

# **Application Module Parameter Reference Dictionary**

**AM09-540**



**Implementation  
Application Module - 2**

***Application Module  
Parameter Reference Dictionary***

**AM09-540  
Release 520  
10/96**

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## About This Publication

This publication supports **TotalPlant** Solution (TPS) System network Release 520. TPS is the evolution of TDC 3000<sup>X</sup>.

This publication is a reference for process engineers, control system engineers, and application engineers who design and implement data acquisition and control strategies that are to be accomplished through a TPS System with a Local Control Network. This publication provides reference information about the parameters and algorithms that are in Application Modules (AMs).

This publication is part of a set of publications that provide parameter reference information for nodes on the LCN. The other members of this set are:

*Process Manager Parameter Reference Dictionary in the Implementation/Process Manager - 2 binder*

*Logic Manager Parameter Reference Dictionary in the Implementation/Logic Manager binder*

*Hiway Gateway Parameter Reference Dictionary in the Implementation/Hiway Gateway - 1 binder*

*Programmable Logic Controller Gateway Parameter Reference Dictionary in the Implementation/PLC Gateway binder*

*Computer Gateway Parameter Reference Dictionary in the Implementation/Computer Gateway binder.*

<p>Change bars are used to indicate paragraphs, tables, or illustrations containing changes that have been made to this manual effective with release 520. Pages revised only to correct minor typographical errors contain no change bars.</p>
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## INTRODUCTION

### Section 1

#### 1.1 GENERAL

This publication contains reference information on the **TotalPlant** Solution (TPS) System parameters that are associated with the Application Module (AM). The reference information includes two types of data:

1. **Lists of parameter names** that are associated with the configuration of each point type in the AM—These lists are arranged so that the parameter names appear in the same order as they would appear in the configuration displays (in the Engineering Personality of the Universal Station).

All of the lists except those for regulatory points are shown in Section 2 of this publication. For regulatory points, the lists that are common to all regulatory algorithms are in Section 2; lists that are unique to a given algorithm are in Section 3, in an alphabetical listing under the algorithm name.

2. A **dictionary** that includes all the parameter names associated with the AM and all of the algorithm names associated with regulatory points in the AM—For each parameter name listed, related data is given (such as a description, default value and permissible range of values). For each algorithm name listed, the algorithm is described briefly and parameters that are unique to the algorithm are listed in the same order as they appear in the Parameter Entry Displays (PEDs).

#### 1.2 USE OF THIS PUBLICATION

This publication should be used for reference when

- building AM data points
- planning and writing CL programs associated with the AM
- parameter names appear on the Universal Station displays when the system is in operation.

## 1.3 NOTATION

To enable parameter names to be easily distinguished from algorithm names, the following notation is used in the alphabetical listing:

### a. parameter names

All parameter names are all capital letters.

Examples: PVAUTO

PVEULO

Some parameter names appear in the list with a suffix (N). The numeral N denotes an index number that identifies an element of an array.

Example: The parameter MODEAPPL(N) is an identifier of any of four elements in an array. MODEAPPL(2) identifies the second element in the array.

### b. algorithm names

When they appear in the alphabetical listing, algorithm names are printed in both upper- and lower-case characters.

Examples: DataAcq, MidOf3, HiLoAvg.

When they appear in text, algorithm names are in upper-case and lower-case characters and are underlined.

Example: The MidOf3 algorithm selects ....

Any item that is underlined in text can be found in the dictionary, Section 3.

## 1.4 REFERENCES

The following are related publications that should be used when configuring the AM

<u>Title</u>	<u>Publication No.</u>	<u>Binder</u>
Application Module Forms	AM88-500	Implementation/Configuration Forms
Application Module Form Instructions	AM12-500	Implementation/Application Module - 1
Application Module Control Functions	AM09-502	Implementation/Application Module - 1
Application Module Algorithm Engineering Data	AM09-501	Implementation/Application Module - 1
Engineer's Reference Manual	SW09-505	Implementation/Startup & Reconfiguration - 2
Data Entity Builder Manual	SW11-511	Implementation/Engineering Operations - 1

### Programming in CL

<u>Title</u>	<u>Publication No.</u>	<u>Binder</u>
Control Language/Application Module Overview	SW27-500	Implementation/Application Module - 3
Control Language/Application Module Reference Manual	AM27-510	Implementation/Application Module - 3
Control Language/Application Module Data Entry	AM11-585	Implementation/Application Module - 3

In the alphabetical list in Section 3 of this publication, references are made to specific headings in *Application Module Control Functions, AM09-502*.



## PARAMETERS LISTED BY POINT TYPE Section 2

This section contains lists of data point parameter names for each Point Type.

The lists correspond to the Data Entity Builder's Parameter Entry Displays (PEDs). They include the names of all the parameters that can be configured for each point type. To provide comprehensive coverage, we assume that full disclosure is selected (i.e., PTDISCL = Full); also, the listings include all names of parameters whose exposure depends on entries previously made for other parameters.

Except for Regulatory points, all parameters associated with configuration of each point type in the AM are given in this Section of this publication. For Regulatory points, parameters that are common to all regulatory points are in this section and parameters that are unique to an algorithm are listed under the algorithm name, which is listed alphabetically (along with parameter names) in Section 3 of this publication.

### Regulatory Point

The parameters included in the following list must be configured for each regulatory point before configuring the parameters listed under the parameter name(s) in the alphabetical list given in Section 3 of this publication.

Point Assignment Display	Algorithm Selection	Scheduling Display Display	US Display Options Display
NAME UNIT PTDESC EUDESC KEYWORD PRIMMOD PTDISCL	PVALGID CTLALGID	PERIOD BEFAFT BEFAFTID NORMCYCL	OVERVAL SUPPIO

## Regulatory Point (continued)

The parameters included in the following lists are configured as applicable after configuring those listed under the algorithm name(s) in the alphabetical list given in Section 3 of this publication.

Alarming Display (PV Algos)	Alarming Display (CTL Algos)	I/O and Custom Display
PVALDB PVHITP PVLOTP PVHHTP PVLLTP PVROCPTP PVROCNTP PVSGCHTP DEVHITP DEVLOTP ALENBST ALPRIOR CCINPT CCSRC CCACTSTS	ALENBST ALPRIOR CCINPT CCSRC CCACTSTS	CLSLOTS NOPKG (Note 1) NUMSWTCH (Note 2) NOGINPTS (Note 3) NOGOPTS (Note 4)  Note 1 — If NOPKG >= 0, CUSTOM PACKAGE display appears Note 2 — If NUMSWTCH >= 0, SWITCH display appears Note 3 — If NOGINPTS >= 0, GENERAL INPUT CONNECTIONS DISPLAY appears Note 4 — If NOGOPTS >= 0, GENERAL OUTPUT CONNECTIONS DISPLAY appears

Custom Package Display	Switch Display	General Input Connections Display	General Output Connections Display
PKGNAME[1] : : PKGNAME[10]	S1NSTATE S1STATES(0) : : S1STATES(4) S1ACCLVL S1CURSTS S1REQSTS S2NSTATE S2STATES(0) : : S2STATES(4) S2ACCLVL S2CURSTS S2REQSTS	GISRC(N) GIDSTN(N) GIACTSTS(N)	GOSRC(N) GODSTN(N) GOACTSTS(N)

Control Common Display	Control Auto/Man Algo Display	Control Output Connections Display
NMODE NMODATTR MODEPERM EXTSWOPT	INITTYPE B RATE1 XEUHI XEULO NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

## Counter Point

Counter Point Assignment Display	Counter Scheduling Display	Counter PV Configuration Display	Counter PV Alarming Display	Counter Alarm Configuration Display
NAME UNIT PTDESC EUDESC KEYWORD PRIMMOD ACCUM PTDISCL CISRC CIACTSTS	PERIOD BEFAFT BEFAFTID NORMCYCL	PVEUHI PVEULO PVEXEUHI PVEXEULO PVCONV PVTV PVFORMAT PVCLAMP PVSRCOPT PVSOURCE OVERVAL	PVHITP PVLOTP PVROCPTP PVROCNTP PVHHTP PVL LTP DEVHITP DEVLOTP PVSGCHTP	PVALDB ALENBST ALPRIOR CCINPT CCSRC} CCACTSTS

Counter Accumulation Display	General Input Connections	General Output Connections
AVCONV AVFORMAT AVTV CNTLLOCK AVTVLOCK AVDEV1TP AVDEV2TP	NOGINPTS GISRC(N) GIDSTN(N) GIACTSTS(N)	NOGOPTS GOSRC(N) GODSTN(N) GOACTSTS(N)

## Custom Data Point

Custom Point Assignment Display	Scheduling Display
NAME UNIT PTDESC KEYWORD CLSLOTS NOPKG PRIMMOD ALPRIOR ALENBST PKGNAME[1] : : PKGNAME[10]	PERIOD BEFAFT BEFAFTID NORMCYCL

## Flag Point

Flag Point Assignment Display	Flag Operating Display	Flag Alarming Display
NAME UNIT PTDESC KEYWORD PRIMMOD	PVSTATES(1) PVSTATES(0) UBOXCLR LBOXCLR OFFNORMAL	PVNORMAL ALPRIOR ALENBST OVERVAL

## Numeric Point

Numeric Point Assignment Display	Flag Operating Display
NAME UNIT PTDESC KEYWORD PRIMMOD	EUDESC RANGEHI RANGELO PVFORMAT PV

## Switch Point

Switch Point Assignment Display	Switch Data Segment Display	Scheduling Display
NAME UNIT PTDESC KEYWORD CLSLOTS NOPKG NUMSWITCH PRIMMOD SALMSDC1 SALMSDC2 SALMSDC3 ALPRIOR ALENBST PKGNAME[1] : PKGNAME[10]	S1NSTATE S1STATES[0] : : S1STATES[3] S1ACCLVL S1CURSTS S1REQSTS S2NSTATE S2STATES[0] : : S2STATES[4] S2ACCLVL S2CURSTS S2REQSTS	PERIOD BEFAFT BEFAFTID NORMCYCL

### Timer Point

Timer Point Assignment Display	Timer Scheduling Display	Timer Operating Display	Timer Alarming Display	Control Input Connections Display
NAME UNIT PTDESC EUDESC KEYWORD PRIMMOD PTDISCL	PERIOD BEFAPT BEFAPTID NORMCYCL	TIMEBASE SP CNTLLOCK SPLOCK TIMOUTAL	ALENBST ALPRIOR CCINPT CCSRC CCACTSTS	NOGINPTS GISRC(N) GIDSTN(N) GIACTSTS(N)

### General Output Connections Display

NOGOPTS  
GOSRC(N)  
GODSTN(N)  
GOACTSTS(N)

### Processor Status Data Point (PSDP)

Processor Status Data Points are not configured, so they have no configuration forms and do not appear on PEDs. However, certain of the AM PSDP parameters can be changed directly or indirectly by the user.

The following AM PSDP parameters can be changed indirectly during AM node configuration (or reconfiguration): MEMCVBLM, MIPCVBLM, and AMDATA(48).

Those AM PSDP parameters that have "Access Lock" of Engr or Opr can be changed directly by the use of custom schematics. See heading 2.6.2 in *Application Module Implementation Guidelines* for more information.

A complete list of AM PSDP parameters can be found in the *Engineer's Reference Manual* in the *Implementation/Startup & Reconfiguration - 2* binder.



## PARAMETER AND ALGORITHM DEFINITIONS

### Section 3

*This section contains an integrated alphabetical listing of*

- *the names of the **TotalPlant** Solution (TPS) System parameters that are associated with the AM,*
- *the names of the algorithms that are associated with the regulatory points in the AM.*

### 3.1 FORMAT

The alphabetical listing given in this section is presented in the formats described under the following headings.

#### 3.1.1 Parameter Names

A parameter name is a character string (of one-to-eight alphabetic or alphanumeric characters), reserved in the system, that is a mnemonic which identifies a value used in the system. The form of each parameter description and a description of the information provided in that form is shown below.

#### PARAMETER NAME

##### Point Type

(Number of Form used for configuration)

(Description of parameter) (References to headings in AM Control Functions [AM CF])

**Source**

**Default Value**

**Access Lock**

**Value Type**

**Value Range**

### 3.1.1 Parameter Names (continued)

The data given in the format shown above has the following significance:

**Source** – The source that causes a parameter to be set to a particular value. The source can be either the user (through configuration or other keyboard entry) or the system.

**Default Value** – The value of a parameter that is automatically assigned by the system and is used when a different value is not assigned by the user. Valid entries can include values of the type and range described in this section, or can include:

NaN—not a number, which appears in displays as three or more dashes (---). In some cases, NaN is a valid entry; in others (where noted), a valid number value must be assigned by the user.

Underbars—all underbars ( \_ \_ \_ ), when they appear on displays, denote a null entity. The notation "all blanks" is used in the Default Value box to denote the null entity.

**Access Lock** – The access lock, which is defined for each parameter, specifies which personnel or system functions can store to the parameter. Each store request carries an "Access Level" that identifies the requester of a store to the parameter. Access Levels and access locks are arranged hierarchically as follows:

<b>Access Level</b>	<b>Used By</b>
Oper	Operator
Supvr	Supervisor
Engr	Engineer
Cont	Continuous Control and CL/C
Prog	Sequence Programs and CIU
DEB	Data Entity Builder (Point Builder)
<b>Access Lock</b>	<b>Access Levels Included</b>
Oper	All
Supvr	All except Oper
Engr	All except Oper and Supvr
Prog	All except Oper, Supvr, and Engr
Engr-DEB	Engr and DEB
Read Only	Accessible to the user for viewing only: no write access available.

### 3.1.1 Parameter Names (continued)

**Access** – (continued)

**Lock** A parameter with a given Access Level can be stored to by a requester of the same or higher Access Lock designator. For example, if the Access Lock is specified as Engr, a requester with an Access Level of Engr, Prog, or Engr-DEB can store to the parameter, but a requester of the access level of Supvr or Oper cannot.

**Value Type** – Indicates the type of data format in which the value of the parameter must be stored. The system does not permit the value of the parameter to be set to any other type of data format. Each parameter listed in this publication has one of the following value types:

Integer—The value of the parameter is a whole number.

Real —The value of the parameter is a Real Number; that is, a decimal number, with an integer part, a decimal point, and a decimal-fraction part. The decimal point must be included.

String—The value of the parameter is a string of characters, which can include the alphabetic characters a through z, the numeric characters 0 through 9, and the characters tilde (~) and underbar (\_).

Ent\_Id—The value of the parameter is an entity identifier; that is, the value of the parameter is the Tag Name of a data point.

Par\_Id—The value of the parameter is the name of an external parameter.

Point.Parameter—The value in the parameter specifies a parameter in a named point in Point.Parameter form, where "Point" represents a valid tag name (NAME) or reserved-entity name, "Parameter" represents a valid parameter name, and "." separates those elements. For example, FC101.PV specifies parameter PV in data point FC101.

Boolean—The value of the parameter is one of a complementary binary pair (such as On or Off).

Enumeration—a set of predefined values expressed as character strings. These sets of values are stored in standard enumeration-value sets.

Example: Under the parameter name PVAUTOST

**Value Type** PVAUTOST enumeration

and **Value Range** Normal –  
 Uncertn –  
 Bad – –

PVAUTOST is the enumeration-value set that contains values Active, InActive, and NotConfig.

### 3.1.1 Parameter Names (continued)

**Value Type** – Enumeration (continued)

In some cases, the enumeration-value set name is different than that of the parameter name.

Example: Under the parameter name PIACTSTS[N]

**Value Type** IOACTSTS enumeration

and **Value Range** Active –  
InActive –  
NotCnfg –

IOACTSTS contains the set of enumerated values Active, InActive, and NotCnfg; these elements, then, are also enumerations of the elements of parameter PIACTSTS.

Sd\_Enum—Self-defining enumeration; the value of the parameter is one of an array of string values that has been defined by the user, and the array index associated with a given string value is used as the string's enumeration value.

Type\_Id Array (Maximum Index Value)—The value of this parameter is an element of an array of values of the specified type. The index type can be an integer, an enumeration, or a self-defined enumeration.

(Example): Array (1..16) of Boolean—denotes that the parameter value is a binary value of one of 16 pairs of binary values.

**Value Range** – Value Range defines the set of valid values for the parameter, either by enumeration, or in terms of the boundaries of the set and exceptions to those boundaries.

### 3.1.2 Algorithm Names

Algorithm names given in the alphabetical list are mnemonics that are enumerations of the parameters PVALGID (process variable algorithm identifier) and CTLALGID (control algorithm identifier). They can be distinguished from parameter names in that they appear in the alphabetical list with both upper-case and lower-case alphabetic characters, and are underlined.

Under each algorithm name

- The algorithm is briefly described. Refer to *Application Module Algorithm Engineering Data*, in the *Implementation/Application Module - 1* binder for additional information.
- Lists of the parameters related to the algorithm are given. Lists of other parameters involved in configuring a regulatory point (before and after configuring algorithm-unique parameters) are given in Section 2 of this publication.

**\$AUXUNIT**

**Point Type** Regulatory, Flag, Timer, Switch, Custom, Counter

The Auxiliary Unit of an alarmable process point. If an Auxiliary Unit ID is specified, alarms from this point go to the Auxiliary Unit instead of the Primary Unit. If the \$AUXUNIT parameter is set to null (--), alarms go to the Primary Unit. Available in Release 520 and later software.

**Source** System                      **Default Value** Null                      **Access Lock** Operator

**Value Type** Enum. of UNIT

**Value Range**      Null (--)  
                         or any valid unit ID as configured in the NCF

**CAUTION**

The LCN Alarms can contain incorrect AM Point Alarm Multiple Primmod fields when the AM point is already in-alarm and the \$AUXUNIT and then \$MPROD (X) values are changed from fast parameter store LCN interfaces, such as DEB Alter Parameters or AM/CL. The error is that the alarm display will contain the one \$MPROD (X) value only, even when other \$MPROD (X) values exist.

This error will not occur if the \$MPROD (X) parameter value is stored first and the \$AUXUNIT parameter value is stored second.

**\$BKGABRT**

**Point Type** Custom, Regulatory, and Switch

\$BKGABRT is set to true when a background CL block is aborted, and is set to false after the next execution of background CLs on the point (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Boolean

**Value Range**      FALSE: Normal processing of the background CL on the point occurred the last time the point was executed.  
                         TRUE: The queued or running background CL on the point was aborted the last time the point was executed.

**\$BKGPRTY(N)**

**Point Type** Custom, Regulatory, and Switch

Relative priorities of running background CLs within the background priority range. The initial value is high. The value of this parameter is changed by the CL block call to BKG\_Change\_Priority subroutine (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** 1..255 Array of \$BKGPRTY enumeration

**Value Range**      Low  
                         Medium  
                         High

**\$BKGQFUL****Point Type** Custom, Regulatory, and Switch

\$BKGQFUL is set to true when background CLs cannot be put into the background execution queue (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Boolean

**Value Range** TRUE: Background CL is not able to be placed in the execution queue.  
 FALSE: Background CL is able to be placed into the execution queue.

**\$BKGSTS(N)****Point Type** Custom, Regulatory, and Switch

The background status for the CL slot on a point (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Array (1..255) of \$BKGSTS enumeration

**Value Range** OFF: The CL block is available for execution.  
 QUEUED: The CL block is in the queue waiting to be executed.  
 RUNNING: The CL block has started executing and has not yet completed. It may not actually run because it is low priority.  
 DELAYED: The CL block has called a delay and is waiting for the delay to complete.  
 WAITING: The CL block has called an off node function and is waiting for completion of that function.

**\$BKGTIME****Point Type** Custom, Regulatory, and Switch

Length of time background CL blocks on this point are in the queue, or in the running state. The value is 0 if no blocks are in the queue or running. The value is expressed in seconds (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0

**\$CLCMPST(N)**

**Point Type** Custom, Regulatory, and Switch

Composite CL block activity status displayed on the CL page of the Detail Display for this point. The parameter's status combines the foreground and background CL status. It is derived from the parameters \$BKGSTS(N) and CLACTIVE(N) (no form).

**Source** User

**Default Value** NotConfig

**Access Lock** Engr

**Value Type** Array (1..255) of \$CLCMPST(N) enumeration

<b>Value Range</b>	NOTCONFIG:	The CL block is not linked to this slot (read only).
	ACTIVE:	The CL block is inactive, but not running. Store is used to activate the CL (read/write).
	INACTIVE:	The CL block is inactive. Store used to inactivate the CL (read/write).
	ABORT:	This state is not displayed. It is used only to allow store TRUE to the abort flag, and to \$BKGABRT when the CL is aborted (write only).
	QUEUED:	The CL block is active and in the queue waiting to be executed (read only).
	RUNNING:	The CL block is active and executing, but has not completed. It may not run because it is low priority (read only).
	DELAYED:	The CL block is active. It has called a delay, and is waiting for the delay to complete (read only).
	WAITING:	The CL block is active, and called an off node function. It is waiting for that function to complete (read only).
	INA_RUN:	The CL block is inactive and executing, but has not completed. It may not run because it is low priority (read only).
	INA_DELY:	The CL block is inactive and called a delay. It is waiting for the delay to complete (read only).
	INA_WAIT:	The CL block is inactive and called an off node function. It is waiting for that function to complete (read only).

The following table shows the displayed values of \$CLCMPST(N):

<b>\$CLCMPST(N)</b>	<b>CLACTIVE(N)</b>	<b>\$BKGSTS(N)</b>
NOTCONFIG	NOTCONFIG	-----
INACTIVE	INACTIVE	OFF
INACTIVE	INACTIVE	QUEUED
ACTIVE	ACTIVE	OFF
QUEUED	ACTIVE	QUEUED
RUNNING	ACTIVE	RUNNING
DELAYED	ACTIVE	DELAYED
WAITING	ACTIVE	WAITING
INA_RUN	INACTIVE	RUNNING
INA_DELY	INACTIVE	DELAYED
INA_WAIT	INACTIVE	WAITING

**\$IPPASN**

**Point Type** Regulatory, Custom, Counter, Timer, and Switch

When TRUE, defines that a point is assigned to the IPP. It appears on the point builder scheduling display before any other schedule segment parameters. Its status appears on the initial point detail display page with other point schedule data (Forms *AM88-501*, *530*, *540*, and *550*).

**Source** User

**Default Value** FALSE

**Access Lock** DEB

**Value Type** Boolean

**Value Range** FALSE—Point is assigned to either FPP or SPP depending on processing period.  
TRUE—Point is assigned to IPP.

**\$MPROD1, \$MPROD2, \$MPROD3, \$MPROD4**

**Point Type** AM Regulatory, Flag, Timer, Switch, Custom, Counter

Multiple Primmods are optional user-defined strings that, when filled-in, replace the Primmod description field of the alarm event record when the point is in alarm. There is an NCF option that enables/disables the Multiple Primmod functionality. When the option is disabled, value stores are not allowed.

**Source** System

**Default Value** FALSE

**Access Lock** Engineer or DEB

**Values** All alpha-numeric characters, the characters \$, \_, -, /, and the backslash character. The backslash character, however, is not valid in the first three (3) characters of the string because of the predefined PIN restrictions. Trailing blanks are legal, but leading and embedded blanks are not. A string of all blanks is legal. The value is converted to upper case on entry and the maximum string size is 16 characters. The entered value must be unique on the same point, so a string value that is the same as the other \$MPROD1–\$MPROD4 or PRIMMOD is not allowed.

**Value Type** 16 character string

**Value Range** N/A

**CAUTION**

The LCN Alarms can contain incorrect AM Point Alarm Multiple Primmod fields when the AM point is already in-alarm and the \$AUXUNIT and then \$MPROD (X) values are changed from fast parameter store LCN interfaces, such as DEB Alter Parameters or AM/CL. The error is that the alarm display will contain the one \$MPROD (X) value only, even when other \$MPROD (X) values exist.

This error will not occur if the \$MPROD (X) parameter value is stored first and the \$AUXUNIT parameter value is stored second.

**ACCUM****Point Type** Counter

Selects the accumulation option for AM Counter points (3.3 in *AM Control Functions*) (Form *AM88-540*).

