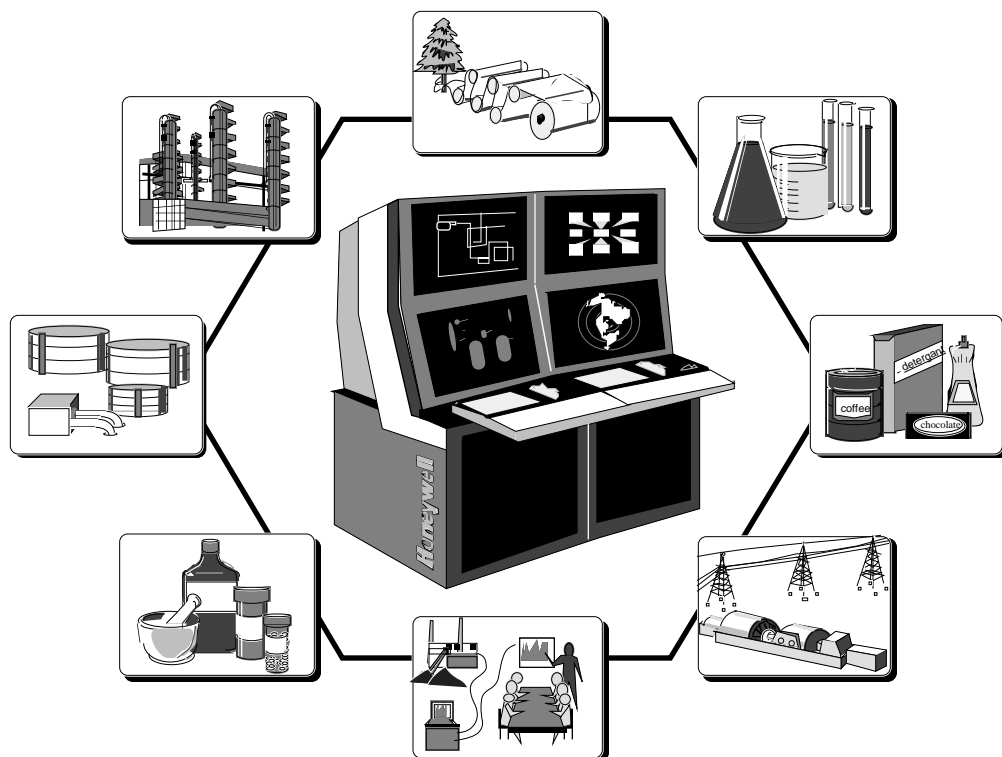


Process Gateway Technical Data

PG03-500
R500
1/96



Total Plant

TDC 3000 Processor Gateway

Technical Data

Introduction

This publication defines the significant functions of the Processor Gateway, a TDC 3000 gateway that provides a link from the Local Control Network (LCN) to a Honeywell Model 45000 computer containing PMC (R450) or PMX software.

The Processor Gateway is a 45000 computer interface to the Local Control Network, as shown in Figure 1. It can provide a communications link between PMC/PMX and other modules on the Local Control Network. See the *System Technical*

