8-32 |

---

## Table of Contents (continued)

---

|                                                       |             |
|-------------------------------------------------------|-------------|
| <b>Section 8 Tag Configuration</b> (continued)        |             |
| Indexed Text .....                                    | 8-33        |
| Tag Descriptors .....                                 | 8-35        |
| Alarm Priority Text .....                             | 8-37        |
| Substitutable Text .....                              | 8-38        |
| Remote Motor Control Text .....                       | 8-39        |
| Available Servers .....                               | 8-41        |
| Global Alarm Acknowledgment .....                     | 8-41        |
| Receiving Global Acknowledgments from the Loop .....  | 8-42        |
| Sending Global Acknowledgments to the Loop .....      | 8-42        |
| Global Silence Messages.....                          | 8-42        |
| Receiving Global Silence Messages from the Loop ..... | 8-42        |
| Sending Global Silence Messages to the Loop.....      | 8-42        |
| Database Utilities (DBUtils) Application.....         | 8-43        |
| Transfer Tag Data Function .....                      | 8-43        |
| Set Host Name Function .....                          | 8-43        |
| Destroy Server Function .....                         | 8-44        |
| Create Server Function.....                           | 8-44        |
| Set System Description Function.....                  | 8-45        |
| Database Maintenance Functions.....                   | 8-45        |
| Compact Database .....                                | 8-45        |
| Empty Database .....                                  | 8-45        |
| Set as Design Master .....                            | 8-45        |
| <b>Section 9 Tag.Atoms</b> .....                      | <b>9-1</b>  |
| Atom Suffixes.....                                    | 9-1         |
| Tag.Atom List.....                                    | 9-1         |
| <b>Section 10 Event Bits Mapping Utility</b> .....    | <b>10-1</b> |
| Introduction.....                                     | 10-1        |
| Accessing Event Bit Mapping.....                      | 10-1        |
| Mapping Event Bits.....                               | 10-2        |
| <b>Section 11 SOE Logs</b> .....                      | <b>11-1</b> |
| Introduction.....                                     | 11-1        |
| Description .....                                     | 11-1        |
| Specific Features.....                                | 11-2        |
| Initialization at Startup .....                       | 11-3        |
| Trigger Tag Monitoring .....                          | 11-4        |
| Reports Collection .....                              | 11-5        |
| Auto Report Generation.....                           | 11-6        |

---



## Table of Contents (continued)

### Section 11 SOE Logs (continued)

|                                                            |       |
|------------------------------------------------------------|-------|
| Displaying and Printing Reports on Demand .....            | 11-7  |
| Logging and Redundancy .....                               | 11-7  |
| Distributed Architecture .....                             | 11-7  |
| Rochester Architecture .....                               | 11-9  |
| Distributed Logging Hardware .....                         | 11-10 |
| Rochester Logging Hardware .....                           | 11-10 |
| External Interfaces and Function Blocks .....              | 11-11 |
| Log Configuration Database .....                           | 11-12 |
| Log Configuration Utility .....                            | 11-12 |
| Log Configuration Window .....                             | 11-13 |
| Log Configuration Menus .....                              | 11-14 |
| Configuring Reports .....                                  | 11-14 |
| Configuring Recorders .....                                | 11-16 |
| Configuring Digital Points .....                           | 11-17 |
| Deleting Configuration Database Records .....              | 11-18 |
| Configuring the Report Spreadsheet .....                   | 11-19 |
| Backup and Restore .....                                   | 11-20 |
| Distributed Function Code Example .....                    | 11-20 |
| Configuring the Rochester SER .....                        | 11-21 |
| Rochester ISM-1 Commands to Configure Prefault Logs .....  | 11-22 |
| Rochester ISM-1 Commands to Configure Postfault Logs ..... | 11-22 |
| Other Rochester ISM-1 Commands .....                       | 11-23 |

## List of Figures

| No.   | Title                                      | Page |
|-------|--------------------------------------------|------|
| 2-1.  | Control Station Faceplate .....            | 2-5  |
| 2-2.  | Remote Control Memory Faceplate .....      | 2-11 |
| 2-3.  | Remote Manual Set Constant Faceplate ..... | 2-14 |
| 2-4.  | Device Driver Faceplate .....              | 2-16 |
| 2-5.  | Multistate Device Driver Faceplate .....   | 2-18 |
| 2-6.  | Remote Motor Control Block Faceplate ..... | 2-22 |
| 2-7.  | Analog Faceplate .....                     | 2-27 |
| 2-8.  | Analog Annunciator Faceplate .....         | 2-28 |
| 2-9.  | Digital Faceplate .....                    | 2-29 |
| 2-10. | Digital Annunciator Faceplate .....        | 2-30 |
| 2-11. | Data Acquisition Analog Faceplate .....    | 2-32 |
| 2-12. | Data Acquisition Digital Faceplate .....   | 2-36 |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                            | <b>Page</b> |
|------------|-----------------------------------------|-------------|
| 2-13.      | Text String Faceplate .....             | 2-39        |
| 2-14.      | Analog Export Faceplate .....           | 2-45        |
| 2-15.      | Digital Export Faceplate .....          | 2-46        |
| 2-16.      | Module Status Faceplate .....           | 2-47        |
| 2-17.      | INFI 90 OPEN Scanner Faceplate .....    | 2-48        |
| 2-18.      | Analog Module Point Display .....       | 2-50        |
| 2-19.      | Operating Parameters Window .....       | 2-51        |
| 2-20.      | Block Details Window .....              | 2-52        |
| 3-1.       | Block Details Window .....              | 3-1         |
| 3-2.       | Block Address Window .....              | 3-3         |
| 3-3.       | Jump History List Window .....          | 3-3         |
| 3-4.       | Tunable Specification Window .....      | 3-4         |
| 3-5.       | Specification Properties Window .....   | 3-5         |
| 3-6.       | Output Tab .....                        | 3-6         |
| 3-7.       | Description Tab .....                   | 3-7         |
| 4-1.       | Module Details Window .....             | 4-1         |
| 4-2.       | Status Tab .....                        | 4-3         |
| 4-3.       | Problems Tab .....                      | 4-3         |
| 4-4.       | Technical Tab .....                     | 4-4         |
| 5-1.       | Operating Parameters Window .....       | 5-2         |
| 5-2.       | INFI 90 Tab .....                       | 5-3         |
| 5-3.       | Tag Specific Tab .....                  | 5-3         |
| 5-4.       | Red Tag Tab .....                       | 5-4         |
| 5-5.       | Set Red Tag Dialog Box .....            | 5-4         |
| 5-6.       | Substitute Window .....                 | 5-5         |
| 6-1.       | Server Diagnostics Property Sheet ..... | 6-1         |
| 6-2.       | Message Tab .....                       | 6-3         |
| 6-3.       | Tags Tab .....                          | 6-3         |
| 7-1.       | Select Query Window .....               | 7-1         |
| 7-2.       | Tag Summaries Window .....              | 7-2         |
| 7-3.       | Query Design Window .....               | 7-3         |
| 7-4.       | SQL Query Window .....                  | 7-4         |
| 7-5.       | Query Results .....                     | 7-9         |
| 8-1.       | Available Tags List Window .....        | 8-4         |
| 8-2.       | General Tab .....                       | 8-13        |
| 8-3.       | INFI 90 Tab .....                       | 8-15        |
| 8-4.       | Digital Tab .....                       | 8-16        |
| 8-5.       | Remote Control Memory Window .....      | 8-17        |
| 8-6.       | Scanner Tab .....                       | 8-18        |
| 8-7.       | Server Tab .....                        | 8-20        |
| 8-8.       | Sort Window .....                       | 8-22        |
| 8-9.       | Tag List Filtering Window .....         | 8-23        |
| 8-10.      | Trend Importer Default Window .....     | 8-27        |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                                                          | <b>Page</b> |
|------------|-----------------------------------------------------------------------|-------------|
| 8-11.      | @aGlance Importer .....                                               | 8-28        |
| 8-12.      | Tag Importer Default Window .....                                     | 8-30        |
| 8-13.      | Tag Importer Window with Check Boxes .....                            | 8-31        |
| 8-14.      | Index Text Window .....                                               | 8-33        |
| 8-15.      | Substitutable Text Tab Page .....                                     | 8-39        |
| 8-16.      | RCMB Text Tag.....                                                    | 8-40        |
| 8-17.      | Available Servers Window .....                                        | 8-41        |
| 8-18.      | Database Utilities .....                                              | 8-44        |
| 9-1.       | Tag.atom Tree Structure.....                                          | 9-2         |
| 10-1.      | Event Bit Map Window.....                                             | 10-1        |
| 11-1.      | Distributed SOE Logging System Architecture.....                      | 11-8        |
| 11-2.      | Rochester (FC 99) SOE Logging System Architecture .....               | 11-9        |
| 11-3.      | SOE Log Configuration Database Structure .....                        | 11-13       |
| 11-4.      | SOE Configuration Window .....                                        | 11-13       |
| 11-5.      | SOE Report Configuration Window .....                                 | 11-14       |
| 11-6.      | SOE Recorder Configuration Window .....                               | 11-17       |
| 11-7.      | SOE Digital Point Configuration Window.....                           | 11-18       |
| 11-8.      | Sample SOE Report as Displayed in Excel.....                          | 11-19       |
| 11-9.      | Sample Distributed SOE Function Code Configuration (IMSEM01) .....    | 11-20       |
| 11-10.     | Sample Distributed SOE Function Code Configuration (Controller) ..... | 11-21       |

## List of Tables

| <b>No.</b> | <b>Title</b>                                                      | <b>Page</b> |
|------------|-------------------------------------------------------------------|-------------|
| 1-1.       | Reference Documents .....                                         | 1-4         |
| 2-1.       | Control Tags.....                                                 | 2-1         |
| 2-2.       | Control Inhibit Indications (Control Tags).....                   | 2-2         |
| 2-3.       | Alarm Status Descriptors (Two Character).....                     | 2-4         |
| 2-4.       | Station Modes .....                                               | 2-7         |
| 2-5.       | RMCB Feedback Signal to Feedback Indicator Relationship.....      | 2-23        |
| 2-6.       | Data Acquisition Tags .....                                       | 2-25        |
| 2-7.       | Control Inhibit Indications (Data Acquisition Tags).....          | 2-26        |
| 2-8.       | DAANG Faceplate Next High and Next Low Alarm Limit Criteria ..... | 2-33        |
| 2-9.       | Locked and Unlocked Indicators (DAANG).....                       | 2-34        |
| 2-10.      | Locked and Unlocked Indicators (DADIG).....                       | 2-37        |
| 2-11.      | TEXTSTR Faceplate Operating Conditions.....                       | 2-42        |
| 2-12.      | Group Status Conditions .....                                     | 2-50        |
| 4-1.       | Module Status Bytes.....                                          | 4-4         |
| 7-1.       | Arithmetic Operators .....                                        | 7-5         |

## List of Tables (continued)

| <b>No.</b> | <b>Title</b>                                                | <b>Page</b> |
|------------|-------------------------------------------------------------|-------------|
| 7-2.       | Comparison Operators .....                                  | 7-6         |
| 7-3.       | Wildcard Characters .....                                   | 7-7         |
| 7-4.       | Data Sheet View Translation Example .....                   | 7-10        |
| 8-1.       | Tag Types.....                                              | 8-2         |
| 8-2.       | General Tab Fields .....                                    | 8-6         |
| 8-3.       | INFI 90 Tab Fields .....                                    | 8-7         |
| 8-4.       | Analog Tab Fields.....                                      | 8-7         |
| 8-5.       | Data Aqu. Analog Tab Fields .....                           | 8-8         |
| 8-6.       | Digital, Digital Report and Rem Ctrl Memory Tab Fields..... | 8-8         |
| 8-7.       | Station Tab Fields .....                                    | 8-9         |
| 8-8.       | Device Driver Tab Fields.....                               | 8-9         |
| 8-9.       | Multistate Device Driver Tab Fields .....                   | 8-9         |
| 8-10.      | Module Tab Fields .....                                     | 8-10        |
| 8-11.      | Rem Motor Ctrl Block Tab Fields .....                       | 8-10        |
| 8-12.      | Rem Manual Set Const Tab Fields .....                       | 8-10        |
| 8-13.      | Scanner Tab Fields .....                                    | 8-11        |
| 8-14.      | Text String Tab Fields .....                                | 8-12        |
| 8-15.      | Server Tab Fields .....                                     | 8-12        |
| 8-16.      | Address Values .....                                        | 8-15        |
| 8-17.      | Operating Status Descriptions.....                          | 8-21        |
| 8-18.      | Engineering Unit Descriptors .....                          | 8-35        |
| 8-19.      | Logic State Descriptors.....                                | 8-37        |
| 8-20.      | Alarm Priorities.....                                       | 8-38        |
| 9-1.       | Analog .....                                                | 9-2         |
| 9-2.       | Analog Base .....                                           | 9-3         |
| 9-3.       | Analog Export .....                                         | 9-3         |
| 9-4.       | ASCII STRING .....                                          | 9-3         |
| 9-5.       | Base .....                                                  | 9-4         |
| 9-6.       | DAANG .....                                                 | 9-4         |
| 9-7.       | DADIG .....                                                 | 9-6         |
| 9-8.       | Device Driver .....                                         | 9-6         |
| 9-9.       | Device Driver Base .....                                    | 9-6         |
| 9-10.      | Digital.....                                                | 9-6         |
| 9-11.      | Digital Base .....                                          | 9-7         |
| 9-12.      | Digital Export.....                                         | 9-7         |
| 9-13.      | Enhanced Analog Base.....                                   | 9-7         |
| 9-14.      | Enhanced Analog In .....                                    | 9-8         |
| 9-15.      | Enhanced Digital Base .....                                 | 9-8         |
| 9-16.      | Export Base .....                                           | 9-8         |
| 9-17.      | Import Base .....                                           | 9-9         |
| 9-18.      | Module Status.....                                          | 9-9         |
| 9-19.      | MSDD.....                                                   | 9-9         |
| 9-20.      | RCM .....                                                   | 9-10        |



## List of Tables (continued)

| <b>No.</b> | <b>Title</b>      | <b>Page</b> |
|------------|-------------------|-------------|
| 9-21.      | RCM Base .....    | 9-10        |
| 9-22.      | RMCB .....        | 9-10        |
| 9-23.      | RMSC.....         | 9-11        |
| 9-24.      | Server.....       | 9-11        |
| 9-25.      | Station .....     | 9-13        |
| 9-26.      | Text Tag .....    | 9-13        |
| 9-27.      | UDXR Base .....   | 9-14        |
| 9-28.      | Server Base ..... | 9-14        |
| 9-29.      | Tag Base .....    | 9-15        |

---

## Support Services



---

Bailey will provide assistance in the operation and repair of its products. Requests for sales or application services should be made to your nearest sales or service office. Bailey can also provide installation, repair and maintenance contract services.

When ordering parts, use nomenclature or part numbers and part descriptions from equipment manuals. Parts without a description must be ordered from the nearest sales or service office. Recommended spare parts lists, including prices are available through the nearest sales or service office.

Bailey has modern training facilities available for training your personnel. On-site training is also available. Contact your nearest Bailey sales office for specific information and scheduling.

Additional copies of this instruction, or other instructions, can be obtained from the nearest Bailey sales office at a reasonable charge.

---



## Trademarks and Registrations

---

Registrations and trademarks used in this document include:

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| <sup>TM</sup> @aGlance/IT | Trademark of Intuitive Technology Corporation.            |
| ® INF1 90                 | Registered trademark of Elsasg Bailey Process Automation. |
| ® INF1-NET                | Registered trademark of Elsasg Bailey Process Automation. |
| ® Microsoft               | Registered trademark of Microsoft corporation.            |
| <sup>TM</sup> Symphony    | Trademark of Elsasg Bailey Process Automation             |
| ® Windows NT              | Registered trademark of Microsoft corporation.            |

---



---

This instruction covers the operation of the Conductor NT version 2.3 and 4.0 software. Conductor NT operates in the Windows NT<sup>®</sup> version 4.0 operating system. It communicates with the Symphony Enterprise Management and Control System and the INFI 90 OPEN Strategic Enterprise Management System via the INICI01, INICI03, INICI12, IMMCP02, HNCC, or INPCI02 connected to the INFI-NET<sup>®</sup> or Plant-Loop system.

The Conductor NT provides an operator interface to the Bailey distributed control systems.

Special features of the Conductor NT include:

- Configuration and online changing of the tag database.
  - Changing the operating parameters of tags.
  - Tag summaries application.
  - Module details application.
  - Block details application.
  - Server diagnostics application.
-



## List of Effective Pages

---

Total number of pages in this instruction is 194, consisting of the following:

| <b>Page No.</b>         | <b>Change Date</b> |
|-------------------------|--------------------|
| Preface                 | 14 September 2000  |
| List of Effective Pages | 14 September 2000  |
| iii through xiv         | Original           |
| 1-1 through 1-4         | Original           |
| 2-1 through 2-54        | Original           |
| 3-1 through 3-7         | Original           |
| 4-1 through 4-5         | Original           |
| 5-1 through 5-5         | Original           |
| 6-1 through 6-4         | Original           |
| 7-1 through 7-10        | Original           |
| 8-1 through 8-45        | Original           |
| 9-1 through 9-16        | Original           |
| 10-1 through 10-2       | Original           |
| 11-1 through 11-23      | Original           |
| Index-1 through Index-5 | Original           |

---

**NOTE:** Changed text or tables are indicated by a vertical bar adjacent to the changed area. Changed figures are indicated by a vertical bar next to the figure caption. The date appears beside the page number.

---

# Table of Contents



|                                            |            |
|--------------------------------------------|------------|
| <b>Section 1 Introduction .....</b>        | <b>1-1</b> |
| Overview .....                             | 1-1        |
| Intended User .....                        | 1-1        |
| Functional Description .....               | 1-1        |
| Faceplates.....                            | 1-2        |
| Block Details .....                        | 1-2        |
| Module Details .....                       | 1-2        |
| Operating Parameters.....                  | 1-2        |
| Server Diagnostics.....                    | 1-2        |
| Tag Summaries .....                        | 1-3        |
| Document Conventions .....                 | 1-3        |
| Reference Documents.....                   | 1-4        |
| <br>                                       |            |
| <b>Section 2 Faceplates .....</b>          | <b>2-1</b> |
| Introduction.....                          | 2-1        |
| Control Faceplates .....                   | 2-1        |
| Control Inhibit .....                      | 2-2        |
| Common Control Faceplate Attributes .....  | 2-2        |
| Status Messages .....                      | 2-4        |
| Loop Control .....                         | 2-4        |
| Station Faceplate .....                    | 2-5        |
| Station Control.....                       | 2-8        |
| Mode .....                                 | 2-8        |
| Set Point.....                             | 2-9        |
| Ratio Index.....                           | 2-9        |
| Control Output.....                        | 2-10       |
| Device Control .....                       | 2-10       |
| Remote Control Memory Faceplate.....       | 2-10       |
| RCM Control .....                          | 2-12       |
| Changing the Output State.....             | 2-12       |
| Remote Manual Set Constant Faceplate.....  | 2-13       |
| RMSC Control .....                         | 2-14       |
| Changing the Value .....                   | 2-14       |
| Device Driver Faceplate .....              | 2-15       |
| DD Control.....                            | 2-17       |
| Changing the Output State.....             | 2-17       |
| Multistate Device Driver Faceplate.....    | 2-18       |
| MSDD Control.....                          | 2-20       |
| Changing the Output State.....             | 2-20       |
| Remote Motor Control Block Faceplate ..... | 2-21       |
| RMCB Control .....                         | 2-24       |
| Changing the Output State.....             | 2-24       |



## Table of Contents (continued)

### **Section 2 Faceplates** (continued)

|                                                   |      |
|---------------------------------------------------|------|
| Data Acquisition Functions.....                   | 2-24 |
| Data Acquisition Faceplates .....                 | 2-25 |
| Data Acquisition Tags .....                       | 2-25 |
| Control Inhibit .....                             | 2-26 |
| Common Data Acquisition Faceplate Attributes..... | 2-26 |
| Analog Faceplate Attributes .....                 | 2-26 |
| Digital Faceplate Attributes .....                | 2-29 |
| Data Acquisition Analog Faceplate .....           | 2-31 |
| DAANG Faceplate Attributes .....                  | 2-31 |
| DAANG Control.....                                | 2-34 |
| Selecting the Source Mode.....                    | 2-34 |
| Changing the User Inserted Value .....            | 2-35 |
| Data Acquisition Digital Faceplate.....           | 2-35 |
| DADIG Faceplate Attributes .....                  | 2-35 |
| DADIG Control.....                                | 2-37 |
| Selecting the Source Mode.....                    | 2-37 |
| Changing the User Inserted State .....            | 2-38 |
| Text String Faceplate .....                       | 2-38 |
| TEXTSTR Faceplate Attributes .....                | 2-38 |
| TEXTSTR Control.....                              | 2-41 |
| Changing the Mode .....                           | 2-41 |
| Inputting a Text String.....                      | 2-42 |
| Setting the Alarm State .....                     | 2-44 |
| Conductor NT Faceplates .....                     | 2-44 |
| Analog Export .....                               | 2-44 |
| Digital Export .....                              | 2-45 |
| Module Status .....                               | 2-46 |
| INFI 90 OPEN Scanner Tag .....                    | 2-47 |
| Point Display .....                               | 2-48 |
| Accessing the Point Display.....                  | 2-48 |
| Point Display Appearance .....                    | 2-49 |
| Tag Name.....                                     | 2-49 |
| Tag Description .....                             | 2-50 |
| Status Area .....                                 | 2-50 |
| Info Pushbutton .....                             | 2-51 |
| BLKTune Pushbutton.....                           | 2-52 |
| Process Display Area .....                        | 2-53 |
| Automatic Fail-Over for Redundant Computer.....   | 2-53 |
| Manually Activate Primary Computer .....          | 2-53 |
| Active Status.....                                | 2-53 |

---

## Table of Contents (continued)

|                                             |            |
|---------------------------------------------|------------|
| <b>Section 3 Block Details .....</b>        | <b>3-1</b> |
| Introduction .....                          | 3-1        |
| Specifications Tab .....                    | 3-2        |
| Block Button .....                          | 3-2        |
| Tunable Blocks .....                        | 3-4        |
| Properties Option .....                     | 3-5        |
| Output Tab .....                            | 3-6        |
| Description Tab.....                        | 3-7        |
| Print Block Details .....                   | 3-7        |
| <b>Section 4 Module Details .....</b>       | <b>4-1</b> |
| Introduction .....                          | 4-1        |
| General Tab .....                           | 4-1        |
| Status Tab .....                            | 4-2        |
| Problems Tab .....                          | 4-3        |
| Technical Tab .....                         | 4-4        |
| <b>Section 5 Operating Parameters .....</b> | <b>5-1</b> |
| Introduction .....                          | 5-1        |
| General Tab .....                           | 5-1        |
| INFI 90 Tab .....                           | 5-2        |
| Tag Specific Tab .....                      | 5-2        |
| Red Tag Tab .....                           | 5-4        |
| Substitute Button .....                     | 5-5        |
| <b>Section 6 Server Diagnostics .....</b>   | <b>6-1</b> |
| Introduction .....                          | 6-1        |
| General Tab .....                           | 6-2        |
| Messages Tab.....                           | 6-2        |
| Tags Tab .....                              | 6-2        |
| <b>Section 7 Tag Summaries .....</b>        | <b>7-1</b> |
| Introduction .....                          | 7-1        |
| Using Tag Summaries .....                   | 7-1        |
| Designing a Query .....                     | 7-2        |
| SQL View .....                              | 7-3        |
| Arithmetic Operators .....                  | 7-5        |
| Where Clause .....                          | 7-6        |
| Comparison Operators.....                   | 7-6        |
| Wildcards and the Like Clause .....         | 7-7        |



---

## Table of Contents (continued)

---

### **Section 7 Tag Summaries** (continued)

|                             |      |
|-----------------------------|------|
| Logical Operators .....     | 7-8  |
| Order By Clause.....        | 7-8  |
| Query Results.....          | 7-9  |
| Print Results.....          | 7-10 |
| Query File Operations ..... | 7-10 |

---

### **Section 8 Tag Configuration** .....8-1

|                                                   |      |
|---------------------------------------------------|------|
| Introduction .....                                | 8-1  |
| Tags .....                                        | 8-1  |
| Available Tags List .....                         | 8-3  |
| File Options .....                                | 8-4  |
| Print .....                                       | 8-4  |
| Purge Deleted Tags .....                          | 8-5  |
| Edit Options .....                                | 8-5  |
| Edit Tag.....                                     | 8-5  |
| Move to Server .....                              | 8-5  |
| New Tag.....                                      | 8-6  |
| INFI 90 OPEN Tab Fields.....                      | 8-6  |
| General.....                                      | 8-12 |
| INFI 90 .....                                     | 8-14 |
| Digital.....                                      | 8-16 |
| Remote Control Memory .....                       | 8-17 |
| Scanner .....                                     | 8-17 |
| Server .....                                      | 8-19 |
| Copy Tag .....                                    | 8-20 |
| Change Operating Status Tag.....                  | 8-20 |
| Search.....                                       | 8-21 |
| View Options .....                                | 8-22 |
| Sort .....                                        | 8-22 |
| Filter .....                                      | 8-23 |
| Operating Status Filters.....                     | 8-23 |
| ADP Panel .....                                   | 8-24 |
| Default Group Assignment .....                    | 8-25 |
| COM Port Configuration.....                       | 8-26 |
| Tools .....                                       | 8-26 |
| Import Trends.....                                | 8-26 |
| @aGlance Importer .....                           | 8-28 |
| INFI 90 OPEN Import/Export Tag Configuration..... | 8-29 |
| Import .....                                      | 8-30 |
| Export .....                                      | 8-32 |
| Configure Text .....                              | 8-32 |

---

## Table of Contents (continued)

---

|                                                       |             |
|-------------------------------------------------------|-------------|
| <b>Section 8 Tag Configuration</b> (continued)        |             |
| Indexed Text .....                                    | 8-33        |
| Tag Descriptors .....                                 | 8-35        |
| Alarm Priority Text .....                             | 8-37        |
| Substitutable Text .....                              | 8-38        |
| Remote Motor Control Text .....                       | 8-39        |
| Available Servers .....                               | 8-41        |
| Global Alarm Acknowledgment .....                     | 8-41        |
| Receiving Global Acknowledgments from the Loop .....  | 8-42        |
| Sending Global Acknowledgments to the Loop .....      | 8-42        |
| Global Silence Messages.....                          | 8-42        |
| Receiving Global Silence Messages from the Loop ..... | 8-42        |
| Sending Global Silence Messages to the Loop.....      | 8-42        |
| Database Utilities (DBUtils) Application.....         | 8-43        |
| Transfer Tag Data Function .....                      | 8-43        |
| Set Host Name Function .....                          | 8-43        |
| Destroy Server Function .....                         | 8-44        |
| Create Server Function .....                          | 8-44        |
| Set System Description Function .....                 | 8-45        |
| Database Maintenance Functions.....                   | 8-45        |
| Compact Database .....                                | 8-45        |
| Empty Database .....                                  | 8-45        |
| Set as Design Master .....                            | 8-45        |
| <b>Section 9 Tag.Atoms</b> .....                      | <b>9-1</b>  |
| Atom Suffixes.....                                    | 9-1         |
| Tag.Atom List.....                                    | 9-1         |
| <b>Section 10 Event Bits Mapping Utility</b> .....    | <b>10-1</b> |
| Introduction.....                                     | 10-1        |
| Accessing Event Bit Mapping.....                      | 10-1        |
| Mapping Event Bits.....                               | 10-2        |
| <b>Section 11 SOE Logs</b> .....                      | <b>11-1</b> |
| Introduction.....                                     | 11-1        |
| Description .....                                     | 11-1        |
| Specific Features.....                                | 11-2        |
| Initialization at Startup .....                       | 11-3        |
| Trigger Tag Monitoring .....                          | 11-4        |
| Reports Collection .....                              | 11-5        |
| Auto Report Generation.....                           | 11-6        |

---



## Table of Contents (continued)

### Section 11 SOE Logs (continued)

|                                                            |       |
|------------------------------------------------------------|-------|
| Displaying and Printing Reports on Demand .....            | 11-7  |
| Logging and Redundancy .....                               | 11-7  |
| Distributed Architecture .....                             | 11-7  |
| Rochester Architecture .....                               | 11-9  |
| Distributed Logging Hardware .....                         | 11-10 |
| Rochester Logging Hardware .....                           | 11-10 |
| External Interfaces and Function Blocks .....              | 11-11 |
| Log Configuration Database .....                           | 11-12 |
| Log Configuration Utility .....                            | 11-12 |
| Log Configuration Window .....                             | 11-13 |
| Log Configuration Menus .....                              | 11-14 |
| Configuring Reports .....                                  | 11-14 |
| Configuring Recorders .....                                | 11-16 |
| Configuring Digital Points .....                           | 11-17 |
| Deleting Configuration Database Records .....              | 11-18 |
| Configuring the Report Spreadsheet .....                   | 11-19 |
| Backup and Restore .....                                   | 11-20 |
| Distributed Function Code Example .....                    | 11-20 |
| Configuring the Rochester SER .....                        | 11-21 |
| Rochester ISM-1 Commands to Configure Prefault Logs .....  | 11-22 |
| Rochester ISM-1 Commands to Configure Postfault Logs ..... | 11-22 |
| Other Rochester ISM-1 Commands .....                       | 11-23 |

## List of Figures

| No.   | Title                                      | Page |
|-------|--------------------------------------------|------|
| 2-1.  | Control Station Faceplate .....            | 2-5  |
| 2-2.  | Remote Control Memory Faceplate .....      | 2-11 |
| 2-3.  | Remote Manual Set Constant Faceplate ..... | 2-14 |
| 2-4.  | Device Driver Faceplate .....              | 2-16 |
| 2-5.  | Multistate Device Driver Faceplate .....   | 2-18 |
| 2-6.  | Remote Motor Control Block Faceplate ..... | 2-22 |
| 2-7.  | Analog Faceplate .....                     | 2-27 |
| 2-8.  | Analog Annunciator Faceplate .....         | 2-28 |
| 2-9.  | Digital Faceplate .....                    | 2-29 |
| 2-10. | Digital Annunciator Faceplate .....        | 2-30 |
| 2-11. | Data Acquisition Analog Faceplate .....    | 2-32 |
| 2-12. | Data Acquisition Digital Faceplate .....   | 2-36 |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                            | <b>Page</b> |
|------------|-----------------------------------------|-------------|
| 2-13.      | Text String Faceplate .....             | 2-39        |
| 2-14.      | Analog Export Faceplate .....           | 2-45        |
| 2-15.      | Digital Export Faceplate .....          | 2-46        |
| 2-16.      | Module Status Faceplate .....           | 2-47        |
| 2-17.      | INFI 90 OPEN Scanner Faceplate .....    | 2-48        |
| 2-18.      | Analog Module Point Display .....       | 2-50        |
| 2-19.      | Operating Parameters Window .....       | 2-51        |
| 2-20.      | Block Details Window .....              | 2-52        |
| 3-1.       | Block Details Window .....              | 3-1         |
| 3-2.       | Block Address Window .....              | 3-3         |
| 3-3.       | Jump History List Window .....          | 3-3         |
| 3-4.       | Tunable Specification Window .....      | 3-4         |
| 3-5.       | Specification Properties Window .....   | 3-5         |
| 3-6.       | Output Tab .....                        | 3-6         |
| 3-7.       | Description Tab .....                   | 3-7         |
| 4-1.       | Module Details Window .....             | 4-1         |
| 4-2.       | Status Tab .....                        | 4-3         |
| 4-3.       | Problems Tab .....                      | 4-3         |
| 4-4.       | Technical Tab .....                     | 4-4         |
| 5-1.       | Operating Parameters Window .....       | 5-2         |
| 5-2.       | INFI 90 Tab .....                       | 5-3         |
| 5-3.       | Tag Specific Tab .....                  | 5-3         |
| 5-4.       | Red Tag Tab .....                       | 5-4         |
| 5-5.       | Set Red Tag Dialog Box .....            | 5-4         |
| 5-6.       | Substitute Window .....                 | 5-5         |
| 6-1.       | Server Diagnostics Property Sheet ..... | 6-1         |
| 6-2.       | Message Tab .....                       | 6-3         |
| 6-3.       | Tags Tab .....                          | 6-3         |
| 7-1.       | Select Query Window .....               | 7-1         |
| 7-2.       | Tag Summaries Window .....              | 7-2         |
| 7-3.       | Query Design Window .....               | 7-3         |
| 7-4.       | SQL Query Window .....                  | 7-4         |
| 7-5.       | Query Results .....                     | 7-9         |
| 8-1.       | Available Tags List Window .....        | 8-4         |
| 8-2.       | General Tab .....                       | 8-13        |
| 8-3.       | INFI 90 Tab .....                       | 8-15        |
| 8-4.       | Digital Tab .....                       | 8-16        |
| 8-5.       | Remote Control Memory Window .....      | 8-17        |
| 8-6.       | Scanner Tab .....                       | 8-18        |
| 8-7.       | Server Tab .....                        | 8-20        |
| 8-8.       | Sort Window .....                       | 8-22        |
| 8-9.       | Tag List Filtering Window .....         | 8-23        |
| 8-10.      | Trend Importer Default Window .....     | 8-27        |

## List of Figures (continued)

| <b>No.</b> | <b>Title</b>                                                          | <b>Page</b> |
|------------|-----------------------------------------------------------------------|-------------|
| 8-11.      | @aGlance Importer .....                                               | 8-28        |
| 8-12.      | Tag Importer Default Window .....                                     | 8-30        |
| 8-13.      | Tag Importer Window with Check Boxes .....                            | 8-31        |
| 8-14.      | Index Text Window .....                                               | 8-33        |
| 8-15.      | Substitutable Text Tab Page .....                                     | 8-39        |
| 8-16.      | RCMB Text Tag.....                                                    | 8-40        |
| 8-17.      | Available Servers Window .....                                        | 8-41        |
| 8-18.      | Database Utilities .....                                              | 8-44        |
| 9-1.       | Tag.atom Tree Structure.....                                          | 9-2         |
| 10-1.      | Event Bit Map Window.....                                             | 10-1        |
| 11-1.      | Distributed SOE Logging System Architecture.....                      | 11-8        |
| 11-2.      | Rochester (FC 99) SOE Logging System Architecture .....               | 11-9        |
| 11-3.      | SOE Log Configuration Database Structure .....                        | 11-13       |
| 11-4.      | SOE Configuration Window .....                                        | 11-13       |
| 11-5.      | SOE Report Configuration Window .....                                 | 11-14       |
| 11-6.      | SOE Recorder Configuration Window .....                               | 11-17       |
| 11-7.      | SOE Digital Point Configuration Window.....                           | 11-18       |
| 11-8.      | Sample SOE Report as Displayed in Excel.....                          | 11-19       |
| 11-9.      | Sample Distributed SOE Function Code Configuration (IMSEM01) .....    | 11-20       |
| 11-10.     | Sample Distributed SOE Function Code Configuration (Controller) ..... | 11-21       |

## List of Tables

| <b>No.</b> | <b>Title</b>                                                      | <b>Page</b> |
|------------|-------------------------------------------------------------------|-------------|
| 1-1.       | Reference Documents .....                                         | 1-4         |
| 2-1.       | Control Tags.....                                                 | 2-1         |
| 2-2.       | Control Inhibit Indications (Control Tags).....                   | 2-2         |
| 2-3.       | Alarm Status Descriptors (Two Character).....                     | 2-4         |
| 2-4.       | Station Modes .....                                               | 2-7         |
| 2-5.       | RMCB Feedback Signal to Feedback Indicator Relationship.....      | 2-23        |
| 2-6.       | Data Acquisition Tags .....                                       | 2-25        |
| 2-7.       | Control Inhibit Indications (Data Acquisition Tags).....          | 2-26        |
| 2-8.       | DAANG Faceplate Next High and Next Low Alarm Limit Criteria ..... | 2-33        |
| 2-9.       | Locked and Unlocked Indicators (DAANG).....                       | 2-34        |
| 2-10.      | Locked and Unlocked Indicators (DADIG).....                       | 2-37        |
| 2-11.      | TEXTSTR Faceplate Operating Conditions.....                       | 2-42        |
| 2-12.      | Group Status Conditions .....                                     | 2-50        |
| 4-1.       | Module Status Bytes.....                                          | 4-4         |
| 7-1.       | Arithmetic Operators .....                                        | 7-5         |

## List of Tables (continued)

| <b>No.</b> | <b>Title</b>                                                | <b>Page</b> |
|------------|-------------------------------------------------------------|-------------|
| 7-2.       | Comparison Operators .....                                  | 7-6         |
| 7-3.       | Wildcard Characters .....                                   | 7-7         |
| 7-4.       | Data Sheet View Translation Example .....                   | 7-10        |
| 8-1.       | Tag Types.....                                              | 8-2         |
| 8-2.       | General Tab Fields .....                                    | 8-6         |
| 8-3.       | INFI 90 Tab Fields .....                                    | 8-7         |
| 8-4.       | Analog Tab Fields.....                                      | 8-7         |
| 8-5.       | Data Aqu. Analog Tab Fields .....                           | 8-8         |
| 8-6.       | Digital, Digital Report and Rem Ctrl Memory Tab Fields..... | 8-8         |
| 8-7.       | Station Tab Fields .....                                    | 8-9         |
| 8-8.       | Device Driver Tab Fields.....                               | 8-9         |
| 8-9.       | Multistate Device Driver Tab Fields .....                   | 8-9         |
| 8-10.      | Module Tab Fields .....                                     | 8-10        |
| 8-11.      | Rem Motor Ctrl Block Tab Fields .....                       | 8-10        |
| 8-12.      | Rem Manual Set Const Tab Fields .....                       | 8-10        |
| 8-13.      | Scanner Tab Fields .....                                    | 8-11        |
| 8-14.      | Text String Tab Fields .....                                | 8-12        |
| 8-15.      | Server Tab Fields .....                                     | 8-12        |
| 8-16.      | Address Values .....                                        | 8-15        |
| 8-17.      | Operating Status Descriptions.....                          | 8-21        |
| 8-18.      | Engineering Unit Descriptors .....                          | 8-35        |
| 8-19.      | Logic State Descriptors.....                                | 8-37        |
| 8-20.      | Alarm Priorities.....                                       | 8-38        |
| 9-1.       | Analog .....                                                | 9-2         |
| 9-2.       | Analog Base .....                                           | 9-3         |
| 9-3.       | Analog Export .....                                         | 9-3         |
| 9-4.       | ASCII STRING .....                                          | 9-3         |
| 9-5.       | Base .....                                                  | 9-4         |
| 9-6.       | DAANG .....                                                 | 9-4         |
| 9-7.       | DADIG .....                                                 | 9-6         |
| 9-8.       | Device Driver .....                                         | 9-6         |
| 9-9.       | Device Driver Base .....                                    | 9-6         |
| 9-10.      | Digital.....                                                | 9-6         |
| 9-11.      | Digital Base .....                                          | 9-7         |
| 9-12.      | Digital Export.....                                         | 9-7         |
| 9-13.      | Enhanced Analog Base.....                                   | 9-7         |
| 9-14.      | Enhanced Analog In .....                                    | 9-8         |
| 9-15.      | Enhanced Digital Base .....                                 | 9-8         |
| 9-16.      | Export Base .....                                           | 9-8         |
| 9-17.      | Import Base .....                                           | 9-9         |
| 9-18.      | Module Status.....                                          | 9-9         |
| 9-19.      | MSDD.....                                                   | 9-9         |
| 9-20.      | RCM .....                                                   | 9-10        |



## List of Tables (continued)

| <b>No.</b> | <b>Title</b>      | <b>Page</b> |
|------------|-------------------|-------------|
| 9-21.      | RCM Base .....    | 9-10        |
| 9-22.      | RMCB .....        | 9-10        |
| 9-23.      | RMSC.....         | 9-11        |
| 9-24.      | Server.....       | 9-11        |
| 9-25.      | Station .....     | 9-13        |
| 9-26.      | Text Tag .....    | 9-13        |
| 9-27.      | UDXR Base .....   | 9-14        |
| 9-28.      | Server Base ..... | 9-14        |
| 9-29.      | Tag Base .....    | 9-15        |

---

## Support Services



---

Bailey will provide assistance in the operation and repair of its products. Requests for sales or application services should be made to your nearest sales or service office. Bailey can also provide installation, repair and maintenance contract services.

When ordering parts, use nomenclature or part numbers and part descriptions from equipment manuals. Parts without a description must be ordered from the nearest sales or service office. Recommended spare parts lists, including prices are available through the nearest sales or service office.

Bailey has modern training facilities available for training your personnel. On-site training is also available. Contact your nearest Bailey sales office for specific information and scheduling.

Additional copies of this instruction, or other instructions, can be obtained from the nearest Bailey sales office at a reasonable charge.

---



## Trademarks and Registrations

---

Registrations and trademarks used in this document include:

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| <sup>TM</sup> @aGlance/IT | Trademark of Intuitive Technology Corporation.           |
| ® INF1 90                 | Registered trademark of Elsig Bailey Process Automation. |
| ® INF1-NET                | Registered trademark of Elsig Bailey Process Automation. |
| ® Microsoft               | Registered trademark of Microsoft corporation.           |
| <sup>TM</sup> Symphony    | Trademark of Elsig Bailey Process Automation             |
| ® Windows NT              | Registered trademark of Microsoft corporation.           |

---



### Overview

The Conductor NT is an operating station for use with the Symphony Enterprise Management and Control System and the INFI 90 OPEN Strategic Enterprise Management System. This instruction describes the operations required to use the Symphony or INFI 90 OPEN specific functions on a configured Conductor NT. It is designed to accomplish the following objectives:

- Provide instructions on how to perform diagnostic tasks on the Conductor NT.
- Provide suggestions and examples for operator activities.
- Provide additional information as necessary.

The Conductor NT communicates with the control system through an INICI01, INICI03, INICI12, IMMCP02, HNCC, or INPCI02 interface connected to the INFI-NET or Plant-Loop systems.

### Intended User

This instruction is intended for use by personnel engaged in operating a Conductor NT connected to a Symphony or INFI 90 OPEN control system.

### Functional Description

The Symphony system and the INFI 90 OPEN systems are distributed process management and control systems. Using a series of integrated control PCUs, the systems allow monitoring and control of process variables such as flow rate, temperature, and pressure according to a control configuration that the process (system) engineer or technician defines. A PCU is any device connected for communication on the control network.

The Conductor NT operates on a personal computer hardware platform under the Windows NT environment. Using



interactive process graphics the process operator can monitor and control all analog loops and digital devices interfaced to the network via PCUs.