**Source** User**Default Value** Off**Access Lock** DEB**Value Type** Boolean

**Value Range** On—selects the accumulation option.  
Off—selects no accumulation by the counter.

**ADAVGC****Point Type** Processor Status

Average alarms distributed per second in the current hour (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **ADAVGP****Point Type** Processor Status

Average alarms distributed per second in the previous hour (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**ADAVGS**

**Point Type** Processor Status

Average alarms distributed per second during the last snapshot period (normally 10 seconds).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**ADMAXC**

**Point Type** Processor Status

Maximum alarms distributed per cycle in the current hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**ADMAXP**

**Point Type** Processor Status

Maximum alarms distributed per cycle in the previous hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**ADMINC**

**Point Type** Processor Status

Minimum alarms distributed per cycle in the current hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**ADMINP**

**Point Type** Processor Status

Minimum alarms distributed per cycle in the previous hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**ADVDEVPR**

**Point Type** Regulatory.

Alarm priority parameter for the Advisory Deviation alarm (Form *AM88-570*) (3.1.6.3 and 3.1.7 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**ADVDEVTP****Point Type** Regulatory

Advisory-deviation-alarm trip point. When SPOPT = Asp, if the difference between the value in PV and the value in ADVSP is greater than the value in ADVDEVTP, an alarm is generated (Form *AM88-541*) (3.1.6.3 in *AM Control Functions*).

**Source** User                      **Default Value** NaN                      **Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$   
NaN is a possible entry**ADVDEVTR****Point Type** Regulatory

Advisory-deviation-alarm transition (3.1.6.3 in *AM Control Functions*) (no form).

**Source** User                      **Default Value** NoChange                      **Access Lock** Read Only**Value Type** ALTRAN enumeration**Value Range** NoChange—No change from previous state  
Rtn—First time return from alarm  
Alarm—First time in alarm**ADVSP****Point Type** Regulatory

Advisory-deviation-alarm setpoint. The predetermined SP value used in advisory deviation alarming. To use advisory deviation alarming, SPOPT = Asp, ASPPROC = Enable, and ADVDEVTP contains the alarm trip point. When the difference between the value in PV and the value in ADVSP is greater than the value in ADVDEVTP, an alarm is generated. When the difference is less than the value in ADVDEVTP minus a deadband, the alarm returns to normal. When ASPPROC = Disable, the value in ADVSP = the value in SP (3.1.6.3 in *AM Control Functions*) (no form).

**Source** User                      **Default Value** ----                      **Access Lock** Supvr**Value Type** Real**Value Range** SPHILM to SPLOLM

**ADVSP****Point Type** Regulatory

Advisory deviation alarm setpoint (ADVSP) in % (no form) (3.1.6.3 in *AM Control Functions*).

**Source** User**Default Value** ----**Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**ALENBST****Point Type** Regulatory, Flag, Timer, Counter, Custom, and Switch.

Point alarm-enable status that affects the detecting and reporting of alarms (4.3.1.5 and 4.3.1.6 in *System Control Functions*) (Forms *AM88-570, 510, 530, 540, 550, and 560*).

**Source** User**Default Value** Enable**Access Lock** Configurable in Network Configuration under System-Wide Values/Console Data to Engr, Supvr, or Oper.**Value Type** ALENBST enumeration

**Value Range** Enable—When selected, alarms are detected, reported in the Alarm Journal, and printed and displayed on the Alarm Summary.  
 Disable—When selected, alarms are detected and reported in the Alarm Journal, but not printed or displayed on the Alarm Summary. Alarm indicators appear on Group and Detail displays.  
 Inhibit—When selected, neither alarm detection nor reporting occurs.



**AMDATA(47)****Point Type** Processor Status

After a failover, the time in seconds until control is resumed in the new primary. Value is available in the new primary AM.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range** >0.0**AMDATA(48)****Point Type** Processor Status

Contains an integer value that determines the amount of memory (in 32 kw blocks) added to the redundancy buffer. For more information, see 7.3.1 in *AM Implementation Guidelines*.

**Source** User (NCF)                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0-12 (Note that the total value of AMDATA(48) plus the value of RESERVMEM cannot exceed 12.)**AMDATA(49)****Point Type** Processor Status

The number of times that failover has occurred since this AM was started. Value is available in both the primary and secondary AM.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range** =>0.0**AMDATA(52)****Point Type** Processor Status

Same data as AMDATA(48).

**AMMEMTOT****Point Type** Processor Status

Total AM memory used for data points, CLs, Custom Data Descriptors, Checkpoint, and Prefetch/Poststore I/O Buffers. Value is affected by choice made during AM node configuration (no form).

**Source** System**Default Value** 0.0**Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**AMOVRABT****Point Type** Processor Status

Number of Fast Point Processor Overrun cycles at which to abort the AM (no form) (2.2.1.6 in *AM Control Functions*).

**Source** User**Default Value** 100**Access Lock** Engr**Value Type** Integer**Value Range** -1 = Do not abort the AM  
0 through 32767**AMOVRTHR****Point Type** Processor Status

Alarm trip-point for the Fast Point Processor Overruns in number of cycles (no form) (2.2.1.6 in *AM Control Functions*).

**Source** User**Default Value** 50**Access Lock** Engr**Value Type** Integer**Value Range** -1 = No alarming on overruns is to be done.  
0 through 32767

**AMSCHDMP(N)**

**Point Type** Processor Status

A write-only parameter used to request a schedule dump for unit N in an AM. Instructions for the use of this parameter are in Section 5 of *AM Implementation Guidelines* (no form).

**Source** User                                      **Default Value** (no default)                                      **Access Lock** Oper

**Value Type** Array (1..100) of string

**Value Range** String of up to 80 characters that specifies the pathname of the file for the schedule dump for Unit (N).

**ARWDI**

**Point Type** Regulatory

Applies to CL Control Algorithm

Anti-reset-windup direction indicator. Defines the directional relationship between CV and SP (26.4.2 in *AM Algorithm Engineering Data*) (Form AM88-564).

**Source** User                                      **Default Value** Direct                                      **Access Lock** Prog

**Value Type** POLARITY enumeration

**Value Range** Direct—Output increases as the input increases.  
Reverse—Output decreases as the input increases.

**ARWNET**

**Point Type** Regulatory

Windup state of the input (control processing) (3.1.10.1, 3.1.10.2, and 3.1.6.2 in *AM Control Functions*).

**Source** User                                      **Default Value** Normal                                      **Access Lock** Read Only

**Value Type** WINDUP enumeration

**Value Range** Normal—Free to move in either direction.  
Hi—Free to move in the lower direction.  
Lo—Free to move in the higher direction.  
HiLo—Not free to move in any direction.

**ARWOP****Point Type** Regulatory

Windup state of the output (control processing) (no form) (3.1.10.1 and 3.1.10.2 in *AM Control Functions*).

**Source** User**Default Value** Normal**Access Lock** Read Only**Value Type** WINDUP enumeration

**Value Range** Normal—Free to move in either direction.  
 Hi—Free to move in the lower direction.  
 Lo—Free to move in the higher direction.  
 HiLo—Not free to move in any direction.

**ASPPROC****Point Type** Regulatory

Advisory-deviation-alarm state. See ADVSP (3.1.6.3 in *AM Control Functions*) (Form *AM88-570*).

**Source** User**Default Value** Disable**Access Lock** Supvr**Value Type** ASPPROC enumeration

**Value Range** Disable—Advisory deviation alarming does not take place.  
 Enable—Advisory deviation alarming can take place.

**ASSOCDSP****Point Type** Regulatory, Numeric, Counter, Custom, Flag, Timer, Switch

Associated Display—Specifies a user-configured schematic that is associated with this point.

**Source** User**Default Value** Blank**Access Lock** Engr**Value Type** String\_8**Value Range** N/A

Helpful Hint: At operating time, by pressing the ASSOC button, the specified associated display can be called up from a Point Detail Display, Group Display with a point selected, or any Summary Display with a point selected.

**AV****Point Type** CounterAccumulation value in EU (no form) (3.3, 3.3.8, and 3.3.10 in *AM Control Functions*).**Source** User**Default Value** 0.0**Access Lock** Oper**Value Type** Real**Value Range**  $\underline{AV} \geq 0$  but  $\leq 999999$   
NaN is a possible entry.**AVCONV****Point Type** CounterFactor to convert AVCOUNTS to engineering units (EU) (3.3.6 in *AM Control Functions*) (Form *AM88-540*).**Source** User**Default Value** 1.0**Access Lock** Engr**Value Type** Real**Value Range**  $3.55271\text{E-}09 \leq \underline{AVCONV} \leq 999999.0$ **AVCOUNTS****Point Type** CounterAccumulation value in EU (no form) (3.3.6, 3.3.8, and 3.3.11 in *AM Control Functions*).**Source** User**Default Value** 0.0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0$   
NaN is not a valid entry.

**AVDEV1FL****Point Type** Regulatory, Counter

For the PV Totalizr algorithm for Regulatory points, first deviation-alarm flag for the accumulation value (Section 7 in *AM Algorithm Engineering Data*) (no form).

For Counter points, first deviation-alarm flag for the accumulation value (3.3.8 in *AM Control Functions*) (Form *AM88-519*).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Logical**Value Range** On—if  $AV > (AVTV - AVDEV1TP)$ Off—not in alarm  $AV \leq AVDEV1TP$ **AVDEV1TP****Point Type** Regulatory, Counter

Applies to PV Totalizr algorithm for Regulatory points (Section 7 in *AM Algorithm Engineering Data*). Does not cause an alarm on Regulatory points.

First deviation-alarm trip point for the accumulation value (3.3.7 in *AM Control Functions*) (Forms *AM88-519* and *540*).

**Source** User**Default Value** NaN**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0$  but  $\leq 999999$ NaN is a possible entry—when NaN is entered AVDEV1TP alarming is not performed.

**AVDEV2FL****Point Type** Regulatory, Counter

Applies to PV Totalizr algorithm for Regulatory points (Section 7 in *AM Algorithm Engineering Data*).

For AM Counter points, second deviation-alarm flag for the accumulation value (3.3.8 in *AM Control Functions*) (no form).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** Off—if  $AV > (AVTV - AVDEV1TP)$ .On—if  $AV \leq (AVTV - AVDEV2TP)$ .**AVDEV2TP****Point Type** Regulatory, Counter

Applies to PV Totalizr algorithm for Regulatory points (Section 7 in *AM Algorithm Engineering Data*). Does not cause an alarm on Regulatory points.

For AM Counter points second deviation-alarm trip point for the accumulation value (3.3.7 in *AM Control Functions*) (Forms *AM88-519* and *540*).

**Source** User**Default Value** NaN**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0$  but  $\leq 999999$ 

NaN can be an entry; when NaN is entered, AVDEV2TP alarming is not performed, otherwise, a pre-preset alarm is detected when the accumulation value AV is  $\geq$  the Preset less the value entered for the pre-preset deviation point.

**AVFORMAT**

**Point Type** Counter

Accumulated Value display decimal point location (Form *AM88-540*) (3.3.10 in *AM Control Functions*).

**Source** User

**Default Value** D0

**Access Lock** Engr-DEB

**Value Type** VALFORMT enumeration

**Value Range** Specifies the PV decimal place in the standard displays:  
 D0 is sNumber. where s is sign, Number is data value, and "." is the decimal point  
 D1 is sNumbe.r  
 D2 is sNumb.er  
 D3 is sNum.ber  
 D4 is sNu.umber  
 D5 is sN.umber  
 D6 is s.Number

**AVP**

**Point Type** Counter

Accumulated Value in % of range (no form).

**Source** User

**Default Value** see Range

**Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0 or NaN  
 Default is 0 through  $\frac{AV}{AVTV} * 100$

**AVTV**

**Point Type** Regulatory, Counter

Accumulation target-value for PV Totalizr algorithm in Regulatory points (Section 7 in *AM Algorithm Engineering Data*).

Accumulation target-value for counter points (3.3.7 and 3.3.8 in *AM Control Functions*) (Forms *AM88-540* and *519*).

**Source** User

**Default Value** NaN

**Access Lock** Oper

**Value Type** Real

**Value Range** >= 0 but <= 999999  
 NaN value can be inserted by operator entry, but not by CL program.

**AVTVFL****Point Type** Regulatory, Counter

Accumulation target-value alarm flag; applies to PV Totalizr algorithm for Regulatory points (Section 7 in *AM Algorithm Engineering Data*) and to Counter points (3.3.7 and 3.3.8 in *AM Control Functions*) (Form *AM88-519*).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Logical

**Value Range** On—In alarm  $\underline{AV} > \underline{AVTV}$   
 Off—Not in alarm  $\underline{AV} \leq \underline{AVTV}$

**AVTVLOCK****Point Type** Counter

Accumulation target-value lock. Permits or prevents operator changes to AVTV (3.3.9 in *AM Control Functions*) (Form *AM88-540*).

**Source** User**Default Value** Permit**Access Lock** Engr-DEB**Value Type** MODEPERM enumeration

**Value Range** Permit—when selected, you enable the operator to change the AV target value (AVTV).  
 Notperm—when selected, you keep the operator from changing the AV target value (AVTV).



**-B-****B**

**Point Type** Regulatory

Bias value for control algorithms (see *AM Algorithm Engineering Data*, Sections 14 through 26) (Forms *AM88-552*, *553*, *554*, and *558*).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

**BO**

**Point Type** Regulatory

Applies to the Auto Manual Station algorithm.

Output bias constant entered by the operator, and applies only if INITTYPE is Ext (no form).

**Source** User

**Default Value** 0.0

**Access Lock** Read Only

**Value Type** Real

**Value Range** Any real number

**B1 through B4**

**Point Type** Regulatory

Applies to Control algorithms.

B1 is the CTL Multiply/Divide algorithm input SP bias constant (Form *AM88-554*).

B2 is the CTL Multiply/Divide algorithm input X2 bias constant.

B3 is the CTL Multiply/Divide algorithm input X3 bias constant.

B4 is the CTL Multiply/Divide algorithm input X4 bias constant.

B1 and B2 are also the CTL Ratio algorithm bias constants (Form *AM88-559*).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

**BADCTLFL**

**Point Type** Regulatory, Counter, Timer

Bad-control alarm flag (no form).

**Source** User

**Default Value** Off

**Access Lock** Read Only

**Value Type** Logical

**Value Range** On—A bad control alarm is present  
Off—A bad control alarm is not present

**BADCTLPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the Bad Control Value alarm (Forms AM88-570 and 540)) (2.3.5, 3.1.7, and 3.3.4 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**BADPVFL**

**Point Type** Regulatory, Counter

Bad PV alarm flag (Form *AM88-554*).

**Source** User                      **Default Value** Off                      **Access Lock** Read Only

**Value Type** Boolean

**Value Range** On—A bad PV alarm is present  
 Off—A bad PV alarm is not present

**BADPVPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the Bad PV alarm (Forms *AM88-570 and 540*) (2.3.7 and 3.1.7 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**BADPVTR**

**Point Type** Regulatory

PV alarm transition (no form).

**Source** User                      **Default Value** NoChange                      **Access Lock** Read Only

**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from alarm  
 Alarm—First time in alarm

**BCLEALPR**

**Point Type** Custom, Regulatory, Switch.

Alarm priority parameter for the CL Background Error alarm (Forms AM88-570, 550, and 560) (2.3.8, 3.1.7, 3.6, 3.7, 3.7.3, and 4.1.4.9 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**BCLFALPR**

**Point Type** Custom, Regulatory, Switch.

Alarm priority parameter for the CL Background Fail alarm (Forms AM88-570, 550, and 560) (2.3.9, 3.1.7, 3.6, 3.7, 3.7.3, and 4.1.4.9 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.



**BFF**

**Point Type** Regulatory

Applies to Pid with Feed Forward algorithms.

Feedforward input bias (Form *AM88-556*).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

**BIAS**

**Point Type** Regulatory

Bias constant in the control setpoint processing (Form *AM88-541*) (3.1.6.4, 3.1.8.3, and 4.1.4.1 in *AM Control Functions*).

**Source** User

**Default Value** 0.0

**Access Lock** Oper

**Value Type** Real

**Value Range** BSLOLM through BSHILM

**BKGCLBC**

**Point Type** Processor Status

Number of background CL blocks unable to be queued per second (current hour)

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGCLBP**

**Point Type** Processor Status

Number of background CL blocks unable to be queued per second (previous hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGCLBS**

**Point Type** Processor Status

Number of background CL blocks unable to be queued per second (snapshot interval)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGCLC**

**Point Type** Processor Status

Number of background CL blocks run per second (current hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGCLP**

**Point Type** Processor Status

Number of background CL blocks run per second (previous hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGCLS**

**Point Type** Processor Status

Number of background CL blocks run per second (snapshot interval)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGCLNR(I)**

**Point Type** Processor Status

Name of CL block running as background task (I)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** String

**Value Range** 8 character string maximum

**BKGDANC**

**Point Type** Processor Status

Number of Background data access off node requests per second (current hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGDANP**

**Point Type** Processor Status

Number of Background data access off node requests per second (previous hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGDANS**

**Point Type** Processor Status

Number of Background data access off node requests per second (snapshot interval)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGDAREQ**

**Point Type** Processor Status

Number of Background Data Access Requestors

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Integer

**Value Range** 0-32767

**BKGELTIM(I)**

**Point Type** Processor Status

Elapsed time the CL running as background task (I) has been in the run state

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGFMC**

**Point Type** Processor Status

Number of Background requests to the File Manager per second (current hour)

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGFMP**

**Point Type** Processor Status

Number of Background requests to the File Manager per second (current hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGFMS**

**Point Type** Processor Status

Number of Background requests to the File Manager per second (current hour)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGNTRN(I)**

**Point Type** Processor Status

Name of the point associated with the CL block running as a background task (I)

**Source** System                      **Default Value** N/A                      **Access Lock** Lock Read Only

**Value Type** Real

**Value Range** 8 or 16 character string maximum

**BKGQFUL**

**Point Type** Processor Status

Background queue status

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Boolean

**Value Range** False - background CL queue is not full  
True - background CL queue is full

**BKGQTIME**

**Point Type** Processor Status

Amount of time the last background CL block was in the queue

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Real

**Value Range** >=0.0

**BKGQUEUE**

**Point Type** Processor Status

Number of Background requests to the File Manager per second (current hour).

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Integer

**Value Range** 0-32767

**BKGRUN**

**Point Type** Processor Status

Number of background tasks active

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Integer

**Value Range** 0-32767

**BKGSTACK**

**Point Type** Processor Status

Background task stack size

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Integer

**Value Range** 0-32767

**BKGTASKS**

**Point Type** Processor Status

Number of background tasks

**Source** System

**Default Value** N/A

**Access Lock** Lock Read Only

**Value Type** Integer

**Value Range** 0-32767

**BLKNAME(N)**

**Point Type** Custom, Regulatory, and Switch

Linked CL block Name (no form) (3.6, 4.1.5.1, and 4.2 in *AM Control Functions*).

**Source** User                      **Default Value** Blanks                      **Access Lock** Read Only

**Value Type** Array (1..255) of String (8)

**Value Range** Any alphanumeric string up to 8 characters in length

**BLKTIME(N)**

**Point Type** Custom and Regulatory

Time and Date when the CL Block was compiled (no form) (3.6, 4.1, 5.1, and 4.2 in *AM Control Functions*).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Array (1..255) of Time/Date

**Value Range** Time/Date is taken from the system Time/Date at the time of the compile

**BRANCHES(N)**

**Point Type** Custom, Regulatory, and Switch

Number of backward branches taken the last time the CL Block was executed (no form) (4.1.5.1 in *AM Control Functions*).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Array (1..255) of Integer

**Value Range** 0 through 330167

**BSHILM****Point Type** RegulatoryHigh limit value for BIAS (3.1.6.4 in *AM Control Functions*) (Form AM88-541).**Source** User**Default Value** 50.00**Access Lock** Supvr**Value Type** Real**Value Range** Real, >= BSLOLM  
NaN is a possible entry**BSLOLM****Point Type** RegulatoryLow limit value for BIAS (3.1.6.4 in *AM Control Functions*) (Form AM88-541).**Source** User**Default Value** -50.0**Access Lock** Supvr**Value Type** Real**Value Range** Real, <= BSHILM  
NaN is a possible entry**BYPASS****Point Type** RegulatorySelect use of high/low selection or bypassing high/low selection with the OrSel control algorithm (3.1.11 in *AM Control Functions*) (no form).**Source** User**Default Value** Off**Access Lock** Engr-DEB**Value Type** Boolean**Value Range** Off—Do not bypass high/low selection  
On—Bypass high/low selection

## C

**Point Type** Regulatory

Overall scale factor in PV algorithms (Forms *AM88-512, 515, 516, 517, 518, and 519*) applies to these algorithms:

- Flow Compensation (FlowComp) (*AM Algorithm Engineering Data, Section 4*)
- Totalizer (Totalizr) (*AM Algorithm Engineering Data, Section 7*)
- Multiply/Divide (MulDiv) (*AM Algorithm Engineering Data, Section 9*)
- Sum of Products (SumProd) (*AM Algorithm Engineering Data, Section 11*)
- VDT with Lead/Lag (VdtLdLag) (*AM Algorithm Engineering Data, Section 12*)

Also, overall gain for the Summer PV algorithm (*AM Algorithm Engineering Data, Section 10*).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

## C1 through C8

**Point Type** Regulatory

Scale factors for PV algorithms (Forms *AM88-512, 515, 526, 517, and 518*) applies to these algorithms:

- Flow Compensation (FlowComp) (C1, C2) (*AM Algorithm Engineering Data, Section 4*)
- Multiply/Divide (MulDiv) (C1-C7) (*AM Algorithm Engineering Data, Section 9*)
- Sum of Products (SumProd) (C1-C7) (*AM Algorithm Engineering Data, Section 11*)
- VDT with Lead/Lag (VdtLdLag) (C1, C2) (*AM Algorithm Engineering Data, Section 12*)
- Summer (Summer) (C1-C8) (*AM Algorithm Engineering Data, Section 10*)

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range**  $\geq 0.1$  For Flow Compensation algorithm

**CCACCSTS**

**Point Type** Regulatory, Counter, Timer

Cutout access status (no form) (3.1.1 and 3.1.4.8 in *AM Control Functions*).

**Source** User                      **Default Value** NoError                      **Access Lock** Read Only

**Value Type** PASTATUS enumeration

**Value Range** NoError—The source parameter was fetched with no error.  
 Comm—The source parameter could not be fetched because of a communication error.  
 Config—The source parameter could not be fetched because of a configuration error.  
 Software—An unexpected error occurred. Notify Honeywell TAC.

**CCACTSTS**

**Point Type** Regulatory, Counter, Timer

Contact cutout-activity status, which indicates the initial Active or Inactive alarm cutout connection status (Forms *AM88-570, 530, and 540*) (3.1.4.7 in *AM Control Functions*).

If the contact cutout-source point, or source parameter is null, the activity status is automatically set to NotConfig during loading. Because of this, NotConfig need not be entered.

**Source** User                      **Default Value** Active                      **Access Lock** Supvr

**Value Type** IOACTSTS enumeration

**Value Range** Active—Indicates the connection will be processed.  
 Inactive—Indicates the connection will not be processed.  
 NotConfig—If you select NotConfig, an error will be reported as the point is loaded.  
 However, NotConfig can be selected with no error if a Null Entity ID or a Null parameter has been entered for the connection source or destination.

**CCINPT**

**Point Type** Regulatory, Counter, and Timer

Contact-cutout input option (3.1.4.7 in *AM Control Functions*) (Forms *AM88-570, 530, and 540*).

**Source** User                      **Default Value** No                      **Access Lock** Read Only

**Value Type** CCINPT enumeration

**Value Range** Yes—A contact cutout connection is required.  
 No—No contact cutout connection is required.

**CCSRC**

**Point Type** Regulatory, Counter, Timer

Contact-cutout connection source (3.1.4.7 in *AM Control Functions*) (Forms AM88-570, 530, and 540).

**Source** User                      **Default Value** Blanks                      **Access Lock** DEB

**Value Type** Point.parm

**Value Range** Up-to-27 characters

**CDSAVGC**

**Point Type** Processor Status

Average normal Custom Data parameter accesses per second during the current hour (CL accesses to the same point are fast CDS accesses and are not considered normal). (No form.)

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**CDSAVGP**

**Point Type** Processor Status

Average normal Custom Data parameter accesses per second during the previous hour (CL accesses to the same point are fast CDS accesses and are not considered normal). (No form.)

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**CDSAVGS****Point Type** Processor Status

Average normal Custom Data parameter accesses per second during the last snapshot period (normally 10 seconds) (CL accesses to the same point are fast CDS accesses and are not considered normal). (No form.)

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**CIACCSTS****Point Type** Regulatory, Counter

Control input-connection activity status [(N) is an index from 0 through 8] (3.1.4.2 in *AM Control Functions*) (Forms *AM88-551* through *559* and *561* through *563*).