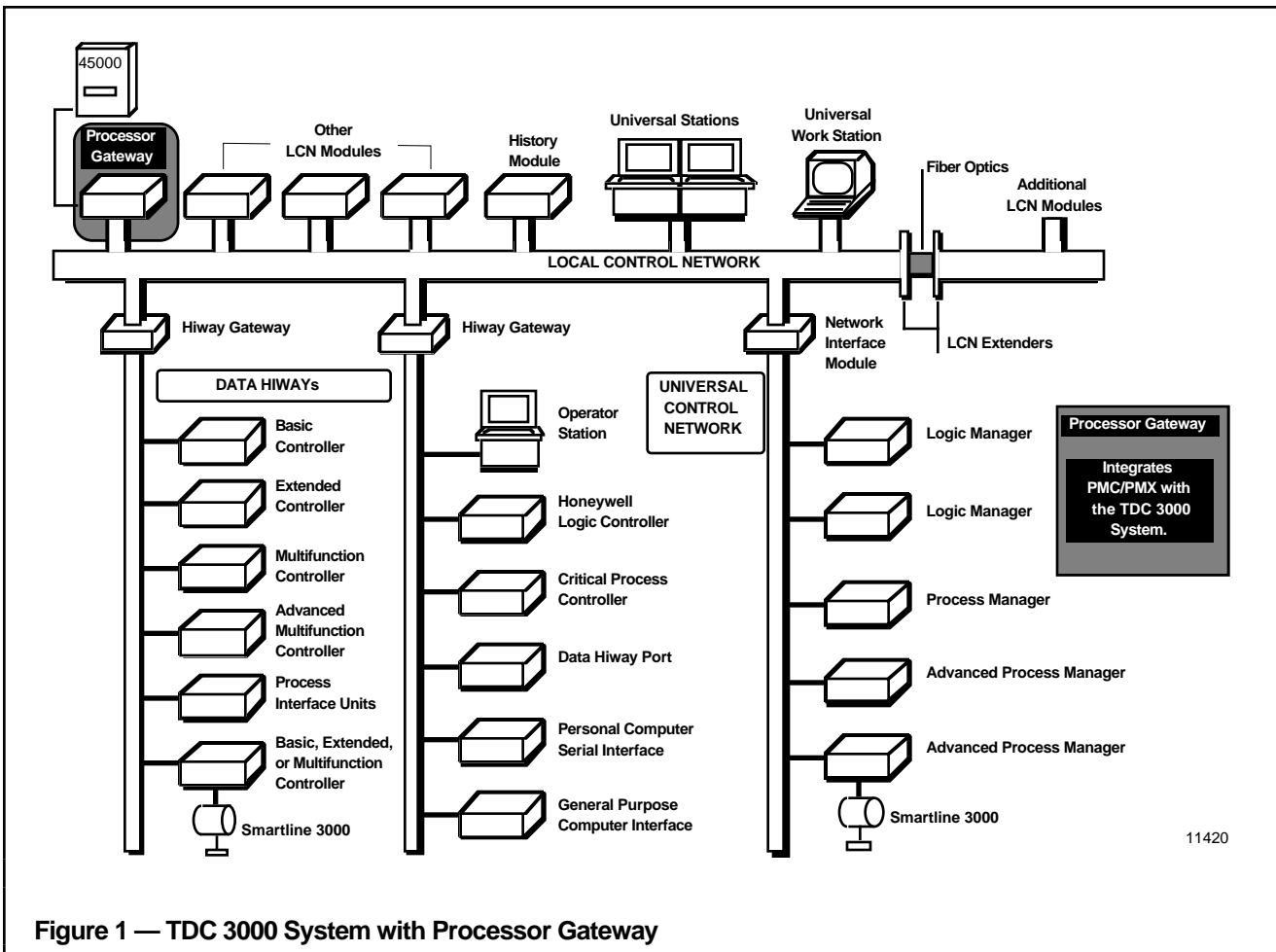
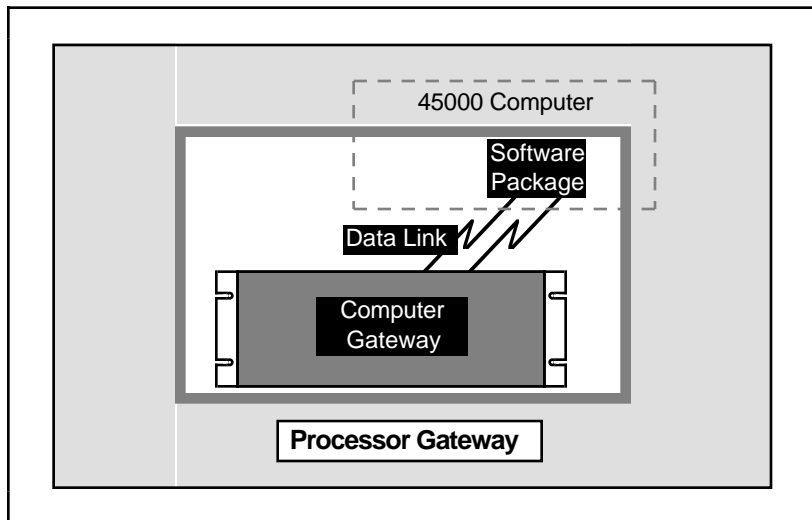
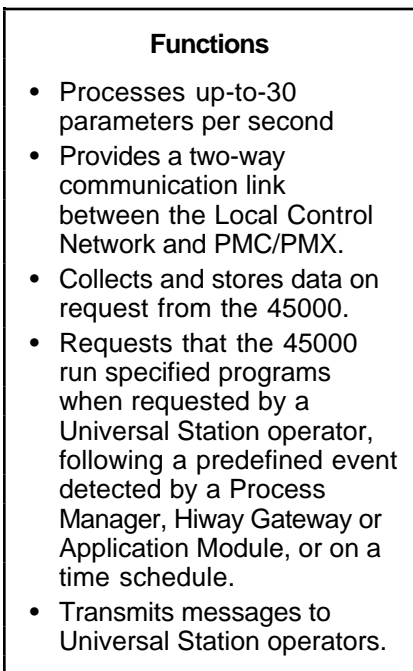