The Conductor NT provides maintenance personnel with the capability to globally monitor the operating status of any system component on the network, and to diagnose component failures from any Conductor NT.

## Faceplates

Faceplates are graphical representations of control system tags. The tags can be monitored and changed through actions to the faceplates. Faceplates are covered in [Section 2](#).

## Block Details

The block details function provides detailed information about a selected function (program) block in the processor modules of the PCUs. This application also permits the tuning of tunable blocks to adjust the process control. Block details are covered in [Section 3](#).

## Module Details

The module details application provides detailed information about the operational status of a selected distributed control system module. [Section 4](#) covers the use of the module details application.

## Operating Parameters

The operating parameters application allows the user to monitor and change the status of tags maintained by the server. Red tagging capability is also maintained in this application. Operating parameters is covered in [Section 5](#).

## Server Diagnostics

The server diagnostics application provides detailed information about the working status of a selected Conductor NT server. The application supports possible server changes and can be started even if the server is not running. Server diagnostics are covered in [Section 6](#).

## Tag Summaries

The tag summaries application provides an interface for querying tag information and producing tag summary reports. The query can be viewed in one of three ways: design view, SQL view, or datasheet view. [Section 7](#) covers the use of the tag summaries application.

## Document Conventions

This document uses standard text conventions to represent keys, display items, and user data inputs:

**Display item** Any item displayed on a screen appears as italic text. Example:

*Running*

**User data input** **Bold** - Identifies any part of a command line that is not optional or variable and must be entered exactly as shown.

*Italic* - Identifies a variable parameter entered in a command line.

[ ] - Indicates an optional parameter; text within the brackets follows the previously described conventions.

Example:

**CUP** [*port*] [*baud*] [*file\_name.CSP*]

**SPECIAL KEYS** - Identifies a specific key that is not alphabetic, numeric, or punctuation. Examples:

Press **ENTER**.

Press **ESC V M**. (Press and release each key in sequence.)

Press **CTRL-ALT-SHIFT-DEL**. (Press all keys in sequence without releasing any one key until you have pressed them all.)

**File names** **Name** - Indicates a file or directory name. Example:

*file1.exe*  
*c:\new*

**Revision variable** A ? indicates a value that may change depending on the version of an item. Example:

Part number: 1234567?0

Part number: 1234567??



## Reference Documents

This instruction provides information only for the operation of the Conductor NT. Table 1-1 lists additional documents that relate to the operation of the Symphony and INFI 90 OPEN control systems.

**Table 1-1. Reference Documents**

| Number          | Document Title                                |
|-----------------|-----------------------------------------------|
| WBPEEU1210005?0 | INFI 90 OPEN Function Code Application Manual |
| WBPEEU1210504?1 | Symphony Function Code Application Manual     |
| WBPEEU1340011B0 | Conductor NT Introduction and Installation    |
| WBPEEU1340012B0 | Conductor NT Operation                        |
| WBPEEU1340013B0 | Conductor NT Configuration                    |
| WBPEEU1340014B0 | Conductor NT Display Editors                  |



### Introduction

Faceplates are graphical representations of control system tags. The tags can be monitored and changed through actions to the faceplates. This section provides information on the faceplates used to control and monitor the Symphony and INFI 90 OPEN systems.

### Control Faceplates

Control faceplates provide access to control function blocks within a module. The access can be used to manually initiate process changes and to monitor the results of both automatic and manual control operations. Automatic refers to operation being performed under multifunction processor module execution. Manual refers to those actions initiated after taking a function block out of automatic multifunction processor control. Table 2-1 lists the control tags and the function codes (FC) they associate with. Refer to the **Function Code Application** instruction for a description of these function codes and their specifications.

Table 2-1. Control Tags

| Tag     | Function Code <sup>1</sup>                                                                                        |
|---------|-------------------------------------------------------------------------------------------------------------------|
| DD      | Device driver, FC 123.                                                                                            |
| MSDD    | Multistate device driver, FC 129.                                                                                 |
| RCM     | Remote control memory, FC 62.                                                                                     |
| RMCB    | Remote motor control, FC 136.                                                                                     |
| RMSC    | Remote manual set constant, FC 68.                                                                                |
| STATION | M/A station (basic), FC 21; M/A station (cascade), FC 22; M/A station (ratio), FC 23; and control station, FC 80. |

**NOTE:**

1. Information reported by these function codes can be incorporated into any display. This information is not restricted to faceplate symbols.



## Control Inhibit

Control can be inhibited at the module level. This prevents control changes from the Conductor NT. The inhibit status is checked when a control action is initiated. If inhibited, an invalid action message appears. Table 2-2 shows the inhibit indications that appear for control tags.

Table 2-2. Control Inhibit Indications (Control Tags)

| Tag     | Control Inhibit Indication                                                                               |
|---------|----------------------------------------------------------------------------------------------------------|
| DD      | Remote or auto.                                                                                          |
| MSDD    | Auto.                                                                                                    |
| RCM     | NP (no permissive).                                                                                      |
| RMCB    | Zero state permissive.                                                                                   |
| RMSC    | T (tracking).                                                                                            |
| STATION | COTR (control output change inhibit).<br>LOCK (mode change inhibit).<br>SPTR (set point change inhibit). |

## Common Control Faceplate Attributes

The standard faceplates share some common attributes:

- Alarm status/quality/group.
- Red tag descriptor.
- Tag descriptor.
- Tag name.
- Alarm acknowledge button.

These attributes can be incorporated into any graphic or custom faceplate.

Alarm Status/Quality/  
Group

Displays alarm status and is used for alarm processing. In standard faceplate symbols, this field accommodates five characters.

**NOTE:** Only available for points capable of generating alarms.

From left to right, the first two character positions are the alarm status. A descriptor in these positions identifies the last alarm threshold that a point passed as determined and exception reported by the multifunction processor module.

The third character position is the quality field. This field identifies the quality associated with a process value or state and the operating status for the tag.

**NOTES:**

1. Operator actions on the Conductor NT trigger disestablished, substitute, and inhibit status indications (i.e., operating parameters functions). Multifunction Processor modules report good, suspect, and bad in exception reports.
2. Control cannot be performed for any tag reporting bad quality or off scan.

The last two character positions identify the alarm group to which the tag is assigned. The field appears as 1 through 256.

An alarm status/quality/group field appears as:

*2H 10*

This indicates the point has passed the two-high threshold set in the multifunction processor module, the module has determined that it is receiving good data for the point, and the tag defining the process point is part of alarm group ten.

**Red Tag Descriptor** Identifies a process point as being red tagged. Red tagging performed from the Conductor NT does not prevent a process device from operating. The Conductor NT can be set up to either display red tag status and disable control actions from the Conductor NT or to display red tag status only.

A multifunction processor module reports red tag status in an exception report.

Red tag status is available for the following control tags:

- DD.
- RMCB.
- MSDD.
- STATION.
- RCM.

**Tag Descriptor** Can be up to 40 characters and is defined during tag configuration. Normally, this descriptor explains the purpose of the tag (process point).

**Tag Name** Can be up to 16 characters and is defined during tag configuration. This identifies the tag defined to allow monitoring and control of the process point.



**Alarm Acknowledge Button** Appears when the point controlled by the faceplate is in an alarm state. To acknowledge the alarm click **ACK**.

## Status Messages

Tag status messages are displayed in the first line of the status area. Depending on the type of tag displayed, this message can be an alarm or other condition of the tag. The area number is displayed to the right of the alarm status descriptors. Detailed descriptions of status messages are provided in Table 2-3.

**Table 2-3. Alarm Status Descriptors (Two Character)**

| Descriptor | Description                 | Tag Type                                             |
|------------|-----------------------------|------------------------------------------------------|
| Blank      | No alarm                    | All                                                  |
| 3H         | Three-high alarm            | DAANG                                                |
| 2H         | Two-high alarm              | DAANG                                                |
| H          | High alarm                  | ANALOG, DAANG, STATION                               |
| L          | Low alarm                   | ANALOG, DAANG, STATION                               |
| 2L         | Two-low alarm               | DAANG                                                |
| 3L         | Three-low alarm             | DAANG                                                |
| HD         | High deviation alarm        | DAANG, STATION                                       |
| LD         | Low deviation alarm         | DAANG, STATION                                       |
| HR         | High rate of change alarm   | DAANG                                                |
| LR         | Low rate of change alarm    | DAANG                                                |
| N          | Return to normal from alarm | All                                                  |
| A          | Digital                     | DIGITAL, INTDIG, RCM, RMCB, DD, MSDD, DADIG, TEXTSTR |
| *          | Bad quality                 | All                                                  |
| !!         | Alarms suppressed           | DAANG, DADIG, TEXTSTR                                |

## Loop Control

A station faceplate allows adjustment of a control loop. A station tag defined for the station function block controlling the loop and a station faceplate are required for loop control. The tag and faceplate allow monitoring and controlling of the loop from the Conductor NT.

## Station Faceplate

A station faceplate is a representation of an analog control station. The same functions that can be performed and the same values that can be displayed on an analog control station physically located in the plant can be performed and displayed on the Conductor NT using this faceplate. The station presents a detailed on-line display of a single process loop. A station tag is required to acquire process values from a manual/auto (M/A) station block in a multifunction processor module and to direct control.

Figure 2-1 details the information presented in a station faceplate.

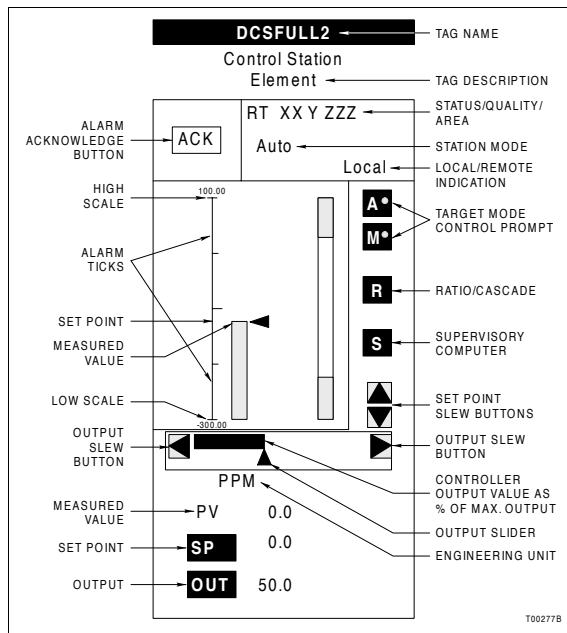


Figure 2-1. Control Station Faceplate

The station block level (local or computer) and mode (manual or auto, and basic, cascade, or ratio) determines the



operations that can be performed from the Conductor NT. The level and mode can be changed from the Conductor NT.

A station function block exception reports the dynamic values, mode, alarm status, and quality that are displayed in a station faceplate. The following information explains the attributes that relate to a station tag and can be incorporated into any graphic or custom faceplate. Figure 2-1 shows the location of the attributes described.

|                                         |                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Bar                               | Provides a scale reference to easily determine when the PV dynamic bar passes an alarm limit. These bars use colored areas to indicate the position of the high and low alarm limit points.                                                                                                              |
| Controller Output Value<br>Dynamic Bar  | Shows the control output as an expanding or contracting dynamic bar. The bar expands horizontally from the baseline mark on the scale as the control output increases as a percentage and contracts back to the baseline mark as the control output decreases.                                           |
| Output                                  | Is the current value (in percent of output) being output from the station function block. The control output can be adjusted from the Conductor NT.                                                                                                                                                      |
| Engineering Unit<br>Descriptor          | Shows the unit of measurement for the process variable and set point. The station function block reports an EUD index number to select the appropriate engineering unit descriptor. Station faceplates that present the process variable and set point values are in this unit of measurement.           |
| High and Low Scale<br>Limits            | Are the maximum and minimum values associated with the top line and baseline of the static scale respectively. The limits are derived from the zero and span configured in the station function block for either the process variable or the set point depending on the station faceplate configuration. |
| Process Variable and<br>Set Point Scale | Is a static display element used for reference. It is built as a fixed part of the faceplate.                                                                                                                                                                                                            |
| Process Variable<br>Dynamic Bar         | Shows the process variable as an expanding or contracting dynamic bar. The bar expands vertically from the baseline mark on the scale as the process variable increases in value and contracts back to the baseline mark as the variable decreases.                                                      |

|                        |                                                                                                                                                                                                                                                                   |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process Variable Value | Is the current input value being exception reported by the station function block. The process variable comes from the function block providing station block control, usually a PID block.                                                                       |
| Set Point Value        | Is a dynamic moving value accompanied by a dynamic pointer. The displayed value and the pointer position on the scale indicate the current set point being exception reported by the station function block. The set point can be adjusted from the Conductor NT. |
| Station Mode           | Is the current operating condition for the station. The station operates in either manual or automatic mode. It also operates in basic, cascade, or ratio mode.                                                                                                   |

When in automatic mode operation, the station mode appears as *Auto*. In this mode, the multifunction processor module automatically controls the process. The station can be set to either cascade or ratio operation and the set point and ratio index value can be adjusted while in this mode. Whether a station block can be toggled between basic and ratio operation or basic and cascade operation depends on the type of station block. The station mode field indicates *Ratio* or *Casc* if either is selected.

When in manual mode operation, the station mode appears as *Manual*. The control output value can be adjusted while in this mode.

Table 2-4 lists the indicators that can appear in the station mode field. The type of indication depends on the escape command used during station faceplate creation.

**Table 2-4. Station Modes**

| Mode <sup>1</sup> | Description                                                                                                                             |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Auto              | Automatic mode operation. The set point and ratio index can be adjusted from the Conductor NT.                                          |
| Manual            | Manual mode operation. The control output can be adjusted from the Conductor NT.                                                        |
| Bypass            | Bypass mode operation. Control cannot be initiated from the Conductor NT.                                                               |
| Casc              | Cascade operation. Click <i>B</i> or <i>C</i> to toggle between basic and cascade operation.                                            |
| Ratio             | Ratio operation. Click <i>B</i> or <i>C</i> to toggle between basic and ratio operation. Ratio index can be changed while in this mode. |

**NOTE:**

1. A station faceplate may not have a separate station mode field and tracking indicator field. Depending on the escape commands used during faceplate creation, the faceplate may display both the tracking and mode indicators in the station mode field.



## Station Control

There are three types of stations, each controllable from the Conductor NT: basic, cascade, and ratio. A basic station allows a user to change a set point and provides manual or automatic transfers. Also, a basic station allows control output adjustment in manual control mode. A cascade station provides the same functions as a basic station plus an additional cascade mode that allows the set point to be controlled by another process variable. A ratio station provides the same functions as a basic station, but differs in its method of set point generation. A ratio adjustment factor determines the set point as a ratio of a second uncontrolled (wild) variable. The station can be put into ratio mode from the Conductor NT to adjust the ratio factor. Any type of station function block can operate as a basic station.

Station control allows changing the mode, set point, ratio index, and control output of a control station by manipulating a station function block in a multifunction processor module.

### Mode

A mode change may be required to perform a desired control action. The station must be in manual control mode to adjust the control output. It must be in auto mode to toggle the station to ratio or cascade operation.

Click auto (*A*) or manual (*M*) to select between auto and manual operation. The station cannot be toggled to automatic mode if the manual interlock is set (*Lock*).

Press cascade (*C*) while the station is in auto mode to select cascade operation. The station function block must be capable of cascade operation for this key to function for the station.

- **or** -

Press ratio (*R*) or basic (*B*) while the station is in auto mode to select between basic and ratio operation. The station function block must be capable of ratio operation for this key to function for the station.

## Set Point

The set point can be adjusted as long as set point tracking is not enabled. To change the set point:

1. Verify that the station is not in set point track mode (*SPTR*). The station function block determines in which station modes set point tracking is to be implemented. The choices are to implement set point tracking in manual mode only or to implement it in both automatic and manual mode.
2. The value can be changed using one of three methods. Click *SP* and enter a value in the pop-up window with the keyboard or by using the mouse to enter the numbers, drag the pointer along the set point bar to the desired position, or press the ramp keys to increment or decrement the value.

**NOTE:** The value automatically ramps slowly up or down when using the arrow keys or the pointer. When entered in the pop-up menu, changes do not start until *OK* is clicked. Click *Cancel* to exit without change.

The dynamic pointer will move up or down the scale to reflect the entered value.

## Ratio Index

The ratio index can be changed while the station is in *Ratio* mode. To change the ratio index:

1. Verify the station is in ratio control mode (*Ratio*). If not, change the mode.
2. The value can be changed using one of three methods. Click *RI* and enter a value with the keyboard or by using the mouse to enter the numbers. Drag the pointer along the ratio index bar to the desired position, or click the slew arrows to increment or decrement the value.

**NOTE:** The value automatically ramps slowly up or down when using the arrow keys or the pointer. When entered in the pop-up menu, changes do not start until *OK* is clicked.

The dynamic pointer will move up or down the scale to reflect the entered value.



## Control Output

The control output can be changed while the station is in manual mode. To change the control output:

1. Verify the station is in manual control mode (*Manual*). If not, change the mode.
2. The value can be changed using one of three methods. Click *OUT* and enter a value with the keyboard or by using the mouse to enter the numbers. Drag the pointer along the output bar to the desired position, or click the slew arrows to increment or decrement the value.

**NOTE:** The value automatically ramps slowly up or down when using the arrow keys or the pointer. When entered in the pop-up menu, changes do not start until *OK* is clicked.

The dynamic pointer will move up or down the scale to reflect the entered value.

## Device Control

A process device is controlled by manipulating the control configuration in the multifunction processor module. The faceplates used for device control give feedback to verify when changes requested from the Conductor NT are actually implemented by a device.

## Remote Control Memory Faceplate

The remote control memory (RCM) faceplate represents a remote control memory function block in a multifunction processor module. This function block provides a set and reset, flip-flop memory to control a process device. An RCM tag is required to monitor and control the output of this function block.

Figure 2-2 details the information presented in a remote control memory faceplate.

The remote control memory block exception reports the current state, feedback state, permissive state, override status, alarm status, and quality presented in the RCM faceplate. The following information explains the attributes that relate to an RCM tag and can be incorporated into any graphic or custom

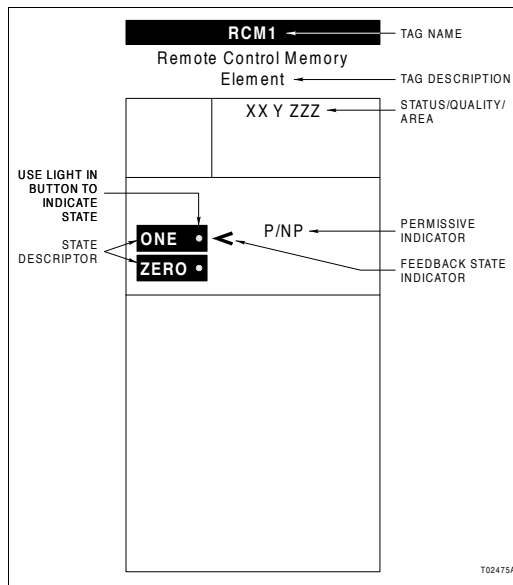


**Figure 2-2. Remote Control Memory Faceplate**

faceplate. Figure 2-2 shows the location of the attributes described.

|                            |                                                                                                                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feedback State Indicator   | Gives a feedback indication to verify the change in state of a device and to show its current output state. The arrow positions at either the one or zero state as soon as feedback is returned. |
| One State Descriptor       | Describes a one state (logic one) output of the RCM function block. This descriptor is the one state descriptor defined in the database for the tag.                                             |
| Output Indicator (Red Dot) | Identifies the requested logic state to be output by the RCM block. For example, the output is a logic one when it is in the one state descriptor.                                               |
| Permissive Indicator       | Shows the status being reported as the permissive input to the function block. The block must be in a permissive state to change the RCM function block to its one state (set). An SP            |



identifies the RCM as being set to permissive. An *NP* indicates nonpermissive.

**Zero State Descriptor** Describes a zero state (logic zero) output of the RCM function block. This descriptor is the zero state descriptor defined in the database for the tag.

## RCM Control

RCM control allows changing the output of a remote control memory function block in a multifunction processor module. The remote control memory block provides a set and reset signal to a process device. The RCM function block acts on one of two inputs to develop its output. The block accepts both a control configuration driven input and an input from the Conductor NT.

The two inputs are also differentiated by the type of input. The control configuration can initiate either a pulsed or sustained command to the block where the Conductor NT can only input a pulsed command. A sustained input, which remains in a set logic state, overrides any pulsed input. A pulsed input is a one-cycle transition used to trigger a state change. In either case, the block maintains its current output even if the input is removed. The output remains in either a set or reset state until another command is received to change the output state.

A pulsed set command from the Conductor NT causes the block to output a logic one and a pulsed reset command causes a logic zero output. This occurs as long as the control logic is not providing a sustained input to the block. A change to the one state (set) can only occur when the RCM function block is set to permissive.

## Changing the Output State

The RCM function block output can only be changed from the Conductor NT if the block is not in a nonpermissive (*NP*) condition. The block must be set to permissive (*P*) to change the state.

To change remote control memory output, Click:

One state output.

- **or** -

Zero state output.

The red dot indicates the current selection and will move to reflect the change. The feedback indicator will update after feedback is received from the process.

## Remote Manual Set Constant Faceplate

The remote manual set constant (RMSC) faceplate is the interface to a remote manual set constant function block in a multi-function processor module. This function block inserts a constant value used in the process control configuration. An RMSC tag is required to both monitor and change the constant value provided by the block from the Conductor NT.

Figure 2-3 details the information presented in a remote manual set constant faceplate.

The remote manual set constant block exception reports the constant value, high and low limits, tracking, alarm status, and quality that display in the RMSC faceplate. The following information explains the attributes that relate to an RMSC tag and can be incorporated into any graphic or custom faceplate. Figure 2-3 shows the location of the attributes described.

|                             |                                                                                                                                                                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current Value               | Is the value that is currently set and is being reported as the constant value in the RMSC block. This value can be changed from the Conductor NT if the tag is not in track mode.                                                               |
| Engineering Unit Descriptor | Shows the unit of measurement for the constant value. The RMSC function block reports an EUD index number to select the appropriate engineering unit descriptor.                                                                                 |
| High and Low Limits         | Are the maximum and minimum acceptable values. Only values that fall within this maximum and minimum range can be entered. An attempt to enter a value outside these limits causes an error message prompt.                                      |
| Tracking Indicator          | Indicates when an RMSC block has been set to tracking mode. The control logic can force the block to track an alternate process variable. A <i>T</i> displays to indicate tracking mode. The value cannot be changed when the block is tracking. |

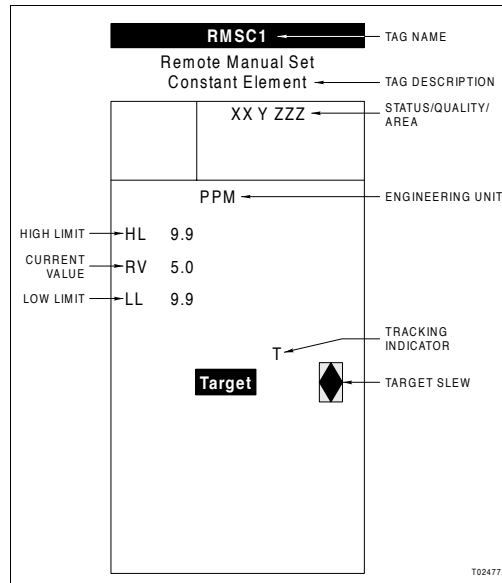


Figure 2-3. Remote Manual Set Constant Faceplate

## RMSC Control

RMSC control allows changing a constant value in a remote manual set constant function block while a multifunction processor module is in execute mode. A new value can be entered at any time except when the *T* (tracking) indicator is present.

### Changing the Value

The RMSC block value cannot be changed while the block is in *T* (tracking) mode. The value can be changed using one of two methods:

1. Click *Target* and enter a value in the window with the keyboard.

- **or** -

2. Use the mouse to press the slew arrows to increment or decrement the value.

The RMSC function block will not accept a value that is outside the high and low limits. When entering or ramping the value, the *Target* field is updated to reflect the change.

**NOTE:** The value automatically ramps slowly up or down when using the arrow keys. When entered in the pop-up menu change does not start until *OK* is clicked.

Device Driver Faceplate

The device driver (DD) faceplate represents a device driver function block in a multifunction processor module. This function block provides an on or off signal to control a process device. A DD tag is required to both monitor and change the output provided by the block from the Conductor NT.

Figure 2-4 details the information presented in a device driver faceplate.

The device driver block exception reports the current state, two feedback states, override status, mode, alarm status, and quality that display in the DD faceplate. The following information explains the attributes that relate to a DD tag and can be incorporated into any graphic or custom faceplate. Figure 2-4 shows the location of the attributes described.

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feedback Indicator Descriptors | <p>Describe the feedback signals input to the DD function block. The feedbacks will indicate either an on (logic one) or off (logic zero) state. The faceplate displays the zero and one descriptors defined in the database for feedback one and two.</p> <p>The feedback indications provide a verification of the actual state of the field device. When a change is initiated, the descriptors do not change until the block tests the feedback inputs. This does not occur until after a specified time elapses. The DD block also tests the feedback signals to determine if the output status is either good or bad.</p> |
| Station Mode                   | <p>Shows the current operating condition of the block. A device driver block can be configured to operate in automatic mode only, automatic and manual mode, or remote mode only. The device driver function block specifications determine the acceptable operating modes.</p> <p>While in auto mode, the control logic sets the output state of the device driver block. The block only provides an update to</p>                                                                                                                                                                                                             |

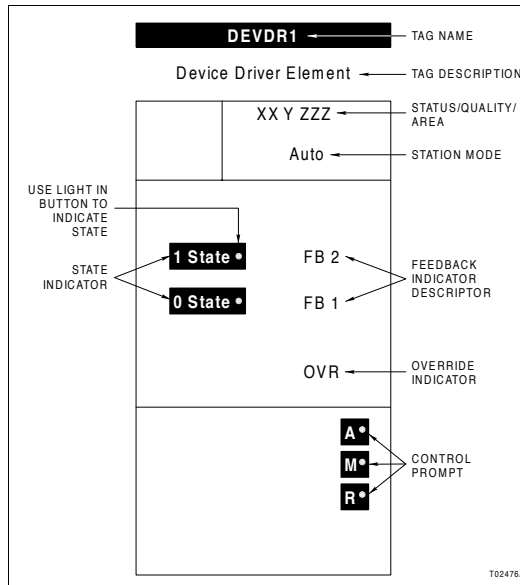


**Figure 2-4. Device Driver Faceplate**

the display. Manual mode allows changing the output state from the Conductor NT. If the DD block is in remote control mode, state changes cannot be initiated from the Conductor NT. The block output tracks the value of another function block in the process control configuration.

The current control mode is identified by a red dot in the current mode control prompt.

|                            |                                                                                                                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| One State Descriptor       | Describes a one state (logic one) output of the DD function block. This descriptor is the one state descriptor defined in the database for the tag.                                       |
| Output Indicator (Red Dot) | Identifies the requested logic state to be output by the DD block. For example, the output is a logic one when it is next to the one state descriptor.                                    |
| Override Indicator         | Identifies an override condition. Normally, the device driver block determines the output status by comparing the feedback signals to an expected condition defined in its configuration. |

An *OVR* indication occurs when the DD block is set to override its reported output status. The override forces the status to zero (good).

**Zero State Descriptor** Describes a zero state (logic zero) output of the DD function block. This descriptor is the zero state descriptor defined in the database for the tag.

## DD Control

DD control allows manually changing the output of a device driver function block in a multifunction processor module. The device driver block provides a digital signal to a process device.

The DD function block can develop its outputs based on control logic or an input from the Conductor NT. Or, it can be unconditionally set with interlock logic. The function block specifications determine which will occur. The operating modes also depend on this selection. The block can be set to allow automatic mode only, automatic and manual mode, or remote mode only.

## Changing the Output State

The DD block output cannot be changed while the block is in remote mode. Manual mode control may or may not be permitted while the block is in override (*OVR*). This depends on the device driver block specifications.

To change the device driver output:

1. Click *[M]* to toggle to manual mode.
2. Click the desired state:

One state output.

- **or** -

Zero state output.

The red dot indicates the current selection and will move to reflect the change. The feedback indicator will update after feedback is received from the process.



## Multistate Device Driver Faceplate

The multistate device driver (MSDD) faceplate represents a multistate device driver function block in a multifunction processor module. This function block has three separate output conditions to provide three state process device control. An MSDD tag is required to both monitor and change the output provided by the block from the Conductor NT.

Figure 2-5 details the information presented in a device driver faceplate.

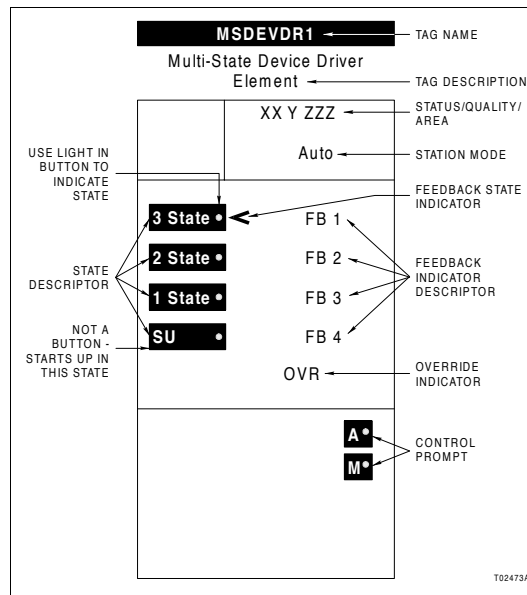


Figure 2-5. Multistate Device Driver Faceplate

The multistate device driver block exception reports the current state, four feedback states, override status, mode, alarm status, and quality presented in the MSDD faceplate. The following information explains the attributes that relate to an MSDD tag and can be incorporated into any graphic or custom faceplate. Figure 2-5 shows the location of the attributes described.

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feedback Indicator Descriptors | <p>Describe the feedback signals input to the MSDD function block. The feedbacks will indicate either an on (logic one) or off (logic zero) state. The faceplate displays the zero and one descriptors defined in the database for feedback one through four.</p> <p>The feedback indications provide a verification of the actual status of the field device. The MSDD block uses the feedback signals to determine if the output status is either good or bad.</p>                            |
| Feedback State Indicator       | Identifies the current output based on feedback from the process. When a change is initiated, the indicator maintains its position until a specified time elapses before testing the feedback inputs. After the time elapses, the indicator positions on the appropriate state based on the feedback.                                                                                                                                                                                           |
| Station Mode                   | <p>Shows the current operating condition of the block. A multi-state device driver block can be configured to operate in automatic mode only or automatic and manual mode. The MSDD function block specifications determine the acceptable operating modes.</p> <p>While in auto mode, the control logic sets the output state of the multistate device driver block. The block only provides an update to the display. Manual mode allows changing the output state from the Conductor NT.</p> |
| One State Descriptor           | Describes a one state (output mask one) output of the MSDD function block. This descriptor is the one state descriptor defined in the database for the tag.                                                                                                                                                                                                                                                                                                                                     |
| Output Indicator (Red Dot)     | Identifies the requested output of the MSDD block. For example, the requested output is output mask three when next to the three state descriptor. Refer to <b>MSDD Control</b> in this section for an explanation of output masks.                                                                                                                                                                                                                                                             |
| Override Indicator             | Identifies an override condition. Normally, the multistate device driver block determines the output status by comparing the feedback signals to an expected condition defined in its configuration. OVR occurs when the MSDD block is set to override its reported output status. The override forces the status to zero (good). The MSDD can be configured to default to a specific mode and output when in an override condition.                                                            |
| Three State Descriptor         | Describes a three state (output mask three) output of the MSDD function block. This descriptor is the three state descriptor defined in the database for the tag.                                                                                                                                                                                                                                                                                                                               |



|                       |                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Two State Descriptor  | Describes a two state (output mask two) output of the MSDD function block. This descriptor is the two state descriptor defined in the database for the tag. |
| Zero State Descriptor | Describes a zero state (default mask) output of the MSDD function block. This descriptor is the zero state descriptor defined in the database for the tag.  |

## MSDD Control

MSDD control allows a manual change of the output of the multistate device driver function block in a multifunction processor module. The multistate device driver block provides three state control for a process device.

The MSDD function block can develop its outputs based on control logic or an input from the Conductor NT. In **auto** mode, two digital inputs from the control configuration select a mask that drives the outputs. In **manual** mode, output masks are selected by pressing certain keys on the Conductor NT. The function block can be set to allow automatic mode only or both automatic and manual mode.

Four separate output masks defined in the MSDD configuration determine the control output signals that are sent to a process device. Each mask, defined as a three-bit code, specifies the state of each of three MSDD block outputs. A specific output mask is selected by two inputs to the block.

## Changing the Output State

The MSDD block output cannot be changed while the block is in automatic (*Auto*) mode. Manual mode control may or may not be permitted while the block is in an override (*OVR*) condition. This depends on the multistate device driver block specifications.

To change the multistate device driver output:

1. Click *[M]* to toggle to manual mode.
2. Click:

Three state outputs (output mask three).

- **or** -

Two state outputs (output mask two).

- **or** -

One state outputs (output mask one).

The red dot indicates the current selection and will move to reflect the change. The feedback indicator will update after feedback is received from the process.

The MSDD function block may be set up to prevent random output changes while in manual mode. This prevents accidental upsets to the process. In this case, a sequence defined in the function block must be followed. The block identifies which output states can be selected based on the current output state.

## Remote Motor Control Block Faceplate

The remote motor control block (RMCB) faceplate represents a remote motor control function block in a multifunction processor module. This function block implements a start and stop logic sequence to direct the startup or shutdown of a process device. An RMCB tag is required to both monitor and change the output provided by the block from the Conductor NT.

Figure 2-6 details the information presented in a remote motor control block faceplate.

The remote motor control block exception reports the current state, two feedback states, two permissive states, fault status, error code, alarm status, and quality that display in the RMCB faceplate. The following information explains the attributes that relate to an RMCB tag and can be incorporated into any graphic or custom faceplate. Figure 2-6 shows the location of the attributes described.

|                |                                                                                                                                                                                                                                                                |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bad Start Text | Displays when the RMCB block has detected a bad start of the process device. The block monitors the feedback signals to determine a bad start.                                                                                                                 |
| Error Code     | Describes one of ten different error codes that can be reported by the RMCB block: <ul style="list-style-type: none"> <li>0 - No error.</li> <li>1 - Stopped.</li> <li>2 - Interlock one.</li> <li>3 - Interlock two.</li> <li>4 - Interlock three.</li> </ul> |

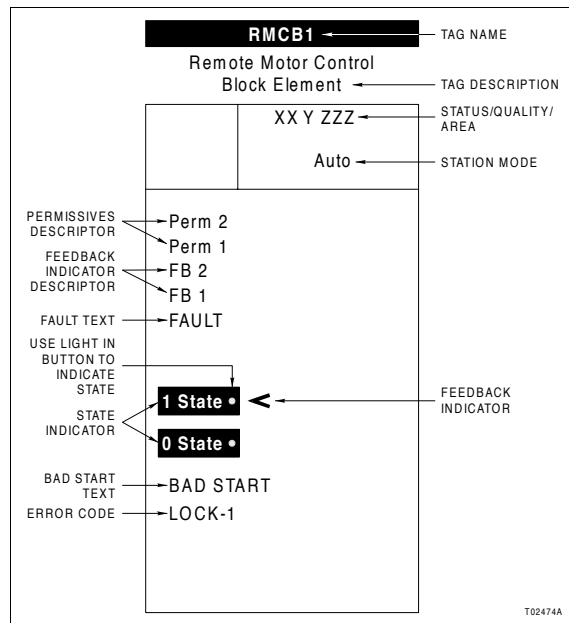


Figure 2-6. Remote Motor Control Block Faceplate

- 5 - Interlock four.
- 6 - Feedback one set to zero state.
- 7 - Feedback two set to zero state.
- 8 - Feedback one set to one state.
- 9 - Feedback two set to one state.

**NOTE:** The block sends an interlock error code when an interlock is set to a logic zero.

Only one error code displays at a time. A different text string is associated with each error code. A text set that defines a text string for each code must be created before the error text can be displayed. Refer to the discussion on remote motor control text in the **Conductor NT Configuration** instruction for further explanation.

**Fault Text** Describes a fault condition being reported by the RMCB function block. A fault occurs when one of four interlock inputs to

the block is set to off (or logic zero). All interlocks must be on (or logic one) to clear a fault.

**Feedback Indicator Descriptors** Describe the feedback signals input to the RMCB function block. The feedbacks will indicate either an on (logic one) or off (logic zero) state. The faceplate displays the zero and one descriptors defined in the database for feedback one and two.

The feedback indications provide a verification of the actual status of the device. The RMCB block uses the feedback signals to determine if the output status is either good or alarm. The feedback signals are also used to determine whether to maintain a run output or to force the output to stop.

**Feedback Indicator** Identifies the current output based on feedback from the process. When a change is initiated, the indicator maintains its position until a specified time elapses before testing the feedback inputs. After the time elapses, the indicator positions on the appropriate state. Table 2-5 shows the relationship between reported feedback state and feedback indication.

**Table 2-5. RMCB Feedback Signal to Feedback Indicator Relationship**

| <b>FB1 State</b> | <b>FB2 State</b> | <b>One State</b> | <b>Zero State</b> |
|------------------|------------------|------------------|-------------------|
| 0                | 0                | Blank            | Hollow            |
| 0                | 1                | Blank            | Hollow            |
| 1                | 0                | Blank            | Hollow            |
| 1                | 1                | Filled           | Blank             |

**One State Descriptor** Describes a one state output of the RMCB function block. A one state for the RMCB block sets a device to a running state. This descriptor is the one state descriptor defined in the database for the tag.

**Output Indicator (Red Dot)** Identifies the currently requested output of the RMCB function block. When next to the one state descriptor, the requested output is run (logic one). The block is set to stop when positioned next to the zero state descriptor.

**Permissive Descriptor** Describe the permissive inputs to the function block. The faceplate displays the zero and one descriptors defined in the database for permissive one and permissive two. Both permissive inputs to the block must be in a permissive state (one state) to change the RMCB block to its one state (run).



**Zero State Descriptor** Describes a zero state output of the RMCB function block. A zero state for the RMCB block sets a device to a stopped state. This descriptor is the zero state descriptor defined in the database for the tag.

## RMCB Control

RMCB control allows changing the output of a remote motor control function block in a multifunction processor module. The remote control memory block provides a start and stop signal to a process device. The RMCB function block acts on one of two inputs to develop its output. The block accepts both a control configuration driven input and an input from the Conductor NT.

## Changing the Output State

The RMCB block can only be changed from the Conductor NT (or control logic) if the permissive descriptors indicate a permissive state (one state). A fault must also be cleared before a change can occur. The fault is driven by the state of the interlock inputs.

To change remote motor control block output, press:

*One state output (run).*  
*Zero state output (stop).*

The red dot indicates the current selection and will move to reflect the change. The feedback indicator will update after feedback is received from the process. Certain display faceplates, explained earlier, will update to indicate a bad start if an unsuccessful startup occurs.

## Data Acquisition Functions

Process information is received in exception reports from function blocks configured in a multifunction processor module. Data acquisition tags allow accessing specific function blocks within the control configuration to display analog values and digital state changes. An analog value can be a process variable such as flow rate, drum level, pressure, temperature, etc. A digital state can be an on or off, set or reset, and start or stop state for a process device. The tags also allow presenting alarm conditions and quality reported by the function blocks. The

control ability for data acquisition tags allows changing process conditions from the Conductor NT by initiating changes to the multifunction processor module.

## Data Acquisition Faceplates

Dynamic faceplates for the different types of data acquisition tags can be either standard or user created. Standard data acquisition faceplates are provided. A data acquisition faceplate can be a fixed part of a display or it can be called as a pop-up faceplate. The same control actions can be performed from a fixed faceplate as can be performed from a pop-up faceplate. This assumes that the symbol file used for the fixed faceplate is also the same one used for the pop-up faceplate, or if pop-up faceplate is different it has all the same capabilities as the fixed faceplate built in.

## Data Acquisition Tags

Data acquisition tags provide access to data acquisition function blocks within a module. The access can be used to manually initiate changes and to monitor the results of both automatic and manual operations. Automatic refers to operation being performed under multifunction processor module execution. Manual refers to those actions initiated after taking a function block out of automatic multifunction processor control. Table 2-6 lists the data acquisition tags and the function codes (FC) they associate with.

**Table 2-6. Data Acquisition Tags**

| Tag                | Function Code <sup>1</sup>       |
|--------------------|----------------------------------|
| ANALOG             | Analog exception report, FC 30   |
| DADIG              | Data acquisition digital, FC 211 |
| DAANG <sup>2</sup> | Data acquisition analog, FC 177  |
| DIGITAL            | Digital exception report, FC 45  |
| TEXTSTR            | User defined data export, FC 194 |

**NOTES:**

1. Information reported by the data acquisition function codes can be incorporated into any display. This information is not restricted to faceplate symbols.

2. Does not implement the complete functionality of FC 177.



Refer to the **Function Code Application Manual** for a description of the data acquisition function codes and their specifications.

## Control Inhibit

Control can be inhibited at the module level. This prevents control changes from being initiated from the Conductor NT. The inhibit status is checked when a control action is initiated. If inhibited, an invalid action message appears. Table 2-7 shows the inhibit indications that appear for data acquisition tags.

Table 2-7. Control Inhibit Indications (Data Acquisition Tags)

| Tag     | Inhibit Indication |
|---------|--------------------|
| DADIG   | Locked             |
| DAANG   | Locked             |
| TEXTSTR | User Text Lock     |

## Common Data Acquisition Faceplate Attributes

The standard faceplates share some common attributes.

- Alarm status/quality/group.
- Red tag descriptor.
- Tag descriptor.
- Tag name.

These attributes can be incorporated into any graphic or custom faceplate.

Status Alarm  
Suppression

The DAANG, DADIG, and TEXTSTR tags present alarm suppression status in the status position of the alarm status/quality/group field. An **!!** appears when alarm suppression is enabled for the tag.

## Analog Faceplate Attributes

This part of the section describes two basic data acquisition faceplate symbols used to present analog tag values. These faceplates do not have any control capabilities.

Figure 2-7 details the information presented in a standard analog faceplate.