Counter input access status (no form) (3.1.1, 3.1.4.7, 3.1.4.8, 3.3.3, and 3.3.6 in *AM Control Functions*).

**Source** User**Default Value** NoError**Access Lock** Read Only**Value Type** PASTATUS enumeration

**Value Range** NoError—The source parameter was fetched with no error.  
 Comm—The source parameter could not be fetched because of a communication error.  
 Config—The source parameter could not be fetched because of a configuration error.  
 Software—An unexpected error occurred. Notify Honeywell TAC.  
 StorWErr—Unable to store value as received—value clamped by effect of another parameter.  
 StorFail—Value cannot be stored to destination parameter because of state of operator-controlled interlock.



**CISRC(N)**

**Point Type** Regulatory

CISRC[N] are the regulatory control algorithm input-source connections, where [N] is the index that can vary from 0 through 8, depending on the algorithm you use (Forms *AM88-551* through *559* and *561* through *563*).

CISRC also is the counter point input-source connection (Form *AM88-540*).

**Source** User

**Default Value** Null

**Access Lock** DEB

**Value Type** Source Point.Parameter notation

**Value Range** Source Point.Parameter—usually up to 17 characters long, with optional index (N) up to 10 additional characters, or 27 characters maximum.

**CL (Control Algorithm)**

This algorithm is a user-written CL block that is like any other CL block, except that it is inserted at the control-algorithm insertion point in the processing sequence, and it is executed instead of a standard control algorithm.

The CL block must calculate and store a control-algorithm output value in CV. Inputs to the CL block are usually acquired by direct references in CL, but can be acquired through general inputs to a Custom Data Segment (CDS) that is included in the data point. The value placed in CV by the CL block is processed just as CV is processed for any other point that uses a control algorithm.

The CL block must also compute and store antiwindup direction in ARWDI. Propagation of windup status to the primaries is automatic. If this data point is part of an override strategy, the CL block must include appropriate override functions.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

Control Common Display	Setpoint Display	Control CL Algo Display	Control Output Connections Display
NMODE NMODATTR MODEPERM EXTSWOPT	SPFORMAT SPEUHI SPEULO SPHILM SPLOLM SP SPOPT AVDEVTP	CVTYPE INITTYPE ARWDI	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

## CL (PV Algorithm)

This algorithm is a user-written CL block that is like any other CL block, except that it is inserted at the PV-algorithm insertion point in the processing sequence, and it is executed instead of one of the standard PV algorithms.

The CL block must calculate and store a value in PV<sub>CALC</sub>. Inputs to the CL block are usually acquired by direct references in CL, but they can also be acquired through general inputs to a Custom Data segment (CDS) that are included in the data point. The value placed in PV<sub>CALC</sub> by the CL block is processed just as PV<sub>CALC</sub> is processed for any other data point that uses a PV algorithm.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

PV Common Display	
	PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTOPT TF IN MIN PVTV

## CLACTIVE(N)

**Point Type** Custom, Regulatory, and Switch

CL block activity status (no form) (3.6, 4.1.5.1, and 4.2 in *AM Control Functions*).

**Source** User                                    **Default Value** NotConfig                                    **Access Lock** Engr

**Value Type** Array (1..255) of CLACTSTS enumeration

**Value Range** Active—The linked CL Block executes each time the point is executed.  
 Inactive—A CL Block is linked to this slot (N), but does not execute.  
 NotConfig—Indicates you have not linked a CL Block to this slot (N).

**CLAVGC**

**Point Type** Processor Status

Average number of CL blocks executed per second in the current hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**CLAVGP**

**Point Type** Processor Status

Average number of CL blocks executed per second in the previous hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**CLAVGS**

**Point Type** Processor Status

Average number of CL blocks executed per second during the last snapshot period (nominally 10 seconds) (no form).

**Source** User                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**CLBACKF****Point Type** Processor Status

Number of branches allowed on a foreground CL block linked to a point assigned to the fast point processor (no form) (4.1.4.7 in *AM Control Functions*).

**Source** User                      **Default Value** 100                      **Access Lock** Engr

**Value Type** Integer**Value Range** 0 through 32767**CLBACKIP****Point Type** Processor Status

Specifies point execution limits in terms of foreground CL backward branches for IPP points. If exceeded, the CL aborts. It is saved by database checkpoint.

**Source** User                      **Default Value** 500                      **Access Lock** Engr

**Value Type** Integer**Value Range** 0 through 32767**CLBACKS****Point Type** Processor Status

Number of back branches for a foreground CL block linked to a point assigned to the slow point processor (no form) (4.1.4.7 in *AM Control Functions*).

**Source** User                      **Default Value** 500                      **Access Lock** Engr

**Value Type** Integer**Value Range** 0 through 32767

**CLBLKERR(N)****Point Type** Custom, Regulatory, and SwitchCL block error status (no form) (3.6, 4.1.5.1, and 4.2 in *AM Control Functions*).**Source** System                      **Default Value** NoError                      **Access Lock** Read Only**Value Type** Array (1..255) of CLErrSts enumeration**Value Range** CLErrSts:

- 0 NoError—No error detected
- 1 Error3—Should not happen—Notify Honeywell TAC
- 2 LimViol—Limit Violation (minor error)
- 3 Rights—Access rights violation (minor error)
- 4 CommErr—Communication Error (minor error)
- 5 Error2—Should not happen—Notify Honeywell TAC
- 6 BadValst—Bad Value Store (CL Failure condition)
- 7 ComAbort—Communication Error abort (CL Failure condition)
- 8 Abort—Abort statement executed (CL Failure condition)
- 9 Error1—Should not happen—Notify Honeywell TAC
- 10 BranchV—Backward Branch Violation (CL Error condition)
- 11 ArithErr—Arithmetic Error (CL Error condition)
- 12 ArrayLim—Array Limit Violation (CL Error condition)
- 13 Range—Range Limit Violation (CL Error condition)
- 14 ProgErr—Programming Error (CL Error condition)
- 15 Key Level—Key Level Restriction (CL Error condition)
- 16 CnfErr—Configuration Error (CL Error condition)

**CLEALMFL****Point Type** Regulatory, Custom, and SwitchCL error alarm flag (no form) (3.6, 3.7, and 3.7.3 in *AM Control Functions*).**Source** System                      **Default Value** False                      **Access Lock** Read Only**Value Type** Boolean**Value Range** True—CL Error condition exists  
False—CL Error condition does not exist

**CLEALMPR**

**Point Type** Custom, Regulatory, Switch.

Alarm priority parameter for the CL Foreground Error alarm (Forms AM-88-570, 550, and 560) (2.3.8, 3.1.7, 3.6, 3.7, 3.7.3, and 4.1.4.9 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**CLERRLOC(N)**

**Point Type** Custom, Regulatory, and Switch

Location at which an error was detected during the last execution of a CL block (6.3 in *CL Data Entry*) (4.1.4.7 and 4.1.5.1 in *AM Control Functions*) (no form).

**Source** System                                      **Default Value** 0                                      **Access Lock** Read Only

**Value Type** Array (1..255) of Integer

**Value Range** 0 through 32767

**CLERRSUM****Point Type** Custom, Regulatory, and Switch

Summary of all **CLBLKERR** statuses. This represents the most severe error status of all CLs on the point (no form) (3.6, 4.1.5.1, and 4.2 in *AM Control Functions*).

**Source** System**Default Value** NoError**Access Lock** Read Only**Value Type** CLErrSts enumeration**Value Range** CLErrSts:

- 0 NoError—No error detected
- 1 Error3—Should not happen—Notify Honeywell TAC
- 2 LimViol—Limit Violation (minor error)
- 3 Rights—Access rights violation (minor error)
- 4 CommErr—Communication Error (minor error)
- 5 Error2—Should not happen—Notify Honeywell TAC
- 6 BadValst—Bad Value Store (CL Failure condition)
- 7 ComAbort—Communication Error abort (CL Failure condition)
- 8 Abort—Abort statement executed (CL Failure condition)
- 9 Error1—Should not happen—Notify Honeywell TAC
- 10 BranchV—Backward Branch Violation (CL Error condition)
- 11 ArithErr—Arithmetic Error (CL Error condition)
- 12 ArrayLim—Array Limit Violation (CL Error condition)
- 13 Range—Range Limit Violation (CL Error condition)
- 14 ProgErr—Programming Error (CL Error condition)
- 15 Key Level—Key Level Restriction (CL Error condition)
- 16 CnfErr—Configuration Error (CL Error condition)

**CLFALMFL****Point Type** Regulatory, Custom, and Switch

CL fatal error alarm flag (no form) (3.6, 3.7, and 3.7.3 in *AM Control Functions*).

**Source** System**Default Value** False**Access Lock** Read Only**Value Type** Boolean

**Value Range** True—CL Failure condition exists  
False—CL Failure condition does not exist

**CLFALMPR**

**Point Type** Custom, Regulatory, Switch.

Alarm priority parameter for the CL Foreground Fail alarm (Forms AM-88-570, 550, and 560) (2.3.9, 3.1.7, 3.6, 3.7, 3.7.3, and 4.1.4.9 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**CLMAXC**

**Point Type** Processor Status

Maximum number of CL instructions executed per cycle in the current hour (no form).

**Source** System                                      **Default Value** N/A                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**CLMAXP**

**Point Type** Processor Status

Maximum number of CL instructions executed per cycle in the previous hour (no form).

**Source** System                                      **Default Value** N/A                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**CLMINC****Point Type** Processor Status

Minimum number of CL blocks executed per cycle in the current hour (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**CLMINP****Point Type** Processor Status

Minimum number of CL blocks executed per cycle in the previous hour (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**CLREVISN(N)****Point Type** Custom, Regulatory, and SwitchVersion number of the CL compiler in operation when the CL block was compiled (no form) (4.1.5.1 in *AM Control Functions*).**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Array (1..255) of Integer**Value Range** 0 through 32767

**CLSLOTS**

**Point Type** Custom, Regulatory, and Switch

Number of CL slots allocated for this point (4.1.5.2 in *AM Control Functions*) (Forms AM88-550, 560, and 580).

**Source** User

**Default Value** 0

**Access Lock** DEB

**Value Type** Integer

**Value Range** 0 through 255

**CLTIMEF**

**Point Type** Processor Status

CL backward-branch timeout in milliseconds (fast processor) (4.1.4.7 in *AM Control Functions*) (no form).

**Source** User

**Default Value** N/A

**Access Lock** DEB

**Value Type** Integer

**Value Range** 0 through 999

**CLTIMES**

**Point Type** Processor Status

CL backward-branch timeout in milliseconds (slow processor) (4.1.4.7 in *AM Control Functions*) (no form).

**Source** User

**Default Value** N/A

**Access Lock** DEB

**Value Type** Integer

**Value Range** 0 through 999

**CLUSECNT(N)**

**Point Type** Custom, Regulatory, and Switch

Number of points to which the CL block is linked within a given unit (no form) (4.1.5.1 in *AM Control Functions*).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Array (1..255) of Integer

**Value Range** 0 through 32767

**CLVERSIN(N)**

**Point Type** Custom, Regulatory, and Switch

Revision number of the CL Compiler in operation when the CL block was compiled (no form) (4.1.5.1 in *AM Control Functions*).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Array (1..255) of Integer

**Value Range** 0 through 32767

**CNFERRFL**

**Point Type** Regulatory, Timer, Counter, Custom, and Switch

Configuration error alarm flag (no form).

**Source** System

**Default Value** Off

**Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off—No configuration error is present

On—A configuration error is present

**CNFERRPR**

**Point Type** Custom, Regulatory, Switch, Timer, Counter.

Alarm priority parameter for the Configuration Error alarm (Forms AM88-570, 530, 540, 550, and 560) (2.3.6, 3.1.7, 3.5.5, 3.6, and 3.7 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**CNTLLOCK**

**Point Type** Counter and Timer

Operator control change lock (Forms *AM88-530* and *540*) (3.3.8, 3.3.9, and 3.5.1 in *AM Control Functions*).

**Source** User                      **Default Value** Permit                      **Access Lock** DEB

**Value Type** MODEPERM enumeration

**Value Range** Permit—This selection allows the operator to make state changes.  
 NotPerm—This selection stops the operator from making state changes.

**COACCSTS(N)****Point Type** RegulatoryControl output-connection access status [(N) is an index from 0 through 8] (3.1.4.5 in *AM Control Functions*) (no form).**Source** User**Default Value** NoError**Access Lock** Read Only**Value Type** PASTATUS enumeration

**Value Range** NoError—No access error  
 Comm—Source parameter value not fetched because of a communication error  
 Config—Source parameter value not fetched because of a configuration error  
 StorWErr—Unable to store value as received—value clamped by effect of another parameter.  
 StorFail—Value cannot be stored to destination parameter because of state of operator-controlled interlock.

**COACTSTS(N)****Point Type** RegulatoryCOACTSTS(N) is the initial status for this output connection (Forms *AM88-551* through *559* and *561* through *564*) (3.1.3 and 3.1.4.7 in *AM Control Functions*).**Source** User**Default Value** Active**Access Lock** Prog**Value Type** IOACTSTS enumeration

**Value Range** Active—Indicates the initial status for this connection  
 Inactive—Indicates your configured initial status for this connection  
 NotConfig—If you select NotConfig, an error will be reported as the point is loaded.  
 However, NotConfig can be selected with no error if a Null Entity ID or a Null parameter has been entered for the connection source or destination.



**COMPLOLM**

**Point Type** Regulatory

Low limit value for COMPTERM in the PV Flow Compensation algorithm (FlowComp) (*AM Algorithm Engineering Data*, Section 4) (Form AM88-512).

**Source** User                      **Default Value** 0.8                      **Access Lock** Supvr

**Value Type** Real

**Value Range** 0.0 to COMPHILM

**COMPTERM**

**Point Type** Regulatory

Compensation term for the PV Flow Compensation algorithm (FlowComp) (*AM Algorithm Engineering Data*, Section 4) (Form AM88-512).

**Source** User                      **Default Value** 1.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**CONTCUT**

**Point Type** Regulatory, Flag, Timer, Counter, Custom, and Switch

Contact cutout flag—indicates the status of alarm cutout from the secondary cutout point (4.3.1.7 in *System Control Functions*) (no form).

**Source** User                      **Default Value** Off                      **Access Lock** Prog

**Value Type** Boolean

**Value Range** On—Alarms from the secondary cutout point are cut out.  
Off—Alarms from the secondary cutout point are not cut out.

**CPFMERR****Point Type** Processor Status

Contains the secondary status return code when a File Manager error occurs during AM checkpoint.

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767  
See heading 4.10 in the *CL/AM Reference Manual* for a listing of all File Manager error codes.

**CPTIMEC(I)****Point Type** Processor Status

Time required to checkpoint a Unit where I is the Unit number (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Integer**Value Range** 0 through 32767**CPTIMEFL****Point Type** Processor Status

Time required to checkpoint all units to floppy (no form).

**Source** User                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Real**Value Range** >= 0.0

**CPTIMEHM****Point Type** Processor Status

Time required to checkpoint all units to the History Module (no form).

**Source** User                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **CTLACTN****Point Type** RegulatoryControl action—For PID algorithms, specifies the direction the output (CV) moves as the error changes (18.4.4 in *AM Algorithm Engineering Data*) (Forms *AM88-551*, *555*, and *556*).**Source** User                      **Default Value** Reverse                      **Access Lock** Engr**Value Type** POLARITY enumeration**Value Range** Direct—as the error increase, the CV value increases  
Reverse—as the error increase, the CV value decreases

**CTLALGID****Point Type** Regulatory

The control algorithm used by this data point (refer to Sections 13 through 26 in *AM Algorithm Engineering Data* for a description of each algorithm) (Form *AM88-501*).

**Source** User**Default Value** Null**Access Lock** Prog**Value Type** CTLALGO enumeration**Value Range** Null—This point doesn't use a control algorithm; therefore, it doesn't use control-algorithm processing.

Pid—Selects proportional, integral, and derivative control algorithm.

PidErfb—Selects proportional, integral, and derivative control with error feedback.

PidFF—Selects proportional, integral, and derivative control with feedforward.

IncrSum—Selects incremental summer control algorithm.

LeadLag—Selects lead-lag control algorithm.

AutoMan—Selects auto-manual control algorithm.

Summer—Selects summer control algorithm.

MulDiv—Selects multiply-divide control algorithm.

RatioCtl—Selects ratio control algorithm.

ORSel—Selects override selector control algorithm.

Switch—Selects switch control algorithm.

RampSoak—Selects ramp and soak control algorithm.

CL—Selects CL algorithm.

**CTLEQN****Point Type** Regulatory

Control equation selection (Forms *AM88-551*, *553*, *554*, *555*, *556*, *561*, and *562*).

**Source** User**Default Value** EqA**Access Lock** Prog**Value Type** ALGOEQN enumeration

<b>Value Range</b>	EqA	EqB	EqC	EqD	for control PID algorithm
	EqA	EqB			for control Summer, Orsel, and Switch algorithms
	EqA	EqB	EqC		for control Mul/Div algorithm

**CTRLINIT****Point Type** RegulatoryControl initialization request (no form) (3.1.3 and 3.1.9.2 in *AM Control Functions*).**Source** User**Default Value** No**Access Lock** Prog**Value Type** Boolean**Value Range** On—Force initialization to take place  
Off—Normal operation**CURSEGID****Point Type** RegulatoryCurrent segment for the Ramp and Soak (RampSoak) algorithm (Section 22 in *AM Algorithm Engineering Data*) (no form).**Source** User**Default Value** Ramp1**Access Lock** Oper**Value Type** CURSEGID enumeration**Value Range** Ramp1 through Ramp6 or Soak1 through Soak6**CUTOFFLM****Point Type** RegulatoryCutoff limit for the Totalizer and VDT with LeadLag (VdtLdLag) algorithms (7.4.4 and 12.4.1 in *AM Algorithm Engineering Data*) (Forms *AM88-518* and *519*).**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$   
NaN is a possible entry

**CV****Point Type** Regulatory

The result of control algorithm procession prior to output processing (3.1.12 in *AM Control Functions*) (No Form).

**Source** User**Default Value** NaN**Access Lock** Prog**Value Type** Real**Value Range** Any real number**CVBAVGS****Point Type** Processor Status

Average Current value buffer memory used during the last snapshot period (nominally 10 seconds) (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range** 0.0 through MEMCVBLM**CVEUHI****Point Type** Regulatory

CV output range in EU that corresponds to the 100% value of OP (3.1.1 in *AM Control Functions*) (Forms *AM88-551* through *559* and *561* through *564*).

**Source** User**Default Value** 100.0**Access Lock** Engr-DEB**Value Type** Real**Value Range** > CVEULO

**CVEULO**

**Point Type** Regulatory

CV output range in EU that corresponds to the 0% value of OP (3.1.1 in *AM Control Functions*) (Form *AM88-551* through *559* and *561* through *564*).

**Source** User

**Default Value** 0.0

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range** < CVEUHI

**CVTYPE**

**Point Type** Regulatory

Type of value in CV (3.1.12 in *AM Control Functions*) (Form *AM88-564*).

**Source** User

**Default Value** Percent

**Access Lock** DEB

**Value Type** CVTYPE enumeration

**Value Range** Percent—Assigns % units to the computed result  
 EngrUnit—Assigns engineering units to the computed result

-D-

**D****Point Type** Regulatory

Overall bias for the following PV algorithms:

- Summer (Section 10 in *AM Algorithm Engineering Data*)
- Multiply/Divide (MulDiv) (Section 9 in *AM Algorithm Engineering Data*)
- Sum of Products (SumProd) (Section 11 in *AM Algorithm Engineering Data*)

(Forms *AM88-515* through *518*)**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$ **D1 through D7****Point Type** Regulatory

Applies to PV algorithms.

D1 through D7 are the bias constants for inputs P1 through P7 as used in the PV Multiply Divide algorithm (Form *AM88-516*).Also, D1 is the value in minutes for the fixed part of the dead time in the PV Variable Dead Time with LeadLag algorithm (Form *AM88-518*).In addition, D2 is the bias constant for input P2 as used in the PV Variable Dead Time with LeadLag algorithm (Form *AM88-518*).**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range** D1, D2:  
0.0 through 400.0 for the PV VDT with LeadLag algorithm





**DEVHITR****Point Type** Regulatory

Deviation high-alarm transition (no form).

**Source** User**Default Value** NoChange**Access Lock** Read Only**Value Type** ALTRAN enumeration**Value Range** NoChange—No change from previous state  
Rtn—First time return from alarm  
Alarm—First time in alarm**DEVLOFL****Point Type** Regulatory and Counter

Deviation low-alarm flag (no form).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** On—Low alarm is present  
Off—No alarm is present

**DEVLOPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the Deviation Low alarm (Forms *AM88-570* and *540*) (4.3.1.8 in *System Control Functions*, and 3.1.7 and 3.3.5 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**DEVLOTP**

**Point Type** Regulatory and Counter

Deviation low-alarm trip point (4.3.1.8 in *System Control Functions*) (Forms *AM88-570* and *540*).

**Source** User                                      **Default Value** NaN                                      **Access Lock** Supvr

**Value Type** Real

**Value Range** NaN, >= 0.0 for control related processing  
 NaN, >= 0.0 but <= trip point upper limit defined by the absolute value of  
 (PVEXEUHI - PVEXEULO) for counter operational rate (PV)

**DEVLOTR**

**Point Type** Regulatory

Deviation low-alarm transition (no form).

**Source** User

**Default Value** NoChange

**Access Lock** Read Only

**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
Rtn—First time return from alarm  
Alarm—First time in alarm

**DISPTYPE**

**Point Type** Regulatory, Timer, Counter, Numeric, Flag, Custom, and Switch

Operator Personality, History, and Point Building display type for internal use (no form) (3.3.10, 3.4.2, 3.6, and 4.2 in *AM Control Functions*).

**Source** System                      **Default Value** Null                      **Access Lock** Read Only

**Value Type** DISPTYPE enumeration

**Value Range** Flag—Digin  
 Timer—Timer  
 Counter—CountrEU  
 Numeric—Numeric  
 Custom—default is Custom  
 Switch—default is Switch

Regulatory—If PVALGID is Null and CTALGID is

- Pid; Pid display type
- OrSel, IncSum, Switch, AutoMan; Output display type
- LeadLag, Rate Comp, Summer, MulDiv; Non PV display type
- Rampsoak; Rampsoak display type

—If PVALGID is not Null and CTLALGID is

- Pid, PidFF, PidErfb, CL, or RatioCtl; Pid display type
- OrSel, IncSum, Switch, or AutoMan; then PV Output display type
- LeadLag, RateComp, Summer, or MulDiv; then DAS display type



**EIPAVGC****Point Type** Processor Status

Average number of process specials serviced per second in the current hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through maximum possible points per second**EIPAVGP****Point Type** Processor Status

Average number of process specials serviced per second in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range** 0.0 through maximum possible points per second**EIPAVGS****Point Type** Processor Status

Average number of process specials serviced during the last snapshot period (nominally 10 seconds) (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range** 0.0 through maximum possible points per second

**EIPMAXC**

**Point Type** Processor Status

Maximum number of process specials serviced per cycle in the current hour (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum possible points per second

**EIPMAXP**

**Point Type** Processor Status

Maximum number of process specials serviced per second in the previous cycle (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum possible points per second

**EIPMINC**

**Point Type** Processor Status

Minimum number of process specials serviced per cycle in the current hour (no form).

**Source** System

**Default Value** 32767

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum possible points per second

**EIPMINP****Point Type** Processor Status

Minimum number of process specials serviced per cycle in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through maximum possible points per second**ENT\_TYPE****Point Type** Data Point

Defines this data point's type and the type of node where the point resides. Can be used by CL programs to determine what type of data point this point is.