Figure 1 — TDC 3000 System with Processor Gateway

Data for more information on the Processor Gateway's relationships with other modules and process-connected boxes.

Functional Description

The relationships of the Processor Gateway functions are shown in Figure 2.



The Processor Gateway integrates PMC/PMX into the TDC 3000 System. Two important functions of the Processor Gateway are as follows:

- Through the Local Control Network, allows PMC/PMX to access data in the TDC 3000 System and makes PMC/PMX data available to the TDC 3000 System.
- Provides a serial communication link between a Computer Gateway and a 45000 computer, using the IBM Binary Synchronous Communication Protocol (BISYNC).

PMC/PMX to Processor-Gateway Link

Information is exchanged between PMC/PMX and the Computer Gateway (an inherent part of the Processor Gateway) by way of an RS422 signal over an RS449 serial communication link that can operate at up-to-76.8 k baud, using BISYNC line protocol. This link may be connected directly or through modems.

The user is expected to provide Data Definition Tables and points in the 45000 to support Processor Gateway functions. No additional programming of the Processor Gateway itself or PMC/PMX is required; however, an interface is provided that permits FORTRAN programs to fetch and store data and messages across the link.

Data Collection and Storage

Model 45000 computer programs can gain access to data throughout the TDC 3000 System. This data is defined in Data Definition Tables that are defined and built by the user in PMC/PMX. The tables contain data point and parameter names that will be fetched from and stored to the TDC 3000 System. The Processor Gateway converts the contents of these tables to internal identifiers that are used in actual data transfers. Data from other network modules is supplied in floating-point or other relevant formats, depending on the parameter requested.

Two interfaces are provided by use of the Data Definition Tables. **Named** Data Definition Tables provide an interface for Fortran program access to TDC 3000 data points. **Scheduled** Data Definition Tables provide for the cyclic exchange of data between PMC/PMX data points and TDC 3000 data points.

Gateway Data Base

The Processor Gateway contains a data base that can be accessed by using the data-collection and storage facilities described above. This database consists of the following types of information:

- Advanced control interface data points (ACIDPs)
- Calculated result data points (CRDPs)