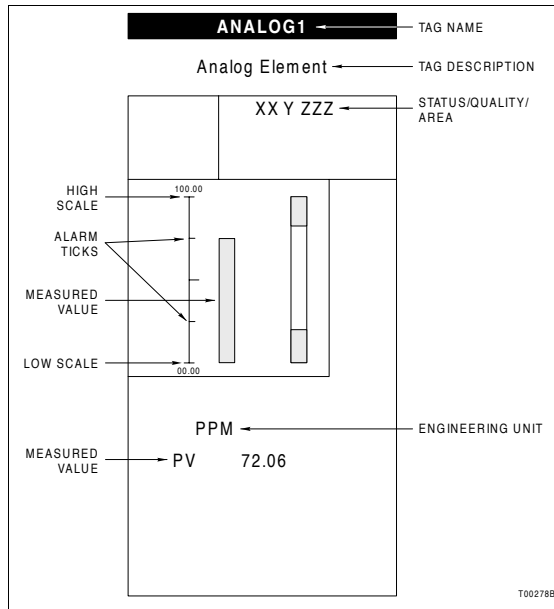


**Figure 2-7. Analog Faceplate**

Figure 2-8 details the information in a standard analog annunciator.

An analog function block exception reports the current analog value, alarm status, and quality presented in these faceplates. The following information explains the attributes that relate to an analog type of tag and can be incorporated into any graphic or custom faceplate. Figures 2-7 and 2-8 show the location of the attributes described.

**Alarm Comment** Describes an alarm condition. The comment can be up to 64 characters. The comment can describe, for example, the purpose of the alarm indication or operator actions required to correct the alarm. An alarm comment can be defined for each tag alarm condition.

**Current Reported Value** Is the value being exception reported by the analog function block. This value is dynamic and changes as the variable being monitored changes.

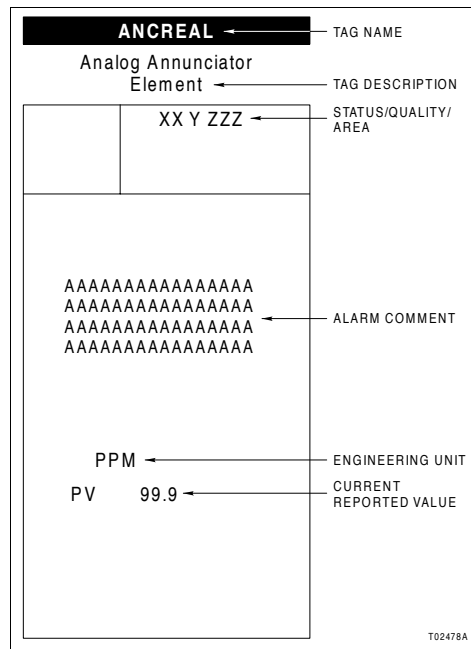


**Figure 2-8. Analog Annunciator Faceplate**

|                             |                                                                                                                                                                                                                                                                                                        |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering Unit Descriptor | Shows the unit of measurement for the analog value. The analog function block reports an EUD index number to select the appropriate engineering unit descriptor.                                                                                                                                       |
| High and Low Scale Limits   | Are the maximum and minimum value associated with the top line and baseline of the static scale respectively. The limits are derived from the zero and span configured in the analog function block for either the process variable or the set point depending on the station faceplate configuration. |
| Alarm Bar                   | Provides a scale reference to determine when the PV dynamic bar passes an alarm limit. This bar uses colored areas to indicate the position of the high and low alarm limit points.                                                                                                                    |
| Measured Value (PV)         | Is the value of the process variable exception reported from the control faceplate.                                                                                                                                                                                                                    |

## Digital Faceplate Attributes

This part of the section describes two basic data acquisition faceplate symbols used to present digital states. These faceplates do not have any control capabilities.

Figure 2-9 details the information presented in a standard digital display faceplate. Figure 2-10 details the information presented in a digital annunciator.

A digital function block exception reports the current state, alarm status, and quality presented in these faceplates. The following information explains the attributes that relate to a digital type of tag and can be incorporated into any graphic or custom faceplate. Figures 2-9 and 2-10 show the location of the attributes described.

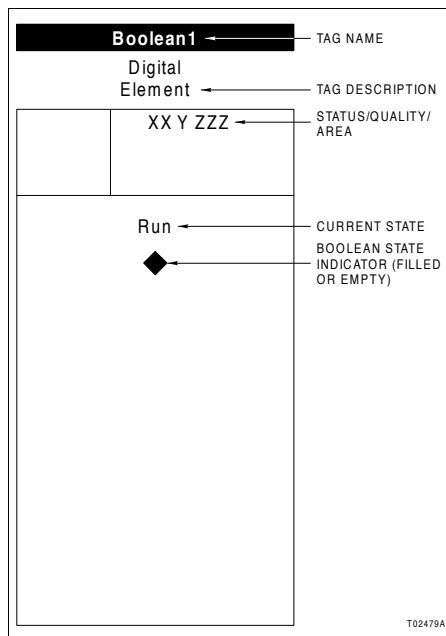


Figure 2-9. Digital Faceplate

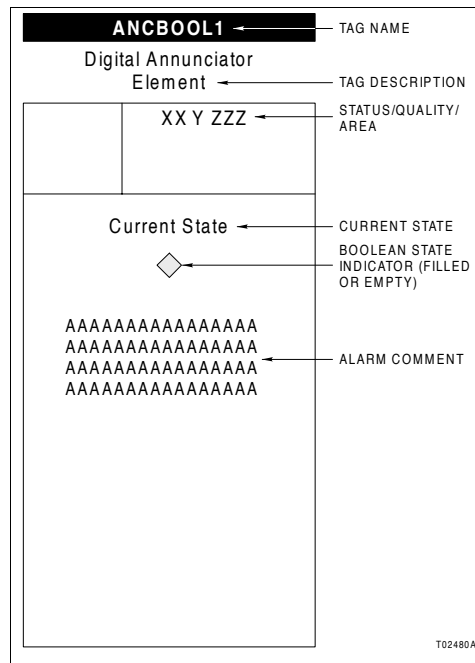


**Figure 2-10. Digital Annunciator Faceplate**

**Alarm Comment** Describes an alarm condition. The comment can be up to 64 characters. The comment can describe, for example, the purpose of the alarm indication or operator actions required to correct the alarm. An alarm comment can be defined for each tag alarm condition.

An alarm for a digital type of tag is used to identify one of two possible states. The specific state that causes an alarm indication is determined by the function block configuration. A digital alarm may not actually be a problem condition, but instead an indication of a digital state transition.

**Current State** Describes the output state being exception reported by a digital function block. This state is dynamic and changes as the logic state being monitored changes. The descriptor that appears is either the one or zero state descriptor defined in the database.

## Data Acquisition Analog Faceplate

A data acquisition analog function code (FC 177) is used to report an analog value. It provides multilevel, rate of change, and deviation alarming capabilities for an analog point. It also supports several time-based alarming options with time-based alarm filtering capabilities. The Conductor NT gives access to the function block to allow viewing the process variable being monitored by the block and its status. Also, it allows interaction with the block to change the input source and to enter a user inserted value if desired. The block stores the user inserted value in nonvolatile memory.

### DAANG Faceplate Attributes

The data acquisition analog (DAANG) faceplate represents a data acquisition analog function block in a multifunction processor module. A DAANG tag is required to monitor and control the operation of this function block.

Figure 2-11 details the information presented in a data acquisition analog faceplate.

The data acquisition analog block exception reports the current analog value, input source mode, alarm status, and quality that display in a data acquisition analog faceplate. The following information explains the attributes that relate to a DAANG tag and can be incorporated into any graphic or custom faceplate. Figure 2-11 shows the location of the attributes described.

|                           |                                                                                                                                                                                                                                                                                                           |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Priority Descriptor | Describes the priority of an alarm level or bad quality being reported by the function block. A priority level can be selected for each tag alarm condition.                                                                                                                                              |
| Current Reported Value    | Is the value being exception reported by the data acquisition analog function block. This is the function block output. The output value depends on the input source selection and can be an actual process value, the alternate input value, or the user inserted value.                                 |
|                           | During data acquisition analog function block configuration, constraint limits can be established for the normal, user inserted, and alternate values. The maximum and minimum value displayed and reported by the block will always be within the constraint limits even if the variable being monitored |

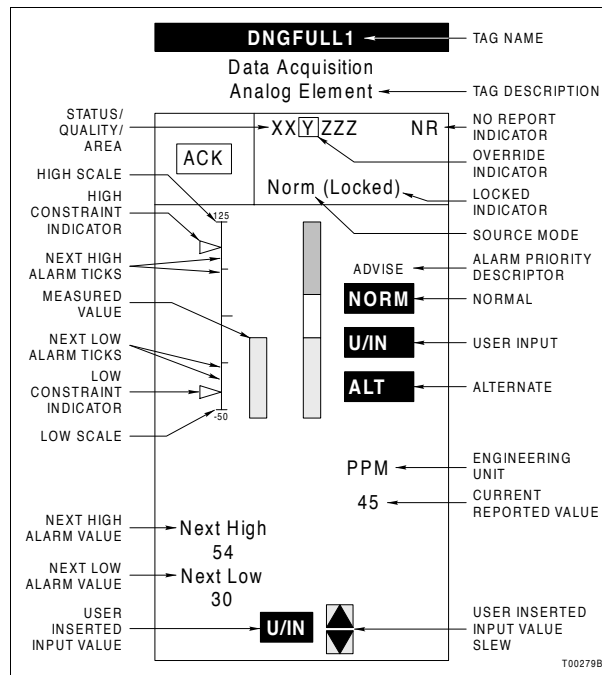


Figure 2-11. Data Acquisition Analog Faceplate

exceeds the constrained level. The value is always the true value when within the constrained limits.

|                             |                                                                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measured Value              | Shows the value as an expanding bar.                                                                                                                                                                                                                     |
| Engineering Unit Descriptor | Shows the unit of measurement for the analog value. The data acquisition analog function block reports an EUD index number to select the appropriate engineering unit descriptor.                                                                        |
| High Scale                  | Is the highest value for the bar graph and constraint limits. The dynamic bar representation of the value and the constraint limit indicators are displayed proportionally between the high display reference value and the low display reference value. |
| Low Scale                   | Is the lowest value for the bar graph and constraint limits. The dynamic bar representation of the value and the constraint                                                                                                                              |

limit indicators are displayed proportionally between the high display reference value and the low display reference value.

**Next High Alarm Bar** Provides a scale reference to easily determine when the PV dynamic bar passes an alarm limit. This bar uses colored areas to indicate the position of the high and low alarm limit points. Refer to Table 2-8 to determine the criteria for this field.

**Table 2-8. DAANG Faceplate Next High and Next Low Alarm Limit Criteria**

| Current Alarm State                  | Next High Value <sup>1</sup>              | Next Low Value <sup>1</sup>               |
|--------------------------------------|-------------------------------------------|-------------------------------------------|
| blank (no alarm)<br>N                | H<br>H                                    | L<br>L                                    |
| 3H<br>2H<br>H<br>L<br>2L<br>3L       | ><br>3H<br>2H<br>L<br>2L<br>3L            | 3H<br>2H<br>H<br>2L<br>3L<br>>            |
| V3H<br>V2H<br>VH<br>VL<br>V2L<br>V3L | ><br>V3H<br>V2H<br>VL<br>V2L<br>V3L       | V3H<br>V2H<br>VH<br>V2L<br>V3L<br>>       |
| HD<br>LD<br>HR<br>LR<br>!!           | Blank<br>Blank<br>Blank<br>Blank<br>Blank | Blank<br>Blank<br>Blank<br>Blank<br>Blank |

**NOTE:**

1. Value that will appear in the next alarm level fields. For example, if the current value is 45.00, the next high alarm field might be 50.00 (3H) and the next low 40.00 (2H). This indicates that the current value is between the 3H and 2H alarm values. If the current value drops below the 2H value, the 2H and H alarm values will appear.

**Next Low Alarm Bar** Provides a scale reference to easily determine when the PV dynamic bar passes an alarm limit. This bar uses colored areas to indicate the position of the high and low alarm limit points. Refer to Table 2-8 to determine the criteria for this field.

**No Report Indicator** Shows whether the function block is in a report or a no report condition. The field appears as *NR* for a no report condition or blank for a report condition. Refer to the Section 5 for the procedures to enable or disable reporting.



|                        |                                                                                                                                                                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Override Indicator     | Indicates that the block is in an override condition. The block allows an external source to override the quality status of the reported value. A box symbol around the quality field in the alarm status indicator identifies an override condition.        |
| Source Mode Descriptor | Describes the input source currently selected. The multifunction processor module reports the current mode of the block. The descriptor also identifies whether the block is locked or not locked in a certain mode. The descriptors are shown in Table 2-9. |

Table 2-9. Locked and Unlocked Indicators (DAANG)

| Source Locked | Source Unlocked |
|---------------|-----------------|
| NORM (Locked) | NORM            |
| U/IN (Locked) | U/IN            |
| ALT (Locked)  | ALT             |

## DAANG Control

DAANG control allows changing the input source selection for a data acquisition analog function block and entering a user inserted value. Refer to [Section 5](#) for the procedures to change the alarm reporting and exception reporting status of a DAANG block.

**NOTE:** When the DAANG block is in a no report condition, any mode change causes the block to output a single exception report.

## Selecting the Source Mode

The input source for the DAANG block can only be changed from the Conductor NT if the block is not in a locked state. An *(L)* appearing next to the source mode descriptor identifies a locked condition.

To select the source mode click the button of the desired mode. The selections are:

- N* - for normal mode.
- U/IN* - for user inserted mode.
- A* - for alternate mode.

A red dot will appear on the button of the selected mode.

## Changing the User Inserted Value

To change the user inserted value being stored in nonvolatile memory of a multifunction processor module:

1. Click *U/IN* in the lower left corner of the faceplate.
2. Enter the value in the pop-up window that appears.

**- or -**

Use the slew buttons to raise or lower the value.

## Data Acquisition Digital Faceplate

A data acquisition digital function code (FC 211) is used to report a digital state. It provides enhanced alarming capabilities for a digital point. The Conductor NT gives access to the function block to allow viewing the device state being monitored by the block and its status. Also, it allows interacting with the block to change the input source and to enter a user inserted value if desired. The block stores the user inserted value in nonvolatile memory.

### DADIG Faceplate Attributes

The data acquisition digital (DADIG) faceplate represents a data acquisition digital function block in a multifunction processor module. A DADIG tag is required to monitor and control the operation of this function block.

Figure 2-12 details the information presented in a data acquisition digital faceplate.

The data acquisition digital block exception reports the current state, input source mode, alarm status, and quality that displays in a data acquisition digital faceplate. The following information explains the attributes that relate to a DADIG tag and can be incorporated into any graphic or custom faceplate. Figure 2-12 shows the location of the attributes described.

|                             |                                                                                                                                                                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Priority Descriptor   | Describes the priority of an alarm level or bad quality being reported by the function block. A priority level can be selected for each tag alarm condition.                                                                                      |
| Alarm State Latch Indicator | Indicates that the function block has its alarm state latch feature enabled. The field appears as <i>Latched</i> when enabled or blank when not. Refer to <a href="#">Section 5</a> for the procedures to reset the alarm state latch if enabled. |

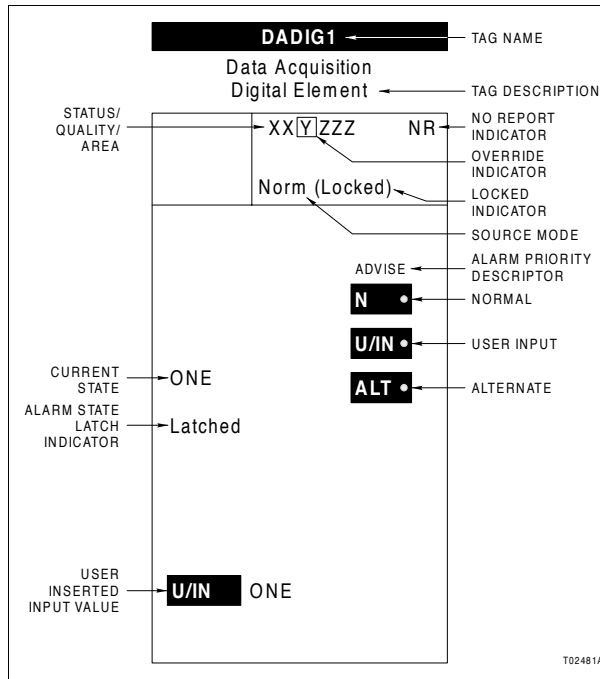


Figure 2-12. Data Acquisition Digital Faceplate

**Alarm Status** During data acquisition digital function block configuration, either an unconditioned input or a conditioned input can be chosen to drive alarming. Also, one of four modes of alarming can be chosen. Refer to the **Function Code Application Manual** to determine the effects of these features on the reported alarm status.

The block also supports automatic alarm suppression and re-alarming.

**Current State** Describes the output being reported by the data acquisition digital function block. The descriptor that appears depends on the input source selection and can be an actual process state, the alternate input state, or the user inserted state. The descriptor that appears is either the one or zero state descriptor defined in the database.

During data acquisition digital function block configuration, input conditioning can be chosen to develop the function block output. Refer to the **Function Code Application Manual** to determine the effects of this conditioning on the reported output.

|                            |                                                                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No Report Indicator        | Shows whether the function block is in a report or a no report condition. The field appears as <i>NR</i> for a no report condition or blank for a report condition. Refer to <a href="#">Section 5</a> for the procedures to enable or disable reporting.      |
| Quality Override Indicator | Indicates that the block is in an override condition. The block allows an external source to override the quality status of the reported value. A box symbol around the quality field in the alarm status/quality/group identifies an override condition.      |
| Source Mode Descriptor     | Describes the input source currently selected. The multifunction processor module reports the mode of the block. The descriptor also identifies whether the block is locked or not locked in a mode. The descriptors are shown in <a href="#">Table 2-10</a> . |

**Table 2-10. Locked and Unlocked Indicators (DADIG)**

| Locked        | Unlocked |
|---------------|----------|
| NORM (Locked) | NORM     |
| U/IN (Locked) | U/IN     |
| ALT (Locked)  | ALT      |

## DADIG Control

DADIG control allows changing the input source selection for a data acquisition digital function block and entering a user inserted value. Refer to [Section 5](#) for the procedures to change the alarm reporting and exception reporting status and to reset the alarm state latch for a DADIG block.

**NOTE:** When the DADIG block is in a no report condition, any mode change causes the block to output a single exception report.

## Selecting the Source Mode

The input source for the DADIG block can only be changed from the Conductor NT if the block is not in a locked condition. *Locked* next to the source mode descriptor identifies a locked condition.



## Changing the User Inserted State

To change the user inserted state being stored in nonvolatile memory of a multifunction processor module, press the following keys:

- One state output.
- Zero state output.

## Text String Faceplate

The text string faceplate allows interacting with an application program running in a multifunction processor module. A user defined data export function code (FC 194) in a multifunction processor module provides the interface between the Conductor NT and the program. A data export function block can also be driven by another function block rather than directly by an application program.

The text string functionality provides a means to prompt or question an operator and have the operator respond to the prompt or question in some manner. The response may be to make some type of selection, to acknowledge an event, or to provide an answer to a question. It can also be used to simply monitor and verify the progress of a process routine through descriptive text.

The capabilities provided by the text string function are not limited to the uses previously described. A C language program or batch program executing in the multifunction processor module determines the text string operations that can be performed.

## TEXTSTR Faceplate Attributes

The text string (TEXTSTR) faceplate gives access to a user defined data export function block in a multifunction processor module. A TEXTSTR tag is required to interact with this function block.

Figure 2-13 details the information presented in a text string faceplate.

The user defined data export block exception reports the text string message, alarm status, and quality that displays in a text string faceplate. The following information explains the

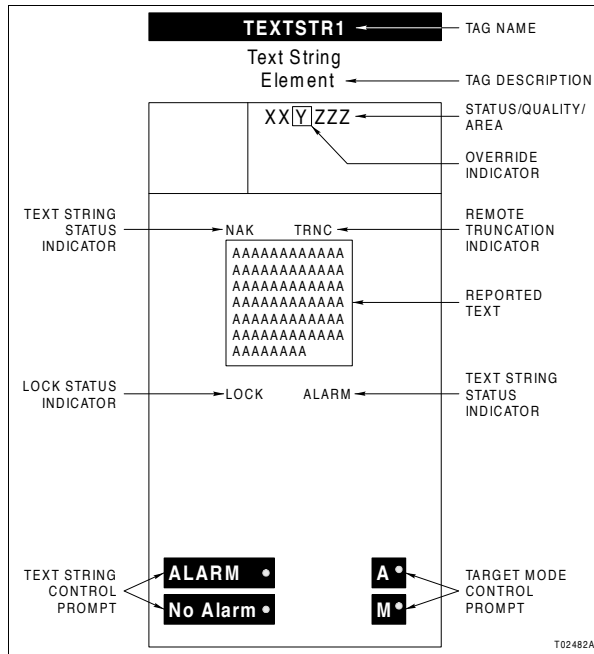


**Figure 2-13. Text String Faceplate**

attributes that relate to a TEXTSTR tag and can be incorporated into any graphic or custom faceplate. Figure 2-13 shows the location of the attributes described.

- |                            |                                                                                                                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lock Status Indicator      | Appears when the function block is in a locked condition. When locked, the block does not accept an input from the Conductor NT. The default descriptor is <i>User Text Lock</i> .                                                |
| Target Mode Control Prompt | Shows the current block operating condition. The block operates in either automatic (A) or manual (M) mode. The operating mode determines how the block output is derived. A red dot shows the current operating mode.            |
| Override Indicator         | Appears when the block is in an override condition. The block allows an external source to override its quality status. A box symbol around the quality field in the alarm status/quality/group identifies an override condition. |



|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reported Text                | Is the text string being exception reported by the user defined data export function block (FC 194). This string contains up to 80 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Text String Status Indicator | <p>Has two functions. The first text string indicates there is an alarm associated with the text string being entered if this association is considered necessary. For this purpose, the indication is either ( ) for no alarm or (A) for alarm.</p> <p>The second function is to indicate that following an operator entered response to a prompt or question the initial prompt or question was received again by the Conductor NT. This occurs when the application program has rejected the response for some reason and has sent the same text string to the Conductor NT for another response. If this happens, it is possible for a prompt to appear again with the same text string without first seeing the entered reply confirmed with a new text string. A <i>NAK</i> (negative acknowledgment) indication is given to identify that the text string is the same prompt or question that had been previously responded to, but was regenerated. This requires, however, that the program be specifically written to prompt again after rejecting an input.</p> <p>The block also supports re-arming. Refer to the <b>Function Code Application</b> instruction to determine the effects of this feature on the reported alarm status.</p> |
| Remote Truncation Indicator  | <p>Appears when the reported text string has been remotely truncated. Remote truncation is performed by a multifunction processor module or the communications interface unit of the Conductor NT. <i>TRNC</i> appears if remote truncation has occurred.</p> <p>To identify where remote truncation is occurring and to help identify a truncation error, the operating parameters page for a <i>TEXTSTR</i> tag provides text string length information. A Conductor NT string length field displays the length defined in the tag database for the <i>TEXTSTR</i> tag. A module string length field identifies the length set in the function block. A received <i>String Length</i> field shows the actual length of the text string received in the last exception report for the tag.</p> <p>Refer to <b>TEXTSTR Control</b> in this section for the procedures to call the operating parameters page.</p>                                                                                                                                                                                                                                                                                                                                      |

## TEXTSTR Control

TEXTSTR control allows the operator to respond to a prompt or question introduced by a user written application program. Control also allows changing the operating mode of the user defined data export function block to establish the output of the block. Refer to [Section 5](#) for the procedures to change the alarm reporting status for a user defined data export function block (TEXTSTR tag).

### Changing the Mode

The mode can be changed to determine the output of the user defined data export function block. Click (A) or (M) mode control to select between manual and automatic mode. The block operates in several ways depending on its input source (application program or function block) and mode (automatic or manual).

**Application Driven** When an application program drives the user defined data export block, it always controls the block output while in automatic (A) mode. It also always sets the alarm status and quality for the block.

When the block is placed in auto mode, the application can read any input from the Conductor NT. Depending on how the program is written, it may or may not update the block output based on this input. The block does not exception report a new text string to update the display unless the application itself updates the block output or changes either the alarm status or quality status of the block. The application does not echo the text string back to the Conductor NT unless the program is explicitly written to do so. An echo feature like this, which can be used to confirm that the block received the entered text, must be built into the program to occur. The block does, however, generate a new exception report automatically even if the application does not change an output when the maximum time for exception reporting expires.

When the block is in manual mode, the application can still read any input from the Conductor NT. In this case, the output may either be a new text string generated by the application, or the output may be an echo of the operator entered text string. When the block receives an input from the Conductor NT, it immediately places the input into its output buffer. This text string is output in the next exception report unless the



application overwrites it before the block generates a new exception report.

**Block Driven** The user defined data export block in auto mode operates basically the same when driven by another function block as it does when driven by an application program. The difference is that the function block driving the user defined data export block sets the alarm status and quality rather than the application program.

When the block is in manual mode, only the Conductor NT controls the block output. The block exception reports any text strings entered from the Conductor NT. The text string is echoed back as the reported text string.

Table 2-11 summarizes the user defined data export function block operation based on the input source, mode, and lock status.

**Table 2-11. TEXTSTR Faceplate Operating Conditions**

| Input          | Mode   | Status   | Operation                                                                                                                                                                                                                                                                                                   |
|----------------|--------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application    | Auto   | Locked   | The application controls the user defined data export block output not allowing any input from the Conductor NT.                                                                                                                                                                                            |
|                | Auto   | Unlocked | The application controls the user defined data export block output allowing input from the Conductor NT. The application may or may not update the block output based on the input from the Conductor NT. It depends on how the program is written.                                                         |
|                | Manual | Unlocked | Both the application and Conductor NT control the user defined data export block output. A text string received from the Conductor NT can be read by the application. The text string received from the Conductor NT becomes the block output unless the program updates the output with a new text string. |
| Function block | Auto   | Locked   | Another function block controls the user defined data export block output not allowing any input from the Conductor NT.                                                                                                                                                                                     |
|                | Manual | Unlocked | The Conductor NT controls the user defined data export block output. A text string received from the Conductor NT becomes the block output.                                                                                                                                                                 |

### Inputting a Text String

The user defined data export function block only accepts input from the Conductor NT if the block is not in a locked condition. A *User Text Lock* indication identifies a locked condition. If any

control is attempted while the block is locked, the following message appears:

*Control Invalid While in String Interlock.*

To enter a text string in response to a prompt or question:

1. The field is shaded to indicate that it is active.
2. Key in the desired text. The maximum number of characters that can be entered is 80. However, the text length field defined in the database for the TEXTSTR tag the faceplate references determines the maximum number of characters displayed and accepted by the faceplate.
3. If desired, set the alarm state. Refer to ***Setting the Alarm State*** in this section for the procedures.

When the module sends an exception report to the Conductor NT containing a text string, the exception report also contains a sequence number associated with the text. The module uses the sequence number to insure that the response received from the Conductor NT corresponds to the text that was sent. The user defined data export block increments the sequence number each time the application program updates the block output with a new text string.

The message that is sent to the module in response to a prompt or question also contains the sequence number of the message to which the operator is responding. If the module detects a mismatch between its current sequence number and the received sequence number, it ignores the response. This insures the integrity between the prompt and the answer.

For example, a response to a question is currently being typed in and the display is updated with a new question before the response being typed is finished. This causes a mismatch between the current question, which is the newly generated one, and the response when it is finished being typed and **RETURN** is pressed. To identify the mismatch, the following message appears:

*Response Is Invalid For Current Prompt.*



## Setting the Alarm State

The ability to indicate that there is an alarm associated with a response is provided. This is indicated as either alarm (A) or no alarm ( ). The default is no alarm. Refer to **TEXTSTR Faceplate Attributes** in this section for an explanation of alarm state indications.

To indicate the alarm state for a text string, Click:

*Alarm.*

*No alarm.*

## Conductor NT Faceplates

The following faceplates are specific to the Conductor NT. The analog and digital export control faceplates allow the Conductor NT to place digital or analog exception reports on the INFI-NET. The module status and INFI 90 OPEN scanner faceplates allow the Conductor NT to check the status of modules in the control system and to check the status of INFI 90 OPEN servers in the Conductor NT network.

## Analog Export

Analog export tags exist only within the Conductor NT. Whenever the operator or a Conductor NT application (like @aGlance) changes the value of an analog export tag, the Conductor NT will generate an exception report for that tag. This exception report can be received by other control system consoles and by process module blockware.

The faceplate (ANGRPRT1) has a **TARGET** button plus ramp up and ramp down to change the tag's process value (Fig. 2-14).

|                                   |                                                                                                                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering Unit Descriptor (EUD) | Shows the unit of measurement for the analog value. The data acquisition analog function block reports an EUD index number to select the appropriate engineering unit descriptor. |
| Target Value                      | Opens a value entry window. Entering a new value in the window changes the process value of the tag. This value can also be changed by using the slew buttons on the faceplate.   |

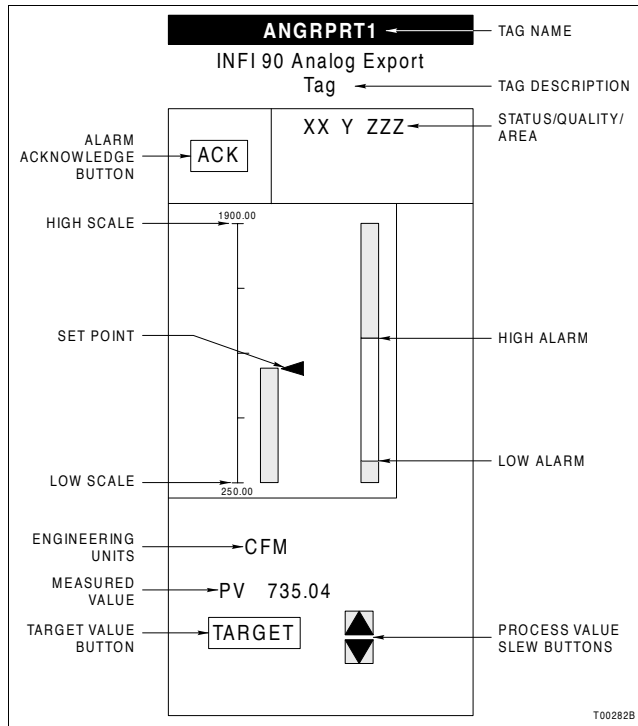


Figure 2-14. Analog Export Faceplate

## Digital Export

Digital export tags exist only within the Conductor NT. Whenever the operator or a Conductor NT application (like @aGlance/IT™) changes the value of an digital export tag, the Conductor NT will generate an exception report for that tag. This exception report can be received by other control system consoles and by process module blockware. The faceplate (DIGRPRT1) has a toggle to change the state of the digital output of the tag (Fig. 2-15).

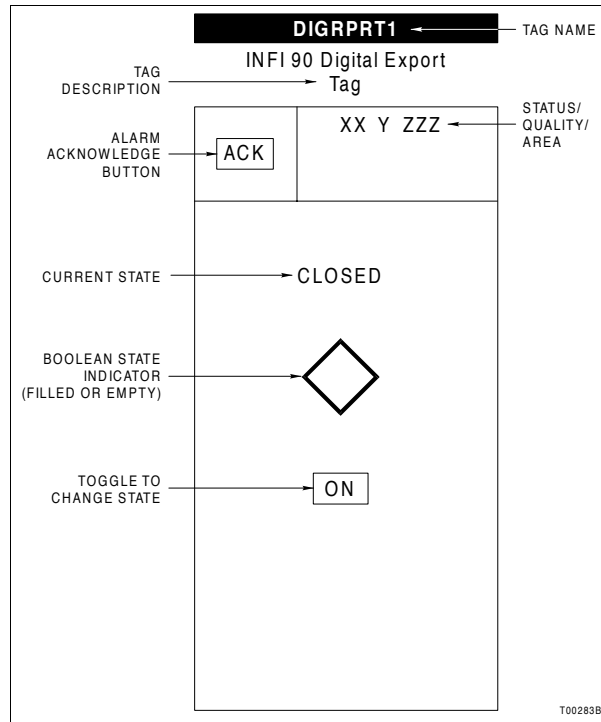


**Figure 2-15. Digital Export Faceplate**

**Current State** Describes the output state being exception reported by a digital function block. This state is dynamic and changes as the logic state being monitored changes. The descriptor that appears is either the one or zero state descriptor defined in the database.

## Module Status

Module status tags can be configured for every process module, process node, gateway, bridge, and computer interface in a distributed control system.

The faceplate (MODULE1) shows the INFI 90 OPEN address, the type of module or node, and the operating mode (*Configure*, *Error*, or *Execute*) for the tag (Fig. 2-16).

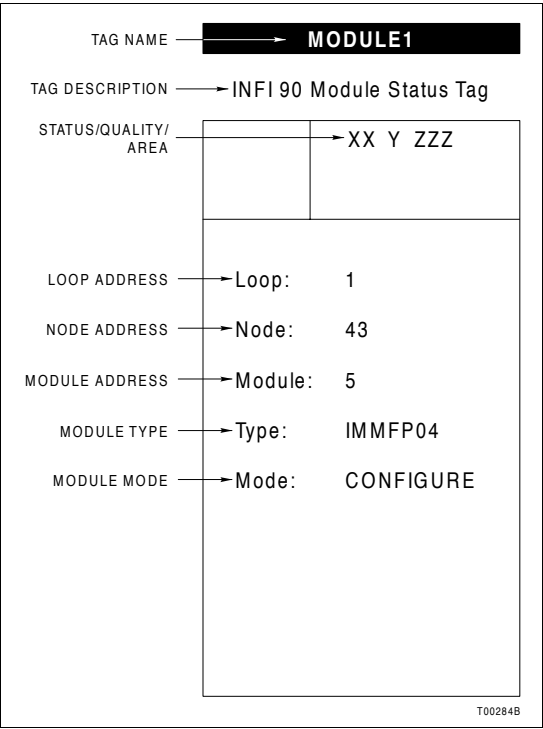


Figure 2-16. Module Status Faceplate

### INFI 90 OPEN Scanner Tag

One INFI 90 OPEN scanner tag is assigned to every distributed control system server. The faceplate (SERVER1) shows the INFI 90 OPEN address of the server and indicates whether the server is online or offline (Fig. 2-17). This faceplate also details the status of the other server in a primary/redundant pair.



|                           |                       |          |  |
|---------------------------|-----------------------|----------|--|
| TAG NAME                  | → <b>SERVER1</b>      |          |  |
| TAG DESCRIPTION           | → INFI 90 Scanner Tag |          |  |
| STATUS/QUALITY/<br>AREA   | ACK                   | XX Y ZZZ |  |
| LOOP ADDRESS<br>OF SERVER | Loop:                 | 1        |  |
| NODE ADDRESS<br>OF SERVER | Node:                 | 35       |  |
| SERVER STATUS             | Status:               | Online   |  |
|                           | ACTIVE                |          |  |
|                           | Make Active           |          |  |
|                           | Unavailable           |          |  |

T021548

Figure 2-17. INFI 90 OPEN Scanner Faceplate

## Point Display

The point display provides detailed information for a tag in the global database, including information not shown on the group display. In addition, the parameters of a tag may be changed from the point display.

### Accessing the Point Display

A point display can be accessed by one of several methods:

1. From a group display, click on the tag name pushbutton of the desired tag.

2. From the group info window of a summary display click on the tag name pushbutton of the desired tag.
3. From the alarm review display, click *P* on the line containing the desired tag.
4. From the operator window click *Select > Point*. The enter tag name window will appear. Type the tag name of the point (using the keyboard) to access a video version of the keyboard, click on the up arrow pushbutton. The video keyboard will be displayed. Press **RETURN** or click on *OK* to complete the operation.
5. From the keyboard, press **F4**. The enter tag name window will appear. Enter the tag name as described in item four above.

If a point display is accessed from a group (i.e., by method one or two), the point display for the next tag in the group can be accessed by using **PAGE DOWN** or the *Page Down* menu item. Similarly, the previous point in the group can be viewed using **PAGE UP** or *Page Up* menu item. Wrap occurs between the first and last points.

There are two buttons in the upper right corner that access Conductor NT tag database applications. They are:

*BlkTune* - which accesses block details.

*Tag Info* - which accesses operating parameters.

## Point Display Appearance

The appearance of a tag display varies according to the module type. The point display for every tag type will contain the following components, as shown in the point display for an analog module (Fig. 2-18).

**NOTE:** Operation of *Zoom* on the group display menu bar is identical to that of the zoom item found on graphic displays; refer to **Conductor NT Display Editors** instruction for further information.

### Tag Name

The point tag name appears in the upper left corner of the point display. The full tag name (up to 16 characters) is shown.

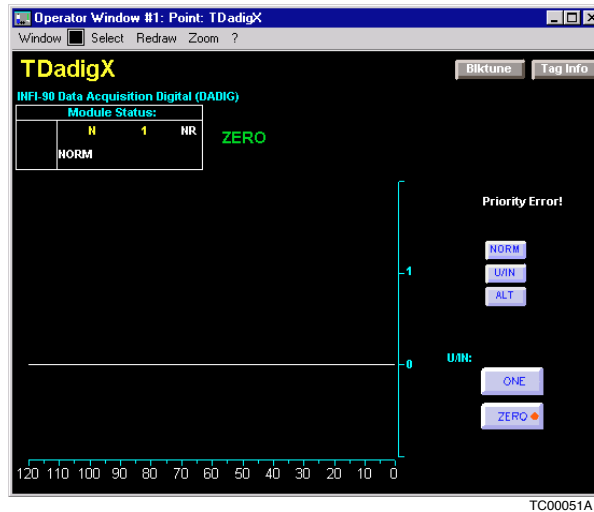


Figure 2-18. Analog Module Point Display

### Tag Description

The full tag description (up to 40 characters) appears immediately below the tag name.

### Status Area

The status area appears immediately below the legend. This area is nearly identical to the group display status area.

The second and third lines of the status message area contain the alarm status of a tag and mode messages, respectively. These lines are as described for the group display. Tables 2-12 and 2-3 provide descriptions of the messages which may appear on these lines.

Table 2-12. Group Status Conditions

| Color  | Text          | Status                                                                                                                                             |
|--------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Red    | Unack. alarms | At least one tag in the group is in an alarm state, and the alarm is unacknowledged.                                                               |
| Yellow | (Unack.)      | At least one tag in the group was previously in alarm, and, although the tag in alarm has returned to normal, the alarm has not been acknowledged. |

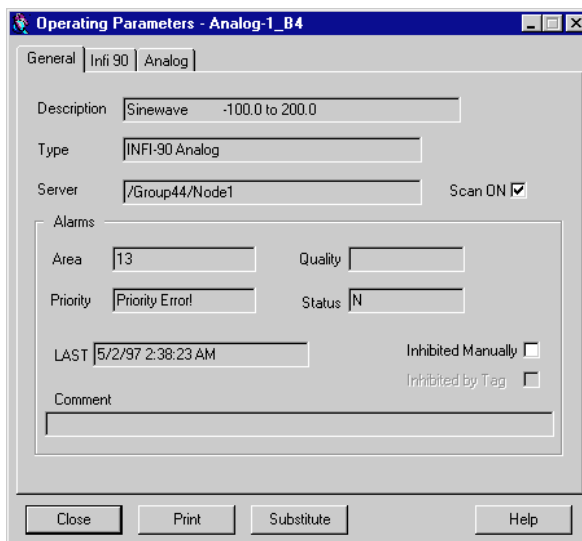
Table 2-12. Group Status Conditions *(continued)*

| Color  | Text      | Status                                                                                                               |
|--------|-----------|----------------------------------------------------------------------------------------------------------------------|
| Yellow | Alarms    | At least one tag in the group is in an alarm state, and the alarm has been acknowledged.                             |
| Cyan   | ???       | The status of at least one tag in the group is unknown because the tag cannot be accessed from the control network.  |
| Green  | [No text] | All tags in the group are accessible, are in normal state or alarm inhibit state, and no alarms need acknowledgment. |
| Gray   | [No text] | If the group has not been configured, the pushbutton appears in gray.                                                |

The alarm and lock mode indicators function as described for the group display.

### Info Pushbutton

The info pushbutton appears at the top right corner of the point display. Click this pushbutton to view the operating parameters window (Fig. 2-19).



TC00541A

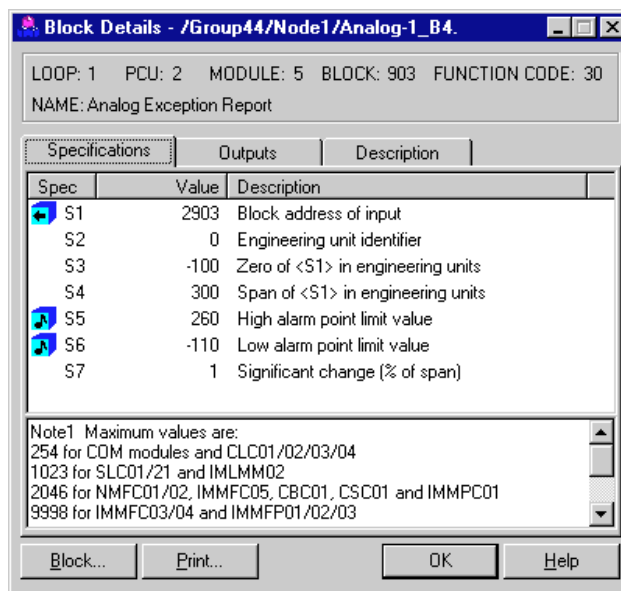
Figure 2-19. Operating Parameters Window



The operating parameters window allows the user to change the parameters for the tag. The operating parameters window contains a numbered list of parameters. The contents of this list is different for each module type; typical parameters include items such as alarm limit and deadband values and instrument ranges. Refer to [Section 5](#) for a full description of the operating parameters function.

### BLKTune Pushbutton

*BLKTune* appears at the top right corner of the point display. Click this pushbutton to view the block details window (Fig. 2-20). For a complete description of the block details function refer to [Section 3](#).



TC00052A

Figure 2-20. Block Details Window

## Process Display Area

The rest of the point display is called the process display area. The information shown in the process display area is determined by tag type.

The process display area for all analog tag types is similar to that for an analog module, (Fig. 2-18) as follows: on the lower right side appears the same information shown on the group display (value bar, alarm bar, control buttons, etc.). To the left of that information appears a current trend display, which plots the process value of the point against time, every second, for up to two minutes. This trend begins plotting only when the point display is called up, and is not configurable. Current trends are not stored. The current process value is shown, digitally, above the trend and to the right of the status area.

## Automatic Fail-Over for Redundant Computer

Each computer in a redundant pair maintains an active status and a working quality.