**Source** System**Default Value** System**Access Lock** Read Only**Value Type** Enum. of ENTTYPE

**Value Range** Countam—AM counter point  
 Customam—AM custom point  
 Flagam—AM flag point  
 Logicam—AM logic point  
 Numericam—AM numeric point  
 Regam—AM regulatory point  
 Switcham—AM switch point  
 Timeram—AM timer point

**ESWAUTO****Point Type** RegulatoryAuto mode external switching flag (no form) (2.5, 2.5.1, and 2.5.2 in *AM Control Functions*).**Source** User**Default Value** False**Access Lock** Prog**Value Type** Boolean

**Value Range** On—Switch to auto mode  
 Off—Normal operation

**ESWCAS****Point Type** RegulatoryCascade mode external switching flag (no form) (2.5, 2.5.1, and 2.5.2 in *AM Control Functions*).**Source** User**Default Value** False**Access Lock** Prog**Value Type** Boolean**Value Range** On—Switch to cascade mode  
Off—Normal operation**ESWENBST****Point Type** RegulatoryExternal-mode-switching status (2.5 in *AM Control Functions*) (no form).**Source** User**Default Value** Disable**Access Lock** Prog**Value Type** ESWENBST Enumeration**Value Range** Enable—Enable external mode switching  
Disable—Disable external mode switching**ESWMAN****Point Type** RegulatoryManual mode external switching flag (no form) (2.5, 2.5.1, and 2.5.2 in *AM Control Functions*).**Source** User**Default Value** False**Access Lock** Prog**Value Type** Boolean**Value Range** On—Switch to manual mode  
Off—Normal operation

**EUDESC**

**Point Type** Regulatory, Counter, Timer, and Numeric

The engineering-units descriptor (for example, °C, PSIA, gal/hr, kPa, ltr-min) for this data point, that appears on displays, logs, and reports (Forms *AM88-501*, *520A*, *530*, and *440*).

**Source** User                                      **Default Value** Blank                                      **Access Lock** Engr-DEB

**Value Type** Character String

**Value Range** 8-character string maximum

**EXTSWOPT**

**Point Type** Regulatory

External-mode-switching option (2.5 in *AM Control Functions*) (Form *AM88-541*).

**Source** User                                      **Default Value** None                                      **Access Lock** Engr-DEB

**Value Type** EXTSWOPT enumeration

**Value Range** None—No external mode switching  
 EMS—External mode switching  
 EMP—External mode permissives



## F

**Point Type** Regulatory

Flow input to Flow Compensation PV algorithm (FlowComp) (Section 4 in *AM Algorithm Engineering Data*) (no form).

**Source** User                      **Default Value** NaN                      **Access Lock** Read Only

**Value Type** Real

**Value Range** NaN, any real number

## FF

**Point Type** Regulatory

Feedforward input to PID with Feedforward algorithm (PidFF) (Section 19 in *AM Algorithm Engineering Data*) (no form).

**Source** User                      **Default Value** NaN                      **Access Lock** Read Only

**Value Type** Real

**Value Range** NaN, any real number

## FFOPT

**Point Type** Regulatory

Feedforward option for the PID with Feedforward algorithm (PidFF) (Section 19 in *AM Algorithm Engineering Data*) (Form AM88-556).

**Source** User                      **Default Value** Multiply                      **Access Lock** DEB

**Value Type** FFOPT enumeration

**Value Range** Add—The feedforward signal is scaled and then added to the feedback signal.  
Multiply—The feedback signal is multiplied with the scaled and biased feedforward signal.

**FFSTS**

**Point Type** Regulatory

Status of the FF input to the PID with Feedforward algorithm (PidFF) (Section 19 in *AM Algorithm Engineering Data*) (no form).

**Source** User

**Default Value** BAD

**Access Lock** Read Only

**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good  
 Uncertn—The value is uncertain  
 Bad—The value is NaN

**FlowComp (PV algorithm)**

This algorithm (Flow Compensation) compensates a flow measurement for variations in temperature, specific gravity, or molecular weight. The measured flow can be that of a gas, a vapor, or a liquid. An extended equation is provided for industrial steam-flow compensation, which includes factors that compensate for steam quality and compressibility.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

PV Common Display	PV Flow Comp Algo Display	Input Connections Display
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTOPT TF IN MIN PVTV	PVEQN C C1 C2 COMPHILM COMPLOLM G P T X Q RG RP RT RX RQ P0 T0	NOPINPTS PISRC(N) PIDSTN(N) PIACTSTS(N)

**FORCE****Point Type** Regulatory

For the High Selector, Low Selector, Average PV algorithm (HiLoAvg), force selection of the input defined by FSELIN (Section 6 of *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** Off**Access Lock** Oper**Value Type** Boolean

**Value Range** On—PV CALC is set equal to the selected input  
Off—Normal operation

**FPTMAVGC****Point Type** Processor Status

Average duration in milliseconds of Fast Point Processor or point processing cycle, measured using redundancy clean point intervals, in the current hour. Value is available in the secondary AM only.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >0.0**FPTMAVCP****Point Type** Processor Status

Average duration in milliseconds of Fast Point Processor or point processing cycle, measured using redundancy cleanpoint intervals, in the preceding hour. Value is available in the secondary AM only.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >0.0

**FPTMS****Point Type** Processor Status

Duration in milliseconds of the most recently completed Fast Point Processor or point processing cycle, measured using redundancy cleanpoint intervals. Value is available in the secondary AM only.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >0.0**FPTMSP****Point Type** Processor Status

Duration in milliseconds of the second most recently completed Fast Point Processor or point processing cycle, measured using redundancy cleanpoint intervals. Value is available in the secondary AM only.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >0.0**FRCPERM****Point Type** Regulatory

For the High Selector, Low Selector, Average PV algorithm (HiLoAvg), permission to force selection via FORCE (6.4.1 in *AM Algorithm Engineering Data*) (Form AM88-514).

**Source** User**Default Value** No**Access Lock** Engr-DEB**Value Type** Boolean

**Value Range** On—Enable forced input selection  
Off—Do not allow force input selection

**FSELIN****Point Type** Regulatory

For the High Selector, Low Selector, Average PV algorithm (HiLoAvg), defines the input to be selected by FORCE (6.4.1 in *AM Algorithm Engineering Data*) (Form *AM88-514*).

**Source** User**Default Value** 2**Access Lock** Oper**Value Type** PINP enumeration**Value Range** SelectP1 through SelectP8**FSTS****Point Type** Regulatory

For the Flow Compensation PV algorithm (FlowComp), defines the status of the F input (Section 4 in *AM Algorithm Engineering Data*) (Form *AM88-512*).

**Source** User**Default Value** Bad**Access Lock** Read Only**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good  
 Uncertn—The value is uncertain  
 Bad—The value is NaN



## G

**Point Type** Regulatory

Applies to the PV Flow Compensation algorithm.

Specific gravity input to the algorithm (Form *AM88-512*).

**Source** User

**Default Value** 1.0

**Access Lock** DEB

**Value Type** Real

**Value Range** NaN, any real number

## GAINOPT

**Point Type** Regulatory

Selects the gain option for Pid algorithms (18.4.6 in *AM Algorithm Engineering Data*) (Forms *AM88-551*, *552*, and *556*).

**Source** User

**Default Value** Lin

**Access Lock** Engr-DEB

**Value Type** GAINOPT enumeration

**Value Range** Lin—The overall gain  $K$  is derived as follows:

$$\underline{K} = \underline{KLIN}$$

Gap—This option is used to reduce the sensitivity of control action when the PV is within a narrow band around the setpoint. The overall gain  $K$  is derived as follows:

$$\underline{K} = \underline{KLIN} * \underline{KGAP} \quad \text{if } (\underline{SP} - \underline{GAPLO}) < \underline{PV} < (\underline{SP} + \underline{GAPHI})$$

$$\underline{K} = \underline{KLIN} \quad \text{if PV is outside the gap}$$

NonLin—This option is used when control action is required to be proportional to the square of the error. The overall gain  $K$  is derived as follows:

$$\underline{K} = \underline{KLIN} * \underline{KNL}$$

$$\text{Where } \underline{KNL} = \underline{NLFM} + (\underline{NLGAIN} * |\underline{PVP} - \underline{SPP}| / 100)$$

Ext—The overall gain  $K$  is derived as follows:

$$\underline{K} = \underline{KLIN} * \underline{KEXT}$$

Where KEXT is the positive external gain modifier

**GAPHI****Point Type** Regulatory

The upper limit of the gap in gap-gain modification for Pid algorithms (18.4.6 in *AM Algorithm Engineering Data*) (Forms *AM88-551*, *555*, and *556*).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$ **GAPLO****Point Type** Regulatory

The bottom limit of the gap in gap-gain modification for Pid algorithms (18.4.6 in *AM Algorithm Engineering Data*) (Forms *AM88-551*, *555*, and *556*).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$

**GenLin (PV Algorithm)**

This algorithm (General Linearization) calculates a PV that is a function of the input. The function can be any that can be represented by up to 12 continuous, linear segments. You specify the base value and slope of each segment. The input is compared with the input range of each segment and the output is set at the intersection of the input with the appropriate segment (section 5 in AM Algorithm Engineering Data).

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>PV Common Display</b>	<b>AM-Reg PV General/Linear Display</b>
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTOPT TF IN MIN PVTV	SEGTOT INO : IN12 OUT0 : OUT12 NOPINPTS PISRC(N) PIDSTN(N) PIACTSTS(N)

**GETAVGC**

**Point Type** Processor Status

Average number of parameter fetches per second during the current hour (no form).

**Source** User

**Default Value** 0

**Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**GETAVGP****Point Type** Processor Status

Average number of parameter fetches per second during the previous hour (no form).

**Source** User                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**GETAVGS****Point Type** Processor Status

Average number of parameter fetches per second during the last snapshot period (nominally 10 seconds).

**Source** User                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**GIACCSTS(N)****Point Type** Regulatory, Counter, and TimerGIACCSTS[N] is the general input connection N access status, where index N varies from 1 through 8, depending on the number of connections you designate (no form) (3.1.1 and 3.1.4.8 in *AM Control Functions*).**Source** User                      **Default Value** NoError                      **Access Lock** Read Only**Value Type** PASTATUS enumeration

**Value Range** NoError—The source parameter was fetched with no error.  
 Comm—The source parameter could not be fetched because of a communication error.  
 Config—The source parameter could not be fetched because of a configuration error.  
 Software—An unexpected error occurred. Notify Honeywell TAC.  
 StorWErr—Unable to store value as received—value clamped by effect of another parameter.  
 StorFail—Value cannot be stored to destination parameter because of state of operator-controlled interlock.

**GIACTSTS(N)****Point Type** Regulatory, Counter, and Timer

GIACTSTS(N) is the general input connection N activity status, where index N varies from 1 through 8, depending on the number of connections you designate (Forms *AM88-580*, *530*, and *540*) (3.1.1 and 3.1.4.7 in *AM Control Functions*).

<b>Source</b> User	<b>Default Value</b> Active	<b>Access Lock</b> Supvr
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**Value Type** IOACTSTS enumeration

**Value Range** Active—Indicates the connection is to be processed.  
 Inactive—Indicates the connection is not be processed.  
 NotConfig—If you select NotConfig, an error will be reported as the point is loaded.  
 However, NotConfig can be selected with no error if a Null Entity ID or a Null parameter has been entered for the connection source or destination.

**GIDSTN(N)****Point Type** Regulatory, Counter, and Timer

GIDSTN[N] are the regulatory control general-input destinations, where [N] is the index that can vary from 0 through 8, depending on the number of connections you designate (Forms *AM88-580*, *530*, and *540*).

GIDSTN[N] also are the timer and counter general input destinations you designate.

**CONSTRAINT:** The destination parameter needs to be the same type as the referenced source parameter.

<b>Source</b> User	<b>Default Value</b> Null	<b>Access Lock</b> DEB
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**Value Type** Parameter Notation

**Value Range** Parameter—usually 8 characters, but with an optional index [N] having up to 10 additional characters, or 18 maximum characters you can designate.



**GOACTSTS(N)**

**Point Type** Regulatory, Counter, and Timer

GOACTSTS[N] is the general-output connection N activity status, where index N varies from 1 through 8, depending on the number of connections you designate (Forms *AM88-580*, *530* and *540*) (3.1.4.7 in *AM Control Functions*).

**Source** User                                      **Default Value** Active                                      **Access Lock** Supvr

**Value Type** IOACTSTS enumeration

**Value Range** Active—Indicates the connection will be processed.  
 Inactive—Indicates the connection will not be processed.  
 NotConfig—After loading, indicates the connections are not configured.  
                   —DO NOT ENTER NotConfig.

**GODSTN(N)**

**Point Type** Regulatory, Counter, Timer

GODSTN[N] are the regulatory control general-output destinations, where [N] is the index that can vary from 1 through 8, depending on the number of connections you designate (Forms *AM88-580*, *530*, and *540*).

GODSTN[N] also are the timer and counter general-output destinations.

**Source** User                                      **Default Value** Null                                      **Access Lock** DEB

**Value Type** Destination Point ID.Parameter notation

**Value Range** Destination\_ID.Parameter—usually up to 17 characters long, with optional index (N) having up to 10 additional characters, or 27 maximum characters you can designate.

**GOSRC(N)**

**Point Type** Regulatory, Counter, and Timer

GOSRC[N] are the regulatory control general-output source connections, where [N] is the index that can vary from 1 through 8, depending on the number of connections you designate (Forms *AM88-580*, *530*, and *540*).

GOSRC[N] also are the nonregulatory timer and counter general-output source connections.

**Source** User                      **Default Value** Null                      **Access Lock** DEB

**Value Type** Parameter notation

**Value Range** Parameter—usually 8 characters long, with optional index (N) having up to 10 additional characters, or 18 maximum characters.

**GSTS**

**Point Type** Regulatory

For the Flow Compensation PV algorithm (FlowComp), defines the status of the G input (Section 4 in *AM Algorithm Engineering Data*) (Form *AM88-512*).

**Source** User                      **Default Value** Normal                      **Access Lock** Read Only

**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good.  
 Uncertain—The value is uncertain.  
 Bad—The value is NaN.

**HEAPFREE****Point Type** Processor Status

Current free heap memory (no form).

**Source** User                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**HEAPMAXP****Point Type** Processor Status

Maximum allowed heap memory for permanent data use (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**HIGHAL****Point Type** All point types except NumericHighest point alarm value, depending on the point type you configure (no form) (3.3.10, 3.4.2, 3.6, 3.6.3, and 4.2 in *AM Control Functions*).**Source** System                      **Default Value** No Alarm                      **Access Lock** Read Only**Value Type** ALMTYPE enumeration**Value Range** Point dependent:

Flag—OffNrmFl

Timer—Timeout

Counter—BadCtl, BadPv, CComer, Cnferr, PVHi, PVHH, PVLo, PVLL, PVSgch,  
PVRocn, PVRocp, DevHi, Devlo, Preset, PrPreset, or PPPreset

Custom—NoAlarm, CnfErr, CLEAlm, and CLFA

Switch—NoAlarm, CnfErr, CLEAlm, CLFAlm, SwtAlm1, SwtAlm2, and SwTAlm3

Regulatory—AdvDev, BadCtl, BadPv, DevHi, DevLo, PVHH, PVHi, PVLL, PVLo,  
PVRocn, PVRocp, PVSgch

**HIGHALPR**

**Point Type** All point types except Numeric

Priority of the alarm value that is contained in the parameter HIGHAL (no form).

**Source** System                      **Default Value**                      **Access Lock** Read Only

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnprint—Alarm is journaled and printed. It is not displayed or annunciated.

**HiLoAvg (PV algorithm)**

This algorithm (High Selector, Low Selector, Average) does one of the following:

- Selects the input with the highest value
- Selects the input with the lowest value
- Calculates the average value of all valid inputs.

It can accept up to eight inputs. Valid inputs are those whose status is "Normal" or "Uncertain." When the input selection functions are used, the number of the input that is selected is contained in an accessible parameter (SELINP).

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

PV Common Display	PV Hi/Lo/Average Display
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTOPT	PVEQN N NMIN FRCPERM FSELIN P2 : P8 NOIDSTN(N) PIACTSTS(N)

**HOLDCMD****Point Type** Regulatory

For the Ramp and Soak control algorithm (RampSoak), command to hold the current ramp at the present value (22.4.4 in *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** No**Access Lock** Prog**Value Type** Boolean**Value Range** On—Hold at current segment  
Off—Normal operation



**IDLAVGC****Point Type** Processor Status

Average percentage of idle time during the current hour.

**Source** User**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** 0.0 through 100.0**IDLAVGP****Point Type** Processor Status

Average percentage of idle time during the previous hour (no form).

**Source** User**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** 0.0 through 100.0**IDLAVGS****Point Type** Processor Status

Average percentage of idle time during the last snapshot period (nominally 10 seconds) (no form).

**Source** User**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** 0.0 through 100.0

**IDLAVGSP**

**Point Type** Processor Status

Average percentage of idle time during the previous snapshot period (nominally 10 seconds) (no form).

**Source** User

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Real

**Value Range** 0.0 through 100.0

**IN0 through IN12**

**Point Type** Regulatory

Input coordinate-value parameters for the General Linearization PV algorithm (Section 5 in *AM Algorithm Engineering Data*) (Form AM88-520).

**Source** User

**Default Value** NaN

**Access Lock** Supvr

**Value Type** Real

**Value Range** IN1 through IN12  
IN0 <= IN2 <= IN3 ... <= IN11 <= IN12

**IncrSum (Control Algorithm)**

This algorithm (Control Incremental Summer) calculates the sum of the incremental changes in up-to-four input values. The output is obtained by adding the sum of the changes in all inputs, after each input is multiplied by a scale factor.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

Control Common Display	Control Incr/Sum Algo Display	Control Input Connections Display	Control Output Connections Display
NMODE NMODATTR MODEPERM EXTSWOPT	INITTYPE ORBIAS M XEUHI XEULO K1 K2 K3 K4	NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODDSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

**INITMAN****Point Type** RegulatoryInitialization manual flag (no form) (3.1.2, 3.1.3, and 3.1.6.2 in *AM Control Functions*).**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** On—The point is in initialization manual.  
Off—The point is not in initialization manual.**INITREQ(N)****Point Type** RegulatoryInitialization request for primaries 1 through 4 (no form) (3.1.3 in *AM Control Functions*).**Source** User**Default Value** Off**Access Lock** Prog**Value Type** Boolean**Value Range** On—The secondary (1.4) is requesting the primary to initialize.  
Off—Normal operation**INITTYPE****Point Type** RegulatoryInitialization type (3.1.9.2 in *AM Control Functions*) (Form *AM88-551* through *559* and *561* through *564*).**Source** User**Default Value** Ext**Access Lock** Engr-DEB**Value Type** INITTYPE enumeration**Value Range** Ext —Initialization requests are propagated to all primaries that are pushing to SP.  
Int—Initialization request is not propagated to the primaries; during initialization, the bias is adjusted based upon the equation.  
None—Initialization requests are ignored.

**INITVAL**

**Point Type** Regulatory

Initialization value

Program (CL block) specified initialization value (no form).

**Source** User

**Default Value** NaN

**Access Lock** Prog

**Value Type** Real

**Value Range** NaN, any real number

**INSORDER(N)**

**Point Type** Custom, Regulatory, and Switch

CL block insertion order (no form) (3.6, 4.1.5.1, and 4.2 in *AM Control Functions*).

**Source** User

**Default Value** 0

**Access Lock** Read Only

**Value Type** Array (1..255) of Integer

**Value Range** 0 through 32767

## INSPPOINT(N)

### INSPPOINT(N)

**Point Type** Custom, Regulatory, and Switch

CL block insertion point (no form) (3.6, 4.1.5.1, and 4.2 in *AM Control Functions*).

**Source** User                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Array (1..255) of INSPPOINT enumeration

**Value Range** Regulatory: CTL\_ALG—CI Control Algorithm  
PRE\_GI—Pre General Inputs  
PRE\_PVRP—Pre PV Processing  
PRE\_PVAG—Pre PV Algorithm  
PST\_PVAG—Post PV Algorithm  
PST\_PVFL—Post PV Filter  
PRE\_PVA—Pre PV Alarming  
PST\_PVPR—Post PV Processing  
PRE\_CTPR—Pre Control Processing  
PRE\_SP—Pre Setpoint Processing  
PRE\_CTAG—Pre Control Algorithm  
PST\_CTAG—Post Control Algorithm  
PST\_CTPR—Post Control Processing  
PST\_GO—Post General Outputs  
BACKGRND—Background Executive (Custom, Switch, and Regulatory)  
Custom: General—General usage insertion point  
Switch: General—General usage insertion point

### IPCVBOVC

**Point Type** Processor Status

The number of CVB overflow occurrences from IPP in the current hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**IPCVBOVP****Point Type** Processor Status

The number of CVB overflow occurrences from IPP in the previous hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**IPDAOVER****Point Type** Processor Status

IPP prefetch/poststore data access current overruns. Increments when the return time is &gt; 5 seconds. Decrement (to 0) when return time &lt;= 5 seconds.

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**IPDAOVRC****Point Type** Processor Status

IPP prefetch/poststore data access overruns in the current hour.

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 720**IPDAOVRP****Point Type** Processor Status

IPP prefetch/poststore data access overruns in the previous hour.

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 720

**IPOVRRNC****Point Type** Processor Status

IPP overruns in the current hour.

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 720**IPOVRRNP****Point Type** Processor Status

IPP overruns in the prior hour.

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 720**IPOVRRUN****Point Type** Processor Status

The IPP overrun count expressed as the difference between system cycles and IPP processing cycles.

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**IPOVRTHR****Point Type** Processor StatusThe IPP overruns alarm threshold. Disabled when the value  $\leq 0$ . Saved by database checkpoint.**Source** User**Default Value** 50**Access Lock** Engr**Value Type** Integer**Value Range** any integer

**IPPFVAVGC****Point Type** Processor Status

The average number of prefetches per second from IPP in the current hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **IPPFVAVGP****Point Type** Processor Status

The average number of prefetches per second from IPP in the previous hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **IPPFVAVGS****Point Type** Processor Status

The average number of prefetches per second from IPP in snapshot period.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **IPPFMAXC****Point Type** Processor Status

The maximum number of prefetches per cycle from IPP in the current hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767

**IPPFMAXP**

**Point Type** Processor Status

The maximum number of prefetches per cycle from IPP in the previous hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**IPPRAVGC**

**Point Type** Processor Status

The average number of points processed per second from IPP in the current hour (includes EIP).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**IPPRAVGP**

**Point Type** Processor Status

The average number of points processed per second from IPP in the previous hour (includes EIP).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**IPPRAVGS**

**Point Type** Processor Status

The average number of points processed per second from IPP in snapshot period (includes EIP).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**IPPRCYCC****Point Type** Processor Status

The number of processing cycles lost due to overrun catch up in the current hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**IPPRCYCP****Point Type** Processor Status

The number of processing cycles lost due to overrun catchup in the previous hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**IPPRMAXC****Point Type** Processor Status

The maximum number of points processed per cycle from IPP in the current hour (includes EIP).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**IPPRMAXP****Point Type** Processor Status

The maximum number of points processed per cycle from IPP in the previous hour (includes EIP).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767

**IPPSAVGC**

**Point Type** Processor Status

The average number of poststores per second from IPP in the current hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**IPPSAVGP**

**Point Type** Processor Status

The average number of poststore per second from IPP in the previous hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**IPPSAVGS**

**Point Type** Processor Status

The average number of poststore per second from IPP in snapshot period.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**IPPSMAXC**

**Point Type** Processor Status

The maximum number of poststores per cycle from IPP in the current hour.

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**IPPSMAXP**

**Point Type** Processor Status

The maximum number of poststores per cycle from IPP in the previous hour.

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

## K

**Point Type** Regulatory

Overall gain or scale factor applies to these control algorithms:

- LeadLag (Section 16 in *AM Algorithm Engineering Data*) (Form AM88-552)
- MulDiv (Section 17 in *AM Algorithm Engineering Data*) (Form AM88-554)
- Pid (Section 18 in *AM Algorithm Engineering Data*) (Form AM88-551)
- PidErfb (Section 20 in *AM Algorithm Engineering Data*) (Form AM88-555)
- PidFf (Section 19 in *AM Algorithm Engineering Data*) (Form AM88-556)
- Summer (Section 24 in *AM Algorithm Engineering Data*) (Form AM88-553)

**Source** User

**Default Value** 1

**Access Lock** Read Only

**Value Type** Real

**Value Range** For Pid, PidErfb, PidFf  $0.0 <= K <= 240.0$

**K1 through K4**

**Point Type** Regulatory

Applies to Control algorithms.

K1 through K4 are the gain factors used in various control algorithms (Forms *AM88-553*, *554*, *555*, and *559*):

- K1—input SP gain factor for control algorithms Summer, Mul/Div.
- K1—also is the external reset feedback gain factor for control algorithm Pid with External Reset Feedback.
- K1—in addition, is the input X1 gain factor for the IncrSum control algorithm.
- K1—also is the gain constant for the Ratio control algorithm.
- K2—input X2 gain factor for control algorithms Summer, Mul/Div, and IncrSum.
- K2—also is the gain constant for the Ratio control algorithm.
- K3—input X3 gain factor for control algorithms Summer, Mul/Div, and IncrSum.
- K4—input X4 gain factor for control algorithms Summer, Mul/Div, and IncrSum.