Both of these may have optional custom data segments that hold

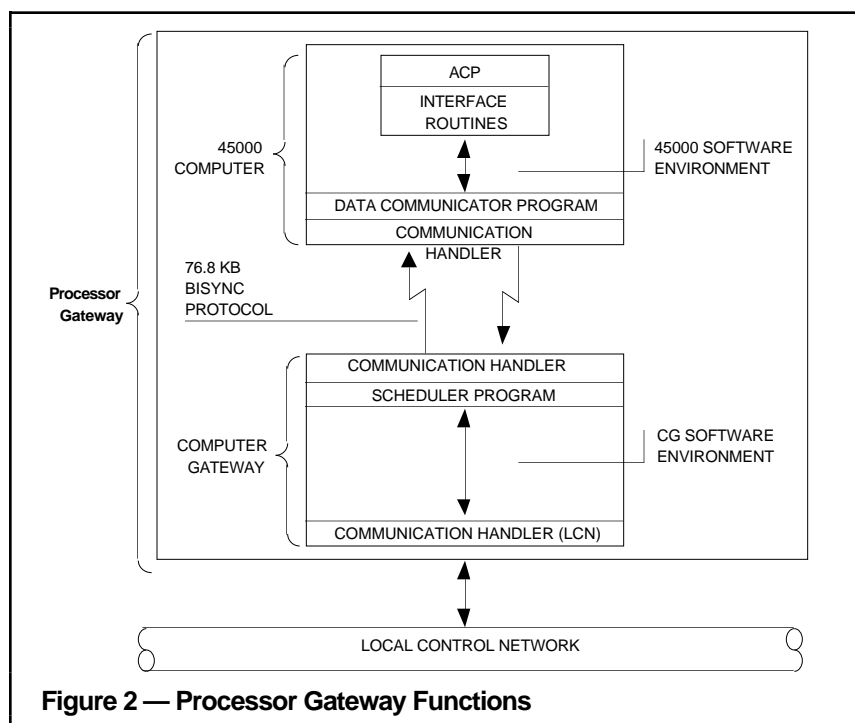


Figure 2 — Processor Gateway Functions

data that is associated with 45000 programs. For example, the results calculated by an optimization program may be stored in a data point's custom data segment, making it "visible" to other modules on the Local Control Network. In addition, each ACIDP is associated with a 45000 program and represents that program's status to the Local Control Network. Each ACIDP also contains security information about its associated program, which allows the program's access to TDC 3000 data to be restricted, for example, to fetch only.

Up to 250 ACIDPs and up-to-500 CRDPs can reside in a Processor Gateway. The size and number of custom data segments is limited only by available memory.

Scheduling 45000 Computer Programs

Modules on the Local Control Network can request 45000 programs represented by ACIDPs to run. These requests may be initiated by an operator at a Universal Station, or by an event recognized in a Process Manager, a Hiway Gateway, or an Application Module. The Processor Gateway can also request a program associated with an ACIDP to run when scheduled.

Operator Messages

Computer programs can request that the Processor Gateway send messages to Universal Station operators. Such messages may be acknowledged or optionally may require confirmation by the operator. The confirmation allows the 45000 program to request an action and to be suspended until a confirmation is received from the operator that the requested action has been completed.

Options

Each Processor Gateway connects to a single 45000. When more than one 45000 must be integrated into a TDC 3000 System, at least one Processor Gateway is required for each 45000. A combination of Computer Gateways (including those inherent to Processor Gateways) totaling up-to-10 can be connected to a single Local Control Network. Only one Local Control Network can be connected to a 45000.

Physical Description

The Processor Gateway consists of one Computer Gateway (see *Computer Gateway Specification and Technical Data*) plus data link hardware and a software package to be installed in the 45000 computer.

The Computer Gateway is available in a 5-card electronics module and a dual node electronics package. When packaged as a 5-card module, the Computer Gateway contains a Local Control Network Interface board, microprocessor/memory board(s), a Communications Line Interface Board, a power supply, and a fan assembly. The dual node version of the Computer Gateway consists of a high-density K2LCN board, a Communications Line Interface Board, power supply, and fan assembly. Each of these is an Optimum Replaceable Unit (ORU) for maintenance purposes.

Both types of Computer Gateways connect to the Local Control Network through coaxial connectors. The 45000 communications link uses multiconductor cables.

Interface Data

The user, through the PMC/PMX system, can implement application-oriented data transfers in the following categories:

- Point Data Transfers
- User Computer Program Coordination
- Operator Messages

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