When the computer designated as primary is active, the redundant computer is inactive and monitors the quality and status of the primary for failure. If the primary fails or its quality drops below that of the redundant, a fail-over occurs. The redundant server becomes active. At this point, all client applications on the network retrieve live information from the redundant computer. When the primary recovers, it remains inactive until manually reactivated or the redundant computer fails.

### Manually Activate Primary Computer

Access the point display of the primary computer's server tag to manually fail the redundant computer. Press *Make Active* to start a manual fail-over. This button only appears on the primary server faceplate and point display if the primary server is inactive. If the redundant is not active an error is returned.

### Active Status

A nonredundant server always has an active status.

A redundant server's active status is based on an internal quality maintained by each server. A server has three qualities



in which it operates. Each quality is assigned an increasing value.

- The server is in the startup quality (lowest) when the Conductor NT is started.
- Once the tags are loaded, the server moves to a recovery quality (higher). The server also drops to this quality when there is either a brief or permanent failure in the communications to the ICI.
- The server is in the scanning quality (highest) when communication with the ICI is continuous.

Redundant servers are in constant communication with each other. Client applications retrieve information from the active server. The active server typically has the highest quality. If a server is active, it remains active, even if the inactive has the same quality. If the network connection between the two servers is broken, they will both assume active status and service client computers on both segments of the network. When the network is reconnected, the server with the lowest quality becomes inactive. If both qualities are equal, the computer licensed as redundant becomes inactive.



### Introduction

The block details function allows the user to inspect function blocks that are contained within a selected processor module. It displays the specifications and the outputs of a selected function block and additional information related to the function code. The user can also tune the specifications of the selected function block. It also provides various ways of jumping to other function blocks in the module. Block details information is presented in a series of three tabbed pages (Fig. 3-1).

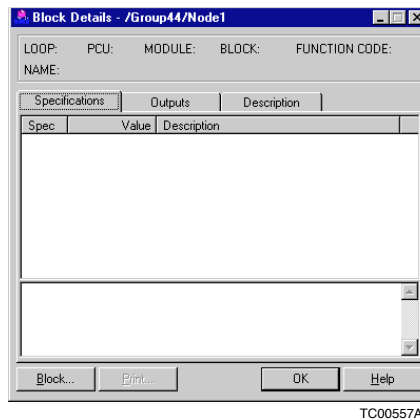


**Figure 3-1. Block Details Window**

At the system status display, click on a server icon to display a menu below the icon. Click *INFI-90 Block Details* on this menu to start block details. Block details obtains function block information from that server. Alternatively, click *BLKTune* in a point display that references a process tag. Block details examines the function block at the block address that is associated with the tag.

The block details function accepts an optional tag name argument on startup. If a tag name is present, the application will



determine the block address of the tag by interrogating the real time database. If a tag is not specified, click on *Block* and manually enter a block address. The top of this display indicates the hardware address of the function block being examined and its function code number and name.

## Specifications Tab

The *Specifications* tab (Fig. 3-1) displays a list of function code specification records which consists of these columns:

- *Spec* - the specification number.
- *Value* - the current value of the specification.
- *Description* - the meaning of the specification.

Icons in the *Spec* column show additional information about each specification. The menus are different for each specification, but all of them have a *Properties* option. The following list explains each icon:



Indicates a specification which references another function block output.



Indicates a specification whose value may be tuned.



Indicates a specification that does not reference another block and is not tunable.

## Block Button

The block button displays a shortcut menu with commands for block movement operations.

The menu commands are:

- *Address* - Displays the *Block Address* window.
- *Jump History* - Displays the *Jump History List*. This command will only be enabled if a *Jump History List* exists.
- *Previous Block* - Jumps to the previous function block in the module. This command will only be enabled if a next block jump was done earlier.
- *Next Block* - Jumps to the next function block in the module.

Only *Address* is available until more than one address has been accessed or until a block jump has been completed. The available menu options will be enabled.

When *Address* is selected, a block address box appears as in Figure 3-2. In the box enter the desired address and click *OK* to go to the new address.

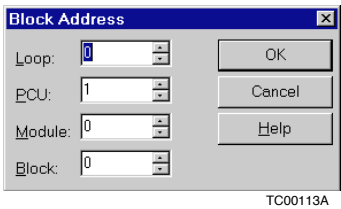


Figure 3-2. Block Address Window

When *Jump History* is selected, a list of the block addresses jumped to by specification references appears as in Figure 3-3. Any of the blocks on the list can be jumped to by double-clicking on the desired block. Clicking any of these with the right button will yield a menu under which *Jump* can be selected.

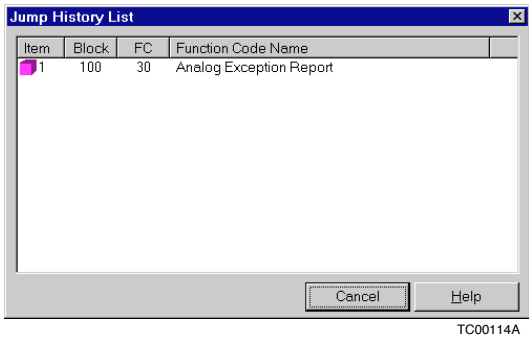


Figure 3-3. Jump History List Window



## Tunable Blocks

Specifications whose value may be changed while the module is in execute mode are said to be tunable. The tuning function of the specification is initiated by selecting a tunable specification with a right-click. A menu appears, and by selecting *Tune* from the menu a *Tuning* window appears (Fig. 3-4). This window can also be displayed by double-clicking on a tunable specification. Enter a new value in the *Value* box. To send the tune block command to the module click *OK* or *Apply*. By selecting *Use Default* the default value of the specification will be inserted into the value box.

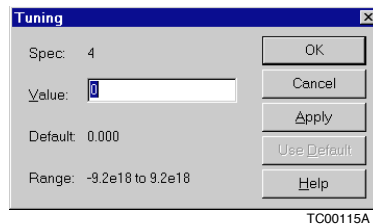
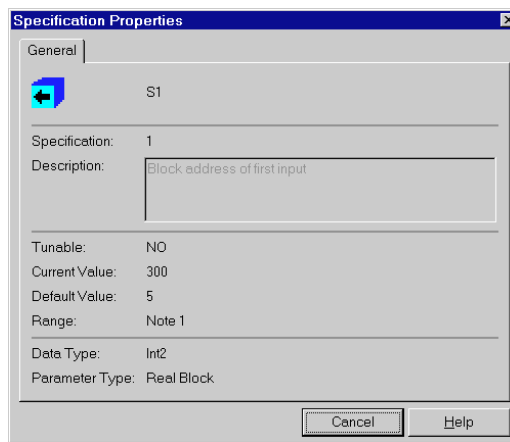


Figure 3-4. Tunable Specification Window

## Properties Option

The *Properties* option is available for each specification type. It can be accessed by right clicking the specification and selecting *Properties* from the menu. The *Properties* selection will produce a window as shown in Figure 3-5. This window may be displayed directly by a double-click if the specification is not a tunable specification type or a block reference type.



TC00116A

**Figure 3-5. Specification Properties Window**

Select help to display the application help that applies to this particular window.

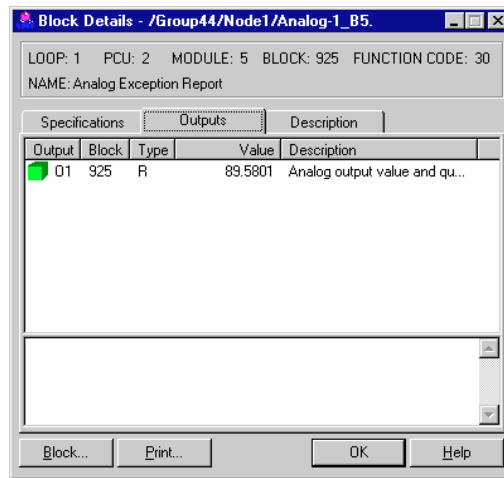


## Output Tab

The *Output* tab (Fig. 3-6) displays function block output records. The following items are shown:

- *Output* - Output number.
- *Block* - Block number that is associated with the output number.
- *Type* - Data type of the output value.
- *Value* - Value of the block output.
- *Description* - Description of the meaning of the output value.

The lower portion of the page provides additional notes on the outputs.



TC00558A

Figure 3-6. Output Tab

## Description Tab

The *Description* tab contains a description of the function code that is currently on display (Fig. 3-7). The lower portion of the page provides additional notes on the function code.

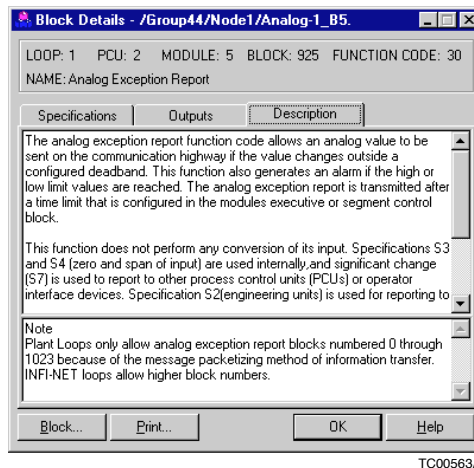


Figure 3-7. Description Tab

## Print Block Details

To print information on the current block details screen, click *Print*. The print system uses the Windows printing system.

**NOTE:** This does not print an exact copy of the screen, it provides information in a table form.





### Introduction

The module details application provides detailed information about the operational status of a selected INFI 90 OPEN module. The module details are presented in a series of tabbed pages (Fig. 4-1). The first tab, *General*, displays the module address and module operation information. *Status*, the second tab, provides a scrollable list of module status error messages. The *Problems* tab provides a scrollable list of module problem report messages. *Technical* displays the status bytes of the selected module.

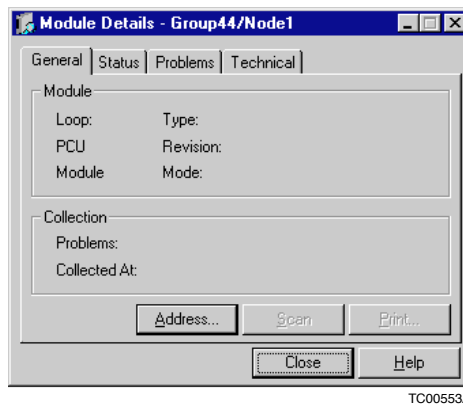


Figure 4-1. Module Details Window

The module details application is started from the system status display by using the menu under a server icon and selecting *INFI 90 Module Status*.

### General Tab

The *General* tab, shown in Figure 4-1, displays the module address of a selected module. To select a different module



address click address and enter the module address in the window. Use up and down arrows to change the number or click the box and enter a number.

If an invalid address is entered the application displays a message indicating that it is not possible to scan the selected module.

A new address is then displayed in the *Loop*, *PCU*, and *Module* fields. The module type is displayed in the *Type* field. The module firmware revision is displayed in the *Revision* field. If the application is unable to determine a revision level *N/A* is displayed in the field. The operating mode of the module is displayed in the *Mode* field. The possible modes are:

- *Execute* - online and in execute mode.
- *Configure* - online and in configure mode.
- *Error* - online and in error mode, this indication occurs when a module configuration error exists.
- *Failed* - offline due to the existence of an internal problem.

The *Problem* field shows a number which represents the sum total of module status errors and module problem report errors. The *Collected* field shows the date and time at which the module scan took place.

To update the information in this window click scan. This function updates the display with the most current module status information.

## Status Tab

The *Status* tab, shown in Figure 4-2, displays a list of module status error messages that apply to the selected module at the time of the last module scan.

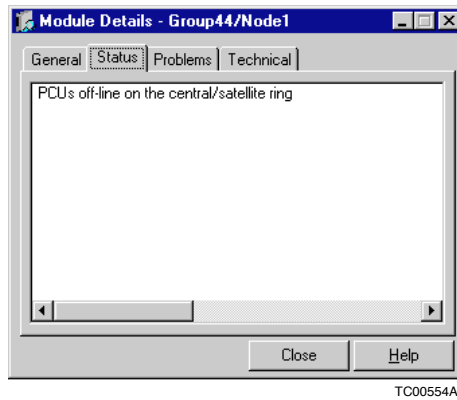


Figure 4-2. Status Tab

## Problems Tab

The *Problems* tab, shown in Figure 4-3, displays a list of module problem report messages that apply to the selected module at the time of the last module scan.

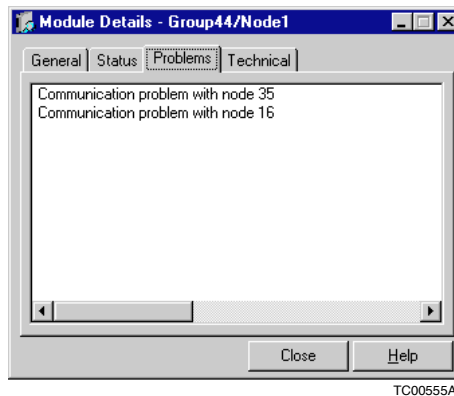
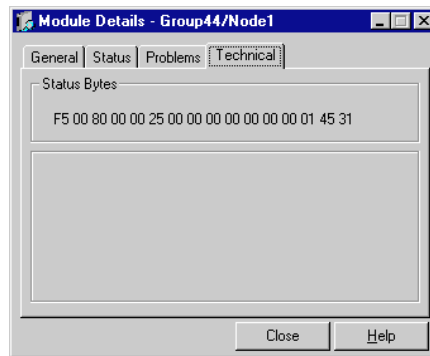


Figure 4-3. Problems Tab



## Technical Tab

The *Technical* tab, shown in Figure 4-4, displays the module status bytes. The number of status bytes depends on the type of module. Some module types return five status bytes while others return 16 bytes. Of these bytes, the first two are common to most modules. The remaining bytes are specific to a particular module. Each byte is represented with a hexadecimal value.



TC00556A

Figure 4-4. Technical Tab

Table 4-1 describes the meaning of the data that is presented in bytes one and two. Convert the hexadecimal value to a binary value then refer to Table 4-1 for further interpretation of the status bytes.

Table 4-1. Module Status Bytes

| Byte | Bit |      |     |      |     |     |     |     |
|------|-----|------|-----|------|-----|-----|-----|-----|
|      | 7   | 6    | 5   | 4    | 3   | 2   | 1   | 0   |
| 1    | ES  | MODE |     | TYPE |     |     |     |     |
| 2    | FTX | BAC  | RIO | LIO  | CFG | NVF | NVI | DSS |

The terms and acronyms are defined as:

**ES** - error summary: 0 = ok, 1 = error exists. If there is an error indicated in the status information, the bit is set to one.

**MODE** - module mode: 00 = configure, 01 = failed, 10 = error, 11 = execute.

**TYPE** - module type. Each INFI 90 OPEN module has a different type identifier.

**FTX** - first time in execute mode: 0 = no, 1 = yes.

**BAC** - summary of remote input status: 0 = ok, 1 = bad.

**RIO** - summary of local input status: 0 = ok, 1 = bad.

**LIO** - summary of local input status: 0 = ok, 1 = bad.

**CFG** - online configuration changes being made: 0 = no, 1 = yes.

**NVF** - nonvolatile memory failure: 0 = no, 1 = yes.

**NVI** - nonvolatile memory initialized: 0 = no, 1 = yes.

**DDS** - station status: 0 = ok, 1 = bad.





### Introduction

The operating parameters application allows the user to monitor and change the status of tags maintained by the server. The tag attributes are presented in a series of tabbed pages.

The first tab, *General*, displays a tag description and alarm information particular to the selected tag. The *Info* tab, the second tag in the INFI 90 OPEN series contains information related to INFI 90 OPEN tags. The third tab in the INFI 90 OPEN series is a tag specific tab that displays information particular to the selected tag. The title of the third tag depends on the type of tag that it monitors. For the examples in this section an INFI 90 OPEN station tag was used. The last tab is *Red Tag* and only appears for tag types which support red tagging. The application title bar displays the tag name.

The operating parameters application is opened in a point display by clicking on *Info*. This will launch the operating parameters application for that tag and allows application for server diagnostics.

### General Tab

The *General* tab (Fig. 5-1) shows a description of the tag and the type of the tag. The text fields in this tab cannot be edited. The information in the fields is taken from the database. A user with the correct security level is allowed to change the tag scan state by clicking on the scan indicator box. Refer to the **Conductor NT Configuration** instruction for an explanation of the security levels.

Data will be collected for the tag while there is a check in *Scan ON*. In *Alarm* the alarm information is displayed. *Area* displays the plant area to which the tag is assigned. *Quality* and *Status* fields all display information reported by the tag. Tag manual alarm inhibit state can also be changed by a user with the correct security level by clicking on it with the mouse. If the alarm is inhibited by the tag it is indicated in the *Inhibited By Tag*



Figure 5-1. Operating Parameters Window

box. This box cannot be edited. The *Comment* field displays the alarm comment from the database.

## INFI 90 Tab

The *Infi 90* tab (Fig. 5-2) displays the INFI 90 OPEN address of the tag and the times of the last events recorded by the real time database. The fields on this page cannot be edited.

## Tag Specific Tab

The tag specific tab provides operating details about the selected tag type. Each tag type has a unique tab for its information. Refer to [Section 9](#) for information on all of the available tags. An INFI 90 OPEN station tag type is shown in Figure 5-3.

Operating Parameters - ASTATION-154

General | **Inf1 90** | Station | Red Tag

Address

Loop: 250    Node: 250    Module: 3    Block: 3040

Event Times

Specification Received at: [ ]

Close    Print    Substitute    Help

TC00094A

Figure 5-2. INF1 90 Tab

Operating Parameters - ASTATION-154

General | Inf1 90 | Station | **Red Tag**

Value: 0.00    High Alarm Limit: 92000002679389

Control Output: 0.00    Low Alarm Limit: -92000002679389

Setpoint: 0.00    Deviation Limit: 92000002679389

Ratio Index: [ ]    SP Zero: 0.00

Time: 10/25/96 2:12:26 PM    PV Zero: 0.00

Mode: MANUAL    PV Span: 92000002679389

SP Span: 92000002679389

Close    Print    Substitute    Help

TC00095A

Figure 5-3. Tag Specific Tab



## Red Tag Tab

The *Red Tag* tab (Fig. 5-4) is available if the selected tag is a controllable type that supports red tagging. Red tagging is used to mark tags on the display that are shut down for maintenance or other purposes. They let an operator know that the process marked should not be used for safety reasons. Only an operator with the proper security clearance can place or remove red tags in this tab.

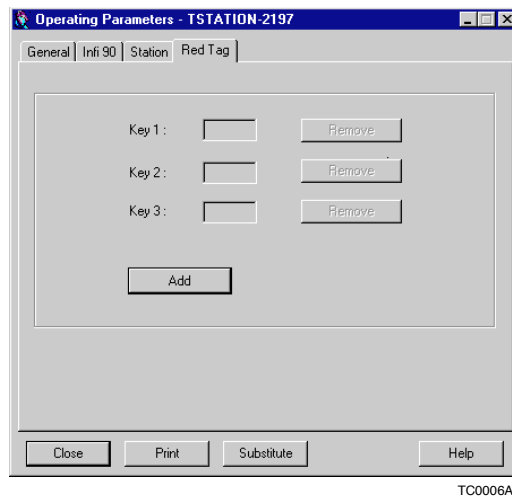


Figure 5-4. Red Tag Tab

When *Add* is clicked a window appears that allows a three letter code to be entered (Fig. 5-5). When *OK* is pressed the red

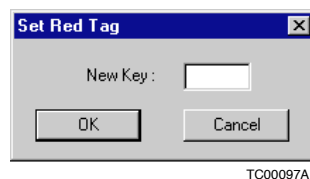


Figure 5-5. Set Red Tag Dialog Box

tag appears in the first available *Key*. There are only three *Keys* available per tag. A red tag can be removed by clicking *Remove* beside the desired key. The red tag keys are put into the blockware of the process module. All Conductor NTs which view the blockware of that tag will see the red tag keys.

## Substitute Button

The substitute button can be used no matter which tab is currently displayed. When a substitution is applied the scan is automatically turned off. Figure 5-6 gives an example of the window that is displayed when substitute is clicked.

**NOTE:** Only operators with the proper security level may access the substitute function.

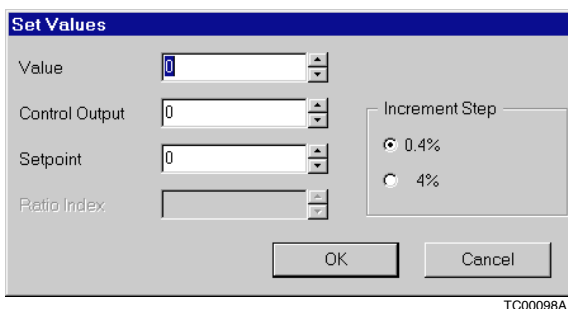


Figure 5-6. Substitute Window

There is a different substitute window for each type of tag and for each tag different values can be changed. To change the value of one of the items in the window, click the up or down arrow keys beside the value or enter the value directly into the boxes. The two select buttons determine the increment of each click on the button. The increment step for the arrows can be selected as 0.4% of the span or 4.0% of the span.

To employ the change click *OK* or to exit without changing the value click *Cancel*. When a substitution is applied an *sxd* appears in the *Quality* field on the *General* tab page.





### Introduction

The server diagnostics function provides detailed information about the working status of a selected Conductor NT server. The server diagnostics are presented in a series of tabbed pages (Fig. 6-1). The *General* tab displays server information provided by all types of servers. *Messages*, the second tab, provides a scrolling list of server diagnostics and operation messages. The *Tags* tab provides a summary of tag types and the associated atoms to each tag. The application supports the possible server changes (online-offline toggling).

| Atom          | Value             |
|---------------|-------------------|
| ACK           | ACK               |
| AIH           |                   |
| AREA          | 1                 |
| CBNA          |                   |
| C_DESC        | INFI-90 Scanner   |
| EB_ACK        | ACK               |
| EB_ALARMTIM   | 5/2/97 3:59:29 PM |
| EB_ALARM_CNT  | 35                |
| EB_ALARM_RATE | 10                |
| EB_ALMCMT     |                   |
| EB_ALMGRP     | 1                 |
| EB_ALMPRIO    | inform            |
| EB_ALMSTATUS  | N                 |
| EB_ANG_XR_CNT | 51712             |

TC00551A

**Figure 6-1. Server Diagnostics Property Sheet**

The server diagnostics application is opened in the system status display by using the menu under a server icon and selecting *Server Diagnostics*. This will launch the server diagnostics application for that server.



## General Tab

The *General* tab, shown in Figure 6-1, displays server status. The host, description, and type information correspond to the tag atom information in the database. The scrollable list contains the complete set of atoms belonging to the corresponding server tag and their value. These values are updated once a second.

The list can be scrolled by using the mouse to click on the up and down arrows at the side of the list or by clicking on one of the atoms and then using the up and down arrow keys on the keyboard to scroll the list.

## Messages Tab

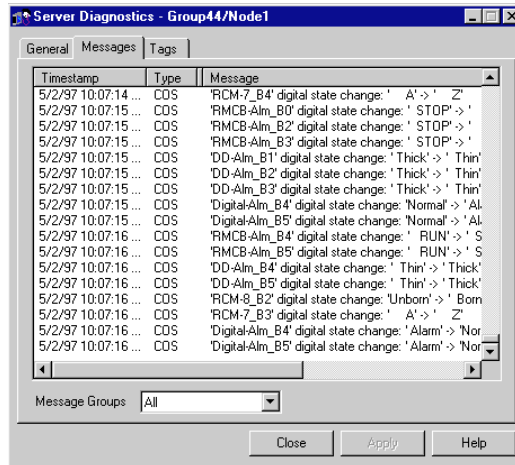
The *Messages* tab shown in Figure 6-2 displays the server and status messages, as they are logged by the server during operation. To open the *Messages* tab window click on the *Messages* tab or select the tab with the keyboard as explained in the *Introduction* of this section. This tab provides the time-stamp, type, message source class, and message. There is a set of pre-defined filters, allowing the display of a certain group of messages. Set the filter from the *Message Type* list. The four selections are:

- *System* - messages about the hardware and software.
- *Operator Action* - lists the operator actions on the system.
- *Change of State* - only when the state of a field changes.
- *All* - all of the available messages.

## Tags Tab

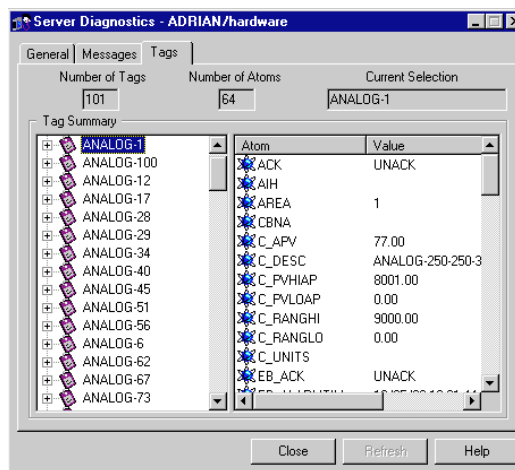
The *Tags* tab window is opened by clicking on the *Tags* tab or by selecting the tab with the keyboard as explained in the *Introduction* of this section.

The *Tags* tab displays a scrollable tree of the tags existing in the database which is accessed by the server (Fig. 6-3). At the top of the tab sheet the number of tags available in the server is displayed in the *Number of Tags* field. To select a tag, click on the name in the tree control. When a tag is selected a list of the atoms associated with the tag type are displayed in the



TC00552A

Figure 6-2. Message Tab



TC00105A

Figure 6-3. Tags Tab



right list view and the number of atoms is displayed in the *Number of Atoms* field.

When a tag is selected, by clicking the right mouse button (it is essential to have a tag selected), a menu is displayed. This menu allows the user to select operating parameters or block details for the selected tag.

To see the atoms associated with the tag, click on the node button (+) or double-click the tag name. Select one of the atoms by clicking on it. The list view on the right now displays the data format and the value of the atom selected. The icons show the available data formats for the atom and indicate the primary format from the available ones.

The following list describes the data format icons:

- ✓ - data format supported.
- ✓ - primary data format.
- ✗ - data format not supported.

This tab updates automatically to reflect changes in the server information.



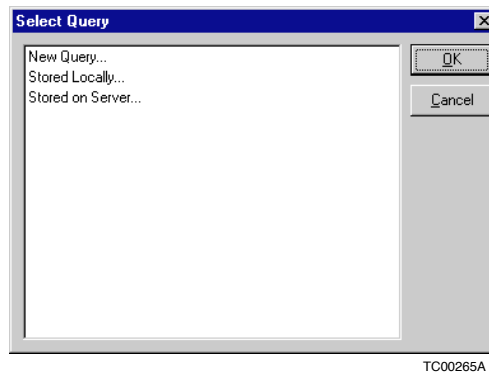
### Introduction

The tag summaries application provides an interface for querying tag information and producing tag summary reports. The query is viewed in one of three ways: design view, SQL view, or datasheet view. Several predefined queries are provided with this application. The operation of this application is described in this section.

### Using Tag Summaries

The tag summary application is opened in the system status display by using the menu under a server icon and selecting *Server Tag Summary*. This will launch the tag summary application for that server.

When the application is initially invoked, the user is presented with a window containing the names of queries stored locally and on the current server (Fig. 7-1).



TC00265A

Figure 7-1. Select Query Window



If the user chooses *New Query* the screen (Fig. 7-2) in which only the *New* and *Open* query options are available, is displayed.

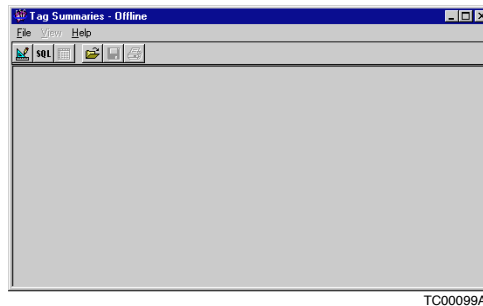


Figure 7-2. Tag Summaries Window

Alternatively, the application can be supplied with a saved query file name as a command line argument, in which case the query file is loaded and the user is presented with the design or SQL view shown in Figure 7-3 or Figure 7-4. In this mode, only the print option is enabled.

## Designing a Query

To design a query, click on the design view toolbar option, or select *New query* from the file menu **ALT-F N**. This opens up a design sheet to enter query parameters. The user is presented with a tree view of all tag classes. Clicking on a tag class will display the tag atoms in that class, in the tag atom list to the right of the class tree. Double-clicking on a tag atom will insert the atom in the design grid shown below the tree view. Alternatively, the name of the tag atom may be typed into the *Field* cell of the grid shown in Figure 7-3. The user may override any of the default values presented on the grid. The allowable values for *Sort* are: *Yes*, *No*, *Asc*, and *Desc*; for *Shown*: *Yes* and *No*; and for *Format*: *Numeric*, *Text*, and blank (defaults to text). The grid performs text completion when the user types in the first letter of a value and presses **RETURN**. Query criteria are entered in the *Criteria* and the *Or* field. The allowable expressions for the criteria fields start with a comparison operator (*=*, *<>*, *<*, *<=*, *>*, *>=*, like) followed by an expression. If omitted, the operator

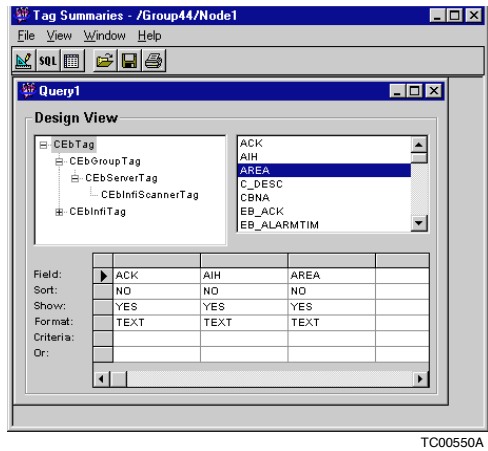


Figure 7-3. Query Design Window

defaults to “=”. The resulting SQL select statement can be viewed using the SQL view.

SQL View

The SQL view presents the user with a text editor allowing the user to view and/or edit the SQL query as shown in Figure 7-4.

The tag summaries application use a subset of SQL syntax to form queries for the server. The SELECT statement is the only statement supported by tag summaries and has the following syntax.

```
SELECT atom [, atom...]  
FROM TAGLIST  
[WHERE search_conditions]  
[ORDER BY clause]
```

The SELECT statement specifies the tag atoms that are to be retrieved in the query. The FROM clause specifies the tables where the atoms are located. Currently there is only one table to select. It is called TAGLIST and must be specified in order to form a valid query. TheWHERE clause specifies which tags are wanted for the summary.

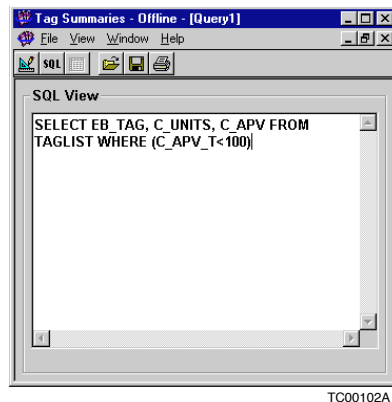


Figure 7-4. SQL Query Window

For example, the following SELECT statement finds the tag name and description of all unacknowledged tags.

```
SELECT EB_TAG, C_DESC  
FROM TAGLIST  
WHERE EB_ACK = 1
```

The clauses in a SELECT statement must be used in the order shown above. For example, if the statement includes a WHERE clause and an ORDER BY clause, the WHERE clause must precede the ORDER BY clause.

The select clause normally consists of a series of column names (separated by commas).

The select list, however, can also include one or more expressions (separated by commas), where an expression is a constant, tag atom name, or combination of these connected by arithmetic or bit-wise operators and parentheses. The select list has this syntax:

```
SELECT expression [, expression...]
```

Each column name must be separated from the following column name by a comma.

The order in which the column names are listed determines the order in which the columns appear in the summary.

When summary results are displayed, the atom name selected is used as the default column heading. To produce more readable reports, the user can specify a different column heading by using the AS operator.

For example, to change EB\_TAG to tag name in the preceding query, enter the following statement:

```
SELECT C_EB_TAG AS 'Tag Name', C_DESC
FROM TAGLIST
WHERE EB_ACK = 1
```

**NOTE:** Character strings must be enclosed in single quotation marks (') when they are entered or searched.

Computations can be performed with data from numeric atoms or on numeric constants in a SELECT clause by using arithmetic operators. Arithmetic operators let the user add, subtract, multiply, and divide numeric data.

## Arithmetic Operators

Table 7-1 shows the supported arithmetic operators and their symbols.

Table 7-1. Arithmetic Operators

| Symbol | Operation      |
|--------|----------------|
| +      | Addition       |
| -      | Subtraction    |
| /      | Division       |
| *      | Multiplication |

The following example uses the subtraction operator to show the deviation from set point by subtracting the process value from the set point value. The column heading is also set to deviation using the AS operator.

```
SELECT EB_TAG, C_DESC, C_APV - C_ASP AS 'Deviation'
FROM TAGLIST
```

**Arithmetic Operator Precedence.** When there is more than one arithmetic operator in an expression, multiplication and division are calculated first, followed by subtraction and addition. When all arithmetic operators in an expression have the same level of precedence, the order of execution is left to right.



Expressions within parentheses take precedence over all other operations.

The user can also use parentheses to change the order of execution. Calculations inside parentheses are evaluated first. If parentheses are nested, the most deeply nested calculation has precedence.

## Where Clause

The WHERE clause in a SELECT statement specifies the criteria for which tags to retrieve. The WHERE clause has the following syntax:

WHERE search\_conditions

Search conditions, or qualifications, in the WHERE clause include:

- Comparison operators (such as =, < >, <, and >).  
WHERE C\_APV > C\_RANGLO + EB\_SPAN \* 0.5
- Pattern matches (LIKE and NOT LIKE).  
WHERE EB\_TAG like 'FIC%'
- Combinations of these conditions (AND, OR).  
WHERE C\_APV < 5000 and C\_APV > 2000

## Comparison Operators

Table 7-2 shows the supported comparison operators and their symbols.

Table 7-2. Comparison Operators

| Operator | Meaning                  |
|----------|--------------------------|
| =        | Equal to                 |
| >        | Greater than             |
| <        | Less than                |
| >=       | Greater than or equal to |
| <=       | Less than or equal to    |
| <>       | Not equal to             |

The operators have the following syntax:

WHERE expression comparison\_operator expression

An expression is a constant, tag atom, or combination of them connected by arithmetic or bit-wise operators.

## Wildcards and the Like Clause

The LIKE keyword selects tags containing atoms that match specified portions of character strings. LIKE is used with text data. It takes four wildcard characters, which are in the form of regular expressions (Table 7-3).

Table 7-3. Wildcard Characters

| Wildcard | Meaning                                                               |
|----------|-----------------------------------------------------------------------|
| %        | Any string of zero or more characters                                 |
| _        | Any single character                                                  |
| [ ]      | Any single character within the specified range (example, abcdef)     |
| [^]      | Any single character not within the specified range (example ^abcdef) |

When LIKE is used, be sure to enclose the wildcards and the character string in single quotation marks. For example, using LIKE with the data in the author's table:

- LIKE 'FIC%' searches for all names that begin with the letters "FIC" (FIC101, FIC201).
- LIKE '%101' searches for all names that end with the letters "101" (FIC101, LIC101).
- LIKE '\_IC101' searches for all six-letter names ending with the letters "IC101" (FIC101, LIC101).
- LIKE '[FL]IC101' searches for FIC101 and LIC101.
- LIKE 'FIC10[^1]' searches for all names beginning with FIC10 that don't end with 1.

**NOTE:** Wildcards used without LIKE are interpreted as normal characters rather than as a pattern.

Search for the wildcard characters themselves. To use wildcards as characters in a LIKE match string rather than as



wildcards, use square brackets ([ ]) to enclose %, \_, and [. Use ] by itself.

## Logical Operators

The logical operators are AND, OR, and NOT. The logical operators AND and OR are used to connect search conditions in WHERE clauses.

AND joins two or more conditions and returns results only when all the conditions are true.

OR also connects two or more conditions, but it returns results when any of the conditions are true. The following query searches for tags names that are FIC101 or FIC102:

```
SELECT EB_TAG, C_DESC
FROM TAGLIST
WHERE EB_TAG = 'FIC101' OR EB_TAG = 'FIC102'
```

**Logical Operator Precedence.** When more than one logical operator is used in a statement, NOT is evaluated first, then AND, and finally OR. Arithmetic (and bit-wise) operators are handled before logical operators.

## Order By Clause

The ORDER BY clause sorts query results by one or more columns. A sort can be ascending (ASC) or descending (DESC). If neither is specified, ASC is assumed.

The following query returns results ordered by EB\_TAG:

```
SELECT EB_TAG, C_DESC
FROM TAGLIST
ORDER BY EB_TAG
```

If more than one column is named in the ORDER BY clause, sorts are nested. The following statement sorts the tags first by tag type in descending order, and then by tag name in ascending order:

```
SELECT EB_TAG, EB_TAGTYPE, C_DESC
FROM TAGLIST
ORDER BY EB_TAGTYPE desc, EB_TAG
```

## Query Results

The query results are displayed in the data sheet view of the tag summaries application. Each column in the table has a heading which comes from the atom name or the specified string in the query design (Fig. 7-5).

Tag Summaries - /Group44/Node1 - [Query1]

File View Window Query Help

Datasheet View

| Tag name     | C_APV | C_ASP | C_RANGHI | Deviation |
|--------------|-------|-------|----------|-----------|
| Analog-10_A0 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A1 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A2 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A3 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A4 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A5 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A6 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_A7 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B0 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B1 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B2 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B3 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B4 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B5 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B6 | 0.000 | Null  | 0.000    | Null      |
| Analog-10_B7 | 0.000 | Null  | 0.000    | Null      |
| Analog-11_A0 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A1 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A2 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A3 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A4 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A5 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A6 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_A7 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_B0 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_B1 | 0.00  | Null  | 0.00     | Null      |
| Analog-11_B2 | 0.00  | Null  | 0.00     | Null      |

600 record(s) retrieved.

TC00594A

Figure 7-5. Query Results

Figure 7-5 is the results of the example query:

```
SELECT EB_TAG AS 'Tag name', C_APV, C_ASP, EB_RANGHI, C_APV -
C_ASP AS 'Deviation'
FROM TAGLIST
WHERE EB_RANGHI < 2500
ORDER BY EB_TAG
```



Table 7-4. Data Sheet View Translation Example

| Column    | SQL Clause                   | Explanation of Values                                                       |
|-----------|------------------------------|-----------------------------------------------------------------------------|
| Tag Name  | EB_TAG AS 'Tag Name'         | Tag name as entered in the database.                                        |
| C_APV     | C_APV                        | Value of the C_APV process value (PV) tag.atom.                             |
| C_ASP     | C_ASP                        | Value of the C_ASP set point (SP) tag.atom.                                 |
| EB_RANGHI | EB_RANGHI                    | Value of the EB_RANGHI high range tag.atom.                                 |
| Deviation | C_APV - C_ASP AS 'deviation' | The deviation of the process value (PV) from the set point (SP) of the tag. |

### Print Results

While in the data sheet view select *File > Print* or click on the printer icon in the tool bar of the tag summaries window.

### Query File Operations

Open a query by selecting the *File > Open Query* or use **ALT-F O**. Select the path of the query and click **OK**.

Close a query by selecting *File > Close Query* or use **ALT-F C**. If changes have been made to the query the application will offer the option to save it before it discards the changes.

To save a query, select *File > Save Query* or **ALT-F S**. Also, there is *Save As* in the file menu. After a save option is selected the operator is to provide a path and name to save the file under. What is saved depends on the user's last action. If the last change was to the design grid, then the values of the grid are saved. However, if the last change was to the SQL select statement, then that is saved. The interface currently does not re-build the design grid values from the SQL statement, so any changes made to the SQL statement are not reflected on the design grid. However, the SQL statement is built from the design grid values, and hence, it is updated every time the design grid values change.

To export query results for viewing in another application, select *File > Export Query Results* or **ALT-F E**. After the export option is selected, the operator is to provide a path and a name to save the query under.

The user is also able to print the design view form and the SQL View form. By selecting print while in one of the first two views, the corresponding form will print.



### Introduction

The tag configuration utility permits the user to configure, add, move, and change the status of Harmony and INFI 90 OPEN tags in the Conductor NT database. It provides several features that can be applied to all configuration data.

**NOTE:** All tag changes are recorded as operator actions in the event log. Concordance checking is automatically performed to detect configuration errors. These include data over limits, duplication of tag names or hardware addresses, invalid descriptors, and invalid alarm inhibiting conditions.

The tag configuration utility is invoked by selecting *Server Configuration* from the server menu in the system status display. This section describes the functions of the server configuration application.

### Tags

The Conductor NT allows online tag configuration. Tags can be moved, added, or deleted and almost any tag attribute can be changed, then immediately updated, by the Conductor NT.

Each entry in the database is in the form of a tag. A tag represents either an analog or digital exception reporting block or a station, device driver, or control block in a PCU module. Define a tag for each process variable that the Conductor NT is to monitor and for each process device available for control. Also, a tag can represent a system control module or interface unit.

The Conductor NT does not require a tag to support DCS module management functions such as tuning and configuration. After a tag is defined, its name is used in other functions to identify the tag.

A tag contains all information required to find a point in the process control configuration (i.e., function block) and to establish communication between it and the Conductor NT. Not all processor function blocks can be assigned a tag.



Each tag type available on the Conductor NT may provide access to one or more function codes (FC). Table 8-1 lists and describes the Conductor NT INFI 90 OPEN tag types.