<b>Source</b> User	<b>Default Value</b> 1.0	<b>Access Lock</b> Supvr
	0.0 for <u>IncSum</u> K2, 3, & 4	

**Value Type** Real

**Value Range** Any real number

**KEXT****Point Type** Regulatory

External gain modifier, entered by a program (CL block) or through a general-input connection (18.4.6 in *AM Algorithm Engineering Data*) (no form).

**Source** User                      **Default Value** 1.0                      **Access Lock** Prog

**Value Type** Real**Value Range** 0.0 <= KEXT <= 240.0**KEYWORD****Point Type** Regulatory, Flag, Numeric, Timer, Counter, Custom, and Switch

Describes the keyword for this point that appears on displays and in printed logs and reports (Forms *AM88-501*, *510*, *520A*, *530*, *540*, *550*, and *560*).

**Source** User                      **Default Value** blank                      **Access Lock** Engr-DEB

**Value Type** String**Value Range** String—up to 8 characters maximum**KFF****Point Type** Regulatory

Scale factor for FF in PidFf control algorithm (19.5 in *AM Algorithm Engineering Data*) (Form *AM88-556*).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real**Value Range** Any real number

**KGAP**

**Point Type** Regulatory

Gap gain-modification factor for Pid control algorithms (18.4.6 in *AM Algorithm Engineering Data*) (Forms *AM88-551*, *555*, and *556*).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range**  $0.0 \leq \text{KGAP} \leq 1.0$

**KLIN**

**Point Type** Regulatory

Linear-gain factor for Pid control algorithms (18.4.6 in *AM Algorithm Engineering Data*) (Form *AM88-551*, *555*, and *556*).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range**  $0.0 \leq \text{KLIN} \leq 240.0$

**KNL**

**Point Type** Regulatory

Nonlinear-gain modifier for Pid control algorithms (18.4.6 in *AM Algorithm Engineering Data*) (no form).

**Source** User                      **Default Value** NaN                      **Access Lock** Read Only

**Value Type** Real

**Value Range** 0.0 to 240.0

**LASTAV****Point Type** Counter

Last good accumulated value before becoming bad or changing the AV (3.3.6 and 3.3.11 in *AM Control Functions*).

**Source** User**Default Value** NaN**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **LASTPV****Point Type** Regulatory, Counter

Last good PV value before becoming bad or changing the PV (no form) (3.1.3, 3.1.5.5 and 3.3.3 in *AM Control Functions*).

**Source** User**Default Value** NaN**Access Lock** Read Only**Value Type** Real**Value Range** PVEXEUHI to PVEXEULO**LBOXCLR****Point Type** Flag

Color of the lower box on Group and Detail displays for a Flag point (3.4.2 in *AM Control Functions*) (Form *AM88-510*).

**Source** User**Default Value** Red**Access Lock** DEB**Value Type** BOXCOLOR enumeration

**Value Range** Lower box appears in one of the following colors on Operating displays:  
Red, Green, White, Black, Cyan, Yellow, Blue, Magenta

## LeadLag (Control Algorithm)

### LeadLag (Control Algorithm)

This algorithm provides dynamic lead and lag compensation to a feedforward signal. A scale factor can be applied to the input and a bias value can be added.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Control Lead Lag Algo Display</b>	<b>Control Output Connections Display</b>
NMODE NMODATTR MODEPERM EXTSWOPT	SPFORMAT SPEUHI SPEUL SPHILM SPLOLM SP SPOPT AVDEVTP	INITTYPE B K T1 IN MIN T3 IN MIN T2 IN MIN NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

**M**

**Point Type** Regulatory

Applies to the Control algorithms: Summer, Incremental Summer, Override Selector, and Switch.

Number of inputs (Forms *AM88-553*, *557*, *561*, and *562*).

**Source** User

**Default Value** 2

**Access Lock** Prog

**Value Type** Integer

**Value Range** 2 through 4

**MAILBOX**

**Point Type** Batch History Prototype

Reserved for possible future use in a Batch History Prototype data point.

**Source** User

**Default Value** N/A

**Access Lock** Oper

**Value Type** Array (1..100) of Blind Record (165)

**Value Range** N/A

**MCVBAVGC**

**Point Type** Processor Status

Average current value buffer memory used during the current hour (no form).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through MEMCVBLM

**MCVBAVGP**

**Point Type** Processor Status

Average current value buffer memory used during the previous hour (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through MEMCVBLM

**MCVBMAXC**

Maximum current value buffer memory used during the current hour (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through MEMCVBLM

**MCVBMAXP**

**Point Type** Processor Status

Maximum current value buffer memory used during the previous hour (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through MEMCVBLM

**MCVBMINC****Point Type** Processor Status

Minimum current value buffer (CVB) memory used during the current hour (no form).

**Source** System**Default Value** 32767**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through MEMCVBLM**MCVBMINP****Point Type** Processor Status

Minimum CVB memory used during the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through MEMCVBLM**MCVBMNCC****Point Type** Processor Status

Absolute cycle during which minimum CVB memory was used in the current hour (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**MCVBMNCP****Point Type** Processor Status

Absolute cycle during which minimum CVB memory was used in the previous hour (no form).

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **MCVBMXCC****Point Type** Processor Status

Absolute cycle during which maximum CVB memory was used in the current cycle (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **MCVBMXCP****Point Type** Processor Status

Absolute cycle during which maximum CVB memory was used in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**MEMCDPN(I)**

**Point Type** Processor Status

Memory required for custom data segment (CDS) description and point name storage (where I = Unit index) (no form).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Array (1..100) of Real

**Value Range**  $\geq 0.0$

**MEMCKPT**

**Point Type** Processor Status

Memory used for the checkpoint buffer (no form).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**MEMCL(I)**

**Point Type** Processor Status

Memory required for CL block storage, where (I) is the Unit index (no form).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Array (1..100) of Real

**Value Range**  $\geq 0.0$

**MEMCVBLM****Point Type** Processor Status

Memory reserved for each prefetch/poststore Current Value Buffer. Value is established through AM node configuration (no form).

**Source** User (NCF)**Default Value** 2000**Access Lock** Read Only**Value Type** Integer**Value Range** 500 through 15000**MEMCVBMX****Point Type** Processor Status

Maximum memory used for prefetch/poststore Current Value Buffer since the AM was last loaded/started or the parameter was reinitialized by the Engineer. Storing any value reinitializes the parameter and forces it to the default value. (no form)

**Source** System**Default Value** 0**Access Lock** Engineer**Value Type** Integer**Value Range** 0 through 15000**MEMCVBNX****Point Type** Processor Status

Source for MEMCVBLM value.

**Source** User (NCF)**Default Value** 2000**Access Lock** Read Only**Value Type** Integer**Value Range** 500 through 15000

**MEMCVBTH****Point Type** Processor Status

Alarm threshold. If memory used by Current Value Buffer exceeds this limit, an alarm is generated for each unit assigned to the AM.

**Source** User                      **Default Value** 1600                      **Access Lock** Oper

**Value Type** Integer**Value Range** -1 through MEMCVBLM -1 indicates no alarming is to be done**MEMFREE****Point Type** Processor Status

Total memory currently available for Points, CLs, Custom Data Descriptors, Check Points, and Prefetch/Poststore I/O Buffers (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real**Value Range**  $\geq 0.0$ **MEMIOLM****Point Type** Processor Status

Total memory reserved for prefetch/poststore I/O (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real**Value Range**  $> 1 0.0 * \text{MEMCVBLM}$

**MEMPTS(I)****Point Type** Processor Status

Memory required for data point storage, where (I) is the Unit index (no form).

**Source** User**Default Value** N/A**Access Lock** Read Only**Value Type** Array (1..100) of Real**Value Range** >= 0.0**MidOf3 (PV algorithm)**

This algorithm (Middle Of Three Selector) provides a calculated PV (PVCALC) that is normally the middle value of three values from active PV-input connections. The PVAUTO status goes bad only if all three inputs to this algorithm are bad. If at least one input is valid (normal or uncertain), this algorithm provides a valid value in PVCALC.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>PV Common Display</b>	<b>Middle Of3 Algo Display</b>
PVFORMAT	PVEQN
PVEUHI	P2
PVEULO	P3
PVEXEUHI	NOPINPTS
PVEXEULO	PISRC(N)
PVCLAMP	PIDSTN(N)
PVSRCOPT	PIACTSTS
PVSOURCE	
PVFLTOPT	
TF IN MIN	
PVTV	

**MIPCVBLM**

**Point Type** Processor Status

Current memory reserved for the IPP CVB. Value is established through AM node configuration (no form).

**Source** User (NCF)

**Default Value** 2000

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 2000 through 15000

**MIPCVBMX**

**Point Type** Processor Status

Maximum memory used for the IPP CVB (without overflow) since the AM was last loaded/started or the parameter was reinitialized by the Engineer. Storing any value reinitializes the parameter and forces it to the default value. (no form)

**Source** System

**Default Value** 0

**Access Lock** Engr

**Value Type** Integer

**Value Range** 0 through 15000

**MIPIOTOT**

**Point Type** Processor Status

The total memory reserved for IPP prefetch/poststore I/O.

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**MODATTR****Point Type** RegulatoryMode attribute for control algorithms (4.4.3 in *System Control Functions*) (no form).**Source** User                      **Default Value** Oper                      **Access Lock** Oper**Value Type** MODATTR enumeration**Value Range** None—The NORM key has no effect on returning to normal mode (see MODE, NMODE, NMODATTR).Operator—In discontinuous control, enables the operator to set SP, OP, MODE, RATIO, and BIAS, and disables setting by user-written programs. In continuous control, enables the operator to set RATIO and BIAS in Pid Ratio/Bias algorithm.Program—In discontinuous control, enables the user-written programs to set OP, SP, MODE, RATIO, and BIAS and disables setting by the operator.**MODE****Point Type** RegulatoryCurrent mode for a control algorithm (4.4.1 in *System Control Functions*) (no form).**Source** User                      **Default Value** Man                      **Access Lock** Oper**Value Type** MODE enumeration**Value Range** Man—Manual mode

Auto—Automatic mode

Cas—Cascade Mode

Normal—Mode is set equal to the value of NMODE when the NORM key is pressed.**MODEAPPL(N)****Point Type** Regulatory

Mode applicability selection for internal and MMI (no form).

**Source** User                      **Default Value** Off                      **Access Lock** Read Only**Value Type** Boolean Array (1..4)**Value Range** Mode appl(1)—Manual mode applies

Mode appl(2)—Auto mode applies

Mode appl(3)—Cascade mode applies

Mode appl(4)—Normal mode applies

**MODEPERM**

**Point Type** Regulatory

Mode permissive selection (2.5 in *AM Control Functions*) (Form *AM88-541*).

**Source** User                                      **Default Value** Permit                                      **Access Lock** Engr or DEB

**Value Type** MODEPERM enumeration

**Value Range** Permit—Permits operator to change the mode  
NotPerm—Inhibits operator from changing the mode

**MSAVGC**

**Point Type** Processor Status

Average CL messages serviced per second in the current hour (no form).

**Source** System                                      **Default Value** 0                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum CL messages per second

**MSAVGP**

**Point Type** Processor Status

Average CL messages serviced per second in the previous hour (no form).

**Source** System                                      **Default Value** 0                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum CL messages per second

**MSAVGS**

**Point Type** Processor Status

Average CL messages serviced per second during the last snapshot period (nominally 10 seconds) (no form).

**Source** User

**Default Value** 0

**Access Lock** Read Only

**Value Type** Real

**Value Range** 0.0 through maximum CL messages per second.

**MSMAXC**

**Point Type** Processor Status

Maximum CL messages serviced per cycle in the current hour (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum CL messages per cycle.

**MSMAXP**

**Point Type** Processor Status

Maximum CL messages serviced per cycle in the previous hour (no form).

**Source** User

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum CL messages per cycle.

**MSMINC**

**Point Type** Processor Status

Minimum CL messages serviced per cycle in the current hour (no form).

**Source** System

**Default Value** 32767

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum CL messages per cycle.

**MSMINP**

**Point Type** Processor Status

Minimum CL messages serviced per cycle in the previous hour (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through maximum CL messages per cycle.

## MulDiv (Control Algorithm)

### MulDiv (Control Algorithm)

This algorithm (Control Multiply Divide) calculates a control output by multiplying two input variables and dividing the resulting product by a third input variable. Scale factors and bias can be applied to the input variables, and an overall scale factor and bias can be specified.

Three equations are provided. One provides only multiplication, and the other two provide multiplication and division.

One of the input variables, (SP) is initializable. This variable appears in the numerator of one of the fractions and in the denominator of the other.

This algorithm is similar to PV algorithm MulDiv.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

Control Common Display	Setpoint Display	Mul/Div Algo Display	Control Input Connections Display	Control Output Connections Display
NMODE NMODATTR MODEPERM EXTSWOPT	SPFORMAT SPEUHI SPEULO SPHILM SPLOLM SP SPOPT AVDEVTP	CTLEQN INITTYPE K B K1 K2 K3 K4 B1 B2 B3 B4 X2 X3 X4	NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N) COPCTYPE	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

## MulDiv (PV Algorithm)

### MulDiv (PV Algorithm)

This algorithm (PV Multiply/Divide) calculates a PV (PV<sub>CALC</sub>) that is either the product of two inputs (Equation A), a quotient of two inputs (Equation B), or the product of three quotients (Equation C). The products and quotients can be scaled and bias values can be added to them.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

PV Common Display	AM-Reg PV Mul/Div Display	Input Connections Display
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTPT TF IN MIN PVTV	PVEQN C D (Scaling Constant): INPUT1 : INPUT7   —* (Bias Constant): INPUT1 : INPUT7   —** P2 : P7	NOPINPTS PISRC(N) PIDSTN(N) PIACTSTS(N)

\* Appears on Detail display as C1-C7.

\*\* Appears on Detail display as D1-D7.

### MXRMPDEV

**Point Type** Regulatory

Maximum ramp-rate deviation for RampSoak algorithm (22.4.4 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User

**Default Value** NaN

**Access Lock** Supvr

**Value Type** Real

**Value Range** NaN, > = 0.0

**MXSOKDEV**

**Point Type** Regulatory

Maximum soak-value deviation for RampSoak algorithm (22.4.4 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User

**Default Value** NaN

**Access Lock** Prog

**Value Type** Real

**Value Range** NaN, > = 0.0

**N****Point Type** Regulatory

Applies to the PV algorithms Hi/Lo Average Selector and Summer.

Number of inputs (Forms *AM88-514* and *515*).**Source** User**Default Value** 2**Access Lock** Prog**Value Type** Integer**Value Range** 2 through 8**NAME****Point Type** All AM data points

Tag name for this data point—the name that identifies the point to the system and on displays, reports, and logs.

**Source** User**Access Lock** Read Only**Default Value** On forms, not applicable; on Parameter Entry Displays, eight underscores, which must be cleared and a valid tag name entered.**Value Type** String**Value Range** One through eight characters. Permissible characters are: Alphabet (enter either upper- or lowercase characters—all will be converted to uppercase), 0 through 9 (all numeric NAME not allowed), underscore (not first character nor last character), spaces not allowed.**NLFM****Point Type** RegulatoryNonlinear gain form for Pid control algorithms (18.4.6 in *AM Algorithm Engineering Data* (Forms *AM88-551*, *555*, and *556*).**Source** User**Default Value** 1**Access Lock** Supvr**Value Type** Integer**Value Range** 0 or 1

**NLGAIN**

**Point Type** Regulatory

Applies to Pid algorithms.

Nonlinear gain (Forms *AM88-551*, *555*, and *556*).

**Source** User                      **Default Value** 0.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range** 0.0 through 10.0

**NMIN**

**Point Type** Regulatory

Minimum number of good inputs for HiLoAvg PV algorithm (6.4.2 in *AM Algorithm Engineering Data*) (Form *AM88-514*).

**Source** User                      **Default Value** 1                      **Access Lock** Supvr

**Value Type** Integer

**Value Range** 1 through (N)

**NMODATTR**

**Point Type** Regulatory

Normal mode attribute for this data point (4.4.4 in *System Control Functions*) (Form *AM88-541*).

**Source** User                      **Default Value** None                      **Access Lock** Engr

**Value Type** MODATTR enumeration

**Value Range** None—The NORM key has no effect on returning to normal mode.  
 Operator—Pressing the NORM key returns the point to the Operator mode (see MODE, MODATTR, NMODE).  
 Program—Pressing the NORM key returns the point to the Program mode (see MODE, MODATTR, NMODE).

**NMODE**

**Point Type** Regulatory

Normal mode for this data point (4.4.4 in *System Control Functions*) (Form *AM88-541*).

**Source** User                      **Default Value** None                      **Access Lock** Supvr

**Value Type** MODE enumeration

**Value Range** None—The NORM key has no effect on returning to normal mode.  
 Man—Pressing the NORM key causes a return to Manual mode.  
 Auto—Pressing the NORM key causes a return to Automatic mode.  
 Cas—Pressing the NORM key causes a return to Cascade mode.

**NOCINPTS**

**Point Type** Regulatory

Applies to control algorithms.

Number of control input connections (Forms *AM88-551* through *559* and *561* through *563*).

NOCINPTS designates the number of input connections you configure: Normally, this is 0 if any PV algorithm is specified. If no PV algorithm is specified, at least one connection is required to the PV parameter (true for all Pid algorithms).

**Source** User                      **Default Value** 0                      **Access Lock** Prog  
 3 If PVALGID = for Ctl Pid  
 2 If PVALGID = not for Ctl Pid

**Value Type** Integer

**Value Range** 0 through 8

**NOCOPTS**

**Point Type** Regulatory

Number of control output connections (Forms *AM88-551* through *559* and *561* through *564*).

**Source** User

**Default Value** 0

**Access Lock** Prog

**Value Type** Integer

**Value Range** 0 through 8

**NOGINPTS**

**Point Type** Regulatory, Counter, and Timer

Number of general-input connections to this point (Forms *AM88-580*, *530*, and *540*).

**Source** User

**Default Value** 0

**Access Lock** Prog

**Value Type** Integer

**Value Range** 0 through 8

**NOGOPTS**

**Point Type** Regulatory, Counter, and Timer

Number of general-output connections from this point (Forms *AM88-580*, *530*, and *540*).

**Source** User

**Default Value** 0

**Access Lock** Prog

**Value Type** Integer

**Value Range** 0 through 8

**NOPINPTS**

**Point Type** Regulatory

Number of PV input connections (Form *AM88-511* through *520*).

**Source** User                      **Default Value** All blanks                      **Access Lock** Engr

**Value Type** Integer

**Value Range** 0 through 8

**NOPKG**

**Point Type** Regulatory, Custom, and Switch

Number of CDS packages to be attached to this point (3.6 in *AM Control Functions*) (Forms *AM88-580*, *550*, and *560*).

**Source** User                      **Default Value** 0                      **Access Lock** DEB

**Value Type** Integer

**Value Range** 0 through 10

**NORMCYCL**

**Point Type** Custom, Counter, Regulatory, Switch, and Timer

Point cycle on which the point normally is processed (Forms *AM88-501, 530, 540, 550, and 560*) (2.2.1.3, 3.3.6, 4.2 in *AM Control Functions*, and Section 5 in the *AM Implementation Guidelines*).

**Source** User

**Default Value** -1

**Access Lock** DEB

**Value Type** Integer

**Value Range**

Your entry depends on the (PERIOD) selected, or you enter the desired Cycle Number within the processing period you entered for (PERIOD).

Period (Line 30)	Time Base	Cycle Range or Data Entry (Integers)	
<b>Fast Processor</b>			
1 SEC	1/2 Second	0 or 1	If, for example, you select 1 MIN in <u>PERIOD</u> , an offset can be entered in the cycle range of 0 through 119. Cycles then repeat every minute.
2 SEC		0 thru 3	
5 SEC		0 thru 9	
10 SEC		0 thru 19	
15 SEC		0 thru 29	
30 SEC		0 thru 59	
1 MIN		0 thru 119	
2 MIN		0 thru 239	
<b>Internetwork Processor</b>			
5 SEC	5 seconds	0	
10 SEC		0 or 1	
15 SEC		0 thru 2	
30 SEC		0 thru 5	
1 MIN		0 thru 11	
2 MIN		0 thru 23	
<b>Slow Processor</b>			
1S MIN	1 Minute	0	
2S MIN		0 or 1	
<b>Slow or Internetwork Processor</b>			
5 MIN	1-Minute	0 thru 4	
10 MIN		0 thru 9	
15 MIN		0 thru 14	
30 MIN		0 thru 29	
1 HR		0 thru 59	
<b>Slow or Internetwork Processor</b>			
8 HR	1 Hour	0 thru 7	
12 HR		0 thru 11	
24 HR		0 thru 23	

**NORSSEQ**

**Point Type** Regulatory

Number of ramp/soak pairs for a RampSoak control algorithm (22.5 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User

**Default Value** 2

**Access Lock** Engr-DEB

**Value Type** Integer

**Value Range** 2 through 6

**NUMPTS(I)**

**Point Type** Processor Status

Number of points within a given Unit. I = unit index (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Array (1..100) of Integer

**Value Range** 0 through 32767

**NUMSWTCH**

**Point Type** Switch and Regulatory

Configure on Forms AM88-550 and 580.

Number of switches (4.2 in *AM Control Functions*).

**Source** User

**Default Value** 1 for Switch  
0 for Regulatory

**Access Lock** DEB

**Value Type** Integer

**Value Range** 0 through 2

**NXTSOAKV**

**Point Type** Regulatory

Next soak value (RampSoak algorithm) (no form) (Section 22 in *AM Algorithm Engineering Data*).

**Source** User

**Default Value** ----

**Access Lock** Read Only

**Value Type** Real

**Value Range** Any real number

**OFFNDIAK****Point Type** Regulatory

Initialization acknowledgement for off-node primary. "Off-node" means, "in another logical node." Each unit in an AM is a logical node, so this is a request for initialization of a primary point in another unit in this or another AM (no form).

**Source** User**Default Value** Off**Access Lock** Prog**Value Type** Boolean

**Value Range** Off—Normal operation  
On—The initialization request has been acknowledged.

**OFFNDIRQ****Point Type** Regulatory

Initialization request for off-node primary. "Off-node" means, "in another logical node." Each unit in an AM is a logical node, so this is a request for initialization of a primary point in another unit in this or another AM (no form).

**Source** User**Default Value** Off**Access Lock** Prog**Value Type** Boolean

**Value Range** Off—Normal  
On—There is an initialization request.

**OFFNRMAL****Point Type** Flag

Configure on Form *AM88-410*.

Off-normal alarm configuration; alarming enable/disable (3.4.3 in *AM Control Functions*).

**Source** User**Default Value** Off**Access Lock** Supvr**Value Type** Boolean

**Value Range** Off—Off-normal alarming disabled. No alarm is generated when  $PV \neq PVNORMAL$ .  
On—Off-normal alarming enabled. An alarm is generated when  $PV \neq PVNORMAL$ . If On is selected, also configure PVNORMAL, ALPRIOR, ALENBST, and OVERVAL.

**OFFNRMPR****Point Type** Flag.

Alarm priority parameter for the Off Normal alarm (Forms *AM88-510*) (3.4.3 and 3.4.5 in *AM Control Functions*).

**Source** User**Default Value** Low**Access Lock** Engr**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**OP****Point Type** Regulatory

The output of a regulatory control algorithm, in %, after control-output processing (3.1.12 in *AM Control Functions*) (Forms *AM88-551* through *559* and *561* through *564*.)

**Source** User**Default Value** 0.0**Access Lock** Oper**Value Type** Real

**Value Range** -6.9 to 106.9  
 '----' (NaN) cannot be stored

**OPEU****Point Type** Regulatory

The output of a regulatory control algorithm, in engineering units, after control-output processing (3.1.12 in *AM Control Functions*) (no form).

**Source** User**Default Value** ----**Access Lock** Read Only**Value Type** Real**Value Range** Any real number**OPHIFL****Point Type** Regulatory

Output high limit flag (no form).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean

**Value Range** Off— $OP < OPHILM$   
On— $OP \geq OPHILM$

**OPHILM****Point Type** Regulatory

Configure on Forms *AM88-551* through *559* and *561* through *564*.

Output high limit in percent.