**Table 8-1. Tag Types**

| Tag Type                        | Support                                                                                | Function Code <sup>1</sup>       | Purpose                                                                                                                                                                                                                                                         |
|---------------------------------|----------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog                          | Analog exception report                                                                | FC 30                            | Acquires an analog exception reported value.                                                                                                                                                                                                                    |
| Data Acquisition Digital        | Data acquisition digital                                                               | FC 211                           | Acquires a digital exception reported state providing enhanced alarm management capabilities. It also allows selecting the input source for the function block in a PCU module and writing a user-inserted value to the block.                                  |
| Acquisition Analog <sup>2</sup> | Data acquisition analog                                                                | FC 177                           | Acquires an analog exception reported value providing enhanced multiple level alarming as well as deviation and rate alarming. It also allows selecting the input source for the function block in a PCU module and writing a user-inserted value to the block. |
| Device Driver                   | Device driver                                                                          | FC 123                           | Acquires an exception reported set or reset state for a device. It also allows initiating manual control.                                                                                                                                                       |
| Digital                         | Digital exception report                                                               | FC 45                            | Acquires a digital exception reported state.                                                                                                                                                                                                                    |
| Multistate Device Driver        | Multistate device driver                                                               | FC 129                           | Acquires an exception reported status for a three-state device. It also allows initiating manual control.                                                                                                                                                       |
| Remote Motor Control Memory     | Remote control memory                                                                  | FC 62                            | Acquires an exception reported set or reset state of a device. It also allows initiating device control.                                                                                                                                                        |
| Remote Motor Control Block      | Remote motor control block                                                             | FC 136                           | Acquires an exception reported start or stop state of a device. It also allows initiating device control.                                                                                                                                                       |
| Remote Manual Set Constant      | Remote manual set constant                                                             | FC 68                            | Acquires an exception reported constant value and allows changing the value stored in a PCU module.                                                                                                                                                             |
| Station                         | M/A station - basic<br>M/A station - cascade<br>M/A station - ratio<br>Control station | FC 21<br>FC 22<br>FC 23<br>FC 80 | Monitors the exception reported variables from a control station. It also allows changing the control output, set point, or ratio index.                                                                                                                        |

Table 8-1. Tag Types (continued)

| Tag Type                          | Support                           | Function Code <sup>1</sup> | Purpose                                                                                                                                                                                                                             |
|-----------------------------------|-----------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Text Selector                     | Text selector                     | FC 151                     | Acquires an exception reported text selector message. The message, generated by the PCU module, contains a message number that corresponds to a text string defined on the Conductor NT. It also contains a color and blink option. |
| ASCII String <sup>2</sup>         | User-defined data export          | FC 194                     | Enables communication between the Conductor NT and a C language or batch program running in a PCU module to allow transfer of text strings.                                                                                         |
| Enhanced Analog In <sup>2</sup>   | Enhanced analog exception report  | FC 222                     | Acquires an enhanced analog input exception reported value.                                                                                                                                                                         |
| Enhanced Analog Out <sup>2</sup>  | Enhanced analog exception report  | FC 223                     | Acquires an enhanced analog output exception reported value.                                                                                                                                                                        |
| Enhanced Digital In <sup>2</sup>  | Enhanced digital exception report | FC 224                     | Acquires an enhanced digital input exception reported value.                                                                                                                                                                        |
| Enhanced Digital Out <sup>2</sup> | Enhanced digital exception report | FC 225                     | Acquires an enhanced digital input exception reported value.                                                                                                                                                                        |
| Analog Export                     | Used internally                   | N/A                        | Export of analog value to ICI.                                                                                                                                                                                                      |
| Digital Export                    | Used internally                   | N/A                        | Export of digital value to ICI.                                                                                                                                                                                                     |
| Scanner                           | Used Internally                   | N/A                        | Changes various server parameters                                                                                                                                                                                                   |

**NOTE:**

1. Refer to the **Function Code Application Manual** for more information and for descriptions of function code specifications. (Table 1-2 lists instruction numbers.)

2. Not supported by Plant-Loop.

## Available Tags List

When tag configuration is invoked by clicking *Server Configuration* on the server menu, the tag configuration utility window appears which contains a list of all available tags in the selected server database (Fig. 8-1). The list provides five information fields about the tags:

- *Tag Name* - Unique name for each tag in the database.
- *Description* - Text string describing the tag.
- *Tag Type* - Type of the tag (i.e., analog, digital).

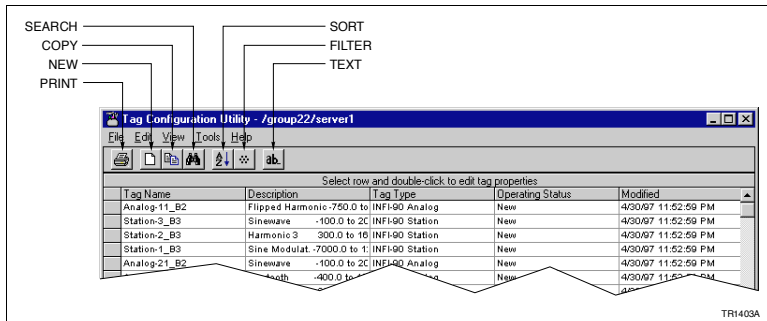


Figure 8-1. Available Tags List Window

- **Operating Status** - Status of the tag (Refer to **Change Operating Status Tag** in this section.)
- **Modified** - Date and time the last modification was applied to the tag.

The toolbar located in this window provides most of the functions available in the menus. The following subsections describe the functionality of the server configuration utility.

## File Options

Click **File** or use **ALT-F**. The file options menu provides **Print**, **Purge Deleted Tags**, and **Exit**. Each of these items is described in the following paragraphs along with keyboard access and the toolbar icons.

### Print

In the file menu, **Print** will print a summary report of all tags in the current tag list. Access the print option by clicking **Print** or press **P** when the file menu is open. The summary will only include the fields in the tag list. The print configuration will be presented in the standard Microsoft print window, and will be managed by the Windows NT print manager. The print function can also be accessed by the printer icon on the toolbar.

## Purge Deleted Tags

*Purge Deleted Tags* deletes all the tags labeled *Deleted* in the *Operating Status* column from the database. A list of the deleted tags can be viewed by selecting *View > Deleted*. This function is initiated by clicking *File > Purge Deleted Tags*. A dialog asking the user to confirm the action appears. Click *OK* to confirm the purge.

## Edit Options

Click *Available Tags > Edit*. The edit options menu provides *Edit Tag*, *New Tag*, *Copy Tag*, *Move Tag*, *Change Operating Status*, and *Search* options. Each of these items is described in the following paragraphs along with keyboard access and the toolbar icons.

### Edit Tag

Click *Edit > Edit Tag*, or double-click any tag in the tag configuration window. A tag properties window will be displayed for the selected tag type. Refer to Tables 8-2 to 8-15 for an explanation of the INFI 90 OPEN tag specific tab fields.

### Move to Server

Click *Edit > Move To Server*. This option allows tags to be moved between servers. Select a single tag, a group of tags or all tags assigned to a server and move them to another server.

To select a tag, place a caret on the corresponding row in the grid and select *Move to Server*. The window pops up containing a list of available primary servers.

If the user checks *Select All Tags*, the tags assigned to that server will be moved to the server selected in the window.

To select several tags the user should click the row selector (black triangle) in the grid and drag the mouse down. Selection is made when the user releases the mouse button. The user selects *Move to Server*, and chooses a server from the list. Click *OK* to reassign the tags. After being moved to the destination server, the tags are given *deleted* operating status.



## New Tag

Click *Edit > New Tag* or click on the new tag icon in the toolbar. A list of available template tags is displayed. Click the desired template tag or use the arrow keys to select it. Then double-click the tag to create the new tag.

A series of tabbed pages for the new tag appears. In the database, certain tag attributes are common and have the same function for all tag types although they are defined differently for each type. Other attributes are dependent on the tag type. Each different tag type has a separate tab page. For examples in this instruction, assorted tab pages will be used. Tables 8-2 to 8-15 provide an explanation of the INFI 90 OPEN tag fields.

## INFI 90 OPEN Tab Fields

Tables 8-2 to 8-15 list the tab fields for each INFI 90 OPEN tag type.

Table 8-2. General Tab Fields

| Field                    | Description                                                                                                                                                                                                                                                                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tag name                 | 16-character tag name; appears in all functions to identify the tag.                                                                                                                                                                                                                                                                            |
| Description              | 40-character descriptor normally used to describe the purpose of the tag; appears in most functions.                                                                                                                                                                                                                                            |
| Customer tag ID          | Additional 32-character tag identifier.                                                                                                                                                                                                                                                                                                         |
| Area <sup>1</sup>        | Alarm group assignment. Valid entry is 1 to 255.                                                                                                                                                                                                                                                                                                |
| Inhibit tag <sup>1</sup> | Configures automatic alarm inhibiting. This tag is used to inhibit alarm indications for selected tag. Alarm inhibiting is based on alarm condition or state of the inhibit tag. A valid entry is any tag name or index number (except an RMSC tag). Leave blank to disable automatic alarm inhibiting. Related field is <i>Inhibit State</i> . |
| Save operator actions    | Determines if operator action events for this tag are saved to disk to appear in a periodic printout of the event log. This also configures operator action events for archiving. An X in the box enables this function. With a blank box this function is disabled.                                                                            |
| Permit manual inhibit    | Determines if an operator can inhibit the tag from the Conductor NT. An X in the box enables this function. A blank box disables the function.                                                                                                                                                                                                  |
| Alarm indicator          | Calculated using a formula: $ADP\ Panel * 64 + ADP\ Lamp - 64^3$                                                                                                                                                                                                                                                                                |
| Servers <sup>2</sup>     | Displays primary servers to which the tag is assigned.                                                                                                                                                                                                                                                                                          |

**NOTES:**

1. Relates to alarm management.
2. Currently the tag may be assigned to only one primary server.
3.  $ADP\ Panel = 1\ to\ 4$ ,  $ADP\ Lamp = 1 - 32\ Manual\ State\ and\ 33 - 64\ Shifted\ State$ .

Table 8-3. INFI 90 Tab Fields

| Field                                       | Description                                                                                                                                       |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Return to normal message index              | Index number of an alarm text index to appear when the tag enters an alarm condition. Enter <b>0</b> to not associate a comment with a condition. |
| Return to normal to normal message priority | Valid entry 1 to 16; default is 16. Priority one is the highest priority.                                                                         |
| Bad quality message priority                | Valid entry 1 to 16; default is 16. Priority one is the highest priority.                                                                         |
| Return to normal message text               | Alarm text string.                                                                                                                                |
| Loop                                        | The communication highway for the INFI 90 OPEN system. Valid entry 0 to 250.                                                                      |
| Node                                        | An interconnection point on the data highway. Valid entry 0 to 250.                                                                               |
| Module                                      | A device in the INFI 90 OPEN control system. Valid entry 0 to 31.                                                                                 |
| Block                                       | Location of a specific function code in the B90 program. Valid entry 1 to 9998.                                                                   |
| ICI index                                   | Index determines an address for export tags. Valid entry 1 to 30000.                                                                              |
| Tag acknowledgment broadcast enabled        | Determines whether or not an alarm acknowledgment is transmitted to other nodes on the loop.                                                      |

**NOTE:**

INFI 90 OPEN tab page for analog export and for digital export does not show loop, node, module and block, but shows ICI Index.

Table 8-4. Analog Tab Fields

| Field                                    | Description                                                                                                                                                                                                                                                                                                      |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering units, descriptor, zero span | Noninput fields; a PCU module reports the index number that associates an engineering unit of measurement with this tag. A list of valid fixed and user-defined engineering units can be viewed on the EUD configuration page.                                                                                   |
| Decimal digits                           | Number of digits to show for this tag. Valid entry 0 to 7.                                                                                                                                                                                                                                                       |
| Priority                                 | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The conditions that can have a priority assigned include:<br>High<br>Low<br>Valid entry is 1 to 16; default is 16. Priority one is the highest priority. |
| Index and text                           | Index and value of an alarm text string to appear when the tag enters an alarm condition. The conditions that can have an alarm text index include:<br>High<br>Low<br>Enter <b>0</b> to not associate a comment with a condition.                                                                                |
| Low alarm limit, High alarm limit        | Noninput fields.                                                                                                                                                                                                                                                                                                 |



Table 8-5. Data Aqu. Analog Tab Fields

| Field          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Priority       | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The conditions that can have a priority assigned include:<br><div> <div>Two-low</div> <div>Two-high</div> <div>Three-low</div> <div>Three-high</div> <div>Low deviation</div> <div>High deviation</div> <div>Low rate of change</div> <div>High rate of change</div> </div> Valid entry 1 to 16; default is 16. Priority one is the highest priority. |
| Index and text | Index and value of an alarm text string to appear when the tag enters a certain alarm condition. The conditions that can have an alarm text index include:<br><div> <div>Two-low</div> <div>Two-high</div> <div>Three-low</div> <div>Three-high</div> <div>Low deviation</div> <div>High deviation</div> <div>Low rate</div> <div>High rate</div> </div> Enter 0 to not associate a comment with a condition.                                                                                                 |

Table 8-6. Digital, Digital Report and Rem Ctrl Memory Tab Fields

| Field                          | Description                                                                                                                                                                                                                                                                                               |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| State descriptor <sup>1</sup>  | Zero Six-character logic state descriptor to identify a zero state.                                                                                                                                                                                                                                       |
|                                | One Six-character logic state descriptor to identify a one state.                                                                                                                                                                                                                                         |
| Priority                       | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The condition that can have a priority assigned is:<br><div>Alarm</div> Valid entry 1 to 16; default is 16. Priority one is the highest priority. |
| Index and text                 | Index and value of an alarm text string to appear when the tag enters a certain alarm condition. The condition that can have an alarm text index is:<br><div>Alarm</div> Enter 0 to not associate a comment with a condition.                                                                             |
| Save state change              | Determines if a state change for this tag is saved to disk to appear in a periodic printout of the event log. An X enables this function. A blank disables the function.                                                                                                                                  |
| First feedback state           | Zero Six-character logic state descriptor to identify a zero state for feedback one.                                                                                                                                                                                                                      |
|                                | One Six-character logic state descriptor to identify a one state for feedback one.                                                                                                                                                                                                                        |
| Which state is the alarm state | Determines which state is the alarm state for the selected tag. It is selected from a menu which contains:<br><div>Zero</div> <div>One</div> <div>Neither</div>                                                                                                                                           |

**NOTE:**

1. Refer to **Defining A Logic State Descriptor (LSD)** in this section for the procedures to call a list of valid logic state descriptors.

Table 8-7. Station Tab Fields

| Field           | Description                                                                                                                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tuning block    | Function block to appear in the block details portion of a tuning display (normally a PID block).<br>Valid entry: 1 to 9998 = block address of the function block providing the station block input or any function block in the PCU module. This allows the tuning display to be requested without any further input.            |
| Priority        | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The conditions that can have a priority assigned include:<br>High deviation<br>Low deviation<br>Valid entry 1 to 16; default is 16. Priority one is the highest priority. |
| Index and text  | Index and value of an alarm text string to appear when the tag enters a certain alarm condition. The conditions that can have an alarm text index include:<br>High deviation<br>Low deviation<br>Enter <b>0</b> to not associate a comment with a condition.                                                                      |
| Deviation limit | Information only field.                                                                                                                                                                                                                                                                                                           |
| Set point zero  | Information only field                                                                                                                                                                                                                                                                                                            |

Table 8-8. Device Driver Tab Fields

| Field                  | Description |                                                                                 |
|------------------------|-------------|---------------------------------------------------------------------------------|
| Second feed-back state | Zero        | Six-character logic state descriptor to identify a zero state for feedback two. |
|                        | One         | Six-character logic state descriptor to identify a one state for feedback two.  |

Table 8-9. Multistate Device Driver Tab Fields

| Field                 | Description |                                                                                   |
|-----------------------|-------------|-----------------------------------------------------------------------------------|
| Logic state           | Two         | Six-character logic state descriptor to identify a two state.                     |
|                       | Three       | Six-character logic state descriptor to identify a three state.                   |
| Third feedback state  | Zero        | Six-character logic state descriptor to identify a zero state for feedback three. |
|                       | One         | Six-character logic state descriptor to identify a one state for feedback three.  |
| Fourth feedback state | Zero        | Six-character logic state descriptor to identify a zero state for feedback four.  |
|                       | One         | Six-character logic state descriptor to identify a one state for feedback four.   |



Table 8-10. Module Tab Fields

| Field                                    | Description                                                                                                                                                                                                                                                                                       |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Priority                                 | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The condition that can have a priority assigned is:<br>Alarm<br>Valid entry 1 to 16; default is 16. Priority one is the highest priority. |
| Index and text                           | Index and value of an alarm text string to appear when the tag enters a certain alarm condition. The condition that can have an alarm text index is:<br>Alarm<br>Enter <b>0</b> to not associate a comment with a condition.                                                                      |
| Type                                     | Displays the type of module. (Information only field)                                                                                                                                                                                                                                             |
| Firmware Revision                        | Displays the firmware revision of module. (Information only field)                                                                                                                                                                                                                                |
| Enable Alarm Acknowledgment Transmission | Determines if alarm acknowledgment transmissions are transmitted on the loop.<br>Checked = enable alarm acknowledgment transmissions.<br>Cleared = disable alarm acknowledgment transmissions.                                                                                                    |
| Enable Annunciator Silence Transmission  | Determines whether or not annunciator silences are transmitted on the loop.<br>Checked = enable annunciator silences transmissions.<br>Cleared = disable annunciator silences transmissions.                                                                                                      |

Table 8-11. Rem Motor Ctrl Block Tab Fields

| Field                   | Description                                                                                                                                                                                                                                                    |                                                                                   |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| First permissive state  | Zero                                                                                                                                                                                                                                                           | Six-character logic state descriptor to identify a zero state for permissive one. |
|                         | One                                                                                                                                                                                                                                                            | Six-character logic state descriptor to identify a one state for permissive one.  |
| Second permissive state | Zero                                                                                                                                                                                                                                                           | Six-character logic state descriptor to identify a zero state for permissive two. |
|                         | One                                                                                                                                                                                                                                                            | Six-character logic state descriptor to identify a one state for permissive two.  |
| Text set                | Number of a text set defined through remote motor control block text configuration. Selects the text set that contains the text identifiers for each of 10 error codes that can be returned in an exception report from a remote motor control function block. |                                                                                   |

Table 8-12. Rem Manual Set Const Tab Fields

| Field                        | Description                                                                                                                                                                                                                   |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering units descriptor | Noninput field; a PCU module reports the index number that associates an engineering unit of measurement with this tag. A list of valid fixed and user-defined engineering units can be viewed on the EUD configuration page. |
| Decimal digits               | Number of decimal places to show for this tag. Valid entry 0 to 7+.                                                                                                                                                           |
| Low limit                    | Noninput field.                                                                                                                                                                                                               |
| High limit                   | Noninput field.                                                                                                                                                                                                               |

Table 8-13. Scanner Tab Fields

| Field                                     | Description                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Priority                                  | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The conditions that can have priority assigned include:<br>Alarm<br>Valid entry 1 to 16; default is 15. Priority 1 is the highest priority. |
| Index and text                            | Index and value of an alarm text string to appear when the tag enters a certain alarm condition. The conditions that can have an alarm text index include:<br>Return to normal<br>Alarm<br>Enter 0 to not associate a comment with a condition.                                                     |
| Security level                            | Determines the access levels required doing certain operations. Supervisor 3 is the highest access level while Operator 1 is lowest access level.                                                                                                                                                   |
| Write I90 Blockware Specs To Tag Database | Determines whether or not the blockware specs are written to tag database. When enabled, the blockware specs are written to tag database. A valid entry is:<br>Checked = enable writing.<br>Cleared = disabled writing.                                                                             |
| Enable Module Time Stamps                 | Determines whether or not using the time stamp from the module for the exception report. It is valid only when the loop is an INFI-NET. A valid entry is:<br>Checked = enable module time-stamp.<br>Cleared = disabled module time-stamp.                                                           |
| Enable time Synchronization               | Determines whether or not the server receives and send the time synchronization in the network. When enabled, the server is in time synchronization.<br>Checked = time synchronizing is enabled.<br>Cleared = time synchronizing is disabled.                                                       |
| Scanner is an INFI-NET scanner            | Determine whether or not the loop is an INFI-NET loop.<br>Checked = the loop is an InfiNet.<br>Cleared = the loop is a plant-loop.                                                                                                                                                                  |
| Enable Global Alarm Acknowledgment        | Determines whether or not receipt of global alarm acknowledgments from the loop is enabled.<br>Checked = enable receiving of global alarm acknowledgments.<br>Cleared = disable receiving of global alarm acknowledgments.                                                                          |
| Enable Global Alarm Silencing             | Determines whether or not receipt of global silencing acknowledgments from the loop is enabled.<br>Checked = enable receiving of global silencing messages.<br>Cleared = disable receiving of global silencing messages.                                                                            |
| Accuracy                                  | Time sync accuracy of the server. Valid when server is in time synchronization. 0 - low Accuracy is lowest one. 12 - satellite clock is highest one.                                                                                                                                                |
| Master Update Period                      | Time sync master update period. Valid when server is in time synchronization. Valid entry 2 to 59 min.                                                                                                                                                                                              |
| Message Wait Period                       | Time sync update period. Valid when the server is in time synchronization. Valid entry 3 to 59 min. and must be greater than the master update period.                                                                                                                                              |



Table 8-14. Text String Tab Fields

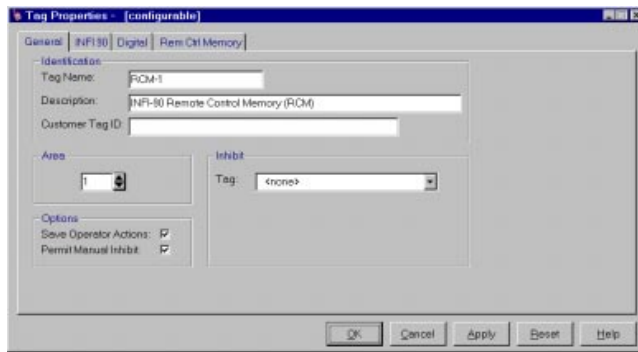
| Field                      | Description                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximal text width         | Maximal text string length. If this string length is less than the actual length of the exception reported text string, truncation will occur. This is considered to be remote truncation since the communications interface unit of the Conductor NT uses the value to determine the maximum length of the text string it will accept.<br>Valid entry 0 to 80.                                              |
| Enable Control by operator | Determines whether or not operator control of the text string export block in a PCU module is permitted. When enabled, control can be performed by using the keyboard. The results of the operator actions can be seen on the screen. When disabled, the Conductor NT provides information but does not allow control. A valid entry is:<br>Checked = default; enable control.<br>Cleared = disable control. |
| Priority                   | Relative priority or importance within an alarm group of each alarm condition for this tag. Priority relates to alarm management and the alarm summary. The conditions that can have a priority assigned include:<br>Alarm<br>Valid entry 1 to 8; default is 1. Priority one is the highest priority.                                                                                                        |
| Index and text             | Index and value of an alarm text string to appear when the tag enters a certain alarm condition. The conditions that can have an alarm text index include:<br>Return to normal<br>Alarm<br>Enter <b>0</b> to not associate a comment with a condition.                                                                                                                                                       |

Table 8-15. Server Tab Fields

| Field                | Description                                                            |
|----------------------|------------------------------------------------------------------------|
| Host name            | Updateable field, name of computer scanner is running on.              |
| Domain name          | Updateable field, name of domain. Common format is <i>group/node</i> . |
| Server type          | Lists server types available.                                          |
| Read operations      | Determines those eligible for read-only security level.                |
| Control              | Determines those eligible for control.                                 |
| Scan state changes   | Determines those eligible to make scan state changes.                  |
| Tag database changes | Determines those eligible to make tag database changes.                |
| Inhibit alarms       | Determines those eligible to inhibit alarms.                           |

## General

Each tag in the database has a name of up to 16 characters (12 for scanner tags). A tag name identifies the tag throughout all functions. Each process point or control module to be monitored requires a unique tag in the database (Fig. 8-2).



TC00135A

Figure 8-2. General Tab

The database allows for a 40-character tag *Description* that describes the purpose of the tag. An additional 32-character *Customer Tag ID* also can be entered to further explain the process point. These descriptions help to identify the tag while on certain displays. To edit the fields click them and enter the desired text.

Next select an area for the tag by clicking on the up or down arrows beside the *Area* field. Available values are one to 255.

*Inhibit Tag* field allows for a tag alarm to be inhibited automatically if the inhibiting tag enters a certain state. From the *Inhibit Tag* list window select a tag that will be inhibited and in the *Inhibit State* field enter the state at which the tag alarm will be inhibited. The first entry in the *Inhibit Tag* list window is a blank string. Use this string to disable the *Inhibit Tag* option.

Clear the *Save Operator Action* check box with the space bar. When the check box is set the operator actions will be saved to a file for use in summaries.

Clear the *Permit Manual Inhibit* with the space bar. When the check box is set *Permit Manual Inhibit* is enabled. This option allows the operator to inhibit the alarms of this tag. The operator must have the proper security level to use this function, refer to the **Conductor NT Configuration** instruction.



*Alarm Indicator* contains an integer value calculated as below:

$$ADPPanel * 64 + ADPLamp - 64$$

where:

*ADPPanel* = one to 4.

*ADPLamp* = one to 32 normal state, and 33 to 64 shifted state.

The servers control window contains a list of servers to which the current tag is assigned. It is a nonupdatable field.

There are five buttons at the bottom of the tag properties window, each one is explained below.

*OK* - Applies changes and exits the tab page and goes to the previous tab page or window.

*Cancel* - Exits without applying changes to the tag.

*Apply* - Applies changes to the tag without exiting tab page.

*Reset* - Resets all of the fields to their default values.

*Help* - Displays screen that explains functions of the tab page.

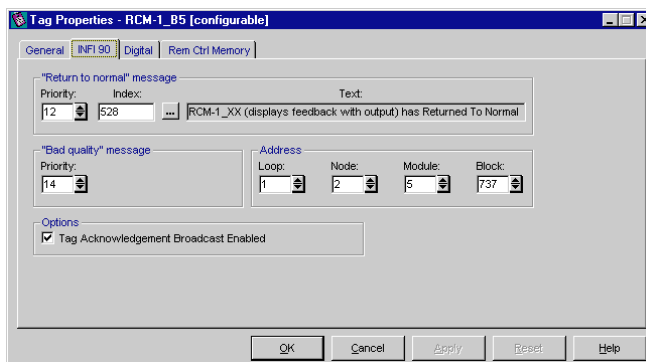
**NOTE:** When *Apply* or *OK* is clicked and there is an error in one of the values a dialog appears defining the error.

## INFI 90

Click the *INFI 90* tab. In this window *Return to Normal* and *Bad Quality Priority* are set by using the arrow keys beside the respective field to raise and lower the value (Fig. 8-3).

The *Alarm Comment* text number for the *Return to Normal* alarm comment can be set by clicking *Index* and entering the text number. Then click the button beside the text field to display the configured text in the *Text* window. If an incorrect index number is entered a dialog is displayed stating the error and the index value returns to its default value. The alarm priority index numbers are set by the indexed text configuration function explained in **Indexed Text** in this section.

Next the INFI 90 OPEN address for the tag is entered in the *Loop*, *Node*, *Module*, and *Block* fields. This is done by using the arrow keys beside each field to raise or lower the number, or



TC00564A

Figure 8-3. INFI 90 Tab

by clicking on the field and entering a number from the keyboard. Table 8-16 gives details on each of these fields. If an incorrect value number is entered in any of the fields a dialog is displayed stating the error and the value returns to its default value of zero.

Table 8-16. Address Values

| Field Name | Description                                                     | Values   |
|------------|-----------------------------------------------------------------|----------|
| Loop       | The communication highway for the INFI 90 OPEN system.          | 0 to 250 |
| Node       | An interconnection point on the data highway.                   | 0 to 250 |
| Module     | A device in the INFI 90 OPEN control system.                    | 0 to 31  |
| Block      | Location of a specific function code in the controller program. | Note 1   |

**NOTE:**

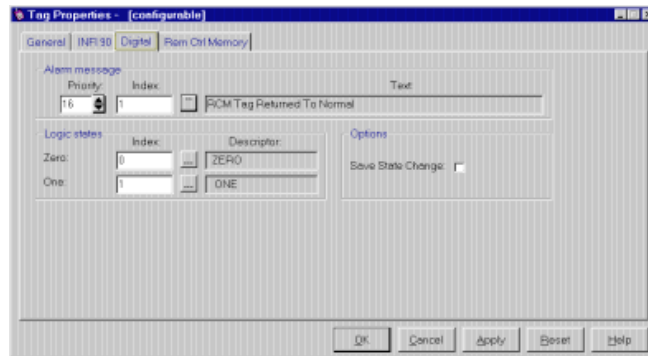
1. Possible values: 1 to 30,000 for the HAC01, or 1 to 9998 for BRC-100 and MFP controllers

*Tag Acknowledgment Broadcast Enabled* determines whether or not alarm acknowledgments of each tag are transmitted to other Conductor NTs. Each node to which the Conductor NT actually transmits these acknowledgments must have a configured module status tag. For each module status tag, on the *Module* tab, check *Enable Alarm Acknowledgment Transmission* to have the Conductor NT transmit any recently acknowledged alarms.



## Digital

Click the *Digital* tab (Fig. 8-4). This page sets the alarm priority and the index text for the alarm. Also, the logic state descriptors and *Save State Change* can be set in this tab.



TC00137A

Figure 8-4. Digital Tab

The alarm priority of the tag can be set in the *Alarm Priority* field by using the arrow keys to raise and lower the value. The values range from one to 16 (default is 16 - lowest priority).

Also the text number for the alarm priority can be set by entering the text number in the *Index* field. Then click the button beside the text field to display the configured text in the *Text* window. If an incorrect index number is entered a dialog is displayed stating the error and the index value returns to its default value of nothing. The alarm comment index numbers are set by the text configuration function explained in *Indexed Text* in this section.

The next two fields are *Index* fields for *Logic State Zero* and *Logic State One*. Click the field and enter an index number. Then click the button beside the text field to display the configured text in the description window. If an incorrect index number is entered a dialog is displayed stating the error and the index value returns to its default value of nothing. The *Logic State Zero* and *Logic State One* index numbers are set by the text configuration function explained in *Indexed Text* in this section.

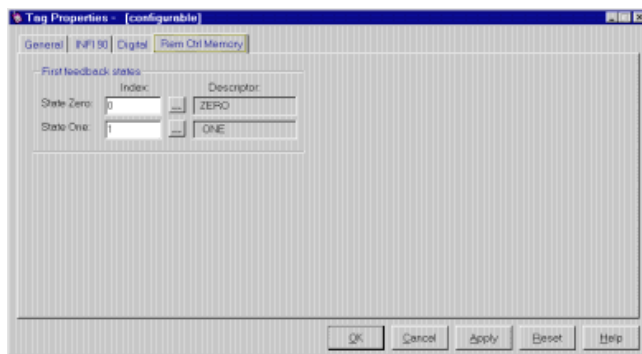
Click *Save State Changes* check box with the mouse or when the box has keyboard focus select and deselect it with the space bar. When the check box is set the state changes will be saved to a file for use in summaries.

## Remote Control Memory

Open the remote control memory tab page by clicking the *Rem Ctrl Memory* tab. The two fields in this tab page are the *Index* fields for *First Feedback State Zero* and *First Feedback State One*. Click the field and enter an index number. Then click the button beside the text field to display the configured text in the *Description* window. If an incorrect index number is entered a dialog is displayed stating the error and the index value returns to its default value of nothing. The *First Feedback State Zero* and *First Feedback State One* index numbers are set by the text configuration function explained in *Indexed Text* in this section (Fig. 8-15).

## Scanner

The following is a description of a *Scanner* tab. A scanner tag must be configured for each server on the control network.



TC00138A

Figure 8-5. Remote Control Memory Window

Open the *Scanner* tab page by clicking on the tab labeled *Scanner* (refer to Fig. 8-6). The *Scanner* tab page provides the ability to configure *Messages*, *Security Levels*, *Time Synchronization*, and other *Options* in the scanner. The *Alarm Priority* and the

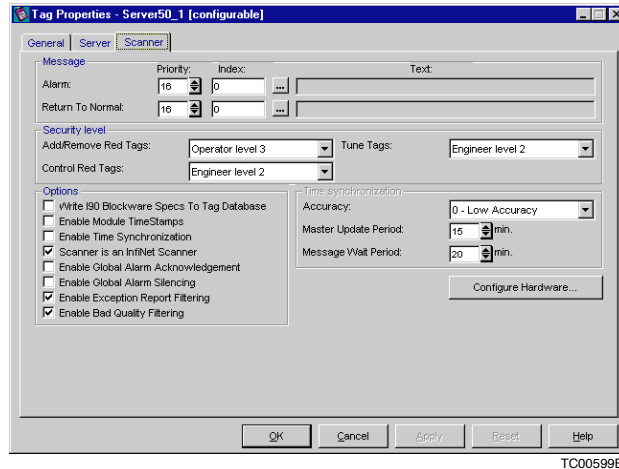


**Figure 8-6. Scanner Tab**

*Return To Normal* priority tag can be set by using the arrow keys beside the respective field to raise and lower the value.

Clicking the *Index Text* field and entering the text number can set the alarm comment text number for the return to normal alarm comment. Then click the button beside the text field to display the configured text in the text window. If an incorrect index number is entered a window is displayed stating the error and the index value returns to its default value.

The security level of *Add/Remove Red Tags*, *Control Red Tags* and *Tune Tags* can be set by using the arrow keys beside the respective field to select the level.

The options of *Write I90 Blockware Specs To Tag Database*, *Enable Module Time Stamps*, *Enable Time Synchronization* and *Scanner is an INFINET Scanner* can be set by using the check box beside the respective field. The option of *Enable Module Time Stamps* is dimmed when the option of *Scanner is an INFINET Scanner* is unchecked.

**NOTE:** It is recommended that the *Enable Module Time Stamps* option be enabled for each server in a redundant pair.

Configure the server tag to enable receiving global alarm acknowledgments from other Conductor NTs on the loop by checking the *Global Alarm Acknowledgment Enabled* box (refer to **Global Alarm Acknowledgment** in this section). Configure the server tag to enable receiving global alarm silencing acknowledgment from other Conductor NTs on the loop by checking the *Global Alarm Silence Enabled* box (refer to **Global Silence Messages** in this section). An information message appears in the system event log each time a tag is acknowledged from a remote Conductor NT. Checking the *Enable Exception Report Filtering* option screens exception reports when the maximum reporting time expires. Configure the server tag to not receive bad quality alarms by checking the *Enable Bad Quality Filtering* option.

The *Accuracy of Time Synchronization* can be set by using the arrow key beside the field to select a new level. Using the arrow keys beside the respective field to raise and lower the value can set the options of *Master Update Period* and *Message Wait Period of Time Synchronization*.

## Server

The following is a description of the *Server* tab. This tab is used to configure the server.

Open the *Server* tab page by clicking on the *Server* tab (refer to Fig. 8-7). The server page is used to determine the security levels. The *Host Name* field is used to display/edit the name of the host computer on which this server will run. Make sure this field refers to an actual computer host name. The *Domain Name* field is used to display/edit the name of the domain of the server. The common format for this entry is *group/node*.

**NOTE:** Changing the domain name from the default domain can have unpredictable effects on the operation of the system, especially in redundant configurations. Extreme care should be taken when this field is altered.

To select a *Server Type*, click the down arrow and the servers will be listed. The server types are: *INFI 90 OPEN Scanner*, *INFI 90 OPEN Simulator*, and *OPC Scanner*. The *INFI 90 OPEN simulator* generates data from script and is used for simulation.

*Security Level* allows selection of the security level for each of these operations: *Read Operations*, *Control*, *Scan State Changes*, *Tag Database Changes*, and *Inhibit Alarms*. With

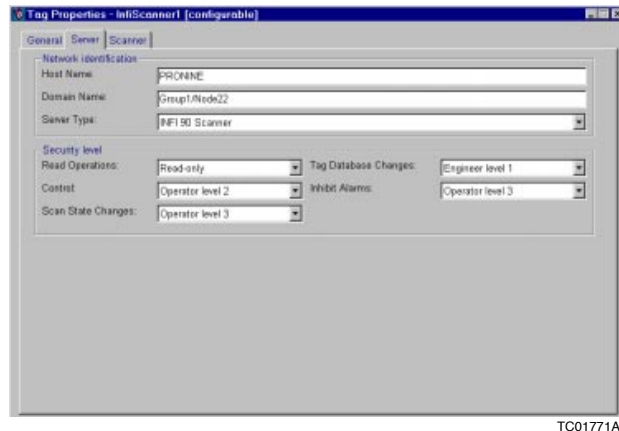


Figure 8-7. Server Tab

each *Security Level* field, click the down arrow, highlight an option and click to select.

## Copy Tag

Select a tag in the *Available Tag*. Then select *Copy Tag* from the edit menu or click the copy icon on the toolbar.

A tab window for the copied tag appears. In the database, certain tag attributes are common for all tag types although they are defined differently for each type. Other attributes are dependent on the tag type. Each different tag type has a different tab window. Tables 8-2 to 8-15 explain the tag specific fields for all of the INFI 90 OPEN tag types. Change the name and other attributes of the tag as needed. When finished click *Apply* to apply the changes and remain in the tag configuration tab or click *OK* to apply the changes and exit.

## Change Operating Status Tag

Select a tag in the main window. Then select *Change Operating Status* from the edit menu or click the status field of the desired tag and an arrow icon will be enabled. Click this icon. Both of these actions invoke a *Change Operating Status* window. Select the status change for the tag and click *OK*. The

status change options are dependent on the current status of the tag. For example: if the tag status is *Deleted* the only option available in the *Status Change* window is *New*.

**NOTE:** Multiple tags can be selected by clicking on one tag and dragging across the desired tags while the mouse button is depressed.

Table 8-17 defines the operating statuses available. Only tags marked *New* or *Commissioned* will actually be loaded into the Conductor NT system and be available to users. The other statuses are for use in predefining default values for different tag types (templates) or for tracking tags which are not currently in service.

Table 8-17. Operating Status Descriptions

| Status       | Description                                                                                                                                                                                                                                                                                       |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New          | Indicates that a tag is currently in use, but in a precommissioned state.                                                                                                                                                                                                                         |
| Commissioned | Indicates that a tag has been verified as correct and commissioned for use.                                                                                                                                                                                                                       |
| Deleted      | Indicates that a tag has been deleted from use. Deleted tags are not physically removed from the tag configuration database until <i>Purge Deleted Tags</i> operation is performed. In this way, deleted tags may be reinstated at a later date.                                                  |
| Template     | Indicates that this tag entry is not a real tag, but is a template for copying when creating new tags. Tag templates may be defined which may contain default values for any tag field. Creating a new tag is really just a copy of an existing template tag (either predefined or user-defined). |
| Ignored      | Indicates that this tag which has not yet been commissioned, should be ignored by the system.                                                                                                                                                                                                     |
| Suspended    | Indicates that this tag, which has already been commission, should be ignored by the system.                                                                                                                                                                                                      |
| Error        | Indicates that this tag, which has been imported into the tag configuration database using the <i>Tag Importer</i> , was found to contain errors, and will be ignored by the system. Once the error has been corrected, the <i>Operating Status</i> of the tag will go to <i>New</i> .            |

## Search

The Search function is activated by selecting *Search* from the view menu or by clicking on the search icon in the toolbar. A *Tag Search* window is displayed. Enter the full name of the desired tag in the *Enter Tag Name* field. If the full tag name is not known, type the first few characters in the tag name and



the search function will find the first occurrence of these characters in the tag name list. To start the search click **OK**.

## View Options

Display the view menu by clicking on *View* in the available tags window menu bar. The *View* option allows the user to *Sort* and *Filter* the tags by the use of SQL query statements.

## Sort

Click *Sort* in the *View* menu (Fig. 8-8) or click the sort icon in the toolbar. In the sort window select the options by which the tags should be sorted. All the arrangements are done in alphabetical order except *Modified* which is done by date and time. To select a sorting option click the desired field name in the *Field Names* list. The selected item will be highlighted. Then click **ADD->** to add it to the *Sort Order* field. More than one option can be added to this clause. To clear the *Sort Order* click **Clear**. The order of the sorting can also be set to *Ascending* or *Descending*.

**NOTE:** The *Ascending* option is the default. If the *Descending* option is desired it must be selected before the field name is added to the clause.

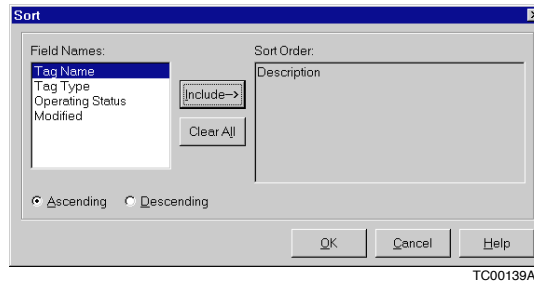


Figure 8-8. Sort Window

Another method of sorting the tag list is by clicking on the heading of each column. This function will sort alphabetically for names and text, or numerically for date, depending on the column heading selected. This option only arranges the items in ascending order.

## Filter

Click *Filter* in the view menu to display the filter window (Fig. 8-9). This function allows creation of a custom filter applied to the tag list.

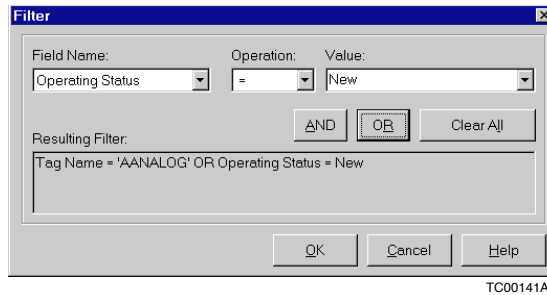


Figure 8-9. Tag List Filtering Window

To create a where filter:

1. Click *Field Name* and select a field on which to filter the tags.
2. Click the operation menu and select an operator for the *Where* clause.
3. Click *Value* and enter a value that corresponds to the *Field Name* selected and the *Operator*.

**NOTE:** For tag type and operating status the value is selected from a list.

4. Click the logic criterion for the entered clause.
5. When the *Where* clause has been completed click *OK* to filter the available tag list.

To clear the *Resulting Filter* field click *Clear All*.

## Operating Status Filters

The options in the operating status window are:

- *New.*
- *Commissioned.*
- *Deleted.*



- *Template.*
- *Ignored.*
- *Suspended.*
- *Error.*

When one of these options is selected only the tag names that it describes will be listed. For example if *Deleted* is selected only the deleted tags will be listed. To select any of these seven options click the desired one. When one of these options is selected a check appears to the left of the option in the view menu. To deselect this view option click it a second time. Check all options to view the full list.

**NOTE:** Using the filter command overrides these operating status filters and disables the menu items.

## ADP Panel

The annunciator display panel (ADP) user interface is controlled by the mini-alarm window. The mini-alarm window provides a soft interface window for displaying ADP group status as well as a configuration point for defining the action that will be taken when an ADP key is pressed.

Determining which LEDs will light when a point goes into alarm, and which display to call when an ADP button is pressed, are handled by separate tasks.

The assignment of tag names to ADP groups is a function of tag name configuration. To assign a group number to any tag, open the tag properties window for that tag. The tag properties window can be accessed by double-clicking on a tag or choosing *Edit > Edit Tag* from the tag configuration utility menu.

Each point which can go into alarm must have a field which associates the point with an ADP group. Group numbers can be one to 256. Zero is reserved to indicate that the point is not part of an ADP group.

In the tag properties window *Alarm Indicator* contains the configurable group number. By default this number is zero, indicating the tag does not belong to any group.

Configuration of which LED or indicator to turn on, and which display to call up when a button is pressed is the responsibility of the Conductor NT.

Soft ADP configuration is started by selecting the ADP panel number and then opening a context menu on the key to be configured. Right shift clicking on a button will bring up the configuration window for the alternate (yellow indicator) button. The context menu contains a label for the button, and two menu selections. The first one, *Description*, will cause the *Description* field window to appear. The *Description* field is one of the items that can be configured for the button by selecting *Configure*.

The configuration window consists of three sections. The first section displays the ADP panel and button number, and the ADP group number assignment. Change the ADP group assignment through the ADP text entry box. The panel and button text fields are strictly for display only.

The second section provides the configuration for the display that will appear when the button is pressed, the button label, and the button description. The display configuration is made by selecting one of the items in the box. If an item is selected that needs further qualification (the first five items), a window will appear prompting entry of the complete information. For example, if *Point* is selected, the enter tag name window will be displayed. The text entry box is used to enter a valid tag name. When the user presses the button, or clicks on the soft button, the corresponding point display will appear in the operator window.

## Default Group Assignment

As a default, each ADP group number is associated with a separate key. The default association is the same as the physical key number assigned to each key, with the understanding that:

- ADP panel 1, button 1 is ADP group number 1.
- ADP panel 2, button 1 is ADP group number 65.
- ADP panel 3, button 1 is ADP group number 129.
- ADP panel 4, button 1 is ADP group number 193.

The key numbers increase from one to 32, and then go backwards from 33 to 64 on the ADP panel. This simply means that key one shifted is key 64, key two shifted is key 63, ..., key 32 shifted is key 33.



Through the configurations window the user can alter the association between the ADP group number and the ADP key. It is possible to assign ADP groups to more than one ADP key. However, each ADP key can only have one ADP group assigned to it.

## COM Port Configuration

The multibus keyboard module (MKM) controller must use either COM1 or COM2 serial ports for communication. To choose the COM port Conductor NT will use to recognize the MKM controller, start the Conductor NT maintenance utility. Refer to **Conductor NT Introduction and Installation** instruction.

From the menu bar choose *Basic > ADP Setup*. A window will appear, with *COM1* and *COM2*. Choose the port to which the MKM is attached and click OK.

All other necessary configuration for the selected port will be done automatically by the ADP server.

## Tools

The tools menu contains *Configure Text*, the *Import Configuration*, *Import Trends*, and the *@aGlance Importer* functions. The *Configure Text* function allows the user to edit the text indices for the database. The *Import Configuration* function is used to import configurations from other databases. The *Import Trends* converts OIS/PCV configuration databases into historical databases. The *@aGlance Importer* function allows the *@aGlance* server to import current or historical tags into the *@aGlance* server.

## Import Trends

The trend importer converts an OIS/PCV configuration database to an **.XDC** historical database configuration file. The application generates a log file for recording each incidence of a change or rejected trend configuration. Three input file formats of **.TTR** files are supported: L.3, S.1, and PCV.

Start the application by clicking on *Tools > Trend Importer*. When the application is started the user is presented with the trend importer default window shown in Figure 8-10.

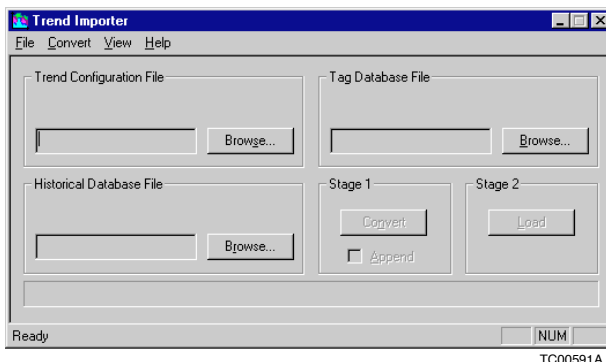


Figure 8-10. Trend Importer Default Window

Initially, on top of that window is the following message:

*Is this trend data being imported for a redundant pair?*

If the trend data is not being imported for a redundant pair, press *No* and the window will disappear and the trend importer default window (Fig. 8-10) will be displayed by itself.

If the trend data is being imported for a redundant pair, press *Yes* and the redundant node selection window will be displayed on top of the trend importer default window. Enter the *Redundant Node* number as prompted, click *OK*. The default node number is one.

The trend importer default window is then displayed alone.

The only option available when the trend importer window is first opened is *Browse*. This button opens a typical Windows NT file selection window.

To convert a configuration database:

1. Select a *Trend Configuration* (**.TTR**) file using *Browse* or *Select Source* in the file menu.
2. Select a *Historical Database* (**.XDC**) file using *Browse* or *Select Target* in the file menu.



3. Select a *Tag Database (.TTG)* file using *Browse* or *Select .TTG file* in the file menu.

**NOTE:** Only after these three files have been selected will *Convert* be enabled.

4. Click *Convert* to convert the trend to the historical database file.

**NOTE:** Only after the files have been converted will *Load* be enabled.

5. Click *Load* to load the historical database file into the Conductor NT system.

**NOTE:** If this application is run for a redundant pair both node numbers will be inserted in the *.XDC* file.

## @aGlance Importer

The @aGlance importer converts an OIS/PCV trend configuration to an *.XDC* @aGlance/IT database configuration file. The application combines two files that make it possible for the @aGlance/IT server to load current or historical tags.

Start the application by selecting *@aGlance Importer* from the tools menu. When the application is started the user is presented with the window shown in Figure 8-11.

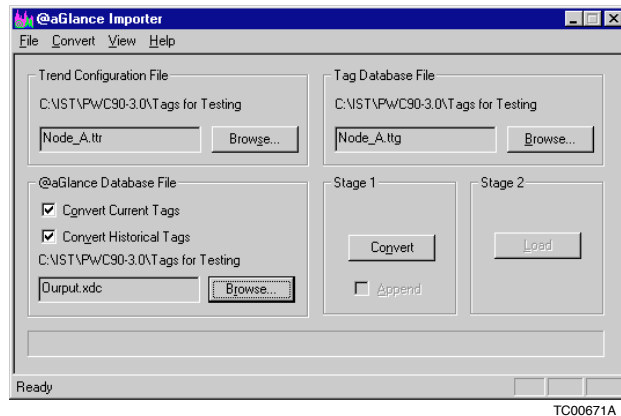


Figure 8-11. @aGlance Importer

To convert a configuration database:

1. Select a trend configuration (**.TTR**) file using *Browse* or *Select Source* in the file menu.
2. Select a tag database (**.TTG**) file using *Browse* or *Select Source* in the file menu.
3. Select *Convert Current Tags* and *Convert Historical Tags*. *Convert Current Tags* will import tags into the @aGlance/IT current tags database while *Convert Historical Tags* will import tags into the @aGlance/IT historical tag database.
4. Select the output file (**.XDC**) using *Browse*.
5. Only after these three files (**.TTR**, **.TTG**, and **.XDC**) have been selected will *Convert* be enabled.
6. *Append* is only enabled if the file chosen for output already exists.
7. Click *Convert* to convert the trend to an @aGlance/IT file.
8. Only after the files have been converted will *Load* be enabled.
9. Click *Load* to load the output (**.XDC**) file into the Conductor NT system.

## INFI 90 OPEN Import/Export Tag Configuration

The import/export configuration utility enables a user to add or export configuration data from other INFI 90 OPEN Conductor NTs and offline configuration tools (SLDG and WLDG in particular).

The configuration data is provided as files of ASCII text strings and consists of alarm comments, engineering unit descriptors, logic state descriptors, remote motor control block error code text sets, text selections, and tag definitions. The tag definitions may be in one of two formats: SLDG BCS L.3 and SLDG BCS S.1. The formats of the other files are fixed. Alarm comments are embedded in tag definitions for the L.3 format, therefore, this format does not permit importing a separate file of alarm comments.

Files with the extension **.CP** must be assumed to use run length compression (SLDG standard) during importation.



The configuration importer utility requires the use of a temporary working directory to perform file modifications (i.e. file decompression, record delimiter insertion). The configuration importer utility must use the temporary working directory whose name is specified in one of the user environment variables defined as ***temp*** or ***tmp*** in ***Main\Control Panel\System***. Normally these variables are defined by Windows NT to specify a directory at the system root called ***\temp***. However, these variables may be configured otherwise.

## Import

Start the application by clicking *Tools > Import Configuration*. When the application is started the user is presented with the window shown in Figure 8-12.

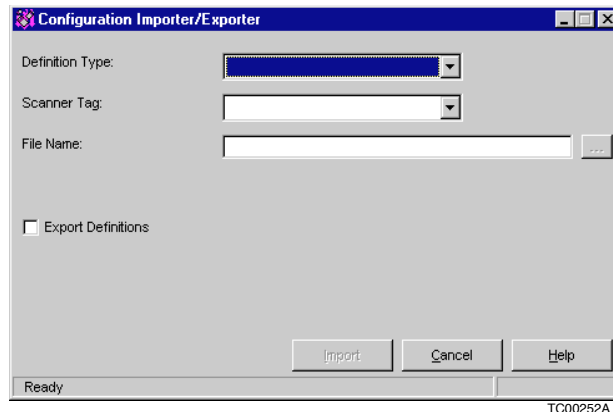


Figure 8-12. Tag Importer Default Window

1. In the *Definition Type* field select the type of tags to be imported. The selections are:

- *RMCB Error Code Text Sets.*
- *Alarm Comments.*
- *Text Selections.*
- *Engineering Unit Descriptors.*
- *Logic State Descriptors.*

- *Tag Definitions.*

**NOTE:** If tags are defined with custom logic state descriptors, then the logic state descriptors must be imported before tag definitions. Otherwise the logic state settings for each tag will need to be reconfigured.

2. When *Tag Definitions* is selected three check boxes appear in the window (Fig. 8-13). If any of the following functions are needed click the appropriate check box.

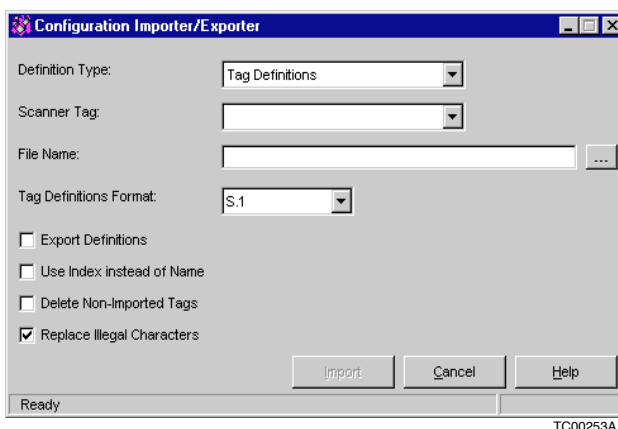


Figure 8-13. Tag Importer Window with Check Boxes

- *Use Index instead of Name* - When tag definitions are imported the tag index field will be used, instead of the tag name field.
- *Delete Non-Imported Tags* - When tag definitions are imported the existing tag definitions in the database will have their operating status set to deleted. All tag definitions which are updated and appended, will have their operating statuses set to new.
- *Replace Illegal Characters* - When tag definitions are imported any characters other than A through Z, a through z, -, \_, or trailing blanks will be replaced by \_ in tag names.



3. After selecting the *Definition Type*, click *Scanner Tag*. A listing of the servers to import information to will be displayed. This list displays all servers configured in the database. Click the appropriate server. That server will now be listed in the *Scanner Tag* window.
4. After selecting the *Scanner Tag*, click *Browse* beside the *File Name* field. A file selection window appears. Select the path and the file name to be imported.
5. Select the *Tag Definitions Format*: S.1, L.3 or X.1.
6. Click *Import* to perform the operation.
7. A window appears confirming the completion of the tag import function.

**NOTE:** When the server tag scanner option is set to Plant Loop mode, DAANG, ASCII string and enhanced tags will be imported but set to ignored operating status. The warning messages are logged.

## Export

To export INFI 90 OPEN tags:

1. Click *Configuration Importer > Export Definitions*. Select from the following:
  - *RMCB Error Code Text Sets*.
  - *Alarm Comments*.
  - *Text Selections*.
  - *Engineering Unit Descriptors*.
  - *Logic State Descriptors*.
  - *Tag Definitions*.
2. Click *Scanner Tag* and select the desired server tag.
3. Click *Browse* beside *File Name* field. A common Windows NT file selection window appears. Select the path and the file name to be used for export.
4. When the file name has been selected click *Export* and a window will confirm the completion of the export function.

## Configure Text

The configure text function allows for the configuration of text indices for alarm text, text selections, engineering unit

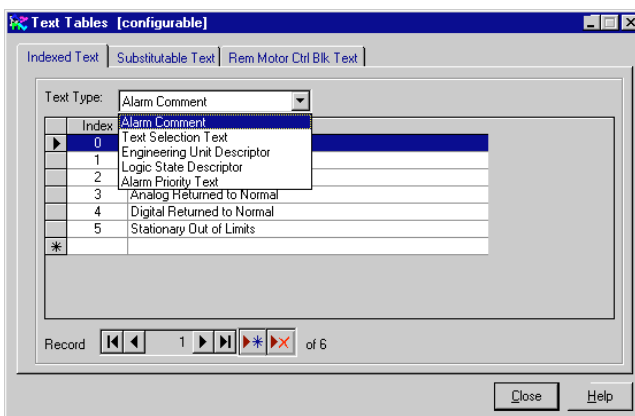
descriptors, logic state descriptors, remote motor control block (RMCB) error code text sets (only for INFI 90 OPEN RMCB tags) and substitutable text. To start the text configuration function click it in the tools menu or click the text icon in the toolbar.

## Indexed Text

The indexed text tab page contains the text type name box that contains the selectable options for the table on the page. They are:

- *Alarm Comment.*
- *Text Selection Text.*
- *Engineering Unit Description.*
- *Logic State Descriptor.*
- *Alarm Priority Text.*

Each selection invokes a table with an *Index* and a *Text* column. Below the table is a set of buttons to scroll through the table. Pressing the outer buttons of this control immediately moves the table to the beginning or the end. The other two buttons scroll through each table entry. The text field in this control displays the record number that has cursor focus out of the total number of records in the table (Fig. 8-14).



TC00142A

Figure 8-14. Index Text Window



Each one of the selections is explained in the following sections.

**Alarm Comment.** *Alarm Comment* is the default text type name in the *Text Type* field. The table has two columns: *Index* and *Text*. The maximum number of entries in this table is 20,000. An *Alarm Comment* index is associated with an alarm condition of a tag in the database. An alarm text can be created for each alarm condition of a tag.

Each tag type has different possible alarm conditions, which include:

- Return to normal (RTN).
- Alarm (A).
- High alarm (H).
- Two-high alarm (2H).
- Three-high alarm (3H).
- Low-alarm (L).
- Two-low alarm (2L).
- Three-low alarm (3L).
- High deviation (HD).
- Low deviation (LD).
- High rate of change (HR).
- Low rate of change (LR).
- Hardware failure (HF).

All alarm comment indexes have an assigned index number. The index number allows using a single comment with several tags. In this way, a comment does not have to be redefined for each tag. Enter an alarm comment index number for each alarm condition of a tag during its configuration to associate a comment with a condition.

To add an alarm comment index number go to the bottom of the table and use the blank row. Click the cell in the *Index* column and insert a number. Then click the *Text* cell beside the number and enter the desired text for this number.

**Text Selection Text.** To display the text choice table, select: *Text Type* > *Text Selection Text*. The table has two columns: *Index* and *Text*. There can be up to 10,000 text indexes in this table. These index numbers are used with the text selector function code.

To add a text selection text index number go to the bottom of the table and use the blank row. Click the cell in the *Index* column and insert a number. Then click the *Text* cell beside the number and enter the desired text for this number.

## Tag Descriptors

Tag descriptors are used to present the unit of measurement for a process value and the current state for a process device. There are two types of descriptors: engineering unit descriptors (EUDs) and logic state descriptors (LSDs).

**Engineering Unit Descriptors (EUDs).** Engineering unit descriptors relate to tag types that present analog values. They describe the unit of measurement (i.e., DEG F, GPM, AMPS, LB/HR) for a value received from the process. A descriptor follows the tag value throughout all Conductor NT functions.

A list of common engineering units is provided. A total of 256 EUD can be defined in the database: zero through 15 are fixed and 16 through 255 can be user-defined. Table 8-18 lists the fixed EUDs and their index numbers.

Table 8-18. Engineering Unit Descriptors

| Index | Descriptor |
|-------|------------|
| 0     | (Blank)    |
| 1     | (Blank)    |
| 2     | %          |
| 3     | DEG F      |
| 4     | DEG C      |
| 5     | PSIA       |
| 6     | PSIG       |
| 7     | IN H2O     |
| 8     | GPM        |
| 9     | CFS        |
| 10    | CFM        |
| 11    | LB/HR      |
| 12    | GAL        |
| 13    | AMPS       |
| 14    | IN HG      |
| 15    | KLB/HR     |



The actual reporting of EUDs comes from PCU modules. After an engineering unit is defined in the module configuration, the module sends an index number to the Conductor NT to identify the engineering unit associated with an exception reported value. This index number is then cross referenced with the database list of descriptors. Since the modules report the EUD index number, all devices on a common communication highway should use the same EUD list.

Additional EUDs can be added to the database using *Engineering Units*.

**Defining an Engineering Unit Descriptor (EUD).** Use the *Engineering Units* option to define an EUD.

**NOTE:** Descriptors zero through 15 are fixed and cannot be changed through this configuration.

To add an EUD index number use the blank row at the bottom of the table. Click the cell in the *Index* column and insert a number. Then click *Text* beside the number and enter the desired text for this number.

**Logic State Descriptors (LSD).** Logic state descriptors relate to tag types that present logic states for digital devices. These descriptors show the current logic state (i.e., on or off, zero or one, run or stop, or closed or open) of a device. A descriptor, after being defined for a tag, follows the tag throughout all Conductor NT functions.

Unlike an EUD, a PCU module does not report an index number of an LSD. The tag database is referenced for the correct descriptor.

A list of common LSDs is provided. A total of 256 LSDs can be defined in the database: zero through 15 are fixed and 16 through 255 can be user-defined. Table 8-19 lists the fixed LSDs and their index numbers.

Additional LSDs can be added to the database by using *Logic State Descriptors*.

**Defining A Logic State Descriptor (LSD).** Use the *Logic State Descriptors* option to define an LSD.

**NOTE:** Descriptors zero through 15 are fixed and cannot be changed through this configuration. LSD 15 is defined as blank.

Table 8-19. Logic State Descriptors

| Index | Descriptor |
|-------|------------|
| 0     | ZERO       |
| 1     | ONE        |
| 2     | ON         |
| 3     | OFF        |
| 4     | NO         |
| 5     | YES        |
| 6     | CLOSED     |
| 7     | OPEN       |
| 8     | LOW        |
| 9     | HIGH       |
| 10    | EMPTY      |
| 11    | FULL       |
| 12    | RUN        |
| 13    | STOP       |
| 14    | TRIP       |
| 15    | (Blank)    |

To add an LSD index number go to the bottom of the table and use the blank row. Click the cell in the *Index* column and insert a number. Then click the *Text* cell beside the number and enter the desired text for this number.

### Alarm Priority Text

*Alarm Priority Text* is the last text type name in the *Text Type* field. The table has two columns: *Index* and *Text*. There are 16 provided alarm priorities. An alarm priority index is associated with an alarm priority of a tag in the database. An alarm priority text appears in the first field of the mini-alarm window and in the alarm review display. Each alarm priority can be assigned different possible indexes, which include those shown in Table 8-20.

The alarm priority text is another method of determining the priority of a problem in the process.



Table 8-20. Alarm Priorities

| Index | Descriptor |
|-------|------------|
| 1     | DIRE       |
| 2     | dire       |
| 3     | CRUCIAL    |
| 4     | crucial    |
| 5     | CRITICAL   |
| 6     | critical   |
| 7     | ALERT      |
| 8     | alert      |
| 9     | WARNING    |
| 10    | warning    |
| 11    | ADVISE     |
| 12    | advise     |
| 13    | NOTIFY     |
| 14    | notify     |
| 15    | INFORM     |
| 16    | inform     |

### Substitutable Text

Click the *Substitutable Text* tab. This tab page contains a table with a list of atoms and their description. Below the table are buttons which are used to scroll through the table. Clicking the outer buttons of this control immediately moves the table to the beginning or the end. The other two buttons scroll through each entry. The text field displays the number that has cursor focus and the maximum number of records in the table. The substitutable text tab page is shown in Figure 8-15.

To edit the text, use the arrows to choose the atom to be edited, then double-click the mouse on the selected atom.

This displays a table with three columns *Value*, *Tag Type* and *Text*. Click the row beside the \* or click *New Record* to enter a new row or click the cell of an existing value to edit it. Click the gray box to the left of the *Value* column to select an entire row. When the entire row is selected it can be deleted by pressing **DELETE** on the keyboard or clicking *Delete*. A window will confirm this action.

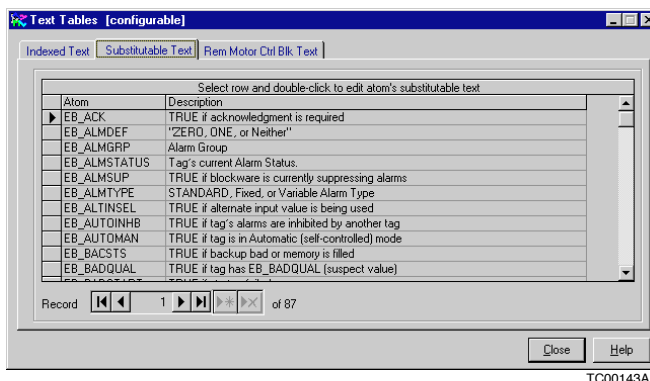


Figure 8-15. Substitutable Text Tab Page

There are two buttons at the bottom of the table window: *Done* and *Default*. Press *Default* to insert the default values into the table. *Done* accepts the values into the database and closes the window.

## Remote Motor Control Text

Click the *Rem Motor Ctrl Blk Text* tab. This tab page contains a horizontally scrolling list displaying different Rem Motor Ctrl Blk sets. Each of the lists has a set number at the top with a set name directly underneath it. The set name is followed by a list of the 10 text strings for an RCMCB tag. There is a maximum of 99 sets permitted (Fig. 8-16).

*Remote Motor Control Text* defines text sets that contain text strings for remote motor control function blocks (FC 136). The function block can report any of ten different text strings that identify its current operation. These error codes are reported to identify the condition that caused a bad start of a device. An RMCB tag must be configured for the Conductor NT to receive an exception report.

Error codes and status reported include:

- No error.
- Stopped.
- Interlock one.
- Interlock two.



Figure 8-16. RCMB Text Tag

- Interlock three.
- Interlock four.
- Feedback one = 0.
- Feedback two = 0.
- Feedback one = 1.
- Feedback two = 1.

**NOTE:** The interlock codes indicate not set or logic zero conditions for each of four interlocks.

Each error code text set has an assigned number. Up to 100 sets can be defined. A *Text Set* field for an RCMB tag selects which text set is to be used for the tag. The specific text string that displays depends on the error code returned in an exception report from the RCMB block.

To add a text set click *New Record*. This creates a text set with a number equal to (maximal used +1). Edit the information in the fields of the new text set and click *OK* to save the changes.

To delete the current set click *Delete Record*. Set zero cannot be deleted.

**NOTE:** Operations are performed immediately and cannot be cancelled.

## Available Servers

When *Tag Configuration* is invoked, but not from the server menu, the *Available Servers* window appears (Fig. 8-17). This window gives the users the ability to choose a server (defined by its scanner tag). Each *Leaf* in a treeview control represents a server, either primary or redundant. Redundant servers are always coupled with their primary servers. Root nodes represent server types (INFI 90 OPEN, OPC). When the user highlights a leaf, *OK* is enabled. Clicking *OK* confirms user selection and brings up a list of tags assigned to the chosen server.

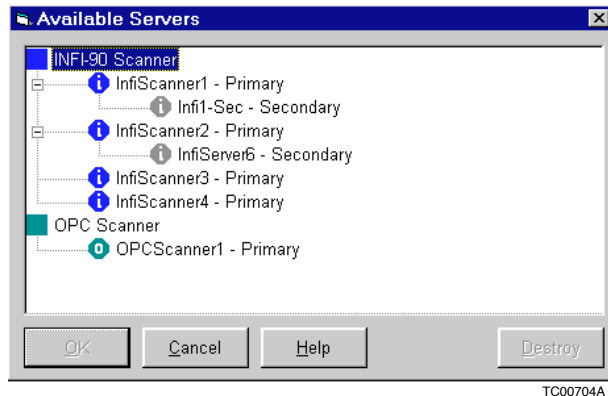


Figure 8-17. Available Servers Window

*Cancel* will terminate the application. *Destroy* will delete the scanner tag and all the tags assigned to the server (if a primary server is chosen) permanently.

**NOTE:** If the user chooses a redundant server, the list will contain the scanner tag only.

## Global Alarm Acknowledgment

The global alarm acknowledgment function allows the Conductor NT to send and receive global alarm acknowledgment messages. This function is available only for INFI 90 OPEN.



## Receiving Global Acknowledgments from the Loop

Configure the server tag to enable receiving global alarm acknowledgments from other Conductor NTs on the loop. On the *Scanner* tab, as shown in Figure 8-6, check *Global Alarm Acknowledgment Enabled* to inform the Conductor NT software to monitor these messages. A message appears in the system event log each time a tag is acknowledged from a remote Conductor NT.

## Sending Global Acknowledgments to the Loop

On the *INFI 90 OPEN* tab of each configured tag the *Tag Acknowledgment Broadcast Enabled* option determines whether or not alarm acknowledgments of each tag are transmitted to other Conductor NTs. A module status tag must also be configured for each node to which the Conductor NT will actually transmit these acknowledgments. For each module status tag, on the *Module* tab, check the *Enable Alarm Acknowledgment Transmission* option to have the Conductor NT transmit any recently acknowledged alarms. Alarms are transmitted at a rate of one per second.

## Global Silence Messages

The global silence message function allows the Conductor NT to send and receive global messages to silence alarms. This function is available only for INFI 90 OPEN.

## Receiving Global Silence Messages from the Loop

Configure the server tag to enable receiving silence messages from other Conductor NTs on the loop. On the *Scanner* tab, as shown in Figure 8-6, check the *Global Silence Acknowledgment Enabled* box to inform the Conductor NT software to monitor these messages. A message appears in the system event log each time a silence message is received from a remote Conductor NT.

## Sending Global Silence Messages to the Loop

The module status tag must also be configured for each node to which the Conductor NT will actually transmit these silence messages. For each module status tag, on the *Module* tab

check the *Enable Alarm Silencing Transmission* option to have the Conductor NT transmit any global silence messages.

## Database Utilities (DBUtils) Application

DBUtils application is a set of tools used to upgrade and maintain tag database files.

It allows the user to:

- Transfer tag data from older format database files (shipped with previous versions of Conductor NT) to newer format database files.
- Set the host name of the server and system description.
- Launch tag configuration application with a special set of parameters to destroy or create servers.
- Compact and empty database and set it as a design master in a replica set.

Most DBUtils functions create a backup copy of a database file prior to modifying it, thus enabling the user to revert to a previous state.

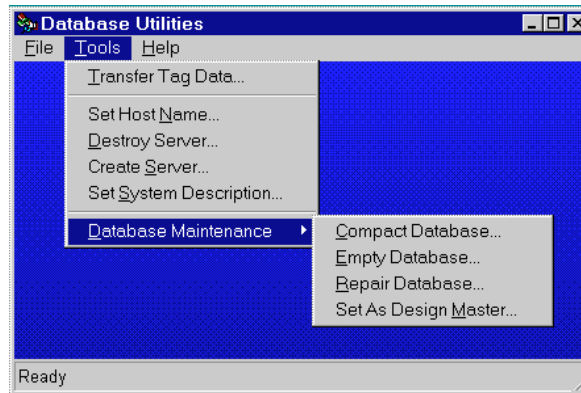
Access the database utilities (Fig.8-18) application through the windows menu. The following are available from the *Tools* option.

### Transfer Tag Data Function

This function allows the user to transfer tag data from an existing database file to an empty database file when upgrading to a new version of Conductor NT. Tag data is transferred on an atom by atom basis, so that all compatible atoms for all tags in new (empty) database will be populated with configured values. New atoms will get default values.

### Set Host Name Function

This function is used to enter a name of the host computer a server will run on.



TC00715A

Figure 8-18. Database Utilities

## Destroy Server Function

This function is used to invoke the tag configuration application in offline mode to destroy a user selected server. If the server is primary, all the tags assigned to it are purged from the database along with the server tag itself. If the server is redundant, only the server tag is deleted from the master database, and the redundant database (replica) is destroyed.

## Create Server Function

This function is used to invoke tag configuration application with a special set of parameters to create additional primary or redundant servers in a master database. Up to two servers (one INFI 90 OPEN and one OPC) are created by the Conductor NT setup program. If the user adds a primary server, the function just creates a new server tag in a master database. If the user adds a redundant server, the function presents a list of available primary servers in the database not having redundant servers yet. The user must select a primary server from the list. The function then creates a redundant server in the master database and a redundant database (replica) in the specified location.

## Set System Description Function

This function is used to enter a description string for a system being configured.

## Database Maintenance Functions

### Compact Database

This function is used to reduce the size of a database file by defragmenting it.

### Empty Database

This function is used to purge all the tags except server tags from a database.

### Set as Design Master

This function is used to set a database file as a design master in a replica set. Conductor NT setup program always sets the master database as a design master, thus allowing dynamic creation of tables and design changes. If, due to changed location or name, a master database file is not a design master anymore, the user can recover a master using this function.





### Atom Suffixes

There are two atom suffixes that are used with the INFI 90 OPEN tag.atom combinations.

1. The **\_N** suffix is used to identify the format as numeric, hence the complete identification for a numeric tag looks like this:

tag.atom\_N

2. To identify a tag.atom combination as a string format, no suffix is used, hence the complete identification for a string tag looks like this:

tag.atom

### Tag.Atom List

This appendix contains lists of all of the available tag atoms in the Conductor NT system. Use the tree structure in Figure 9-1 to configure all of the atoms for each tag atom.

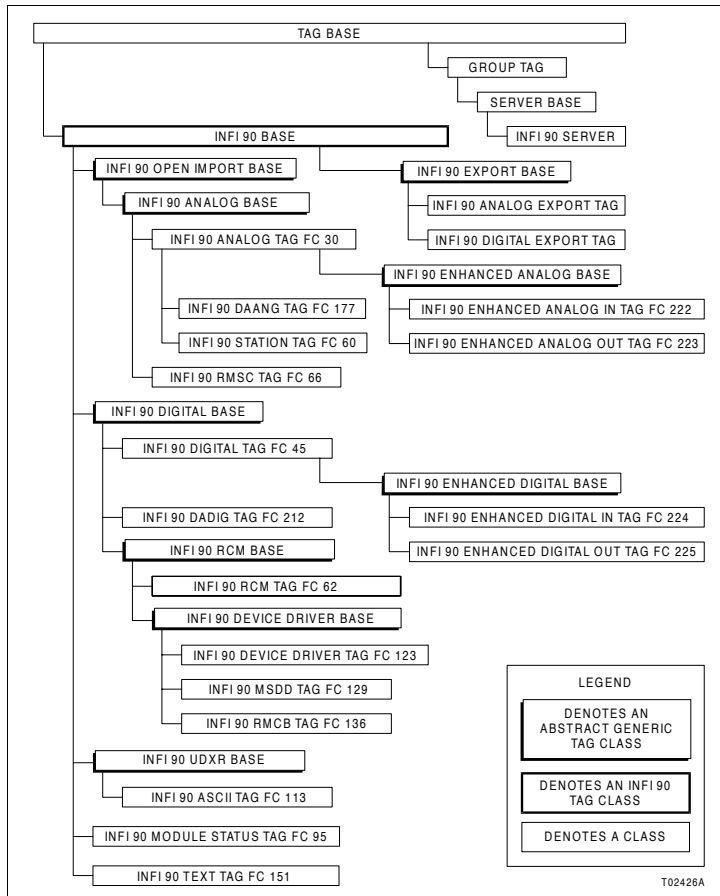


Figure 9-1. Tag.atom Tree Structure

Table 9-1. Analog

| Atom Name   | Write | Text | Numeric | Description                               |
|-------------|-------|------|---------|-------------------------------------------|
| C_PVHIAP    | No    | No   | Yes     | Alarm if tag's value is above this limit. |
| C_PVLOAP    | No    | No   | Yes     | Alarm if tag's value is below this limit. |
| EB_CALIBSTS | No    | Yes  | Yes     | Calibration status.                       |

Table 9-1. Analog (continued)

| Atom Name | Write | Text | Numeric | Description                                       |
|-----------|-------|------|---------|---------------------------------------------------|
| EB_HICMT  | No    | Yes  | No      | High alarm state comment index.                   |
| EB_HIPRIO | No    | Yes  | Yes     | Priority of high alarm message (1 to 16).         |
| EB_LOCMT  | No    | Yes  | No      | Low alarm state comment index.                    |
| EB_LOPRIO | No    | Yes  | Yes     | Priority of low alarm priority message (1 to 16). |

Table 9-2. Analog Base

| Atom Name | Write            | Text | Numeric | Description                                            |
|-----------|------------------|------|---------|--------------------------------------------------------|
| C_APV     | Yes <sup>1</sup> | No   | Yes     | Last reported value for tag.                           |
| C_RANGHI  | No               | No   | Yes     | Zero+span of tag's value in engineering units.         |
| C_RANGLO  | No               | No   | Yes     | Base value (zero) of tag's value in engineering units. |
| C_UNITS   | No               | Yes  | No      | Engineering units of measure index.                    |
| EB_DECDIG | No               | No   | Yes     | Number of decimal places to display (0 to 7).          |
| EB_SPAN   | No               | No   | Yes     | Span of tag's value in engineering units.              |

**NOTE:**

1. Only if EB\_SCANST is false.

Table 9-3. Analog Export

| Atom Name | Write | Text | Numeric | Description                                            |
|-----------|-------|------|---------|--------------------------------------------------------|
| C_APV     | Yes   | No   | Yes     | Last reported value for tag.                           |
| C_PVHIAP  | No    | No   | Yes     | Alarm if tag's value is above this limit.              |
| C_PVLOAP  | No    | No   | Yes     | Alarm if tag's value is below this limit.              |
| C_RANGHI  | No    | No   | Yes     | Zero+span of tag's value in engineering units.         |
| C_RANGLO  | No    | No   | Yes     | Base value (zero) of tag's value in engineering units. |
| C_UNITS   | No    | Yes  | No      | Engineering units of measure index.                    |
| EB_DECDIG | No    | No   | Yes     | Number of decimal places to display (0 to 7).          |
| EB_HICMT  | No    | Yes  | No      | High alarm state comment.                              |
| EB_HIPRIO | No    | Yes  | Yes     | Priority of high alarm message (1 to 16).              |
| EB_LOCMT  | No    | Yes  | No      | Low alarm state comment.                               |
| EB_LOPRIO | No    | Yes  | Yes     | Priority of low alarm message (1 to 16).               |
| EB_SPAN   | No    | No   | Yes     | Span of tag's value in engineering units.              |

Table 9-4. ASCII STRING

| Atom Name | Write | Text | Numeric | Description                                       |
|-----------|-------|------|---------|---------------------------------------------------|
| EB_TXTSTR | Yes   | Yes  | No      | Text (data string) currently limited to 80 bytes. |



Table 9-5. Base

| Atom Name   | Write | Text | Numeric | Description                                                      |
|-------------|-------|------|---------|------------------------------------------------------------------|
| EB_ALMACKBC | No    | Yes  | Yes     | Alarm acknowledgment is broadcast.                               |
| EB_BADPRIO  | No    | Yes  | Yes     | Priority of bad quality messages.                                |
| EB_BLOCK    | No    | No   | Yes     | Block address of tag (currently 1 to 30,000).                    |
| EB_DISEST   | No    | Yes  | Yes     | When true, indicates that the tag is not established in the CIU. |
| EB_LOOP     | No    | No   | Yes     | Zero for Plant Loop, one to 250 for INFI-NET.                    |
| EB_MODULE   | No    | No   | Yes     | Currently 0 to 31.                                               |
| EB_NODE     | No    | No   | Yes     | 1 to 64 for Plant Loop, 1 to 250 for INFI-NET.                   |
| EB_RTNCMT   | No    | Yes  | No      | Return to normal state comment.                                  |
| EB_RTNPRI   | No    | Yes  | Yes     | Priority of return to normal message.                            |

Table 9-6. DAANG

| Atom Name     | Write            | Text | Numeric | Description                                                                         |
|---------------|------------------|------|---------|-------------------------------------------------------------------------------------|
| EB_ALMEADBAND | No               | No   | Yes     | Hysteresis in alarming (value must fluctuate more than this to change alarm state). |
| EB_ALMSUP     | Yes              | Yes  | Yes     | True if blockware is currently suppressing alarms.                                  |
| EB_ALMTYPE    | No               | Yes  | No      | Standard, fixed, or variable alarm type.                                            |
| EB_ALTINSEL   | Yes              | Yes  | Yes     | True if alternate input value is being used.                                        |
| EB_AUTOMAN    | Yes              | Yes  | Yes     | True if tag is in automatic (self-controlled) mode.                                 |
| EB_CNTRREF    | No               | No   | Yes     | Display reference for bidirectional dynamic bar.                                    |
| EB_COMMQUAL   | No               | Yes  | Yes     | True if communications are bad.                                                     |
| EB_CONSTR     | No               | Yes  | Yes     | True if tag value is currently being constrained.                                   |
| EB_CONSTRPER  | No               | Yes  | Yes     | True if the input value constraint is enabled.                                      |
| EB_DEVALM     | No               | Yes  | Yes     | Deviation alarm status (0-normal, 1-low alarm, 2-high alarm).                       |
| EB_FORCEXR    | Yes <sup>1</sup> | No   | Yes     | Force block to send XR (always returns zero).                                       |
| EB_HARDFAULT  | No               | Yes  | Yes     | True if blockware detects a hardware failure.                                       |
| EB_HI2CMT     | No               | Yes  | No      | High high alarm state comment.                                                      |
| EB_HI2PRIO    | No               | Yes  | Yes     | Priority of high high alarm message.                                                |
| EB_HI3CMT     | No               | Yes  | No      | High high high alarm state comment.                                                 |
| EB_HI3PRIO    | No               | Yes  | Yes     | Priority of high high high alarm message.                                           |
| EB_HICONSTR   | No               | No   | Yes     | High constraint limit.                                                              |
| EB_HIDEVCMT   | No               | Yes  | No      | High deviation alarm state comment.                                                 |
| EB_HIDEVPRIO  | No               | Yes  | Yes     | Priority of high deviation alarm message.                                           |

Table 9-6. DAANG (continued)

| Atom Name     | Write | Text | Numeric | Description                                                   |
|---------------|-------|------|---------|---------------------------------------------------------------|
| EB_HIRATECMT  | No    | Yes  | No      | High rate of change alarm state comment.                      |
| EB_HIRATEPRIO | No    | Yes  | Yes     | Priority of high change rate alarm message.                   |
| EB_HIREF      | No    | No   | Yes     | High reference limit on display.                              |
| EB_LO2CMT     | No    | Yes  | No      | Low low alarm state comment.                                  |
| EB_LO2PRIO    | No    | Yes  | Yes     | Priority of low low priority message.                         |
| EB_LO3CMT     | No    | Yes  | No      | Low low low alarm state comment.                              |
| EB_LO3PRIO    | No    | Yes  | Yes     | Priority of low low low priority message.                     |
| EB_LOCONSTRMT | No    | No   | Yes     | Low constraint limit.                                         |
| EB_LODEVCMT   | No    | Yes  | No      | Low deviation alarm state comment.                            |
| EB_LODEVPRIO  | No    | Yes  | Yes     | Priority of low deviation priority message.                   |
| EB_LORATECMT  | No    | Yes  | No      | Low rate of change alarm state comment.                       |
| EB_LORATEPRIO | No    | Yes  | Yes     | Priority of low change rate priority message.                 |
| EB_LOREF      | No    | No   | Yes     | Low reference limit on display.                               |
| EB_MULTLVL    | No    | Yes  | Yes     | True if multilevel alarming is enabled.                       |
| EB_NOREPORT   | Yes   | Yes  | Yes     | True if blockware has scanning disabled.                      |
| EB_NXTHILMT   | No    | No   | Yes     | Next higher alarm limit.                                      |
| EB_NXTLOLMT   | No    | No   | Yes     | Next lower alarm limit.                                       |
| EB_OUTRANGE   | No    | Yes  | Yes     | True if value is suspect or out of range.                     |
| EB_PERINSEL   | No    | Yes  | Yes     | True if operator is permitted to select input value.          |
| EB_QUALOVR    | No    | Yes  | Yes     | True if blockware is overriding the quality status.           |
| EB_RATEALM    | No    | Yes  | Yes     | NO_RATE, LOW_RATE, or HIGH_RATE.                              |
| EB_REALM      | No    | Yes  | Yes     | True if periodic re-alarming is enabled.                      |
| EB_REDTAG     | No    | Yes  | Yes     | True if red tagged (disables control actions).                |
| EB_SRC        | No    | Yes  | Yes     | Composite mode (C_MODE and EB_ALTINSEL)<br>0 - user, 1 = all. |
| EB_USERVAL    | Yes   | No   | Yes     | Manually entered (user-inserted) value for tag.               |
| EB_VARALM     | No    | Yes  | Yes     | True if variable alarming is enabled.                         |

**NOTE:**

1. Writing any value to this atom results in a force XR request being sent to blockware.



Table 9-7. DADIG

| Atom Name   | Write            | Text | Numeric | Description                                          |
|-------------|------------------|------|---------|------------------------------------------------------|
| EB_ALMSUP   | Yes              | Yes  | Yes     | True if blockware is currently suppressing alarms.   |
| EB_ALTINSEL | Yes              | Yes  | Yes     | True if alternate input value is being used.         |
| EB_AUTOMAN  | Yes              | Yes  | Yes     | True if tag is in automatic (self controlled) mode.  |
| EB_FORCEXR  | Yes <sup>1</sup> | No   | Yes     | Force block to send XR (always returns 0).           |
| EB_LATCHED  | No               | Yes  | Yes     | True if output state has been latched.               |
| EB_NOREPORT | Yes              | Yes  | Yes     | True if blockware has scanning disabled.             |
| EB_OUTRANGE | No               | Yes  | Yes     | True if value is suspect or out of range.            |
| EB_PERINSEL | No               | Yes  | Yes     | True if operator is permitted to select input value. |
| EB_QUALOVR  | No               | Yes  | Yes     | True if blockware is overriding the quality status.  |
| EB_REALM    | No               | Yes  | Yes     | True if periodic re-alarming is enabled.             |
| EB_REDTAG   | No               | Yes  | Yes     | True if red tagged (disables control actions).       |
| EB_SRC      | No               | Yes  | Yes     | Composite mode (C_MODE and EB_ALTINSEL).             |
| EB_USERTYPE | No               | Yes  | Yes     | User type code range (0 to 255).                     |