**Source** User**Default Value** 105.0**Access Lock** Supvr**Value Type** Real

**Value Range**  $OPLOLM$  to 106.9  
NaN cannot be stored

**OPLOFL**

**Point Type** Regulatory

Output low limit flag (no form).

**Source** User

**Default Value** Off

**Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off—OP > OPLOLM  
 On—OP <= OPLOLM

**OPLOLM**

**Point Type** Regulatory

Configure on Forms *AM88-551* through *559* and *561* through *564*.

Output low limit in percent (no form).

**Source** User

**Default Value** -5.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** -6.9 to OPHILM  
 '----' cannot be stored

**OPMCHLM****Point Type** RegulatoryConfigure on Forms *AM88-551* through *559* and *561* through *564*.

Output minimum change limit in percent. The output changes only if the absolute value of new output minus the past output is greater than the OPMCHLM. This limit is disabled if set to 0.0 or NaN.

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real, NaN**Value Range**  $\geq 0.0$ **OPROCFL****Point Type** Regulatory

Output rate-of-change limit flag.

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean

**Value Range** Off—Normal operation  
On—The output exceeded the OPROCLM.

**OPROCLM****Point Type** RegulatoryConfigure on Forms *AM88-551* through *559* and *561* through *564*.

Output rate-of-change limit in percent. The output change limit is specified as a change of the control output in percent per minute. This limit check is disabled if set to NaN.

**Source** User**Default Value** NaN**Access Lock** Supvr**Value Type** Real, NaN**Value Range**  $\geq 0.0$

**ORBIAS****Point Type** Regulatory

For IncrSum algorithm, overrange (bias) value applied to feedback value in ORFBSEC from Override-Selector secondary (15.4.4 in *AM Algorithm Engineering Data*) (Form AM88-557).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$ **ORFBSEC****Point Type** Regulatory

Override feedback value from an Override Selector (OrSel) control algorithm (Section 23 in *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** NaN**Access Lock** Prog**Value Type** Real, NaN**Value Range** Any real number**OROPT****Point Type** Regulatory

Override option for Override Selector (OrSel) control algorithm (Section 23 in *AM Algorithm Engineering Data*) (Form AM88-561).

**Source** User**Default Value** Off**Access Lock** Engr-DEB**Value Type** Boolean

**Value Range** Off—The control algorithm functions as a simple Hi or Lo selector.  
On—The control algorithm functions as a Hi or Lo selector with override feedback to prevent the PIDs connected to nonselected inputs from winding up.

## OrSel (Control Algorithm)

### OrSel (Control Algorithm)

This algorithm (Control Override Selector) causes the input with the highest value or the input with the lowest value to be selected and passed on to the output of this data point. There can be up to four inputs, all of which are initializable. This algorithm can operate as a simple selector, or an override option can be configured that prevents PID points in an override-control strategy from winding up. If the override option is configured, an operator can put the OrSel point in a bypass state, where the first input is selected and all other inputs are initialized.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

Control Common Display	Control Over/Sel Algo Display	Control Output Connections Display
NMODE MODATTR MODEPERM EXTSWOPT	NITTYPE CTLEQN M OROPT XEUHI XEULO NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

### OUT0 – OUT12

**Point Type** Regulatory

Output coordinate-value parameter for GenLin PV algorithm. The value in SEGTOT defines the number of OUTn parameters that are exposed on the PED (Section 5 in *AM Algorithm Engineering Data*) (Form AM88-520).

**Source** User

**Default Value** NaN

**Access Lock** Supvr

**Value Type** Real, NaN

**Value Range** Any real number

## OVERRUNS

**Point Type** Processor Status

Current number Fast Processor cycles behind (no form) (2.2.1.6 in *AM Control Functions*).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**OVERVAL****Point Type** Regulatory

Overvalue index. Defines the amount of deviation in % that causes the PV to reach the Overview Limit on the Detail display (Form *AM88-501*).

**Source** User**Default Value** 25**Access Lock** Engr-DEB**Value Type** Integer**Value Range** 0 through 100**Point Type** Flag

Overview Display Switch—controls the display of an off-normal alarm in the Overview display (Form *AM88-510*).

**Source** User**Default Value** Off**Access Lock** Engr-DEB**Value Type** Boolean

**Value Range** Off—Alarm is not displayed in the Overview display.  
On—If selected, Off Normal alarms are displayed in the Overview display.

**Point Type** Counter

Overview value index. Percentage of full scale used for the Overview display (Form *AM88-540*).

**Source** User**Default Value** 25**Access Lock** Engr-DEB**Value Type** Integer**Value Range** 0 through 100

**OVRFASTC**

**Point Type** Processor Status

Number of Fast Processor overruns in the current hour. (For each cycle processed late, count 1) (2.2.1.6 in *AM Control Functions*).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**OVRFASTP**

**Point Type** Processor Status

Number of Fast Processor overruns in the previous hour. (For each cycle processed late, count one) (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**OVRSLOWC**

**Point Type** Processor Status

Number of Slow Processor overruns in current hour. (For each cycle processed late, count one) (no form) (2.2.1.6 in *AM Control Functions*).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767

**OVRSLOWP**

**Point Type** Processor Status

Number of Slow Processor overruns in the previous hour. (For each cycle processed late, count one) (no form).

**Source** System

**Default Value** 0

**Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 32767



**-P-****P****Point Type** RegulatoryConfigure on Form *AM88-512*.Applies to Flow Compensation algorithm (Section 4 in *AM Algorithm Engineering Data*).

Pressure input. Measured actual gauge pressure input, typically fetched with an input connection. Any default value can be specified instead of the connection if a constant is required. (Applies to only EqB, EqC, EqD, or EqE.)

**Source** User**Default Value** 1.0**Access Lock** Engr-DEB**Value Type** Real**Value Range** Any real number**P0****Point Type** RegulatoryConfigure on Form *AM88-512*.Applies to Flow Compensation algorithm (Section 4 in *AM Algorithm Engineering Data*).

Zero reference for pressure. Typically 14.696 if P is in PSIG or 101.325 if P is in Kilo Pascals. (Applies to only EqB, EqC, EqD, or EqE.)

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range** Any real number



**P2 – P8**

**Point/Algo Type** Regulatory

Configure on Forms *AM88-513, 514, 516, and 517.*

Applies to PV algorithms Multiply Divide, Hi Lo Average, Middle of 3, and Sum of Products.

Input number. Typically, inputs are fetched with an input connection. Any default value can be specified instead of an input connection if constant value is required.

**Source** User

**Default Value** See table

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range** Any real number

Input:	P2	P3	P4	P5	P6	P7	P8
PV Multiply/Divide							
<b>Default Values:</b>	1.0	1.0	1.0	1.0	1.0	0.0	(Not Used)
PV Hi Lo Average							
<b>Default Values:</b>	←———— NaN —————→						
PV Middle of 3							
<b>Default Values:</b>	NaN	NaN	(Not Used)				
PV Sum of Products							
<b>Default Values:</b>	1.0	1.0	0.0	0.0	0.0	0.0	(Not Used)

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**PATHIND**

**Point Type** Regulatory

Control-path indicator. Indicates whether control information is currently propagated normally, on hold, in initialization, or an override path is selected.

**Source** User

**Default Value** Man

**Access Lock** Read Only

**Value Type** PATHIND enumeration

**Value Range** Fwd—Normal Operation  
 Hold—Hold Path  
 Init—Man—Initialization path  
 OR—Override path

**PERIOD****Point Type** Regulatory, Timer, Counter, Custom, and Switch

The interval on which this point is scheduled for processing. Also determines if the point is assigned to the Fast Processor or the Slow Processor. If NoPeriod is selected, the point is not scheduled, and processing must be requested by PPS or PPSCYCLE (2.2 in *AM Control Functions*, and Section 5 in the *AM Implementation Guidelines*) (Forms AM88-501, 530, 540, 550, and 560).

**Source** User                      **Default Value** NoPeriod                      **Access Lock** DEB**Value Type** PERIOD enumeration**Value Range When \$IPPASN = OFF**

1sec	2sec	5sec	10sec	1Smin, 2Smin = 1 minute, 2 minutes, respectively, assigned to the Slow processor.
15sec	30sec	1min	2min	
1Smin	2Smin	5min	10min	
15min	30min	1hr	8hr	
12hr	24hr	NoPeriod		

**Value Range When \$IPPASN = ON**

5sec	10sec	15sec	30sec
1min	2min	5min	10min
15min	30min	1hr	8hr
12hr	24hr	NoPeriod	

**PFAVGC****Point Type** Processor Status

Average number of prefetches per second in the current hour (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**PFAVGP****Point Type** Processor Status

Average number of prefetches per second in the previous hour.

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Real**Value Range** > 0.0

**PFAVGS****Point Type** Processor Status

Average number of prefetches serviced per second during the last snapshot period (nominally 10 seconds) (no form).

**Source** User                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Real**Value Range** >= 0.0**PFMAXC****Point Type** Processor Status

Maximum number of prefetches per cycle in the current hour (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PFMAXP****Point Type** Processor Status

Maximum number of prefetches per cycle in the previous hour (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767

**PFMINC****Point Type** Processor Status

Minimum number of prefetches per cycle in the current hour.

**Source** System**Default Value** 32767**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PFMINP****Point Type** Processor Status

Minimum number of prefetches per cycle in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PFMNCYCC****Point Type** Processor Status

Cycle in current hour at which prefetches were minimum (no form).

**Source** System**Default Value** 0.0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**PFMNCYCP**

**Point Type** Processor Status

Cycle in previous hour at which prefetches were minimum.

**Source** User                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PFMXCYCC**

**Point Type** Processor Status

Cycle in current hour at which prefetches were maximum (no form).

**Source** System                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PFMXCYCP**

**Point Type** Processor Status

Cycle in previous hour at which prefetches were maximum (no form).

**Source** System                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PFPSOVER**

**Point Type** Processor Status

Current prefetch/poststore overrun count. Count one for each time a prefetch/poststore is not completed within 1/2 second. Decrement one for each time a prefetch/poststore is completed within 1/2 second (with lower bound of 0) (no form).

**Source** User                                      **Default Value** 0                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 7200

**PFPSOVRT**

**Point Type** Processor Status

Prefetch/poststore overruns during the current hour. Count one for each time a prefetch/poststore is not completed within 1/2 second (no form).

**Source** User                                      **Default Value** 0                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 7200

**PFPSOVRP**

**Point Type** Processor Status

Prefetch/poststore overruns during the previous hour. Count one for each time a prefetch/poststore is not completed within 1/2 second (no form).

**Source** User                                      **Default Value** 0                                      **Access Lock** Read Only

**Value Type** Integer

**Value Range** 0 through 7200

**PIACCSTS[N]**

**Point Type** Regulatory

Access status for PV input number N, where N is 1 through 8 (no form) (3.1.1 and 3.1.4.8 in *AM Control Functions*).

**Source** User

**Default Value** NoError

**Access Lock** Read Only

**Value Type** PASTATUS enumeration

**Value Range** NoError—The parameter was fetched with no error.  
 Comm—Because of a communication error, the parameter could not be fetched.  
 Config—Because of a configuration error, the parameter could not be fetched.  
 Software—An unexpected error occurred. Notify Honeywell TAC.

**PIACTSTS[N]**

**Point Type** Regulatory

Configure on Forms *AM88-511* through *AM88-520*.

Activity status of PV input connection number N, where N is 1 through 8 (3.1.1 and 3.1.4.7 in *AM Control Functions*).

**Source** User

**Default Value** Active

**Access Lock** Supvr

**Value Type** IOACTSTS enumeration

**Value Range** Active—Indicates that the connection will be processed.  
 Inactive—Indicates that the connection will not be processed.  
 NotConfig—If you select NotConfig, an error will be reported as the point is loaded.  
 However, NotConfig can be selected with no error if a Null Entity ID or a Null parameter has been entered for the connection source or destination.

**Pid**

This algorithm operates as a 3-mode (proportional, integral, and derivative) controller. You can choose one of two forms of this algorithm: the interactive (or real) form, or the noninteractive (or ideal) form.

The output of this algorithm is normally "floating," because of the dynamics of the integral and derivative terms. Internally, the output is calculated as increments of output change, but the increments are accumulated to provide a full-value output, thus simplifying the techniques used to achieve "bumpless" outputs when modes or tuning constants are changed.

This algorithm operates to reduce error in the control loop to zero. Error is represented by the difference between the process variable in percent (**PVP**) and the setpoint in percent (**SPP**). The control algorithm output value (**CV**) is also calculated as a percentage of the configured engineering-units range for the data point that uses this algorithm.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>PV Common Display</b>	<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Control Pid Algo Display</b>	<b>Control Input Connections Display</b>
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTPT TF IN MIN PVTV	NMODE NMODATTR MODEPERM EXTSWOPT	SPHILM SPLOLM SP SPOPT AVDEVTP RBOPT RTHILM RTLLOLM BSHILM BSLOLM RATIO BIAS	PIDFORM CTLEQN INITTYPE CTLACTN GAINOPT K KLIN KGAP GAPHI GAPLO NLGAIN NLFM T1 IN MIN T2 IN MIN PVTRACK	NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)

<b>Output Connection Display</b>
NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

**PidErfb**

This algorithm (Pid with External Reset Feedback) operates as a 3-mode (proportional, integral, and derivative) controller. It is identical to the Pid algorithm, except that it accepts a reset feedback signal to be compared with this algorithm's incremental output, before the full-value output is accumulated. It also accepts a tracking-value signal.

The intent of this algorithm is to prevent windup when it has a secondary data point (typically a Pid point) that may or may not be responding to the output of this data point.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>PV Common Display</b>	<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Control Erfb Pid Algo Display</b>	<b>Control Input Connections Display</b>
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTPT TF IN MIN PVTV	NMODE NMODATTR MODEPERM EXTSWOPT	SPHILM SPLOLM SP SPOPT AVDEVTP RBOPT SPOPT RTHILM RTLLOLM BSHILM BSLOLM RATIO BIAS	PIDFORM CTLEQN INITTYPE CTLACTN GAINOPT K KLIN KGAP GAPHI GAPLO NLGAIN NLFM T1 IN MIN T2 IN MIN KI PVTRACK	NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)

<b>Output Connections Display</b>
CVEUHI CVEULO OPHILM OPLOLM OPMCHLM OPROCLM

**PidFF**

This algorithm operates as a 3-mode (proportional, integral, and derivative) controller. It is identical to the Pid algorithm, except that it accepts a feedforward signal to be added to, or multiplied by, the algorithm's incremental output, before the full-value output is accumulated. This algorithm lets you combine a feedforward signal with the Pid output without using another data point or algorithm to do it.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>PV Common Display</b>	<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Fwd Pid Control Algo Display</b>	<b>Control Input Connections Display</b>
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTPT TF IN MIN PVTV	NMODE NMODATTR MODEPERM EXTSWOPT	SPHILM SPLOLM SP SPOPT AVDEVTP RBOPT RTHILM RLOLM BSHILM BSLOLM RATIO BIAS T1 IN MIN T2 IN MIN FFOPT BFF KFF PVTRACK	PIDFORM CTLEQN INITTYPE CTLACTN GAINOPT K KLIN KGAP GAPHI GAPLO NLGAIN NLFM	NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)

<b>Output Connections Display</b>
NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

**PIDFORM****Point Type** Regulatory

Selects whether the Interactive (real) or Noninteractive (ideal) form of the Pid control algorithm is to be used (18.4.1 in *AM Algorithm Engineering Data*) (Forms *AM88-551*, *555*, and *556*).

**Source** User**Default Value** Interact**Access Lock** Engr-DEB**Value Type** PIDFORM enumeration

**Value Range** Interact—Interactive; this form duplicates the traditional pneumatic Pid controller. The three control components are implemented as the sum of the proportional and integral multiplied by the derivative component; that is,  $(P + I) * D$ .

Ideal—This form provides a noninteractive version of the PID controller. The three control components proportional, integral, and derivative are additive; that is,  $P + I + D$ .

**PIDSTN[N]****Point Type** Regulatory

Configure on Forms *AM88-511* through *AM88-520*.

Destination parameter for PV input connection number 1.

**Source** User**Default Value** Blanks**Access Lock** DEB**Value Type** Par\_Id**Value Range****PISRC[N]****Point Type** Regulatory

Configure on Forms *AM88-511* through *AM88-520*.

Source point.parameter for PV input connection number N, where N is 1 through 8.

**Source** User**Default Value** Blanks**Access Lock** DEB**Value Type** Point.Parameter**Value Range** Any valid point.parameter combination



**PPS**

**Point Type** Regulatory, Counter, Custom, Switch, and Timer

Point Process Special. Process the point immediately (no form) (2.2.1.2, 3.6, 4.2, and 4.2.1 in *AM Control Functions*).

**Source** User                      **Default Value** N/A                      **Access Lock** Oper

**Value Type** Boolean

**Value Range** Off—Normal operation  
On—Process the point immediately

**PPSCYCLE**

**Point Type** Regulatory, Counter, Custom, and Switch

Relative cycle to Process Special. Process Special Request (delay time in seconds) (no form) (2.2.1.2 and 3.3.9 in *AM Control Functions*).

**Source** User                      **Default Value** N/A                      **Access Lock** Prog

**Value Type** Real

**Value Range** 0 through 86400

**PPSREQ**

**Point Type** Regulatory, Counter, Custom, and Switch

Process Special Request (no form) (3.6.2 and 2.2.1.2 in *AM Control Functions*).

**Source** User                      **Default Value** N/A                      **Access Lock** Prog

**Value Type** PPSTYPE enumeration

**Value Range** None—There is no process special request.  
Normal—Process special request for full processing  
The following are generated indirectly or as a result of storing to another parameter...  
Init—Process special for initialization  
Man—Process special for manual output  
Or—Process special for override

**PPSTYPE**

**Point Type** Regulatory, Custom, and Switch

Process Point Special Type (no form) (3.1.3, 3.6, and 2.2.1.2 in *AM Control Functions*).

**Source** System

**Default Value** None

**Access Lock** Read Only

**Value Type** PPSTYPE enumeration

**Value Range** None—Normal operation  
 Normal—Normal operation  
 Init—Initialization  
 Man—Manual Output  
 OR—Override

**PRAVGC**

**Point Type** Processor Status

Average points per second in current hour (no form).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**PRAVGP**

**Point Type** Processor Status

Average points per second in previous hour (no form).

**Source** System

**Default Value** 0.0

**Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$



**PRIMMOD**

**Point Type** Regulatory, Flag, Counter, Numeric, Timer, Custom, and Switch

The tag name of the point that is the primary module for this point. When storing to the PRIMOD parameter from a schematic or foreground CL, both points must be on the same node. When storing to the PRIMOD parameter from background CL, the DEB, AXM access, or other CM access, the store can be to any system entity ID. (Forms *AM88-501, 510, 520A, 530, 540, 550, and 560*).

<b>Source</b> User	<b>Default Value</b> Blanks (Reg) ---- (Non-Reg)	<b>Access Lock</b> Engr
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**Value Type** Entity ID

**Value Range** Length: zero-to-eight characters

**PRMAXC**

**Point Type** Processor Status

Maximum points per cycle in current hour (no form).

<b>Source</b> System	<b>Default Value</b> 0	<b>Access Lock</b> Read Only
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**Value Type** Integer

**Value Range** 0 through 32767

**PRMAXP**

**Point Type** Processor Status

Maximum points per cycle in previous hour (no form).

<b>Source</b> System	<b>Default Value</b> 0	<b>Access Lock</b> Read Only
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**Value Type** Integer

**Value Range** 0 through 32767

**PRMINC****Point Type** Processor Status

Minimum points processed per cycle in the current hour (no form).

**Source** System**Default Value** 32767**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PRMINP****Point Type** Processor Status

Minimum points processed per cycle in previous hour (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PRMNCYCC****Point Type** Processor Status

Cycle on which minimum points per cycle occurred in the current hour (no form).

**Source** User**Default Value** 0.0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**PRMNCYCP**

**Point Type** Processor Status

Cycle on which minimum points per cycle occurred in the previous hour (no form).

**Source** User                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PRMXCYCC**

**Point Type** Processor Status

Cycle on which maximum points per cycle occurred in the current hour (no form).

**Source** User                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PRMXCYCP**

**Point Type** Processor Status

Cycle on which maximum points per cycle occurred in the previous hour (no form).

**Source** User                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PROUNT(I)**

Point Type Processor Status

Unit is assigned to the AM. I = Unit index (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Array (1..100) of Boolean

**Value Range** True—Unit is assigned to the given AM.  
False—Unit is not assigned to the given AM.

**PRPRSTPR**

**Point Type** Counter.

Alarm priority parameter for the Pre-Preset alarm (Form *AM88-540* ) (3.3.7 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PSAVGC**

**Point Type** Processor Status

Average poststores per second in the current hour (no form).

**Source** System                      **Default Value** 0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** 0 through 32767

**PSAVGP****Point Type** Processor Status

Average poststores per second in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range** 0 through 32767**PVEUHI****Point Type** Regulatory, CounterConfigure on Forms *AM88-502* and *540*.PV engineering unit high range. PVEUHI must be greater than PVEULO and must be less than or equal to PVEXEUHI (3.1.5.5 and 3.1.5.6 in *AM Control Functions*).**Source** User**Default Value** 100.0**Access Lock** Engr-DEB**Value Type** Real**Value Range** PVEULO to PVEXEUHI; NaN not allowed**PVEULO****Point Type** Regulatory, CounterConfigure on Forms *AM88-502* and *540*.PV engineering unit low range. PVEULO must be greater than PVEXEULO and less than PVEUHI (3.1.5.5 and 3.1.5.6 in *AM Control Functions*).**Source** User**Default Value** 0.0**Access Lock** Engr-DEB**Value Type** Real**Value Range** PVEXEULO to PVEUHI; NaN not allowed

**PSAVGS****Point Type** Processor Status

Average number of poststores serviced during the last snapshot period (nominally 10 seconds) (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **PSMAXC****Point Type** Processor Status

Maximum poststores per cycle in the current hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PSMAXP****Point Type** Processor Status

Maximum poststores per cycle in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767

**PSMINC****Point Type** Processor Status

Minimum poststores per cycle in the current hour (no form).

**Source** System**Default Value** 32767**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PSMINP****Point Type** Processor Status

Minimum poststores per cycle in the previous hour (no form).

**Source** System**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**PSMNCYCC****Point Type** Processor Status

Cycle on which minimum poststores occurred during the current hour (no form).

**Source** System**Default Value** 0.0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**PSMNCYCP**

**Point Type** Processor Status

Cycle on which minimum poststores occurred during the current hour (no form).

**Source** System                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PSMXCYCC**

**Point Type** Processor Status

Cycle on which maximum poststores occurred during the current hour (no form).

**Source** System                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PSMXCYCP**

**Point Type** Processor Status

Cycle on which maximum poststores occurred during the previous hour (no form).

**Source** System                      **Default Value** 0.0                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**PSTS****Point Type** Regulatory

Applies to Flow Compensation algorithm (no form) (Section 4 in *AM Algorithm Engineering Data*).

Value status of P input

**Source** User                      **Default Value** Normal                      **Access Lock** Read Only

**Value Type** PVVALST enumeration

**Value Range** Normal—The value is good  
 Uncertain—The value is uncertain  
 Bad—The value is NaN

**PTDESC****Point Type** All Point Types

Configure on Forms *AM88-501*, *510*, *520A*, *530*, *540*, *550*, and *560*.

Point descriptor. Textual description of the point for use in standard Group and Detail displays (3.4.2, 3.6, and 4.2 in *AM Control Functions*).

**Source** User                      **Default Value** blank                      **Access Lock** Engr-DEB

**Value Type** String**Value Range** Up to 24 characters**PTDISCL****Point Type** All point types except Numeric

Selects full disclosure of all applicable parameters in the Parameter Entry Display (PED); or only a subset of those parameters, leaving those not disclosed at their default values (Forms *AM88-501*, *530*, and *540*).

**Source** User                      **Default Value** Brief                      **Access Lock** Engr-DEB

**Value Type** PTDISCL enumeration

**Value Range** Brief—only a subset of the point build options are available  
 Full—all point build options are available

**PTEXECST**

**Point Type** All point types except Numeric and Flag

Point execution status (no form) (3.1.2, 3.3.1, 3.3.8, 3.5.3, 3.6, 3.6.2, and 4.2 in *AM Control Functions*).

**Source** User                                      **Default Value** InActive                                      **Access Lock** Supvr

**Value Type** PTEXECST enumeration

**Value Range** NotConfig—Used only as an intermediate stage of point loading. Put to Inactive at the end of point load.  
                     InActive—Point will not be processed.  
                     Active—Point will be processed.

**PTINAL**

**Point Type** All point types except Numeric

Point in Alarm (no form) (3.3.9, 3.6, 3.6.3, and 4.2 in *AM Control Functions*).

**Source** System                                      **Default Value** Off                                      **Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off—The point is not in alarm.  
                     On—The point is in alarm.

**PTORST**

**Point Type** Regulatory

Point override state (no form) (3.1.11.1 and 3.1.3 in *AM Control Functions*).

**Source** User                                      **Default Value** NotCon                                      **Access Lock** Prog

**Value Type** ORSTATUS enumeration

**Value Range** NotCon—The point is not connected to an override selector.  
                     Sel—The point is part of an override strategy and is selected.  
                     NotSel—The point is part of an override strategy and is not selected.

**PV**

**Point Type** Regulatory, Timer, Numeric, Counter, Flag

Process variable value. In regulatory points, PV is the output of the range-violation checks (3.1.5 in *AM Control Functions*). (For Numeric, Counter, Flag, and Timer points, refer to 3.2, 3.3, 3.4, and 3.5 in *AM Control Functions*.) (Form *AM88-520A*).

<b>Source</b> User	<b>Default Value</b> State1 (Flag) NaN (others)	<b>Access Lock</b> Supvr (Timer) Oper (others)
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**Value Type** Real, Enum for Flag

**Value Range** Regulatory Points  
PVEXEUHI to PVEXEULO and NaN  
 Timer point  
 0 to 999999; current time  
 Numeric point  
RANGELO (if configured) to RANGEHI (if configured) or NaN  
 Counter algorithm  
PVEXEUHI to PVEXEULO or NaN  
 Flag  
STATE1 or STATE2

**PVALDB**

**Point Type** Regulatory, Counter

Configure on Forms *AM88-570* and *540*.

PV alarm deadband, in percent of the PV Engineering Unit range, or in engineering units. Deadband affects only the return to normal.

The alarm deadband expresses the percentage of the normal operating range (PVEUHI to PVEULO).

Note that a PV-related alarm returns to its normal state when the PV is less than the alarm trip point minus the alarm deadband.

<b>Source</b> User	<b>Default Value</b> One	<b>Access Lock</b> Engr-DEB
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**Value Type** PVALDB enumeration

**Value Range** Half—deadband is one-half of one percent of Engineering Unit range.  
 One—deadband is one percent of Engineering Unit range.  
 Two—deadband is two percent of Engineering Unit range.  
 Three—deadband is three percent of Engineering Unit range.  
 Four—deadband is four percent of Engineering Unit range.  
 Five—deadband is five percent of Engineering Unit range.  
 Eu—dead band is the engineering-units value in parameter PVALDBEU.

**PVALDBEU****Point Type** Regulatory, CounterConfigure on Forms *AM88-570* and *540*.PV alarm deadband in engineering units. The value in PVALDBEU is effective when the enumeration in PVALDB is Eu.**Source** User                      **Default Value** 1.0                      **Access Lock** Engr-DEB**Value Type** Real**Value Range**  $0 \leq \text{PVALDBEU} \leq (\text{PVEUHI} - \text{PVEULO})$ . NaN is not an acceptable value.**PVALGID****Point Type** RegulatoryPV algorithm identifier—selects the PV algorithm for this data point. If PVALGID contains Nul, PV processing doesn't occur (3.1.5 in *AM Control Functions* and Sections 2 through 13 in *AM Algorithm Engineering Data*) (Form *AM88-501*).**Source** User                      **Default Value** Null                      **Access Lock** Prog**Value Type** PVALGO enumeration

**Value Range** Null—No PV algorithm selection  
 DataAcq—PV Data Acquisition algorithm selection  
 FlowComp—PV Flow Compensation algorithm  
 Midof3—PV Middle of 3 algorithm  
 HiLoAvg—PV High Low Average algorithm  
 Summer—PV Summer algorithm  
 MulDiv—PV Multiply Divide algorithm  
 SumProd—PV Sum of Products algorithm  
 Totalizr—PV Totalizer algorithm  
 VdtLdLag—PV Variable Delay Time with LeadLag algorithm

**PVAUTO****Point Type** Regulatory, CounterThe PV value after processing by the PV algorithm and after filtering. The value in PVAUTO is the input to the PV range violation checks when PVSOURCE contains Auto (3.1.5 in *AM Control Functions*) (no form).**Source** User                      **Default Value** NaN                      **Access Lock** Prog (Reg'y)  
Read Only (Counter)**Value Type** Real**Value Range** Any real number

**PVAUTOST****Point Type** Regulatory, CounterThe status of the value in PVAUTO (3.1.5.6 in *AM Control Functions*) (no form).**Source** User                      **Default Value** Bad                      **Access Lock** Read Only**Value Type** PVVALST enumeration**Value Range** Normal—The value is good.  
Uncertn—The value is uncertain.  
Bad—The value is NaN.**PVAVGC****Point Type** Processor Status

Average number of prefetches per second in the current hour (no form).

**Source** User                      **Default Value** NA                      **Access Lock** Read Only**Value Type** Real**Value Range** Any real number**PVCALC****Point Type** Regulatory and CounterThe value calculated by the PV algorithm (Sections 3 through 13 in *AM Algorithm Engineering Data*) (no form).**Source** User                      **Default Value** NaN                      **Access Lock** Prog**Value Type** Real, NaN**Value Range** Any real number

**PVCLAMP****Point Type** Regulatory, CounterConfigure on Forms *AM88-502* and *540*.PV clamping option (3.1.5.5 in *AM Control Functions*).**Source** User                      **Default Value** NoClamp                      **Access Lock** Engr-DEB**Value Type** PVCLAMP enumeration**Value Range** Regulatory points

NoClamp—PV is bad if out of the extended range.

Clamp—Clamp PV if out of the extended range Counter points.

NoClamp—If a range violation occurs, PV is set to NaN and PVSTS becomes Bad.Clamp—Clamp PV if exceeding the PV extended range (PVEXEUIH...PVEXEULO) to the violated range, and the PVSTS becomes Uncertn.**PVCONV****Point Type** CounterPV engineering unit conversion factor (3.3.3 in *AM Control Functions*) (Form *AM88-540*).**Source** User                      **Default Value** 1.0                      **Access Lock** Engr-DEB**Value Type** Real**Value Range**  $\geq 0$ , NaN not allowed**PVEQN****Point Type** RegulatoryThe PV equation for the PV algorithm. Applies to all PV algorithms except DataAcq, and GenLin (Sections 4 and 6 through 13 in *AM Algorithm Engineering Data*) (Forms *AM88-512* through *519*).**Source** User                      **Default Value** EqA                      **Access Lock** Engr-DEB**Value Type** ALGOEQN enumeration**Value Range**For PV Flow Compensation Algorithm

EqA—Primarily used for mass or volumetric flow compensation of liquids. Actual specific gravity at flowing condition is used as the compensation input.

EqB—Primarily used for mass flow compensation with actual absolute temperature and pressure for gases and vapors. Actual temperature and pressure are used as compensation inputs.

## PVEQN (continued)

## Value Range (continued)

- EqC—Primarily used for mass flow compensation with actual specific gravity, absolute temperature, and pressure for gases or vapors. Actual temperature, pressure, and specific gravity are used as the compensation inputs.
- EqD—Primarily used for volumetric flow compensation for gases or vapors. Actual temperature, pressure, and molecular weight are used as the compensation inputs.
- EqE—Primarily used for mass flow compensation of steam. Actual temperature, pressure, specific gravity, steam compressibility, and steam quality are used as the compensation inputs.

For PV Middle of 3 Algorithm

- EqA—The output is the higher of the good inputs.
- EqB—The PVCALC is the lower of the good inputs.
- EqC—The PVCALC is the average of the good inputs.

For PV Hi Lo Average Selector Algorithm

- EqA—Hi Selector; selects the highest of up to 8 inputs and identifies the selected input.
- EqB—Lo selector; selects the lowest of up to 8 inputs and identifies the selected input.
- EqC—Average selector; calculates the average of up to 8 inputs.

For PV Summer Algorithm

- EqA—PVCALC is computed by simply scaling and biasing the P1 input.
- EqB—PVCALC is computed as the sum of up to 8 individually scaled inputs with an overall bias.

For PV Multiply Divide Algorithm

- EqA—PVCALC is generated as a product of two individually scaled and biased inputs.
- EqB—PVCALC is generated as a ratio of two individually scaled and biased inputs.
- EqC—PVCALC is generated as a ratio/product of up to 6 individually scaled and biased inputs, plus a remotely adjustable bias plus a fixed bias.

For PV Sum of Products Algorithm

- EqA—PVCALC is the sum of two scaled and biased inputs.
- EqB—PVCALC is the sum of three scaled and biased inputs.

For PV Variable Deadtime with LeadLag Algorithm

- EqA—LeadLag; the input signal is subjected to one lead and two lags.
- EqB—Fixed deadtime; the input signal is delayed by a fixed, user-specified delay period.
- EqC—Variable deadtime; the input signal is delayed by a variable delay period consisting of two parts: a fixed user-specified part and a variable part based on an input signal.
- EqD—Variable deadtime with two lags; the input signal is delayed by the variable deadtime (the same as in EqC) and is then processed by up to two lags.

For PV Totalizer Algorithm**Warm Restart**

- EqA—Continue
- EqB—Continue
- EqC—Continue
- EqD—Set Bad, and stop
- EqE—Set Bad, and stop
- EqF—Set Bad, and stop

**Bad Input Handling**

- Use zero
- Use last good value
- Set Bad, and stop
- Use zero
- Use last good value
- Set Bad, and stop

**PVEUHI**

**Point Type** Regulatory, Counter

Configure on Forms *AM88-402* and *440*.

PV engineering unit high range. PVEUHI must be greater than PVEULO and must be less than or equal to PVEXEUHI (3.1.5.5 and 3.1.5.6 in *AM Control Functions*).

**Source** User

**Default Value** 100.0

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range** PVEULO to PVEXEUHI; NaN not allowed

**PVEULO**

**Point Type** Regulatory, Counter

Configure on Forms *AM88-402* and *440*.

PV engineering unit low range. PVEULO must be greater than PVEXEULO and less than PVEUHI (3.1.5.5 and 3.1.5.6 in *AM Control Functions*).

**Source** User

**Default Value** 0.0

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range** PVEXEULO to PVEUHI; NaN not allowed

**PVEXEUHI**

**Point Type** Regulatory, Counter

Configure on Form *AM88-502* and *540*.

PV extended engineering unit high range. Defines the highest value the PV can reach before clamping or becoming NaN, depending on the clamping action (PVCLAMP) (3.1.5.5 and 3.3.3 in *AM Control Functions*).

**Source** User

**Default Value** 102.9

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range**  $\geq$  PVEUHI; NaN not allowed

**PVEXEULO**

**Point Type** Regulatory, Counter

Configure on Form *AM88-502* and *540*.

PV extended engineering unit low range. Defines the lowest value the PV can reach before clamping or becoming NaN, depending on the clamping action (PVCLAMP) (3.1.5.5 and 3.3.3 in *AM Control Functions*).

**Source** User

**Default Value** -2.9

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range**  $\geq$  PVEULO; NaN not allowed

**PVEXHIFL****Point Type** Regulatory, CounterIndicates if the PV has reached the extended high-range value (3.1.5.5 in *AM Control Functions*) (no form).**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** Off—If  $PV \leq PVEXEUHI$   
On—If  $PV > PVEXEUHI$ **PVEXLOFL****Point Type** Regulatory, CounterIndicates if the PV has reached the extended low-range value (3.1.5.5 in *AM Control Functions*) (no form).**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** Off—If  $PV \geq PVEXEULO$   
On—If  $PV < PVEXEULO$ **PVFLTOPT****Point Type** RegulatoryConfigure on Form *AM88-502*.PV filter option (3.1.5.3 in *AM Control Functions*).**Source** User**Default Value** None**Access Lock** Prog**Value Type** PVFLTOPT enumeration**Value Range** None—no PV filter  
Singlag—Single lag PV filter

**PVFORMAT**

**Point Type** Regulatory, Counter, and Numeric

Configure on Forms *AM88-502*, *520A*, and *540*.

PV format controls the number of decimal places displayed for the PV on the Operator Station. The number after the 'D' in the PVFORMAT selection determines how many digits after the decimal point are displayed (3.2.1 in *AM Control Functions*).

Example: If the PV is 84.501 and PVFORMAT is D2, the value is displayed as 84.50.

<b>Source</b> User	<b>Default Value</b> D1 (PV algos) D0 (others)	<b>Access Lock</b> Engr-DEB
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**Value Type** VALFORMT enumeration

**Value Range** D0—display no digits after the decimal point  
 D1—display one digit after the decimal point  
 D2—display two digits after the decimal point  
 D3—display three digits after the decimal point  
 D4—display four digits after the decimal point  
 D5—display five digits after the decimal point  
 D6—display six digits after the decimal point

**PVHHFL**

**Point/Algo Type** Regulatory and Counter

PV high-high alarm flag (4.3.1.8.4 in *System Control Functions*) (no form).

<b>Source</b> User	<b>Default Value</b> Off	<b>Access Lock</b> Read Only
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**Value Type** Boolean

**Value Range** Off—If PV >= PVHHTP  
 On—PV < PVHHTP

**PVHHPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the PV high-high alarm (Forms *AM88-570* and *540*) (4.3.1.8.4 in *System Control Functions*, and 3.1.7 and 3.3.4 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PVHHTP**

**Point Type** Regulatory and Counter

PV high-high alarm trip point value (4.3.1.8.4 in *System Control Functions*) (Form *AM88-570* and *540*).

**Source** User                                      **Default Value** NaN                                      **Access Lock** Supvr

**Value Type** Real

**Value Range** PVHITP to PVEXEUHI and NaN  
 Configuring PVHHTP as NaN disables the alarm; HM storage only if PVHITP is NaN.

**PVHHTR****Point Type** Regulatory

PV high-high alarm transition—indicates a transition in the PV high-high alarm state (PVHHFL, PVHHTP) (no form).

**Source** User                      **Default Value** NoChange                      **Access Lock** Read Only

**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from alarm  
 Alarm—First time in alarm

**PVHIFL****Point Type** Regulatory and Counter

PV high alarm flag (4.3.1.8.3 in *System Control Functions*) (no form).

**Source** User                      **Default Value** Off                      **Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off—f  $PV \leq \underline{PVHITP}$   
 On—If  $PV > \underline{PVHITP}$



**PVHITR****Point Type** Regulatory

PV high alarm transition—indicates a transition in the PV high alarm state (PVHIFL, PVHITP) (no form).

**Source** User                      **Default Value** NoChange                      **Access Lock** Read Only

**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from alarm  
 Alarm—First time in alarm

**PVINIT****Point Type** Regulatory

Program (CL block) request for PV initialization (13.3 in *AM Algorithm Engineering Data*) (no form).

**Source** User                      **Default Value** Off                      **Access Lock** Prog

**Value Type** Boolean

**Value Range** Off—Normal operation  
 On—PV initialization is requested

**PVLLFL****Point Type** Regulatory and Counter

PV low-low alarm flag (4.3.1.8.6 in *System Control Functions*) (no form).

**Source** User                      **Default Value** Off                      **Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off—If  $PV \geq PVLLTP$   
 On - If  $PV < PVLLTP$

**PVLLPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the PV low-low alarm (Forms *AM88-570* and *540*) (4.3.1.8.6 in *System Control Functions*, and 3.1.7 and 3.3.4 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PVLLTP**

**Point Type** Regulatory and Counter

PV low-low alarm trip point value (4.3.1.8.6 in *System Control Functions*) (Forms *AM88-570* and *540*).

**Source** User                                      **Default Value** NaN                                      **Access Lock** Supvr

**Value Type** Real, NaN

**Value Range** PVEXEULO to PVLOTP and NaN. Configuring as NaN disables the alarm. HM storage only if PVLOTP is NaN.

**PVLLTR****Point Type** Regulatory

PV low-low alarm transition—indicates a transition in the PV low-low alarm state (PVLLFL, PVLLTP) (no form).

**Source** User                      **Default Value** NoChange                      **Access Lock** Read Only

**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from alarm  
 Alarm—First time in alarm

**PVLOFL****Point Type** Regulatory and Counter

PV low alarm flag (4.3.1.8.5 in *System Control Functions*) (no form).

**Source** User                      **Default Value** Off                      **Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off - If  $PV \geq \underline{PVLOTP}$   
 On - If  $PV < \underline{PVLOTP}$

**PVLOPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the PV low alarm (Forms *AM88-570* and *540*) (4.3.1.8.5 in *System Control Functions*, and 3.1.7 and 3.3.4 in *AM Control Functions*).

**Source** User                                      **Default Value** Low                                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PVLOTP**

**Point Type** Regulatory and Counter

PV low alarm trip point value (4.3.1.8.5 in *System Control Functions*) (Forms *AM88-570* and *540*).

**Source** User                                      **Default Value** NaN                                      **Access Lock** Supvr

**Value Type** Real, NaN

**Value Range** PVLLTP to PVHITP and NaN. Configuring as NaN disables alarm.

**PVLOTR****Point Type** Regulatory

PV low alarm transition—indicates a transition in the PV low alarm state (PVLOFL, PVLOTP) (no form).

**Source** User                      **Default Value** NoChange                      **Access Lock** Read Only

**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from alarm  
 Alarm—First time in alarm

**PVNORMAL****Point Type** Flag

Contains a character string that represents the normal state of this Flag data point (3.4.3 in *AM Control Functions*) (Form AM88-510).

**Source** User                      **Default Value** Blanks                      **Access Lock** Engr-DEB

**Value Type** SD Enum**Value Range** Up to 8 characters**PVP****Point Type** Regulatory and Counter

The PV value expressed as a percentage of the PV range.

**Source** User                      **Default Value** ----                      **Access Lock** Read Only

**Value Type** Real**Value Range** Any real number

**PVROCNFL**

**Point Type** Regulatory and Counter

PV decreasing (negative) rate-of-change alarm flag (4.3.1.8.9 in *System Control Functions*).

**Source** User

**Default Value** Off

**Access Lock** Read Only

**Value Type** Boolean

**Value Range** Off—PV is within Rate of Change limit  
On—PV is out of the Rate of Change limit

**PVROCNPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the PV negative rate-of-change alarm (Forms *AM88-570* and *540*) (4.3.1.8.9 in *System Control Functions*, and 3.1.7 and 3.3.4 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PVROCNTTP**

**Point Type** Regulatory, Counter

PV decreasing (negative) rate-of-change alarm trip-point value (4.3.1.8.9 in *System Control Functions*) (Forms *AM88-570* and *540*).

**Source** User                      **Default Value** NaN                      **Access Lock** Supvr

**Value Type** Real, NaN

**Value Range**  $\geq 0.0$ , NaN  
Configuring PVROCNTTP as NaN disables the alarm

**PVROCNTR****Point Type** Regulatory

PV decreasing (negative) rate-of-change alarm transition. The value in this parameter is meaningful only for use by CL blocks on this point. It indicates whether the alarm flag state in PVRONFL changed during the present execution of this point.

**Source** User**Default Value** NoChange**Access Lock** Read Only**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from alarm  
 Alarm—First time in alarm

**PVROCPFL****Point Type** Regulatory and Counter

PV increasing (positive) rate-of-change alarm flag (4.3.1.8.8 in *System Control Functions*).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean

**Value Range** Off—PV is within Rate of Change limit  
 On—PV is out of the Rate of Change limit

**PVROCPPR**

**Point Type** Counter, Regulatory.

Alarm priority parameter for the PV positive rate-of-change alarm (Forms *AM88-570* and *540*) (4.3.1.8.8 in *System Control Functions*, and 3.1.7 and 3.3.4 in *AM Control Functions*).

**Source** User                      **Default Value** Low                      **Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PVROCPTP**

**Point Type** Regulatory and Counter

PV increasing (positive) rate-of-change alarm trip-point value (4.3.1.8.8 in *System Control Functions*) (Forms *AM88-570* and *540*).

**Source** User                      **Default Value** NaN                      **Access Lock** Supvr

**Value Type** Real

**Value Range**  $\geq 0.0$ , NaN  
 Configuring PVROCPTP as NaN disables this alarm.

**PVROCPTR****Point Type** Regulatory

PV increasing (positive) rate-of-change alarm transition. The value in this parameter is meaningful only for use by CL blocks on this point. It indicates whether the alarm flag state in PVRONFL changed during the present execution of this point.

**Source** User**Default Value** NoChange**Access Lock** Read Only**Value Type** ALTRAN enumeration

**Value Range** NoChange—No change from previous state  
 Rtn—First time return from previous state  
 Alarm—First time in alarm

**PVSGCHFL****Point Type** Regulatory and Counter

Significant PV-change alarm flag (4.3.1.8.7 in *System Control Functions*) (no form).

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean

**Value Range** Off—PV is within the significant change limit.  
 On—PV is out of the significant change limit.

**PVSGCHPR****Point Type** Counter, Regulatory.Alarm priority parameter for the PV significant change alarm (Forms *AM88-570* and *540*) (4.3.1.8.7 in *System Control Functions*, and 3.1.7 and 3.3.4 in *AM Control Functions*).**Source** User**Default Value** Low**Access Lock** Engr**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
 Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
 Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
 Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
 Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**PVSGCHTP****Point Type** Regulatory and CounterSignificant PV-change alarm trip-point value (4.3.1.8.7 in *System Control Functions*) (Forms *AM88-570* and *540*).**Source** User**Default Value** NaN**Access Lock** Supvr**Value Type** Real, NaN

**Value Range**  $\geq 0.0$ , or NaN  
 Configuring PVSGCHTP as NaN disables this alarm.

**PVSOURCE**

**Point Type** Regulatory and Counter

Configure on Forms *AM88-502* and *540*.

PV source defines the PV source initial value (3.1.2, 3.1.3, 3.1.5.4, 3.1.5.5, 3.1.5.6, 3.3.8, and 4.1.4.7 in *AM Control Functions*).

**Source** User                      **Default Value** Auto                      **Access Lock** Oper

**Value Type** PVSOURCE enumeration

**Value Range** Auto—Automatic PV—for Counter point, PV is calculated from the Counter input source.  
 Man—Manual PV—for Counter point, the user enters PV from Point Builder keys.  
 Sub—Substituted PV.

**PVSRCOPT**

**Point Type** Regulatory and Counter

Configure on Forms *AM88-502* and *540* (3.1.5.4 in *AM Control Functions*).

PV source option.

**Source** User                      **Default Value** OnlyAuto                      **Access Lock** Engr-DEB

**Value Type** PVSRCOPT enumeration

**Value Range** OnlyAuto—The PV source is always AUTO. The values of Man and Sub are not permitted for this point. For Counter points, PV is calculated from the counter input source.  
 All—The PV source can be Man, Auto, or Sub. For Counter points, the PV can be entered by either the Manual or Substituted sources.

**PVSTATES[0], PVSTATES[1]**

**Point Type** Flag

Configure on Form *AM88-510*.

One-by-two array of state descriptor string parameter/description. PVSTATES(0) is a state descriptor for the PV corresponding to STATE1, and is displayed with the lower box on the standard displays. The Value of PVSTATES(0) is equivalent to the parameter STATE1. PVSTATES(1) is the state descriptor for the PV corresponding to STATE2, and is displayed with the upper box on the standard displays. The value of PVSTATES(1) is equivalent to the parameter STATE2 (3.4 in *AM Control Functions*).

**Source** User

**Default Value** Blanks

**Access Lock** DEB

**Value Type** String

**Value Range** Up to 8 characters

**PVSTS**

**Point Type** Regulatory

Value status of PV (3.1.3, 3.1.5.4, 3.1.5.5, 3.1.5.6, 3.3.3, and 3.3.11 in *AM Control Functions*).

**Source** User

**Default Value** Bad

**Access Lock** Read Only

**Value Type** PVVALST enumeration

**Value Range** Normal—The value is good.  
 Uncertn—The value is uncertain.  
 Bad—The value is NaN.

**PVTRACK****Point Type** Regulatory

PV tracking option (18.4.5 in *AM Algorithm Engineering Data*). Applies to Pid, PidFf, and PidErFb control algorithms (Forms *AM88-551*, *555*, and *556*).