**NOTE:**

1. Writing any value to this atom results in a force XR request being sent to blockware.

Table 9-8. Device Driver

| Atom Name | Write | Text | Numeric | Description                                         |
|-----------|-------|------|---------|-----------------------------------------------------|
| EB_DDMODE | Yes   | Yes  | Yes     | True if tag is in automatic (self controlled) mode. |
| EB_FBSTS  | No    | Yes  | Yes     | Current feedback status (good, bad).                |
| EB_REMOTE | No    | Yes  | Yes     | True if tag is in remote mode.                      |
| EB_STSOVR | No    | Yes  | Yes     | True if the tag status is overridden.               |

Table 9-9. Device Driver Base

| Atom Name | Write | Text | Numeric | Description                           |
|-----------|-------|------|---------|---------------------------------------|
| EB_FB2    | No    | Yes  | Yes     | Current state of feedback two.        |
| EB_FB2LS0 | No    | Yes  | No      | Zero state descriptor for feedback 2. |
| EB_FB2LS1 | No    | Yes  | No      | One state descriptor for feedback 2.  |

Table 9-10. Digital

| Atom Name | Write | Text | Numeric | Description       |
|-----------|-------|------|---------|-------------------|
| EB_ALMDEF | No    | Yes  | Yes     | 0, 1, or neither. |

Table 9-11. Digital Base

| Atom Name   | Write            | Text | Numeric | Description                                     |
|-------------|------------------|------|---------|-------------------------------------------------|
| C_DPV       | Yes <sup>1</sup> | No   | Yes     | Current logic state of the tag.                 |
| C_SPV       | No               | Yes  | No      | Current logic state description of C_DPV state. |
| EB_ALMCMT   | No               | Yes  | No      | Alarm comment.                                  |
| EB_ALMPRIO  | No               | Yes  | Yes     | Alarm priority number or description (1 to 16). |
| EB_LS0      | No               | Yes  | No      | Logic state descriptor for state zero.          |
| EB_LS1      | No               | Yes  | No      | Logic state descriptor for state one.           |
| EB_SAVSTCHG | No               | Yes  | Yes     | True if state changes are to be logged.         |

**NOTE:**

1. Only if EB\_SCANST is false or derived class is controllable.

Table 9-12. Digital Export

| Atom Name   | Write | Text | Numeric | Description                                     |
|-------------|-------|------|---------|-------------------------------------------------|
| C_DPV       | Yes   | Yes  | Yes     | Current logic state of the tag.                 |
| C_SPV       | No    | Yes  | No      | Current symbolic state of the tag.              |
| EB_ALMCMT   | No    | Yes  | No      | Alarm comment.                                  |
| EB_ALMDEF   | No    | Yes  | No      | Zero, one, or neither.                          |
| EB_ALMPRIO  | No    | Yes  | Yes     | Alarm priority number or description (1 to 16). |
| EB_LS0      | No    | Yes  | No      | Logic state descriptor index for state zero.    |
| EB_LS1      | No    | Yes  | No      | Logic state descriptor index for state one.     |
| EB_SAVSTCHG | No    | Yes  | Yes     | True if state changes are to be logged.         |

Table 9-13. Enhanced Analog Base

| Atom Name   | Write | Text | Numeric | Description                                         |
|-------------|-------|------|---------|-----------------------------------------------------|
| EB_AUTOMAN  | Yes   | Yes  | Yes     | True if tag is in automatic (self controlled) mode. |
| EB_CONFERR  | No    | Yes  | Yes     | Configuration error.                                |
| EB_CURRLEN  | No    | No   | Yes     | Channel label current count.                        |
| EB_EUCHG    | Yes   | No   | Yes     | Engineering units significant change.               |
| EB_LABEL    | Yes   | Yes  | No      | Channel label.                                      |
| EB_ORIGLEN  | No    | No   | Yes     | Channel label original count.                       |
| EB_OVRNBL   | No    | No   | Yes     | Override enabled.                                   |
| EB_OVRVAL   | Yes   | No   | Yes     | Override value.                                     |
| EB_PROPQUAL | No    | Yes  | Yes     | Propagated quality.                                 |
| EB_RANGE    | No    | Yes  | Yes     | Range: 00-OK, 01-open, 10-short, 11-overdrive.      |
| EB_RDBKSTS  | No    | Yes  | Yes     | Read-back status.                                   |



Table 9-13. Enhanced Analog Base (continued)

| Atom Name  | Write | Text | Numeric | Description                         |
|------------|-------|------|---------|-------------------------------------|
| EB_REFSTS  | No    | Yes  | Yes     | Reference status.                   |
| EB_SEIMODE | No    | Yes  | No      | Status error inhibit mode.          |
| EB_SIM     | Yes   | Yes  | Yes     | Simulation enable.                  |
| EB_SIMBLK  | Yes   | No   | Yes     | Simulation value block number.      |
| EB_SUSPERR | No    | Yes  | Yes     | Suspect error.                      |
| EB_TRUNC   | No    | Yes  | Yes     | True if remote truncation occurred. |

Table 9-14. Enhanced Analog In

| Atom Name  | Write | Text | Numeric | Description |
|------------|-------|------|---------|-------------|
| EB_INPTYPE | Yes   | No   | Yes     | Input type. |

Table 9-15. Enhanced Digital Base

| Atom Name   | Write | Text | Numeric | Description                                         |
|-------------|-------|------|---------|-----------------------------------------------------|
| EB_AUTOMAN  | Yes   | Yes  | Yes     | True if tag is in automatic (self controlled) mode. |
| EB_CONFERR  | No    | Yes  | Yes     | Configuration error.                                |
| EB_CURRLN   | No    | No   | Yes     | Channel label current count.                        |
| EB_LABEL    | Yes   | Yes  | No      | Channel label.                                      |
| EB_ORIGLEN  | No    | No   | Yes     | Channel label original count.                       |
| EB_OVRNBL   | No    | No   | Yes     | Override enable.                                    |
| EB_OVRVAL   | Yes   | Yes  | Yes     | Override value.                                     |
| EB_PROPQUAL | No    | Yes  | Yes     | Propagated quality.                                 |
| EB_RANGE    | No    | Yes  | Yes     | Range: 00-OK, 01-open, 10-short, 11-overdrive.      |
| EB_RDBKSTS  | No    | Yes  | Yes     | Read-back status                                    |
| EB_SEIMODE  | No    | No   | Yes     | Status error inhibit mode.                          |
| EB_SIM      | Yes   | No   | Yes     | Simulation enable.                                  |
| EB_SIMBLK   | Yes   | No   | Yes     | Simulation value block number.                      |
| EB_SUSPERR  | No    | Yes  | Yes     | Suspect error.                                      |
| EB_TRUNC    | No    | Yes  | Yes     | True if remote truncation occurred.                 |

Table 9-16. Export Base

| Atom Name   | Write | Text | Numeric | Description                            |
|-------------|-------|------|---------|----------------------------------------|
| EB_ICIINDEX | No    | No   | Yes     | ICI index to be used for export point. |

Table 9-17. Import Base

| Atom Name        | Write | Text | Numeric          | Description                                              |
|------------------|-------|------|------------------|----------------------------------------------------------|
| EB_SPECSRCVD     | No    | Yes  | Yes              | True if the blockware specifications have been received. |
| EB_SPECTIMESTAMP | No    | Yes  | Yes <sup>1</sup> | Time of last spec exception from blockware.              |

**NOTE:**

1. Returns a time structure containing a tinet and nsecs.

Table 9-18. Module Status

| Atom Name    | Write | Text | Numeric | Description                                      |
|--------------|-------|------|---------|--------------------------------------------------|
| EB_ALMCMT    | No    | Yes  | No      | Alarm comment.                                   |
| EB_ALMPRIO   | No    | Yes  | Yes     | Alarm priority number or description (1 to 16).  |
| EB_BACSTS    | No    | Yes  | Yes     | True if backup bad or memory is filled.          |
| EB_ICI_TYPE  | No    | Yes  | Yes     | True if module is an ICI device.                 |
| EB_LOCIOSTS  | No    | Yes  | Yes     | True if local I/O status is bad.                 |
| EB_MODERR    | No    | Yes  | Yes     | True if module errors exist.                     |
| EB_MODMODE   | No    | Yes  | Yes     | Module mode.                                     |
| EB_MODREV    | No    | Yes  | Yes     | Module revision.                                 |
| EB_MODTYP    | No    | Yes  | No      | Description of module type.                      |
| EB_MODVER    | No    | Yes  | Yes     | Module version.                                  |
| EB_NCOMMERR  | No    | Yes  | Yes     | Summary of communication errors, true if exist.  |
| EB_NMODERR   | No    | Yes  | Yes     | Summary of module errors, true if exist.         |
| EB_NOFFLINE  | No    | Yes  | Yes     | True if module is offline.                       |
| EB_NSYSERR   | No    | Yes  | Yes     | Summary of system errors, true if exist.         |
| EB_NTYP      | No    | Yes  | Yes     | INFI 90 OPEN node description.                   |
| EB_REMIOSTS  | No    | Yes  | Yes     | True if remote I/O status is bad.                |
| EB_SECONDARY | No    | Yes  | Yes     | True if module is secondary of a redundant pair. |
| EB_XMITACK   | No    | Yes  | Yes     | True if global acknowledgments should be sent.   |
| EB_XMITSIL   | No    | Yes  | Yes     | True if global alarm silences should be sent.    |

Table 9-19. MSDD

| Atom Name  | Write            | Text | Numeric | Description                                         |
|------------|------------------|------|---------|-----------------------------------------------------|
| C_IPV      | No               | Yes  | Yes     | Last good state: 0.                                 |
| C_ISP      | Yes <sup>1</sup> | Yes  | Yes     | Requested state: 0.                                 |
| EB_AUTOMAN | Yes              | Yes  | Yes     | True if tag is in automatic (self controlled) mode. |



Table 9-19. MSDD (continued)

| Atom Name   | Write | Text | Numeric | Description                           |
|-------------|-------|------|---------|---------------------------------------|
| EB_CNTRLOVR | No    | Yes  | Yes     | True if tag's control is overridden.  |
| EB_FB3      | No    | Yes  | Yes     | Current state of feedback 3.          |
| EB_FB3LS0   | No    | Yes  | No      | Zero state descriptor for feedback 3. |
| EB_FB3LS1   | No    | Yes  | No      | One state descriptor for feedback 3.  |
| EB_FB4      | No    | Yes  | Yes     | Current state of feedback 4.          |
| EB_FB4LS0   | No    | Yes  | No      | Zero state descriptor for feedback 4. |
| EB_FB4SL1   | No    | Yes  | No      | One state descriptor for feedback 4.  |
| EB_LS2      | No    | Yes  | No      | Logic state descriptor for state 2.   |
| EB_LS3      | No    | Yes  | No      | Logic state descriptor for state 3.   |
| EB_STSOVR   | No    | Yes  | Yes     | True if the tag status is overridden. |

**NOTE:**

1. Only if it is in manual mode, and then it can only be set to one, two, or three.

Table 9-20. RCM

| Atom Name | Write | Text | Numeric | Description                          |
|-----------|-------|------|---------|--------------------------------------|
| EB_OUTOVR | No    | Yes  | Yes     | True if the tag state is overridden. |
| EB_RESCMD | No    | Yes  | Yes     | Reset command received.              |
| EB_RESIN  | No    | Yes  | Yes     | Logic reset input received.          |
| EB_SETCMD | No    | Yes  | Yes     | Set command received.                |
| EB_SETIN  | No    | Yes  | Yes     | Logic set input received.            |
| EB_SETPER | No    | Yes  | Yes     | True if the tag state can be set.    |

Table 9-21. RCM Base

| Atom Name   | Write | Text | Numeric | Description                                    |
|-------------|-------|------|---------|------------------------------------------------|
| EB_FB1      | No    | Yes  | Yes     | Current state of feedback one.                 |
| EB_FB1LS0   | No    | Yes  | No      | Zero state descriptor for feedback one.        |
| EB_FB1LS1   | No    | Yes  | No      | One state descriptor for feedback one.         |
| EB_RED TAG  | No    | Yes  | Yes     | True if red tagged (disables control actions). |
| EB_USERTYPE | No    | Yes  | Yes     | User type code range (0 to 255).               |

Table 9-22. RMCB

| Atom Name   | Write | Text | Numeric | Description                      |
|-------------|-------|------|---------|----------------------------------|
| EB_BADSTART | No    | Yes  | Yes     | True if startup failed.          |
| EB_ERRCODE  | No    | Yes  | Yes     | Status of RMCB startup (0 to 9). |

Table 9-22. RMCB (continued)

| Atom Name   | Write            | Text | Numeric | Description                                    |
|-------------|------------------|------|---------|------------------------------------------------|
| EB_FAULT    | Yes <sup>1</sup> | Yes  | Yes     | True if interlock/feedback lost while running. |
| EB_PM1LS0   | No               | Yes  | No      | Zero state descriptor for permissive 1.        |
| EB_PM1LS1   | No               | Yes  | No      | One state descriptor for permissive 1.         |
| EB_PM2LS0   | No               | Yes  | No      | Zero state descriptor for permissive 2.        |
| EB_PM2LS1   | No               | Yes  | No      | One state descriptor for permissive 2.         |
| EB_STARTPM1 | No               | Yes  | Yes     | Current state of start permissive 1.           |
| EB_STARTPM2 | No               | Yes  | Yes     | Current state of start permissive 2.           |
| EB_TXTSET   | No               | Yes  | Yes     | RMCB text message set for error codes.         |

**NOTE:**

1. Any value written will acknowledge the fault.

Table 9-23. RMSC

| Atom Name   | Write | Text | Numeric | Description                                   |
|-------------|-------|------|---------|-----------------------------------------------|
| EB_OPHILM   | No    | No   | Yes     | High limit value.                             |
| EB_OPLOLM   | No    | No   | Yes     | Low limit value.                              |
| EB_TRACKING | No    | Yes  | Yes     | True if tag value is tracking an input value. |

Table 9-24. Server

| Atom Name       | Write            | Text | Numeric | Description                                           |
|-----------------|------------------|------|---------|-------------------------------------------------------|
| EB_ALMCMT       | No               | Yes  | No      | Alarm comment.                                        |
| EB_ALMPRIO      | No               | Yes  | Yes     | Alarm priority number or description (1 to 16).       |
| EB_ANG_XR_CNT   | Yes <sup>1</sup> | No   | Yes     | Number of Analog tag XRs received.                    |
| EB_ASCII_XR_CNT | Yes <sup>1</sup> | No   | Yes     | Number of ASCII tag XRs received.                     |
| EB_DAANG_XR_CNT | Yes <sup>1</sup> | No   | Yes     | Number of DAANG tag XRs received.                     |
| EB_DADIG_XR_CNT | Yes <sup>1</sup> | No   | Yes     | Number of DADIG tag XRs received.                     |
| EB_DD_XR_CNT    | Yes <sup>1</sup> | No   | Yes     | Number of DD tag XRs received.                        |
| EB_DIG_XR_CNT   | Yes <sup>1</sup> | No   | Yes     | Number of Digital tag XRs received.                   |
| EB_FILTERBQ     | No               | Yes  | Yes     | Filter bad quality alarms caused by hardware failure. |
| EB_ICI_MODE     | No               | Yes  | Yes     | Current mode of server's ICI.                         |
| EB_ICI_REV      | No               | Yes  | Yes     | Revision level of server's ICI.                       |
| EB_ICI_TYPE     | No               | Yes  | Yes     | Type of server's ICI.                                 |
| EB_INFINET      | No               | Yes  | Yes     | True if server is operating on INFI NET.              |
| EB_LOOP         | No               | Yes  | Yes     | INFI loop address of server.                          |



Table 9-24. Server (continued)

| Atom Name       | Write            | Text | Numeric | Description                                             |
|-----------------|------------------|------|---------|---------------------------------------------------------|
| EB_LOOP_TIME    | No               | Yes  | No      | Current INFI-NET loop time.                             |
| EB_MOD_TSTAMP   | No               | Yes  | Yes     | True if module time stamping is enabled.                |
| EB_MSDD_XR_CNT  | Yes <sup>1</sup> | No   | Yes     | Number of MSDD tag XRs received.                        |
| EB_MSTAT_XR_CNT | Yes <sup>1</sup> | No   | Yes     | Number of module status tag XRs received.               |
| EB_NODE         | No               | No   | Yes     | INFI 90 OPEN node address of server.                    |
| EB_RCM_XR_CNT   | Yes <sup>1</sup> | No   | Yes     | Number of RCM tag XRs received.                         |
| EB_RCVGBLACK    | No               | Yes  | Yes     | Monitor global silence messages from the loop.          |
| EB_RCVGBLSIL    | No               | Yes  | Yes     | Monitor global silence messages from the loop.          |
| EB_RED_TAG_LVL  | No               | No   | Yes     | Security level required to modify red tag status.       |
| EB_RESTARTS     | Yes <sup>1</sup> | No   | Yes     | Number of ICI restarts.                                 |
| EB_RMCB_XR_CNT  | Yes <sup>1</sup> | No   | Yes     | Number of RMCB tag XRs received.                        |
| EB_RMSC_XR_CNT  | Yes <sup>1</sup> | No   | Yes     | Number of RMSC tag XRs received.                        |
| EB_RT_CTRL_LVL  | No               | No   | Yes     | Security level required to override red tag lockout.    |
| EB_RTNCMT       | No               | Yes  | No      | Return to normal alarm comment.                         |
| EB_RTNPRI       | No               | Yes  | Yes     | Return to normal priority number or description.        |
| EB_SPECWRITE    | No               | Yes  | Yes     | True if I90 specs will be written back to configure.    |
| EB_STAT_XR_CNT  | Yes <sup>1</sup> | No   | Yes     | Number of station tag XRs received.                     |
| EB_TEXT_XR_CNT  | Yes <sup>1</sup> | No   | Yes     | Number of text tag XRs received.                        |
| EB_TS_ACC       | No               | No   | Yes     | Time sync accuracy of this server.                      |
| EB_TS_ENBL      | No               | Yes  | Yes     | True if time synchronizing is enabled                   |
| EB_TS_MSTR      | No               | Yes  | Yes     | True if this server is current time master.             |
| EB_TS_MSTR_ACC  | No               | No   | Yes     | Current time sync accuracy.                             |
| EB_TS_MSTR_LOOP | No               | No   | Yes     | Loop address of current time master.                    |
| EB_TS_MSTR_NODE | No               | No   | Yes     | Node address of current time master.                    |
| EB_TS_UPDATE    | No               | No   | Yes     | Time sync master update period.                         |
| EB_TS_WAIT      | No               | No   | Yes     | Time sync update period.                                |
| EB_TUNE_LVL     | No               | No   | Yes     | Security level required to tune.                        |
| EB_XR_RATE      | No               | No   | Yes     | The rate at which exception reports are being received. |

**NOTE:**

1. Any value written will reset this atom to 0.

Table 9-25. Station

| Atom Name     | Write | Text | Numeric | Description                                           |
|---------------|-------|------|---------|-------------------------------------------------------|
| C_AOUTPUT     | Yes   | No   | Yes     | Last reported control output for tag.                 |
| C_ASP         | Yes   | No   | Yes     | Last reported set point for tag.                      |
| C_RATIO       | Yes   | No   | Yes     | Last reported ratio index for tag.                    |
| EB_AUTOMAN    | Yes   | Yes  | Yes     | True if tag is in automatic (self controlled) mode.   |
| EB_BYPASS     | No    | Yes  | Yes     | True if analog control output is bypassed.            |
| EB_CMPTRSTS   | No    | Yes  | Yes     | True if computer is still sending OK signal.          |
| EB_DEVALM     | No    | Yes  | Yes     | Deviation alarm status (0 -normal, 1 -low alarm.)     |
| EB_DEVLMT     | No    | No   | Yes     | Alarm if set point and process value differ by more.  |
| EB_HIDEVCMT   | No    | Yes  | No      | High deviation alarm state comment.                   |
| EB_HIDEVPRI   | No    | Yes  | Yes     | Priority of high deviation alarm message (1 to 16).   |
| EB_LODEVCMT   | No    | Yes  | No      | Low deviation alarm state comment.                    |
| EB_LODEVPRIO  | No    | Yes  | Yes     | Priority of low deviation priority message (1 to 16). |
| EB_MODELOCK   | No    | Yes  | Yes     | True if blockware will not accept mode changes.       |
| EB_OUTSTS     | No    | Yes  | Yes     | True if (hand held) station has failed.               |
| EB_OUTTRACKIN | No    | Yes  | Yes     | True if station output is tracking an input value.    |
| EB_REDTAG     | No    | Yes  | Yes     | True if red tagged (disables control actions).        |
| EB_SPHIGH     | No    | No   | Yes     | Tag set point zero+span value in engineering unit.    |
| EB_SPSPAN     | No    | No   | Yes     | Tag set point span value in engineering units.        |
| EB_SPTRACKING | No    | Yes  | Yes     | True if tag value is tracking an input value.         |
| EB_SPZERO     | No    | No   | Yes     | Tag set point zero value in engineering units.        |
| EB_STNLVL     | Yes   | Yes  | Yes     | True if block under computer control.                 |
| EB_STNMODE    | Yes   | Yes  | Yes     | True if station is in either cascade or ratio mode.   |
| EB_STNTYPE    | No    | Yes  | Yes     | BASIC_WITH_SETPOINT.                                  |
| EB_TUNEBLK    | No    | No   | Yes     | Block number of feedback tuning block (1 to 9998).    |

Table 9-26. Text Tag

| Atom Name | Write            | Text | Numeric          | Description                                   |
|-----------|------------------|------|------------------|-----------------------------------------------|
| EB_BLINK  | Yes <sup>2</sup> | Yes  | Yes              | True if displayed text should be blinking.    |
| EB_COLOR  | Yes <sup>2</sup> | No   | Yes              | Color to display the text in (range 0 to 63). |
| EB_MSG    | Yes <sup>2</sup> | Yes  | Yes <sup>1</sup> | Current text for tag.                         |

**NOTES:**

1. Any value written will reset this atom to zero.
2. Only if EB\_SCANST is false.



Table 9-27. UDXR Base

| Atom Name   | Write            | Text | Numeric | Description                                            |
|-------------|------------------|------|---------|--------------------------------------------------------|
| EB_ALMCMT   | No               | Yes  | No      | Alarm comment.                                         |
| EB_ALMPRIO  | No               | Yes  | Yes     | Alarm priority number or description (1 to 16).        |
| EB_ALMSUP   | Yes              | Yes  | Yes     | True if blockware is currently suppressing alarms.     |
| EB_AUTOMAN  | Yes <sup>1</sup> | Yes  | Yes     | True if tag is in automatic (self controlled) mode.    |
| EB_BLKLEN   | No               | No   | Yes     | Maximum length of data string from blockware.          |
| EB_CNTRLPER | No               | Yes  | Yes     | True if operator control is enabled for this tag.      |
| EB_LOCTRUNC | No               | Yes  | Yes     | True if local truncation occurred.                     |
| EB_MODELOCK | No               | Yes  | Yes     | True if blockware will not accept mode changes.        |
| EB_NAK      | No               | Yes  | Yes     | True if blockware has rejected data from Conductor NT. |
| EB_OISLEN   | No               | No   | Yes     | Maximum length of accepted data strings.               |
| EB_ORIGLEN  | No               | No   | Yes     | Length of data originally sent.                        |
| EB_PDTECHO  | No               | Yes  | Yes     | True if blockware has echoed data from Conductor NT.   |
| EB_QUALOVR  | No               | Yes  | Yes     | True if blockware is overriding the quality status.    |
| EB_RCVLEN   | No               | No   | Yes     | Length of data as finally received.                    |
| EB_REALM    | No               | Yes  | Yes     | True if periodic re-alarms is enabled.                 |
| EB_REDTAG   | No               | Yes  | Yes     | True if red-tagged (disables control actions).         |
| EB_SEQNUM   | No               | No   | Yes     | Every new UDXR report increments sequence no.          |
| EB_SETPRIO  | Yes <sup>2</sup> | No   | Yes     | Alarm priority of last control action.                 |
| EB_STRLOCK  | No               | Yes  | Yes     | True if blockware will not accept operator data.       |
| EB_TRUNC    | No               | Yes  | Yes     | True if remote truncation occurred.                    |

**NOTES:**

1. Only if EB\_CNTRLENABLE is true.

2. Priority will be used for all subsequent text string

Table 9-28. Server Base

| Atom Name      | Write            | Text | Numeric | Description                                   |
|----------------|------------------|------|---------|-----------------------------------------------|
| EB_ACTIVE      | No               | Yes  | Yes     | If server is active.                          |
| EB_ALARM_CNT   | No               | No   | Yes     | Number of tags in alarm.                      |
| EB_ALARM_RATE  | No               | No   | Yes     | The rate at which alarms are being generated. |
| EB_BIND_CNT    | Yes <sup>1</sup> | No   | Yes     | Number of bind requests received.             |
| EB_CONTEXT_CNT | No               | No   | Yes     | Number of event contexts currently open.      |

Table 9-28. Server Base (continued)

| Atom Name     | Write            | Text | Numeric | Description                                      |
|---------------|------------------|------|---------|--------------------------------------------------|
| EB_CTRL_LVL   | No               | No   | Yes     | Security level required to perform control.      |
| EB_DBASE_LVL  | No               | No   | Yes     | Security level required to change configuration. |
| EB_DOMAIN     | No               | Yes  | No      | Server domain.                                   |
| EB_GET_CNT    | Yes <sup>1</sup> | No   | Yes     | Number of get requests received.                 |
| EB_GROUPUUID  | No               | Yes  | No      | UUID of server or server pair.                   |
| EB_HOST       | No               | Yes  | No      | Name host server is running on.                  |
| EB_INHB_LVL   | No               | No   | Yes     | Security level required to inhibit alarms.       |
| EB_MAX_TAGS   | No               | No   | Yes     | Maximum number of tags supported by server.      |
| EB_NUM_TAGS   | No               | No   | Yes     | Number of tags contained in the server.          |
| EB_PRIMARY    | No               | Yes  | Yes     | If server is a primary server.                   |
| EB_PUT_CNT    | Yes <sup>1</sup> | No   | Yes     | Number of put requests received.                 |
| EB_READ_LVL   | No               | No   | Yes     | Security level required to perform reads.        |
| EB_SCANST_LVL | No               | No   | Yes     | Security level required to change scan state.    |
| EB_SERV_STAT  | No               | Yes  | Yes     | Server status.                                   |
| EB_SILENCE    | No               | No   | Yes     | If alarm is to be transmitted or received.       |

NOTE:

1. Any value written will reset this atom to 0.

Table 9-29. Tag Base

| Atom Name    | Write | Text             | Numeric          | Description                                             |
|--------------|-------|------------------|------------------|---------------------------------------------------------|
| CBNA         | No    | Yes <sup>2</sup> | No               | Batch name.                                             |
| C_DESC       | No    | Yes              | No               | Description of tag.                                     |
| EB_ACK       | Yes   | Yes              | Yes              | True if acknowledgment is required.                     |
| EB_ALARMTIM  | No    | Yes              | Yes <sup>3</sup> | Time of last alarm change event.                        |
| EB_ALM_IDX   | No    | No               | Yes              | Alarm Index number - for use by ADP panels, etc.        |
| EB_ALMGRP    | No    | Yes              | Yes              | Alarm group.                                            |
| EB_ALMSTATUS | No    | Yes              | Yes              | Tag's current alarm status.                             |
| EB_AUTOINHB  | No    | Yes              | Yes              | True if tag alarms are inhibited by another tag.        |
| EB_BADQUAL   | No    | Yes              | Yes              | True if tag has EB_BADQUAL (suspect value).             |
| EB_CURCMT    | No    | Yes              | No               | Alarm comment of current alarm state.                   |
| EB_CURPRIO   | No    | Yes              | Yes              | Current alarm priority number or description (1 to 16). |
| EB_CUSTTAGID | No    | Yes              | No               | Customer's label for this tag.                          |
| EB_GRPDSPL   | No    | Yes              | No               | Name of display to show for tag's faceplate.            |



Table 9-29. Tag Base (continued)

| Atom Name      | Write            | Text | Numeric          | Description                                          |
|----------------|------------------|------|------------------|------------------------------------------------------|
| EB_GRPINHB     | No               | Yes  | Yes              | True if tag's alarm group is inhibited.              |
| EB_INHB        | No               | Yes  | Yes              | True if any of EB_AUTOINHB or EB_GRPINHB or EB_MAN.  |
| EB_INHBST      | No               | Yes  | Yes              | State of tag which inhibits this tag's alarms.       |
| EB_INHBTAG     | No               | Yes  | No               | Name of tag which inhibits this tags alarms.         |
| EB_LATCHTIM    | No               | Yes  | Yes <sup>3</sup> | Time of last change into the alarm state.            |
| EB_MANINHB     | Yes <sup>1</sup> | Yes  | Yes              | True if tag alarms are manually inhibited.           |
| EB_MANINHBPER  | No               | Yes  | Yes              | True if manual inhibit is permitted.                 |
| EB_PNTDSPL     | No               | Yes  | No               | Name of display to show for tuning tag.              |
| EB_PRLMST      | No               | No   | Yes              | True enables alarm printing.                         |
| EB_QUAL        | No               | Yes  | No               | Tag's current quality (collection of quality chars). |
| EB_SAVOPACT    | No               | Yes  | Yes              | True if operator actions are to be logged.           |
| EB_SCANSTS     | Yes              | Yes  | Yes              | True if scanning is enabled for this tag.            |
| EB_SUBST       | No               | Yes  | Yes              | True if tag state or value is being substituted.     |
| EB_TAG         | No               | Yes  | No               | Name of tag.                                         |
| EB_TAGTYPE     | No               | Yes  | No               | Tag type description.                                |
| EB_TAGUUID     | No               | Yes  | No               | Unique tag ID.                                       |
| EB_XR_COUNT    | Yes <sup>4</sup> | No   | Yes              | Total number of realtime data events.                |
| EB_XRTIMESTAMP | No               | Yes  | Yes <sup>3</sup> | Time of last realtime data event.                    |

**NOTES:**

1. Only writable if EB\_MANINHBPER is true.
2. Only provide for compatibility with PWC. Returned blank string.
3. Returns a structure containing both a time of and msec.
4. Any value written will reset count to zero.



### Introduction

The event bits mapping utility provides a way to map tag atoms to Conductor NT event bits. When the value of the specified atom changes, the corresponding event bit is set to match this new value. Since a data type of a given tag atom is not necessarily Boolean, this matching is implemented in the following way:

- If the tag atom value is zero or null, the corresponding event bit is set to zero.
- If the tag atom value is nonzero or not null, the corresponding event bit is set to one.

For an explanation of Conductor NT event bits, refer to the Conductor NT Configuration instruction.

### Accessing Event Bit Mapping

The event bit mapping utility is accessed from the server pull-down menu in a system status display. To open the utility go to the system status display. Click *Server* and select *Event Bit Mapping* to open window shown in Figure 10-1.

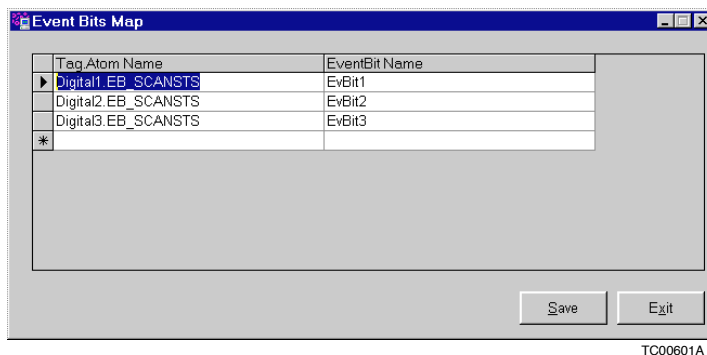


Figure 10-1. Event Bit Map Window



## Mapping Event Bits

To map a tag atom to an event bit name, type the name of the tag atom in the blank field at the bottom of the *Tag Atom Name* column. Type the associated event bit name in the empty field, next to the tag atom name, in the *Event Bit Name* grid column. Event bit names must correspond to those defined in the Conductor NT.



### Introduction

This section describes the operation and configuration of sequence of events (SOE) logs. The hardware and software configurations for both distributed SOE logs and Rochester SOE logs are explained.

### Description

The Conductor NT sequence of events (SOE) logging is intended for use by plant personnel to closely monitor critical digital points where it requires that the sequence of state changes for points or groups of points must be known in the most exacting ways possible. SOE logging lists all digital state transitions in time order and with one millisecond resolution.

SOE logs are produced in a Bailey controller. The Conductor NT SOE logging system collects, stores and prints these logs.

The SOE log data can originate in a Bailey distributed sequence of events system or in a Rochester Instrument Systems sequence of events recorder (Rochester SER).

The Conductor NT SOE logging manager can interface with a sequence of events (IMSEM01) module containing fixed blocks 5000 and 5001, or with a Harmony bridge controller (BRC-100) or a multifunction processor (MFP) containing function code 99 (sequence of events log) blocks.

In both cases, SOE trigger tags (which must be RCM tags) can be configured for the blocks to monitor SOE trigger points in the control system. The SOE logging system then collects, saves and prints SOE logs whenever the trigger points indicate the presence of SOE data. Conductor NT also can display or print retained SOE logs from the console as Excel spreadsheets.

The SOE logging system allows the configuration and definition of trigger tags, wait times, report types, report parameters, log definitions, recorder definitions, point definitions and other



information necessary for the complete implementation of the features provided by function codes 99 (sequence of events) and function code 243 (INSEM01 executive block). Excel can be used to configure and customize the format of SOE reports. Also, each Conductor NT server on the network can possess its own SOE logging configuration.

## Specific Features

The following are features of sequence of events logging on Conductor NT:

- One millisecond resolution on change-of-state time-stamps.
- Each controller/SER recorder pair in a Rochester SOE architecture can have multiple function code 99 SOE report types.
- Build SOE reports from the data that it has gathered through communications with semAPI, using preconfigured report formats.
- Customizable Excel prototype spreadsheets for SOE logs on a report by report basis.
- SOE error reporting to the standard event window.
- Allow the backup and restore of SOE log data files by way of the standard Conductor NT backup/restore utilities.
- Allow each server node on the network to possess its own SOE log database.
- Five types of SOE reports/triggering:

**Standard** In a standard log, any SOE point state change will result in a time-stamped SOE report for this point. This SOE log will be stored in the controller (function code 99) or in the IMSEM01 module (DSOE) for the length of time specified within the corresponding block (the aging time). This log must be read in by the SOE logging system before the aging time expires.

**Summary** A summary log contains a report of all time-stamped SER points which are not in normal state (i.e., inactive, deleted from scan, or in SOE alarm). This report can be demanded by changing the RCM block output of the corresponding

IMSEM01 block 5001 or function code 99 in the controller (i.e. the summary trigger point) from zero to one.

- |            |                                                                                                                                                                                                                                                                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prefault   | SER point state changes are stored by a designated quantity or time period (e.g., 50 events prior to trigger; 10 minutes prior to trigger). They are then reported, in ascending time order, when the prefault trigger is changed from zero to one by the operator (Rochester SOE logging only).                                       |
| Post-Fault | SER point state changes are reported only after the postfault trigger is changed from zero to one by the user. The points will continue to be reported until the postfault trigger reverts back to zero. The SOE system must remove these logs from the SOE or DSOE system before its aging time expires (Rochester SOE logging only). |
| Snapshot   | Snapshot logs will have points listed in ascending numerical order, but only after the snapshot trigger is changed from zero to one by the user. Snapshot points can be designated in groups such as those which are normal, those which are deleted from scan, etc. (Rochester SOE logging only).                                     |

#### NOTES:

1. Distributed SOE logging supports only two SOE log types, standard (through IMSEM01 block 5000) and summary (through IMSEM01 block 5001).
2. Snapshot logs are not available on all Rochester SOE loggers. Please consult the documentation of the Rochester SER hardware in this case.
3. If SOE logging is running on a primary/redundant server pair, SOE logs will be identically collected on both servers, but only those logs on the primary server will be automatically printed upon completion. Refer to **Logging and Redundancy** in this section.

## Initialization at Startup

At initialization, the SOE logging system refers to the SOE logging database file **soeconfg.mdb**, which contains specifications and parameters to be used to collect, print and retain SOE logs.

The SOE logging system also refers to the tag database **TAG-DATA.mdb** to get the following atoms for all digital tags configured as SOE digital points:

- EB\_TAG (tag name).



- C\_DESC (tag descriptor).
- C\_SPV (Current state of the tag, expressed as a logic state descriptor string).

These tag atoms appear on the SOE reports.

The background SOE scanner then begins monitoring each configured SOE trigger tag, which is tied to the corresponding SOE module output block, as part of the process of collecting and reporting SOE data for each SOE log definition.

## Trigger Tag Monitoring

Trigger points enable sequence of events masters (SEMs) and multifunction processors (MFP) to notify the SOE system that SOE data is available for collection.

For each active SOE log report, the collection of SOE data is governed by using an RCM tag to monitor the trigger output values of blocks 5000 and 5001 of a SEM module in a DSOE system, or a function code 99 block in an MFP module for a Rochester SOE system. The SOE scanner continually monitors the trigger tag, and acts accordingly for the following situations:

|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C_DPV Atom Transition<br>from 0 to 1                       | For standard and post fault reports, the SOE scanner will wait for the specified wait time, then begin collecting raw SOE events from the system. For summary, prefault and snapshot reports, it will begin collection immediately. It will pause during gaps in the collection, resuming whenever the reset command atom of the trigger tag toggles state. The events are collected in data files. |
| EB_RESCMD Atom<br>Transition from 0 to 1 or<br>from 1 to 0 | When the reset command bit of the output block for the trigger point changes state, new SOE events are waiting to be read in the internal buffer of the SOE system. When the reset command atom in the corresponding RCM tag changes state while the SOE scanner is paused, it will resume collecting SOE events for that report.                                                                   |
| C_DPV Atom Transition<br>from 1 to 0:                      | The SOE scanner will close the collection file, rename it, and automatically submit it to the network printer.                                                                                                                                                                                                                                                                                      |

## Reports Collection

For each active SOE report that is triggered, the SOE scanner collects raw SOE data from the SER on the system side by issuing a read extended problem report request to semAPI. If the reply contains raw SOE events then each of these events are formatted with the proper attributes (i.e., name, descriptor, logic state descriptor) of the corresponding digital tag, as configured in the digital points definition. These events are saved in the (.*csv*) data file located in:

[drive]:\Program Files\Conductor NT\database\soelogs\logx\current.csv

Regardless of what SOE log header fields are chosen, each .*csv* file always includes the following fields in its header:

report\_type,report\_number,report\_title,recorder\_number,  
report\_trigger\_date\_time,number\_of\_event\_records,

Regardless of what SOE event fields are chosen, each .*csv* file always includes the following fields in each SOE event record:

trigger\_indicator,event\_time\_stamp,lsd,aid,tag\_name,tag\_desc,point#,

|                   |                                                                                                                                                             |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| trigger_indicator | Always blank, unless this is the SOE event that originally triggered this log in the first place, in which case >>> (for distributed SOE only) will appear. |
| event_time_stamp  | The precise time, to one millisecond resolution, when this SOE event occurred, according to the distributed SOE or Rochester SOE hardware/firmware.         |
| lsd               | The logic state descriptor for the new digital state of this point.                                                                                         |
| aid               | The SOE alarm state of this point within the SOE system.                                                                                                    |
| tag_name          | The name of the corresponding database tag.                                                                                                                 |
| tag_desc          | The description of the corresponding database tag.                                                                                                          |
| point#            | The SOE recorder point number.                                                                                                                              |

The following example illustrates what a typical SOE .*csv* file will look like.

Example: STANDARD,1,Standard SOE Report One,3,



```

27-Feb-1998 10:05:23:389,9,
,27-Feb-1998 10:05:13:437,ON,A,TURB01PB,START PB PUSHED,1,
,27-Feb-1998 10:05:13:773,OFF, ,TURB01SPEED,SPEED EXCEEDS
48%,17,
,27-Feb-1998 10:05:19:618,OFF, ,TURB01MOTOR01,STARTER MOTOR
OFF,8,
>>>,27-Feb-1998 10:05:23:389,OFF, ,TURB01SPEED2,SPEED EXCEEDS
80%,18,
,27-Feb-1998 10:05:24:818,OFF, ,OILPMP02,AUX LUBE OIL PUMP OFF,2,
,**-***-*** **.*:***:***,ON,A,OILPRS03,LUBE OIL PRESSURE LOW,5,
,27-Feb-1998 10:05:25:801,ON,A,TURBINE_TRIP01,TURBINE TRIP,67,
,27-Feb-1998 10:05:25:817,ZERO, ,***** ,***** ..... ***** ,262,
,27-Feb-1998 10:05:25:822,ON,A,TURB_RESTART,START UNSUCCESS-
FUL,24

```

## Auto Report Generation

Regardless of the wait time, when all the SOE data for the current log has been collected and the C\_DPV tag atom of the trigger tag has reset, the file is closed and renamed as an SOE log retention file with the date/time when the log had been triggered. The file is saved in the following format:

[drive]:\Program Files\Conductor NT\database\soel-ogs\logx\ YYYYMMDDHHmmSS.csv

If this is a DSOE standard log, the trigger time put into the retention file name is the time-stamp of that SOE event that triggered the log in the first place. Otherwise, the time-stamp of the first event in the list becomes the file name.

This retention file is then automatically run through Microsoft Excel based on the format of the prototype template file for this report. The file is renamed to:

[drive]:\Program Files\Conductor NT\database\soel-ogs\logx\ YYYYMMDDHHmmSS.xls

The file is automatically submitted to the network printer.

At this time, if the configured number of retentions for this SOE report has been exceeded by the creation of this new file, the oldest SOE data file for this report is automatically deleted.

## Displaying and Printing Reports on Demand

Use Microsoft Excel to open, view, and print a retained SOE log (**.xls**) file in the directory:

[drive]:\Program Files\Conductor NT\database\soe-logs\logx

## Logging and Redundancy

At startup, the SOE scanner queries the core Conductor NT server it is running on to determine if this server is part of a primary/redundant server pair, and, if so, whether or not the current server is primary or redundant.

If the SOE scanner is running on each member of a primary/redundant pair, then both scanners monitor, collect and store SOE data, except all SOE data requests go through the primary server. The SOE scanners on both servers identically save their SOE data files in their respective SOE log data file directories. However, only the SOE scanner of the primary server submits its SOE log data files to be printed.

The SOE scanners of both servers keep monitoring Conductor NT in case there is a primary/redundant fail-over, at which time their respective roles would be reversed.

If the current server is not part of a primary/redundant pair, then the scanner behaves as if it is a primary server.

## Distributed Architecture

The INSEM01 module is the center of the distributed sequence of events (DSOE) module architecture (Fig. 11-1). If Conductor NT is using DSOE logging, it must interface to this module through fixed blocks 5000 and 5001. Block 5000 is a standard SOE trigger, which sends standard SOE data from the DSOE system to the Conductor NT server. Block 5001 is the summary SOE trigger, which sends summary SOE data.



For more information on how to set up DSOE hardware, consult the **INFI 90 Distributed Sequence of Events** instruction.

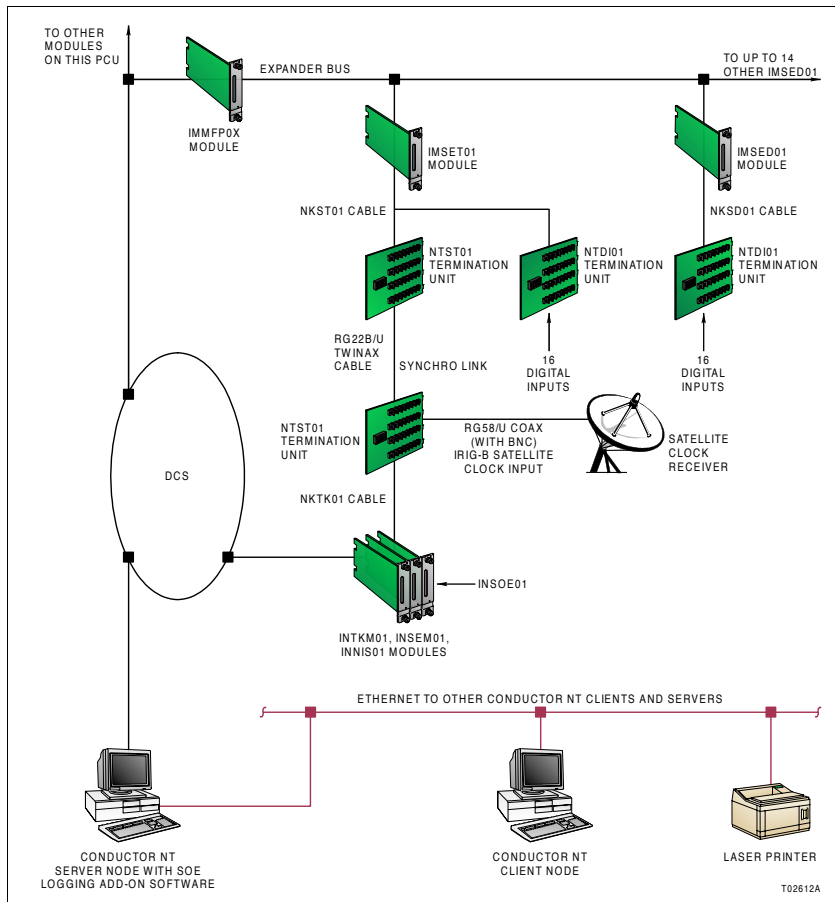


**Figure 11-1. Distributed SOE Logging System Architecture**

## Rochester Architecture

The Conductor NT interfaces to a controller which uses function code 99 to communicate with one Rochester SER communication interface unit. This Rochester communication interface unit then passes SOE data it has collected from one or more event capture units to the controller, where they are passed to Conductor NT. Figure 11-2 outlines the Rochester SOE hardware architecture.

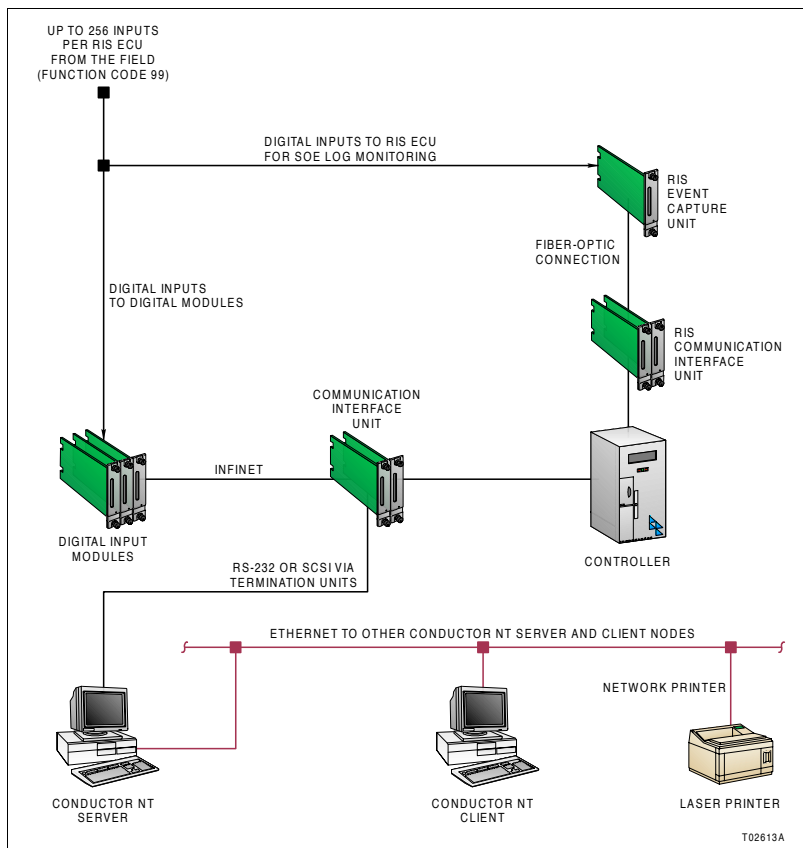


Figure 11-2. Rochester (FC 99) SOE Logging System Architecture



## Distributed Logging Hardware

The following hardware must be used with the Symphony and INFI 90 OPEN systems to connect the distributed SOE system and the Conductor NT server.

- One or more multifunction processors (firmware revision F.0 or later) or BRC-100 modules are needed for use as a controller for the SET/SED module pair.
- One or more INSOE01 sequence of events server nodes.
- Access to at least one network printer to send SOE logs to.
- An optional IRIG-B satellite clock receiver can be connected to the termination unit of the INTKM01 timekeeper module.

### NOTES:

1. The digital output of a distributed SOE system are accessible both as SOE logs and as digital outputs to the loop through function code 242 (DSOE digital event interface). However, the digital outputs provided by function code 242 must point to digital exception reports (function code 45) in order to be accessible to the rest of the control system and to Conductor NT.
2. For more information on how to connect a distributed SOE system refer to the **INFI 90 Distributed Sequence of Events** instruction.
3. In order for the distributed SOE system to function properly, the function blocks in both the sequence of events module, as well as the module which serves as the SET/SED controller must be properly configured with SOE function codes. For more information concerning these particular function codes, refer to the **Symphony Function Code Application Manual** and to **Distributed Function Code Example** in this section.

## Rochester Logging Hardware

The following hardware must be used with the Symphony and INFI 90 OPEN systems to connect the Rochester SOE system and the Conductor NT server.

- A Rochester logger consisting of one (or more) Rochester event capture units (ECU) and an Rochester SOE communication interface unit with one fiber optic communications board per event capture unit. The communication interface unit also needs a special Bailey communications board, manufactured by Rochester Instrument Systems.

- One or more multifunction processors (firmware revision F.0 or later) or BRC-100 modules to contain function code 99 for the Rochester logger.
- Access to at least one network printer for sending SOE logs to.
- CRT terminal (e.g. VT100, WYSE50 or terminal emulation program/window) is needed for issuing ISM-1 commands to the Rochester communication interface unit if configuration of the Rochester SER system is required.
- Required termination units and cables to connect each of the modules. Refer to the product instructions for wiring diagrams.

**NOTE:** The points collected by the Rochester system are only available to the system in the form of SOE logs. If these points are needed in the process control system as digital points, then these points must be physically wired into digital input modules as well as the Rochester logger. Include these points in calculations when determining the number of I/O modules required.

## External Interfaces and Function Blocks

The SOE logging system requires the following interfaces:

- Each SOE log trigger tag must be specified as an RCM tag within the Conductor NT tag database, with its loop, node, module and block being the same as that of the corresponding fixed output blocks 5000 and 5001 within the SEM module or the corresponding function code 99 output block within a controller.
- SEM fixed output blocks 5000 and 5001 interface with the distributed SOE system to input millisecond time stamp distributed SOE events. Block 5000 is used for collecting standard SOE events. Block 5001 is used for collecting summary SOE events upon command by using a point display or an RCM faceplate to set this RCM tag to one. These SEM blocks are not configurable.
- A Rochester SOE system requires that each controller have at least one function code 99 trigger block to accept SOE logs from the Rochester equipment or digital input modules.



- Function code 99 uses communications protocol necessary to interface with a special Bailey communications board (manufactured by Rochester Instrument Systems) within the Rochester communication interface unit. This protocol is built into the firmware of the controller itself.
- Digital tags must be configured in the tag database for all input field points used by the SOE system.

## Log Configuration Database

SOE log configuration makes use of standard database queries in order to construct and modify the relational database, which is stored in Microsoft Access or Jet format in the following file path:

```
[drive]:\Program Files\Conductor NT\database\replicate\SOE\soeconf.mdb
```

This database file, which serves as the Conductor NT SOE log configuration, consists of three tables, one for all SOE reports (SOEReports), one for all SOE recorders (SOERecorders) and one for all SOE digital points (SERPoints). These tables are related by way of the SOE recorder number (SERNUM) fields.

As shown in Figure 11-3, each SOE report can refer to an SOE recorder through its SERNUM field. In turn, each SOE recorder can have associated with it many SOE digital input points through the SERNUM field of each input point record.

**NOTE:** No two SOE recorders can have the same digital input point. However, many SOE reports can refer to the same SOE recorder.

## Log Configuration Utility

The SOE log configuration utility configures SOE reports, each of which makes use of one of many SOE recorders and has a group of SOE digital input points associated with it.

Open the SOE log configuration utility by selecting *SOE Configuration* from the server menu in the system status display.

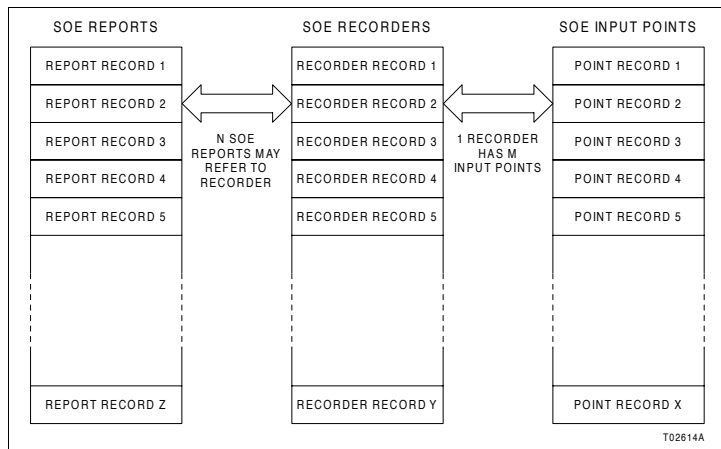
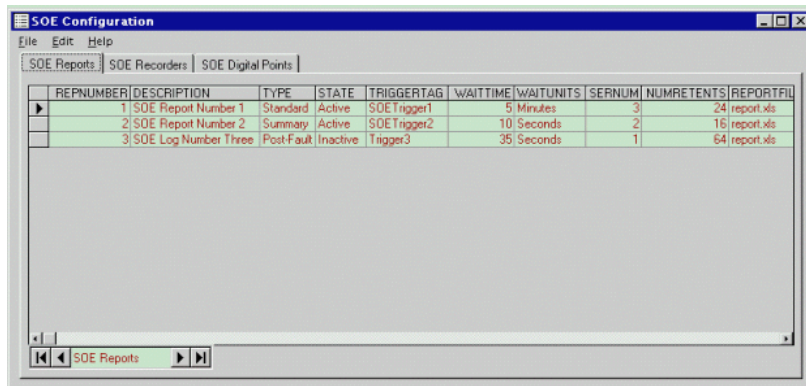


Figure 11-3. SOE Log Configuration Database Structure

## Log Configuration Window

Click on any of the three tabs shown in the opening window (Fig. 11-4) to display the corresponding table (reports, recorders or digital points).



TC01004A

Figure 11-4. SOE Configuration Window



## Log Configuration Menus

There are three menus in the SOE log configuration utility, *File*, *Edit* and *Help*. From the file menu, select *Exit* to leave SOE configuration. If any unsaved changes have been made to any record of any table in the SOE database, a dialog to save changes will appear before exiting. The available choices for the edit menu depend on the selected tab.

## Configuring Reports

To open the SOE reports configuration window double click on any item in the SOE reports list or select *Edit Current SOE Report..* or *Add New SOE Report..* from the edit menu (Fig. 11-5).

Each SOE report record contains the following fields:

|                    |                                                                                                                              |
|--------------------|------------------------------------------------------------------------------------------------------------------------------|
| Report Description | Description string up to 48 characters which appears in each <b>.csv</b> and <b>.xls</b> SOE data file and in an SOE report. |
|--------------------|------------------------------------------------------------------------------------------------------------------------------|

Figure 11-5. SOE Report Configuration Window

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Report Status        | <p>A check box indicating whether an SOE report is active and being monitored and collected by the SOE system, or if the report is inactive. Click <i>Report Status</i> to toggle this report from inactive to active, or from active to inactive.</p> <p><b>NOTE:</b> When an SOE report is active, editing is disabled for the <i>Report Type</i>, <i>Trigger Tag</i>, and <i>Wait Time</i> fields.</p>                                                                                                                                                                                                                                                                                                          |
| Report Type          | Type of SOE report, which can be any one of the five types outlined in <b>Specific Features</b> in this section. The default is standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Trigger Tag          | <p>The RCM tag which corresponds to the output from the function code 99 block in a controller or from fixed block 5000 (standard) or 5001 (summary) in an IMSEM01 module. This tag is monitored and acted upon by the SOE scanner when collecting data for the report. An error message is issued if the tag entered does not exist or is not of type RCM. Click on the <i>Trigger Tag</i> selection box to open a list of all the RCM tags configured on the server. Select one of these tags for the trigger.</p>                                                                                                                                                                                               |
| SER Number           | <p>Specifies which SOE recorder, SOE digital tag list, or mapping this report refers to in order to determine which digital tags correspond to which incoming SOE points. The default is one.</p> <p>Click <i>Edit this SER</i> to open the <i>SOE Recorder Configuration</i> window for the SER number configured for this report. Refer to <b>Configuring Reports</b> in this section.</p>                                                                                                                                                                                                                                                                                                                       |
| Wait Time            | <p>The time difference between when the state of the trigger tag C_DPV atom changes from zero to one (i.e., when the SOE system in the control system begins filling its internal buffer with new SOE logs) and when the Conductor NT SOE logging system begins collecting these logs from the control system. The wait time applies only to SOE logs of type standard and post-fault. The default is 30 seconds.</p> <p><b>NOTE:</b> The wait time must be much less than the aging time configured in the SOE system in the control system for this trigger point. Otherwise, valuable SOE data may be aged out of the internal buffer of the SOE system and be lost before it is collected by Conductor NT.</p> |
| Number of Retentions | Specifies the number of SOE data file pairs (each consisting of an Excel <b>.csv</b> file and a spreadsheet <b>.xls</b> file) to be kept on the Conductor NT server hard disk before being deleted from the hard disk. The default is zero.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



**Report Prototype File** Specifies the name of the Excel **.xls** file to be used by this report to serve as its format prototype for generating, printing and viewing the final SOE reports. Click on the *Report Prototype File* selection box and select a prototype for the SOE report. The default is **report.xls**.

Use *SOE Reports* scroll bar to page back and forth through the configured SOE reports. If changes were made to the previous report, a dialog to save changes is issued before the other report is brought into this window.

Click *OK* to save this report configuration and return to the main SOE configuration window.

## Configuring Recorders

To open SOE recorder configuration double click on any item in the SOE recorders list or select *Edit Current SOE Recorder...* or *Add New SOE Recorder..* from the edit menu (Fig. 11-6).

Each SOE recorder record will contain the following fields:

**Recorder Descriptor** A 48-character string which may describe such things as the current device, its set of input points, whether this is a Rochester SER or a DSOE system, etc.

**Number of SOE Points** The number of SOE input points configured in the SOE hardware. The minimum is zero. The maximum is 1,536 tags. The default is zero.

Double click on any item in the SOE points list shown in this SER window to open the SOE digital points window. Refer to **Configuring Digital Points** in this section.

**NOTE:** The number of digital points shown and used by this SER recorder will not exceed the configured maximum number of points. Any points whose point number exceeds this maximum are ignored by the SOE logging system and are excluded from the digital point list.

Use the *SOE Records* scroll bar to page back and forth through the configured SOE recorders. If changes were made to the previous recorder, a dialog to save changes is issued before the other SER is brought into this window.

Use the *SOE Points* scroll bar to change the position of the selection arrow in the digital points list for those points belonging to this recorder.

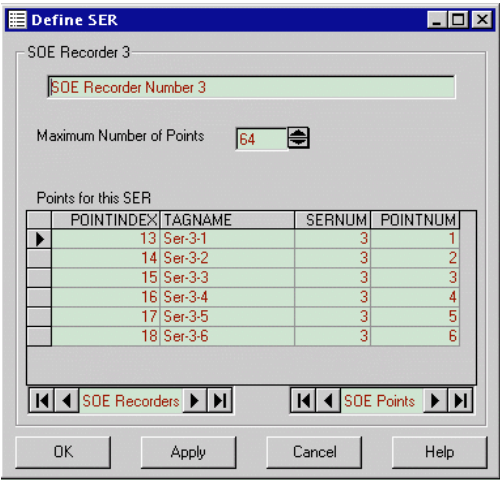


Figure 11-6. SOE Recorder Configuration Window

Click **OK** to save this recorder configuration and return to the main SOE log configuration window.

## Configuring Digital Points

To configure an SOE digital point double click any item in the SOE digital points list of the main window or that of the *SOE Recorders* window, or select *Edit Current SOE Point...* or *Add New SOE Point* from the edit menu (Fig. 11-7). Each SOE digital point record contains the following fields:

**Tag Name** The name of the tag that corresponds to the point number in the SOE input device. For example, a physical point hardwired into the SOE device as input point one has the name of the digital tag for the corresponding digital exception report (function code 45) configured in the list in slot one. Leaving this field blank for an active point will result in asterisks (\*\*...\*\*) being printed where the tag name and description would be in the log printout, as well as a default logic state descriptor of ZERO. The *Tag Name* selection box contains a list of all digital tags configured on this server. Select a tag name from this list.



- SER Point Index    The point number in the corresponding SOE input device. For example, if a physical point hardwired into the SOE device as input point one corresponds to that digital tag specified in the tag name, then it would be assigned SER point index one. The default is one.
- SOE Recorder Index    This is the index to select the SOE recorder from the table of SOE recorders to which this particular point is to belong. The default is one.

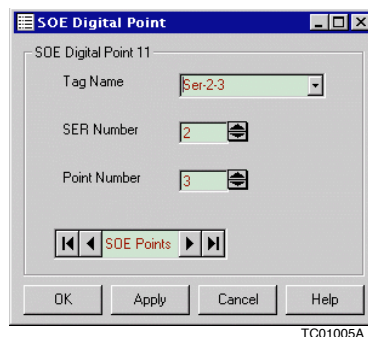


Figure 11-7. SOE Digital Point Configuration Window

Use the *SOE Points* scroll bar to page back and forth through the configured SOE digital points. If changes were made to the previous point, a dialog to confirm the deletion is issued before the action is completed.

Click *OK* to save this point configuration and return to the main SOE configuration window.

## Deleting Configuration Database Records

Choose an SOE report, recorder, or digital point to be deleted from the SOE configuration database and then select *Delete* from the edit menu. Any time a database record is selected for deletion, a dialog asking to save changes is issued before the other point is brought into this window.

## Configuring the Report Spreadsheet

For any newly installed Conductor NT system, a default Excel SOE report prototype spreadsheet file (**report.xls**) is supplied. This file contains an Excel **Auto\_Open** macro for formatting SOE data as well as Excel formula links to cell locations in its sheet number two which correspond with the fixed cell locations of all (**.csv**) files. Its default appearance is shown in Figure 11-8.

| Event Time               | State | AID Tag Name     | Tag Description       | SER Index |
|--------------------------|-------|------------------|-----------------------|-----------|
| 27-Feb-1998 10:05:13.437 | ON    | A TURB01PB       | START PB PUSHED       | 1         |
| 27-Feb-1998 10:05:13.773 | OFF   | TURB01SPEED      | SPEED EXCEEDS 48%     | 17        |
| 27-Feb-1998 10:05:19.618 | OFF   | TURB01MOTOR01    | STARTER MOTOR OFF     | 8         |
| 27-Feb-1998 10:05:23.389 | OFF   | TURB01SPEED2     | SPEED EXCEEDS 80%     | 16        |
| 27-Feb-1998 10:05:24.816 | OFF   | OILPMF02         | AUX LUBE OIL PUMP OFF | 2         |
| 27-Feb-1998 10:05:25.801 | ON    | A OILPRS03       | LUBE OIL PRESSURE LOW | 5         |
| 27-Feb-1998 10:05:25.817 | ZERO  | A TURBINE_TRIP01 | TURBINE TRIP          | 67        |
| 27-Feb-1998 10:05:25.822 | ON    | A TURB_RESTART   | START UNSUCCESSFUL    | 24        |

TC01006A

Figure 11-8. Sample SOE Report as Displayed in Excel

All prototype files for use in SOE reports, must reside in the Conductor NT SOE configuration file folder:

drive:\Program Files\Conductor NT\database\replicate\SOE\

This is the same folder where the **soeconfg.mdb** database configuration file is located.

Use Excel to customize the format of the SOE report prototype file (**report.xls**). The report file can be edited to include only some of the SOE event fields, the fields in a different format, or to insert graphics pictures and even modify how the report is to be printed. The modified prototype can be saved as the same



file or as a new file in the same folder so multiple report formats can be used.

## Backup and Restore

The SOE configuration database file **soeconf.mdb** as well as all SOE prototype spreadsheet files can be backed up and restored using the Conductor NT backup/restore utility, provided they are in the SOE configuration folder. For more information on backup and restore refer to the **Conductor NT Operation** instruction.

## Distributed Function Code Example

The following module function block example, shown in Figure 11-9 and 11-10, outlines a distributed SOE configuration with the following characteristics:

- The SEM module is located at loop 1, node 15, module 2.
- The MFP or BRC-100 module is located at loop 1, node 2, module 15.
- The SET module occupies expander bus address 10 of the MFP module.
- One SED module occupies expander bus address 11 of the MFP module.

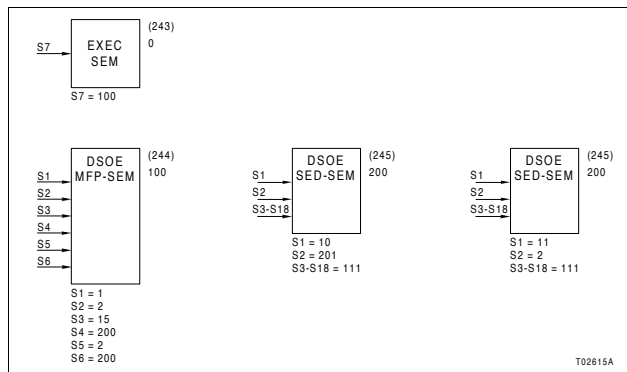


Figure 11-9. Sample Distributed SOE Function Code Configuration (IMSEM01)

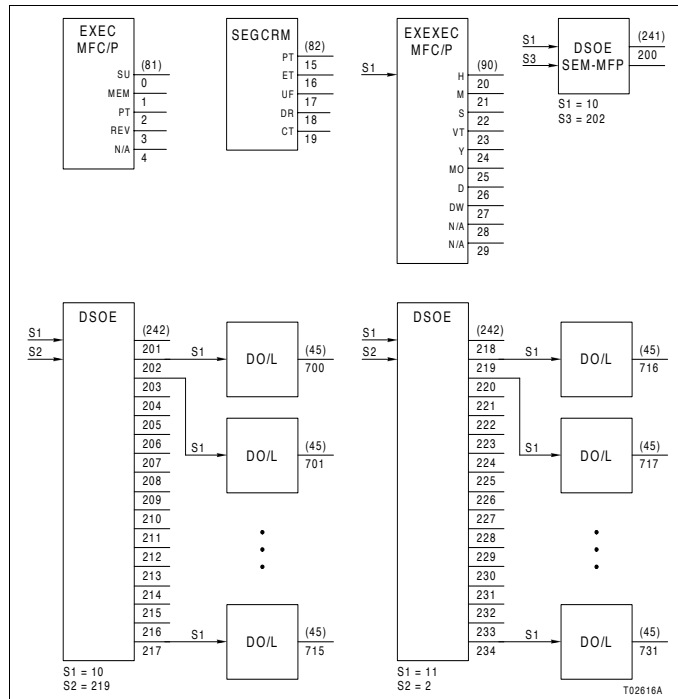


Figure 11-10. Sample Distributed SOE Function Code Configuration (Controller)

## Configuring the Rochester SER

A Rochester SOE architecture may require custom configuration to suit specific needs. Configure Rochester loggers using Rochester ISM-1 commands. These are outlined in the **Rochester Integrated System Monitor** instruction. To use ISM-1 commands, a CRT terminal (e.g., VT100 or WYSE50) is required. Complete installation instructions of the ISM-1 system are provided in the **Rochester Installation** instruction.

SOE logs of report type prefault and postfault, which are available only with function code 99, require that the Rochester communication interface unit be specially configured, to enable it to send prefault and postfault SOE events to the Conductor NT. Each of these report types need a Boolean trigger



equation to determine if and when prefault or postfault trigger situations exist. Also, Rochester SER digital points must be specifically designated as prefault points and postfault points in order to show up in SOE logs of these particular types.

## Rochester ISM-1 Commands to Configure Prefault Logs

For prefault SOE Logs, use the ISM-1 command **pretrig** to configure the pretrigger equation. For example, the pretrigger can be tripped by Rochester point five going into alarm (a zero to one logic state transition) simply by entering:

**pretrig 5**

Then, to designate Rochester SER digital points to be prefault points, use the ISM-1 command:

**prepoints s** *pointnumbers*

For example, to prefault designate Rochester SER digital points 21 to 30 inclusive, plus 48, enter:

**prepoints s 21-30 48**

The Rochester SER is now ready to report prefault reports. In this example, points 21 through 30, plus point 48, are the only digital points that would show up in the SER prefault SOE logs.

To remove the prefault designation on points 16 through 20, enter:

**prepoints r 16-20**

## Rochester ISM-1 Commands to Configure Postfault Logs

For postfault SOE logs, use the ISM-1 command **posttrig** to configure the post-trigger equation. For example, the post-trigger can be tripped by Rochester point three going into alarm (zero to one logic state transition) by entering:

**posttrig 3**

Then, to designate Rochester SER digital points to be postfault points, use the ISM-1 command:

**postpoints s *pointnumbers***

For example, to postfault designate Rochester SER digital points one to 10 inclusive, plus 16, enter:

**postpoints s 1-10 16**

The Rochester SER is now ready to report postfault reports. In this example, points one through 10, plus point 16 are the only digital points that would show up in the SER postfault SOE logs.

To remove the prefault designation on points six through ten, enter:

**postpoints r 6-10**

## Other Rochester ISM-1 Commands

Examples of other useful ISM-1 commands which would be helpful in monitoring and troubleshooting Rochester SER are:

- csum    Contact summary report.
- date    Set Rochester SER date and time.
- dfs    Delete Rochester SER digital point from scan.
- hist    Display a history of all changes of state stored in Rochester SER buffer.
- port    Set serial port communications protocol.
- psum    Point summary report.
- rhis    Display recent history of changes of state.
- status    Display diagnostic status of ISM-1 system.

For a complete list of all ISM-1 commands, refer to the **Rochester Integrated System Monitor** instruction.





## Symbols

@aGlance/IT Importer ..... 8-28

## A

ADP panel ..... 8-24  
 COM port configuration ..... 8-26  
 Group assignment ..... 8-25  
 Multibus keyboard module ..... 8-26  
 Alarm  
 Acknowledge button ..... 2-4  
 Group  
 Tag comments ..... 8-37  
 Priority text ..... 8-37  
 Analog  
 Annunciator element ..... 2-26  
 Export faceplate ..... 2-44  
 Faceplate ..... 2-31  
 Faceplate attributes ..... 2-26  
 Standard element ..... 2-26  
 Arithmetic operators ..... 7-5  
 Comparison operators ..... 7-6  
 Like clause ..... 7-7  
 Logical operators ..... 7-8  
 Order by clause ..... 7-8  
 Precedence ..... 7-5  
 Where clause ..... 7-5, 7-6  
 Wildcards ..... 7-7  
 Atom suffixes ..... 9-1  
 Auto SOE Report ..... 11-6  
 Automatic fail-over for redundant ..... 2-53  
 Available  
 Servers ..... 8-41  
 Tags list ..... 8-3

## B

BLKtune pushbutton ..... 2-52  
 Block details ..... 3-1  
 Description tab ..... 3-7  
 Outputs tab ..... 3-6  
 Printing ..... 3-7

Properties option ..... 3-5  
 Specification tab ..... 3-2  
 Tunable blocks ..... 3-4

## C

Cascade ..... 2-8  
 Common control faceplate attributes ..... 2-2  
 Compact database ..... 8-45  
 Conductor NT faceplate ..... 2-44  
 Analog export ..... 2-44  
 Digital export ..... 2-45  
 Module status ..... 2-46  
 Scanner tag ..... 2-47  
 Configure text ..... 8-32  
 Indexed text ..... 8-33  
 Tag descriptors ..... 8-35  
 Control faceplates ..... 2-1  
 Control inhibit ..... 2-2, 2-26  
 Control inhibit tags ..... 2-2  
 Create server function ..... 8-44

## D

DAANG  
 Control ..... 2-34  
 Faceplate attributes ..... 2-31  
 Value change ..... 2-35  
 DADIG  
 Control ..... 2-37  
 Element ..... 2-35  
 Faceplate attributes ..... 2-35  
 State change ..... 2-38  
 Tag ..... 2-35  
 DANG  
 Element ..... 2-31  
 Tag ..... 2-31  
 Data acquisition  
 Analog ..... 2-26  
 Analog faceplate ..... 2-31  
 Common faceplate elements ..... 2-26  
 Control inhibit ..... 2-26  
 Digital ..... 2-29, 2-35

## Index (continued)

|                                      |      |
|--------------------------------------|------|
| Digital faceplate.....               | 2-35 |
| Faceplate attributes.....            | 2-26 |
| Faceplates.....                      | 2-25 |
| Functions.....                       | 2-24 |
| Tags.....                            | 2-25 |
| Text string.....                     | 2-38 |
| Database maintenance functions.....  | 8-45 |
| Compact database.....                | 8-45 |
| Empty database.....                  | 8-45 |
| Set as design master.....            | 8-45 |
| Database utilities                   |      |
| Create server function.....          | 8-44 |
| Destroy server function.....         | 8-44 |
| Set host name function.....          | 8-43 |
| Set system description function..... | 8-45 |
| Transfer tag data function.....      | 8-43 |
| DBUtils.....                         | 8-43 |
| Defining                             |      |
| Engineering units.....               | 8-36 |
| Logic state descriptors.....         | 8-36 |
| Destroy server function.....         | 8-44 |
| Device control.....                  | 2-10 |
| Remote control memory faceplate..... | 2-10 |
| Device driver                        |      |
| Control.....                         | 2-17 |
| Element.....                         | 2-15 |
| Faceplate (DD).....                  | 2-15 |
| Tag.....                             | 2-15 |
| Digital                              |      |
| Annunciator element.....             | 2-29 |
| Export faceplate.....                | 2-45 |
| Faceplate attributes.....            | 2-29 |
| Standard element.....                | 2-29 |
| <b>E</b>                             |      |
| Edit options.....                    | 8-5  |
| Edit tag.....                        | 8-5  |
| Empty database.....                  | 8-45 |
| Engineering unit descriptors.....    | 8-35 |
| Defining.....                        | 8-36 |
| Event bit mapping                    |      |

|                               |      |
|-------------------------------|------|
| Accessing.....                | 10-1 |
| Utility.....                  | 10-1 |
| Export INFI 90 OPEN tags..... | 8-32 |

### F

|                                          |     |
|------------------------------------------|-----|
| Faceplate                                |     |
| Common control faceplate attributes..... | 2-2 |
| File options.....                        | 8-4 |
| Functional description.....              | 1-1 |

### G

|                                  |            |
|----------------------------------|------------|
| General tab.....                 | 5-1        |
| Global alarm acknowledgment..... | 8-19, 8-41 |
| Receiving from the loop.....     | 8-42       |
| Sending to the loop.....         | 8-42       |
| Global silence messages.....     | 8-19, 8-42 |
| Receiving from the loop.....     | 8-42       |
| Sending to the loop.....         | 8-42       |

### H

|                         |      |
|-------------------------|------|
| Host name function..... | 8-43 |
|-------------------------|------|

### I

|                               |           |
|-------------------------------|-----------|
| Import INFI 90 OPEN tags..... | 8-30      |
| Import trends.....            | 8-26      |
| INFI 90 OPEN                  |           |
| Digital tab.....              | 8-16      |
| Export tags.....              | 8-32      |
| General tab.....              | 8-6, 8-12 |
| Import tags.....              | 8-30      |
| Scanner tab.....              | 8-17      |
| Scanner tag.....              | 2-47      |
| Server tab.....               | 8-19      |
| Tab.....                      | 8-14      |
| Tab fields.....               | 8-6       |
| Tags.....                     | 8-1       |
| INFI 90 tab.....              | 5-2       |
| Intended user.....            | 1-1       |

---

## Index (continued)

|                                          |          |  |
|------------------------------------------|----------|--|
| <b>L</b>                                 |          |  |
| Logic state descriptors.....             | 8-36     |  |
| Defining.....                            | 8-36     |  |
| Loop control.....                        | 2-4      |  |
| Station control.....                     | 2-8      |  |
| Station faceplate.....                   | 2-5      |  |
| <b>M</b>                                 |          |  |
| Man/auto                                 |          |  |
| DANG .....                               | 2-35     |  |
| DD.....                                  | 2-17     |  |
| MSDD .....                               | 2-20     |  |
| TEXTSTR .....                            | 2-41     |  |
| Manually activate primary computer.....  | 2-53     |  |
| Mapping event bits .....                 | 10-2     |  |
| Module details .....                     | 4-1      |  |
| General tab .....                        | 4-1      |  |
| Problems tab.....                        | 4-2, 4-3 |  |
| Status tab.....                          | 4-2      |  |
| Technical tab .....                      | 4-4      |  |
| Module status .....                      | 2-46     |  |
| Move to server.....                      | 8-5      |  |
| MSDD                                     |          |  |
| Control .....                            | 2-20     |  |
| Element.....                             | 2-18     |  |
| Tag.....                                 | 2-18     |  |
| Multistate device driver faceplate ..... | 2-18     |  |
| <b>N</b>                                 |          |  |
| New tag .....                            | 8-6      |  |
| <b>O</b>                                 |          |  |
| Operating parameters.....                | 5-1      |  |
| Operating status filters.....            | 8-23     |  |
| Overview.....                            | 1-1      |  |
| <b>P</b>                                 |          |  |
| Point display .....                      | 2-48     |  |
| Accessing.....                           | 2-48     |  |
| Info pushbutton .....                    | 2-51     |  |
| Status area .....                        | 2-50     |  |
| Tag description.....                     | 2-50     |  |
| Tag name .....                           | 2-49     |  |
| Primary computer                         |          |  |
| Activation.....                          | 2-53     |  |
| Active status .....                      | 2-53     |  |
| Print options .....                      | 8-4      |  |
| Printing SOE Reports.....                | 11-7     |  |
| Process control                          |          |  |
| Common faceplate elements .....          | 2-2      |  |
| Control faceplates .....                 | 2-1      |  |
| Control inhibit .....                    | 2-2      |  |
| Loop control .....                       | 2-4      |  |
| Tags .....                               | 2-1      |  |
| Process display area.....                | 2-53     |  |
| Purge deleted tags .....                 | 8-5      |  |
| <b>Q</b>                                 |          |  |
| Query                                    |          |  |
| Arithmetic operators .....               | 7-5      |  |
| Comparison operators.....                | 7-6      |  |
| Designing .....                          | 7-2      |  |
| File operations.....                     | 7-10     |  |
| Logical operators.....                   | 7-8      |  |
| Order by clause.....                     | 7-8      |  |
| Print results .....                      | 7-10     |  |
| Results .....                            | 7-9      |  |
| SQL view .....                           | 7-3      |  |
| Where clause .....                       | 7-6      |  |
| Wildcards and the like clause.....       | 7-7      |  |
| <b>R</b>                                 |          |  |
| Ratio.....                               | 2-8      |  |
| Index change.....                        | 2-9      |  |
| RCM                                      |          |  |
| Control.....                             | 2-12     |  |
| Element .....                            | 2-10     |  |
| Tag .....                                | 2-10     |  |
| Red tag                                  |          |  |

---

## Index (continued)

|                                            |      |
|--------------------------------------------|------|
| Descriptor .....                           | 2-3  |
| Tab .....                                  | 5-4  |
| Redundant computer .....                   | 2-53 |
| Reference documents .....                  | 1-4  |
| Remote control memory .....                | 8-17 |
| Remote manual set constant faceplate ..... | 2-13 |
| Remote motor control block faceplate ..... | 2-21 |
| Remote motor control text .....            | 8-39 |
| RMCB                                       |      |
| Control .....                              | 2-24 |
| Element .....                              | 2-21 |
| Tag .....                                  | 2-21 |
| RMSC                                       |      |
| Control .....                              | 2-14 |
| Element .....                              | 2-13 |
| Tag .....                                  | 2-13 |
| Value change .....                         | 2-14 |
| Rochester SOE .....                        | 11-1 |

### S

|                              |       |
|------------------------------|-------|
| Server diagnostics .....     | 6-1   |
| General tab .....            | 6-2   |
| Message tab .....            | 6-2   |
| Tags tab .....               | 6-2   |
| Servers .....                | 8-41  |
| Set as design master .....   | 8-45  |
| Set point change .....       | 2-9   |
| Set system description ..... | 8-45  |
| SOE                          |       |
| Architecture .....           | 11-7  |
| Digital points .....         | 11-17 |
| Hardware                     |       |
| Distributed .....            | 11-10 |
| Rochester .....              | 11-10 |
| Log configuration .....      | 11-12 |
| Logging .....                | 11-1  |
| Logs .....                   | 11-1  |
| Recorders .....              | 11-16 |
| Report spreadsheet .....     | 11-19 |
| Reports .....                | 11-5  |
| SQL view .....               | 7-3   |
| Station                      |       |

|                               |      |
|-------------------------------|------|
| Basic .....                   | 2-8  |
| Cascade .....                 | 2-8  |
| Control .....                 | 2-8  |
| Element .....                 | 2-5  |
| Faceplate .....               | 2-5  |
| Ratio .....                   | 2-8  |
| Tag .....                     | 2-5  |
| Substitutable text .....      | 8-38 |
| Substitute button .....       | 5-5  |
| Summary display               |      |
| Group status conditions ..... | 2-50 |

### T

|                                       |      |
|---------------------------------------|------|
| Tag                                   |      |
| Acknowledgment broadcast .....        | 8-15 |
| Atoms .....                           | 9-1  |
| Control .....                         | 2-1  |
| Data acquisition .....                | 2-25 |
| Descriptor .....                      | 2-3  |
| Descriptors .....                     | 8-35 |
| Name .....                            | 2-3  |
| Tag configuration .....               | 8-1  |
| Copy tag .....                        | 8-20 |
| Edit options .....                    | 8-5  |
| Edit tag .....                        | 8-5  |
| File options .....                    | 8-4  |
| Filter .....                          | 8-23 |
| Import trends .....                   | 8-26 |
| INFI 90 OPEN import/export tags ..... | 8-29 |
| Move to server .....                  | 8-5  |
| New tag .....                         | 8-6  |
| Operating status .....                | 8-20 |
| Print option .....                    | 8-4  |
| Purge deleted tags .....              | 8-5  |
| Search .....                          | 8-21 |
| Sort .....                            | 8-22 |
| Tools .....                           | 8-26 |
| View options .....                    | 8-22 |
| Tag database                          |      |
| Alarm comments .....                  | 8-37 |
| Defining a tag .....                  | 8-12 |
| Tag descriptors .....                 | 8-35 |

---

## Index (continued)

|                             |      |                                  |      |
|-----------------------------|------|----------------------------------|------|
| Tag types .....             | 8-2  | Block driven.....                | 2-42 |
| Tags .....                  | 8-1  | Control.....                     | 2-41 |
| Tag summaries .....         | 7-1  | Element.....                     | 2-38 |
| Arithmetic operators.....   | 7-4  | Faceplate attributes.....        | 2-38 |
| Query designing.....        | 7-2  | Input .....                      | 2-42 |
| Using.....                  | 7-1  | Tools .....                      | 8-26 |
| Text string faceplate ..... | 2-38 | Transfer tag data function ..... | 8-43 |
| TEXTSTR                     |      | Trigger tag (SOE).....           | 11-4 |
| Application driven .....    | 2-41 | Tuning blocks .....              | 3-4  |



*For the latest information on ABB and Year 2000 Product Compatibility  
Visit us on the World Wide Web at <http://www.abb.com>*

---

Our worldwide staff of professionals is ready to meet *your* needs for process automation.  
For the location nearest you, please contact the appropriate regional office.

**Americas**

29801 Euclid Avenue  
Wickliffe, Ohio USA 44092  
Telephone 1-440-585-8500  
Telefax 1-440-585-8756

**Asia/Pacific**

539 Yishun Industrial Park A  
Singapore 768740  
Telephone 65-756-7655  
Telefax 65-756-7309

**Germany**

Industriestrasse 28  
D-65760 Eschborn  
Germany  
Telephone 49-6196-800-0  
Telefax 49-6196-800-1119

**Europe, Africa, Middle East**

Via Puccini 2  
16154 Genoa, Italy  
Telephone 39-010-6584-943  
Telefax 39-010-6584-941