**Source** User                      **Default Value** NoTrack                      **Access Lock** Engr-DEB

**Value Type** TRACKING enumeration

**Value Range** NoTrack—The setpoint does not track the PV.  
 Track—The setpoint tracks the PV when any of the following conditions occur:

- the point is in the manual mode
- the point is being initialized from a secondary
- the first time through after becoming active
- cold or warm restart and the point is configured for external initialization

**PVTV****Point Type** Regulatory and Counter

Configure on Forms *AM88-502* and *540*.

Target value for PV (used if no control algorithm is selected). For Counter algorithm, defines PV target initial value, or calculates a deviation  $PV - PVTV$  used in deviation alarm processing (3.3.5 in *AM Control Functions*).

**Source** User                      **Default Value** NaN                      **Access Lock** Oper

**Value Type** Real, NaN**Value Range** PVEXEULO to PVEXEUHI or NaN**PVTVP****Point Type** Regulatory

PV target value in percent (no form).

**Source** User                      **Default Value** ---                      **Access Lock** Read Only

**Value Type** Real**Value Range** Any real number



## Q

**Point Type** Regulatory

Measured actual steam-quality factor for FlowComp PV algorithm (Section 4 in *AM Algorithm Engineering Data*) (Form *AM88-512*).

**Source** User

**Default Value** 1.0

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range** Any real number

## QSTS

**Point Type** Regulatory

Status of the FlowComp Q value.

**Source** User

**Default Value** Normal

**Access Lock** Read Only

**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good.  
 Uncertain—The value is uncertain.  
 Bad—The value is NaN.



**RampSoak (Control Algorithm)**

This algorithm produces an output that consists of up to six alternate ramp-and-soak periods—a total of 12 segments. The output is usually used as the setpoint for a secondary data point that uses a Pid algorithm to control a process variable, according to the ramp-and-soak periods. The PV of a data point that uses the RampSoak algorithm is normally the PV of the Pid point.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Ramp/Soak Control Algo Display</b>	<b>Control Output Connections Display</b>
NMODE NMODATTR MODEPERM EXTSWOPT	SPFORMAT SPEUHI SPEULO SPHILM SPLOLM SP SPOPT ADVDEVTP	INITTYPE MXRMPDEV MXSOKDEV NORSSEQ RATEX (1-6) SOAKTX(1-6) SOAKVX(1-6) S1SEGID S1BGNTIM S1ENDTIM S2SEGID S2BGNTIM S2ENDTIM NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

**RAMPTIME**

**Point Type** Regulatory

Remaining ramp time for SP target-value processing (3.1.6.2 in *AM Control Functions*) (no form).

**Source** User

**Default Value** 0.0

**Access Lock** Oper

**Value Type** Real

**Value Range** >= 0.0

**RANGEHI****Point Type** NumericConfigure on Form *AM88-520A*.PV High Range (3.2.2 in *AM Control Functions*).**Source** User**Default Value** NaN**Access Lock** Engr-DEB**Value Type** Real, NaN**Value Range** Configure RANGEHI as NaN for a PV unbounded in the positive direction.**RANGELO****Point Type** NumericConfigure on Form *AM88-520A*.PV Low Range (3.2.2 in *AM Control Functions*).**Source** User**Default Value** NaN**Access Lock** Engr-DEB**Value Type** Real**Value Range** Configure RANGELO as NaN for a PV unbounded in the negative direction.**RATE1****Point Type** RegulatoryConfigure on Form *AM88-558*.Applies to Auto Manual Station algorithm (14.4.1 in *AM Algorithm Engineering Data*).Ramp rate for output bias in change per minute. The rate at which the bias B BI ramps down from the initialization value to the last user set value. The ramp-down of B is disabled if RATE1 is set to zero.**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$ . NaN cannot be stored

**RATE1–RATE6**

**Point Type** Regulatory

Ramp rate in engineering-units per minute for RampSoak control algorithm (Section 22 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User

**Default Value** NaN

**Access Lock** Supvr

**Value Type** Real, NaN

**Value Range** > 0.0 or < 0.0. NaN cannot be stored

**RATIO**

**Point Type** Regulatory

Ratio value for Pid, PidFf, and PidErFb control algorithms (3.1.6.4 in *AM Control Functions* and 18.4.11 in *AM Algorithm Engineering Data*) (Form AM88-541).

**Source** User

**Default Value** 1.0

**Access Lock** Oper

**Value Type** Real

**Value Range** RTLOLM to RTHILM

## RatioCtl (Control Algorithm)

### RatioCtl (Control Algorithm)

This algorithm calculates a setpoint for a Pid algorithm that is the desired ratio of a controlled variable to an uncontrolled variable. The value of the controlled variable is maintained at a specified ratio of the value of the uncontrolled variable. The data point that uses this algorithm uses Equation B of the PV Multiplier/Divider algorithm to calculate the measured value of the ratio for displays and reports.

Ratio control can be accomplished with the ratio-control options of the PID or PID Feedforward control algorithms. This ratio-control algorithm has several advantages, including the display of the actual ratio attained (as calculated by the PV Multiplier/Divider algorithm), and direct control of the ratio through the SP of the Ratio algorithm.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Control Ratio Algorithm Display</b>	<b>Control Output Connections Display</b>
NMODE NMODATTR MODEPERM EXTSWOPT	SPFORMAT SPEUHI SPEULO SPHILM SPLOLM SP SPOPT AVDEVTP	NITYPE B1 B2 K1 K2 NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

### RBOPT

**Point Type** Regulatory

Ratio and Bias option for Pid, PidFf, and PidErFb control algorithms (3.1.6.4 in *AM Control Functions* and 18.4.11 in *AM Algorithm Engineering Data*) (Form AM88-541).

**Source** User                      **Default Value** NoRatBi                      **Access Lock** Prog

**Value Type** RBOPT enumeration

**Value Range** NoRatBi—No ratio/bias is used to calculate setpoint.  
FixRaBi—Fixed ratio and bias.  
AutoRat—Automatic ratio. Ratio is back-calculated during initialization.  
AutoBi—Automatic bias. Bias is back-calculated during initialization.

**REDBFMIN****Point Type** Processor Status

The minimum amount of space available (in words) in the redundancy buffer since the last startup, resynchronization, or failover. Value is available in the secondary AM only.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >0.0**REDBFZ****Point Type** Processor Status

Redundancy buffer size total in words. Value is available in the secondary AM only.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Real**Value Range** >0.0**REDCONFG****Point Type** Processor Status

Indicates whether or not this AM is configured for redundancy. Value is available in both primary and secondary AM.

**Source** User (NCF)**Default Value** N/A**Access Lock** Read Only**Value Type** Boolean**Value Range** True/False

**REDINOP****Point Type** Processor Status

Indicates whether or not redundancy is operating in this AM. Value is available in both primary and secondary AM.

**Source** System**Default Value** N/A**Access Lock** Read Only**Value Type** Boolean**Value Range** True/False**REDTAG****Point Type** Regulatory

Applies to control algorithms (no form).

Red tagging parameter.

**Source** User**Default Value** Off**Access Lock** Supvr/Eng**Value Type** REDTAG enumeration**Value Range** Off—Normal operation

On—To set On, the MODE must be Manual and the MODATTR must be Operator. Once On, the output MODE and MODATTR cannot be changed.

**REMSOAKT****Point Type** Regulatory

Remaining soak time in minutes for the RampSoak control algorithm (Section 22 in *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** 0.0**Access Lock** Oper**Value Type** Real**Value Range** 0.0 through 720.0



**RESTART**

**Point Type** All point types except Numeric and Flag

Restart type (no form) (2.7 in *AM Control Functions*).

**Source** User                      **Default Value** None                      **Access Lock** Read Only

**Value Type** RESTART enumeration

**Value Range** None—No restart  
 Hot—Point is running the first time after a Hot Restart.  
 Warm—Point is running the first time after a Warm Restart.  
 Cold—Point is running the first time after a Cold Restart.  
 PtActvn—Point is running the first time after becoming active.  
 NoProc—AM has been restarted with no point processing.

**RESYNCS(n)**

**Point Type** Processor Status

An array of six values that contain the number of resynchronizations since this AM was started due to a given cause, as follows:

- RESYNCS(1) Total number of all resynchronizations
- RESYNCS(2) Number of redundant bus parity resynchronizations
- RESYNCS(3) Number of insufficient room resynchronizations
- RESYNCS(4) Number of clean-point-too-large resynchronizations
- RESYNCS(5) Number of transient-backdoor-failure resynchronizations
- RESYNCS(6) Number of transient-LCN-failure resynchronizations

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Real

**Value Range** =>0.0

**RFB**

Reset feedback input, in %, to PidErFb control algorithm (Section 20 in *AM Algorithm Engineering Data*) (no form).

**Source** User                      **Default Value** ----                      **Access Lock** Read Only

**Value Type** Real

**Value Range** Any real number

**RFBSTS****Point Type** RegulatoryStatus of the RFB value.**Source** User**Default Value** Bad**Access Lock** Read Only**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good.  
 Uncertn—The value is uncertain.  
 Bad—The value is NaN.

**RG****Point Type** RegulatoryReference specific gravity input or reference molecular weight input to FlowComp PV algorithm, in the same engineering units as the G input (4.5 in *AM Algorithm Engineering Data*) (Form *AM88-512*).**Source** User**Default Value** 1.0**Access Lock** Supvr**Value Type** Real**Value Range** Any real number**ROLLOVER****Point Type** CounterAV Rollover value (no form) (3.3.6, 3.3.8, and 3.3.11 in *AM Control Functions*).**Source** User**Default Value** 0**Access Lock** Oper**Value Type** Integer**Value Range** 0 through 32767

**RP**

**Point Type** Regulatory

Reference pressure input to FlowComp PV algorithm, in the same engineering units as the P input (4.5 in *AM Algorithm Engineering Data*) (Form AM88-512).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

**RQ**

**Point Type** Regulatory

Reference steam-quality input to FlowComp PV algorithm, in the same engineering units as the Q input (4.5 in *AM Algorithm Engineering Data*) (Form AM88-512).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

**RSPBGP\$\$**

**Point Type** Regulatory

Applies to Ramp Soak algorithm (no form).

**\*\*For MMI use only\*\*** If ramp segment, return value of next soak in %. If soak segment, return REMSOAKT as % of total soak time.

**Source** User                      **Default Value** ----                      **Access Lock** Read Only

**Value Type** Real

**Value Range** Any real number

**RT****Point Type** Regulatory

Reference temperature input to FlowComp PV algorithm, in the same engineering units as the T input (4.5 in *AM Algorithm Engineering Data*) (Form *AM88-512*).

**Source** User                      **Default Value** 1.0                      **Access Lock** Supvr

**Value Type** Real**Value Range** Any real number**RTHILM**

Configure on Form *AM88-441*.

Applies to Control algorithms except Switch, Override Selector, Incremental Summer, and Auto Manual Station.

Ratio high limit. Ratios above this limit are clamped (3.1.6.4 in *AM Control Functions*).

**Source** User                      **Default Value** 100.0                      **Access Lock** Supvr

**Value Type** Real**Value Range**  $\geq$  RTLLOLM,  $\leq$  100.0; NaN not allowed**RTLLOLM****Point Type** Regulatory

Configure on Form *AM88-541*.

Applies to Control algorithms except Switch, Override Selector, Incremental Summer, and Auto Manual Station.

Ratio low limit. Ratios below this limit are clamped (3.1.6.4 in *AM Control Functions*).

**Source** User                      **Default Value** 0.01                      **Access Lock** Supvr

**Value Type** Real**Value Range** 0.01 to RTHILM; NaN not allowed

**RX****Point Type** RegulatoryConfigure on Form *AM88-512*.

Applies to Flow Compensation algorithm.

Reference steam compressibility at designed flowing conditions.

**Source** User**Default Value** 1.0**Access Lock** Supvr**Value Type** Real**Value Range** Any real number

## S1

**Point Type** Regulatory

Switch or flag value for PidErFb, RampSoak, and Switch control algorithms. Use and meaning vary according to the algorithm (see the table below) (no form).

- PidErFb—See Section 20 in *AM Algorithm Engineering Data*
- RampSoak—See Section 22 in *AM Algorithm Engineering Data*
- Switch—See Section 25 in *AM Algorithm Engineering Data*

<u>Algorithm</u>	<u>Description</u>	<u>Default Value</u>	<u>Access Lock</u>
PidErFb	Tracking Switch Control	Off	Prog
RampSoak	Mark-Timer Flag	Off	Read Only
Switch	Select X1	On	Oper (EqA) Prog (EqB)

**Value Type** Boolean

**Value Range** Off—Normal operation  
On—Initialization request flag (for PidErFb)  
—Select X1 input (for Switch)

## S1ACCLVL

**Point Type** Regulatory and Switch

Configure on Form *AM88-550* and *580*.

Access level choice for who can store to the S1REQSTS parameter. A choice automatically guarantees that those of higher access level can perform the store (4.2 in *AM Control Functions*).

**Source** User

**Default Value** Engr

**Access Lock** Engr-DEB

**Value Type** ACCLVL enumeration

**Value Range** Operator—The operator, supervisor, engineer, or program continuous control has access.  
Supervise—The supervisor, engineer, or program continuous control has access.  
Engineer—The engineer or program continuous control has access.  
Program—Only the program continuous control has access.

**S1BGNTIM****Point Type** Regulatory

Beginning time, in minutes, for mark-time flag 1 of RampSoak PV algorithm (22.4.5 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$ **S1CURSTS****Point Type** Switch and Regulatory

Configure on Form AM88-550 and 580.

Initial state of Switch 1 (DEB), or current state of Switch 1 (operating) (4.2 in *AM Control Functions*.) This parameter is present only when NUMSWITCH  $\geq 1$ .

**Source** User**Default Value** first state**Access Lock** Prog**Value Type** Sd Enum – S1STATES**Value Range** Up to 5 Self-Defined Enumeration states (Refer to S1NSTATE, S1STATES)**S1ENDTIM****Point Type** Regulatory

Ending time, in minutes, for mark-time flag 1 of RampSoak PV algorithm (22.4.5 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range**  $\geq 0.0$

**S1NSTATE****Point Type** Regulatory and SwitchConfigure on Form *AM88-550* and *580*.Number of valid states for Switch 1 (4.2 in *AM Control Functions*).**Source** User**Default Value** 2**Access Lock** DEB**Value Type** Integer**Value Range** 1 through 5**S1REQSTS****Point Type** Regulatory and SwitchConfigure on Form *AM88-550* and *580*.Requested state for Switch 1 (4.2 in *AM Control Functions*).**Source** User**Default Value** first state**Access Lock** Oper\*\* Further checked against  
S1ACCLVL by data owner.**Value Type** Sd Enum – S1STATES**Value Range** Up to 5 self-defined enumeration states (Refer to S1NSTATE, S1STATES)**S1SEGID****Point Type** RegulatoryMark time 1 segment identity for RampSoak PV algorithm (22.4.5 in *AM Algorithm Engineering Data*) (Form *AM88-563*).**Source** User**Default Value** Ramp1**Access Lock** Supvr**Value Type** S1SEGID enumeration**Value Range** Ramp1 Soak1  
Ramp2 Soak2  
Ramp3 Soak3  
Ramp4 Soak4  
Ramp5 Soak5  
Ramp6 Soak6

## S1STATES(0) – S1STATES(4)

### S1STATES(0) – S1STATES(4)

**Point Type** Switch and Regulatory

State names for CL Switch states (4.2 in *AM Control Functions*). These parameters exist only when NUMSWITCH  $\geq$  1 (Forms AM88-550 and 580).

**Source** User

**Default Value** Blanks

**Access Lock** DEB

**Value Type** Array of 8-character strings. The size of the array for each of these parameters is equal to the value in S1NSTATES.

**Value Range** Alphanumeric strings up to 8 characters in length

### S2

**Point Type** Regulatory

Flag or switch value for RampSoak and Switch control algorithms. Function varies with the algorithm (see table below).

- RampSoak—See Section 22 in *AM Algorithm Engineering Data*
- Switch—See Section 25 in *AM Algorithm Engineering Data*

Algorithm	Description	Default Value	Access Lock
RampSoak Switch	Mark-Timer Flag Select X2	Off Off	Read Only Operator

**Value Type** Boolean

**Value Range** Off—Normal Operation  
On—select X2 input (Switch)

**S2ACCLVL**

**Point Type** Switch and Regulatory

Configure on Form *AM88-550* and *580*.

Switch 2 access level. Defines which access level can start a new value in the S2REQSTS parameter. A choice automatically guarantees that those of higher access can perform the store (3.7.1 and 4.2 in *AM Control Functions*).

**Source** User

**Default Value** Engr

**Access Lock** Engr-DEB

**Value Type** ACCLVL enumeration

**Value Range** Operator—The operator, supervisor, engineer, or program continuous control has access.  
Supervis—The supervisor, engineer, or program continuous control has access.  
Program—Only the program continuous control has access.

**S2BGNTIM**

**Point Type** Regulatory

Beginning time, in minutes, for mark-time flag 2 of RampSoak PV algorithm (22.4.5 in *AM Algorithm Engineering Data*) (Form *AM88-563*).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** >= 0.0

**S2CURSTS**

**Point Type** Switch and Regulatory

Configure on Form *AM88-550* and *580*.

Initial state of Switch 2 (DEB), or current state of Switch 1 (operating) (4.2 in *AM Control Functions*). This parameter is present only when NUMSWITCH =2.

**Source** User

**Default Value** first state

**Access Lock** Prog

**Value Type** Sd-Enum – S2STATES

**Value Range** Up-to-5 self-defined enumeration states (refer to S2NSTATE, S2STATES).

**S2ENDTIM****Point Type** Regulatory

Ending time, in minutes, for mark-time 2 of RampSoak PV algorithm (22.4.5 in *AM Algorithm Engineering Data*) (Form *AM88-563*).

**Source** User                      **Default Value** 0.0                      **Access Lock** Supvr

**Value Type** Real**Value Range** >= 0.0**S2NSTATE****Point Type** Switch and Regulatory

Configure on Form *AM88-550* and *580*.

Number of valid states for Switch 2 (3.7.1 and 4.2 in *AM Control Functions*).

**Source** User                      **Default Value** 2                      **Access Lock** DEB

**Value Type** Integer**Value Range** 1 through 5**S2REQSTS****Point Type** Switch and Regulatory

Configure on Form *AM88-550* and *580*.

Requested state for Switch 2 (3.7.1 and 4.2 in *AM Control Functions*).

**Source** User                      **Default Value** First state                      **Access Lock** Oper\*  
 \* Further checked against S2ACCLVL by data owner

**Value Type** Sd Enum S2STATES**Value Range** Up to 5 self-defined enumeration states (ref S2NSTATE, S2STATES).

**S2SEGID****Point Type** Regulatory

Mark time 2 segment identity for RampSoak PV algorithm (22.4.5 in *AM Algorithm Engineering Data*) (Form AM88-563).

**Source** User**Default Value** Ramp1**Access Lock** Supvr**Value Type** S2SEGID enumeration

**Value Range** Ramp1 Soak1  
 Ramp2 Soak2  
 Ramp3 Soak3  
 Ramp4 Soak4  
 Ramp5 Soak5  
 Ramp6 Soak6

**S2STATES(0) – S2STATES(4)****Point Type** Switch and Regulatory

Character string representations of each valid/current requested state for Switch 2 (4.2 in *AM Control Functions*). These parameters are present only when NUMSWTCH =2. (Forms AM88-550 and 580).

**WARNING**

Because of linked CL blocks, changing state names can have possible unforeseen consequences.

**Source** User**Default Value** None**Access Lock** Engr-DEB

**Value Type** Array of 8-character strings. The size of the array for each of these parameters is equal to the value in S2NSTATES.

**Value Range** Alphanumeric string up to 8 characters in length

**S3****Point Type** Switch

Switch value for Switch control algorithm (25.4.2 in *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** Off**Access Lock** Oper**Value Type** Boolean

**Value Range** Off—Normal operation  
On—Select X3 input

**S4****Point Type** Switch

Switch value for Switch control algorithm (25.4.2 in *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** Off**Access Lock** Oper**Value Type** Boolean

**Value Range** Off—Normal operation  
On—Select X4 input

**SALMDSC1 – SALMDSC3****Point Type** Switch

Configure on Form *AM88-550*.

Switch alarm 1 to 3 descriptions (3.7.3 in *AM Control Functions*).

**Source** User**Default Value** Blanks**Access Lock** Engr**Value Type** String**Value Range** Up to 8 characters

**SALMFL1 – SALMFL3****Point Type** Switch

Switch alarm flags 1 to 3. Alarm level is lowest for switch alarm 1 to highest for switch alarm 3 (no form) (3.7.3 in *AM Control Functions*).

**Source** System**Default Value** Off**Access Lock** Prog**Value Type** Boolean

**Value Range** Off—Not in alarm  
On—In alarm

**SALMTR1 – SALMTR3****Point Type** Switch

Switch alarm transition 1 to 3, corresponding to switch alarm Flags 1 to 3, respectively (no form) (3.7.3 in *AM Control Functions*).

**Source** System**Default Value** No Change**Access Lock** Read Only**Value Type** ALTRAN enumeration

**Value Range** No Change—Alarm state has not changed, is same as previous execution cycle.  
Rtn—Alarm state has returned to normal.  
Alarm—Alarm state changed to "In Alarm."

**SECARW(N)****Point Type** Regulatory

Windup status of the secondary as designated by the control output connection (N), where index (N) varies from 1 through 8 depending on your configuration entry (no form) (3.1.10.1 and 3.1.10.2 in *AM Control Functions*).

**Source** User**Default Value** Normal**Access Lock** Read Only**Value Type** WINDDUP enumeration

**Value Range** Normal—Free to move in either direction  
Hi—Free to move in the lower direction  
Lo—Free to move in the higher direction  
HiLo—Not free to move in any direction



**SELXINP****Point Type** Regulatory

Selected X input for OrSel or Switch control algorithms (Sections 23 and 25 in *AM Algorithm Engineering Data*) (no form).

**Source** User**Default Value** 1**Access Lock** Oper-EqA  
Read Only-EqB**Value Type** XINP enumeration**Value Range** SelectX1 through SelectX4**SNAPTIME****Point Type** Processor Status

Time in seconds for the snapshot period for various processor-status data-point parameters; for example, PFAVGS, PRAVGS, PSAVGS (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Integer**Value Range** 0 through 32767**SOAKT1 through SOAKT6****Point Type** Regulatory

For the RampSoak PV algorithm, soak time for segment SOAK(n), in minutes (Section 22 in *AM Algorithm Engineering Data*) (Form AM88-463).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range** 0.0 to 720.0 minutes

## SOAKV1 through SOAKV6

### SOAKV1 through SOAKV6

**Point Type** Regulatory

For the RampSoak PV algorithm, soak value for segment SOAK(n), in engineering units (Section 22 in *AM Algorithm Engineering Data*) (Form *AM88-463*).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

### SP

**Point Type** Regulatory

Configure on Form *AM88-441*.

Applies to Control algorithms.

Setpoint in Engineering Units (3.1.3, 3.1.4.5, 3.1.6.4, 3.5.1, 4.1.4.1, and 4.1.4.2 in *AM Control Functions*).

**Source** User

**Default Value** ---

**Access Lock** Oper

**Value Type** Real

**Value Range** SPLOLM to SPHILM; NaN not allowed

### SP

**Point Type** Timer

Set Time. (Form *AM88-430*)

**Source** User

**Default Value** NaN

**Access Lock** Oper

**Value Range** 0 to 999999, NaN

If SP for timer is configured as NaN, PV recycles from 0 to 999999.

If SP ≠ NaN, the timer automatically stops when PV ≥ SP.

**SPEUHI****Point Type** RegulatoryConfigure on Form *AM88-441*.

Applies to Control algorithms.

Setpoint Engineering Unit high range corresponding to 100% (3.1.8.1 in *AM Control Functions*).**Source** User**Default Value** 100.0**Access Lock** Engr-DEB**Value Type** Real**Value Range**  $\geq$  SPEULO; NaN not allowed**SPEULO****Point Type** RegulatoryConfigure on Form *AM88-441*.

Applies to Control algorithms.

Setpoint Engineering Unit low range corresponding to 0% (3.1.8.1 in *AM Control Functions*).**Source** User**Default Value** 0.0**Access Lock** Engr-DEB**Value Type** Real**Value Range**  $\leq$  SPEUHI; NaN not allowed**SPEXEUHI****Point Type** Regulatory

Applies to Control algorithms (no form).

Setpoint extended Engineering Unit high range.

**Source** User**Default Value** ----**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq$  SPEXEULO

**SPEXEULO****Point Type** Regulatory

Applies to Control algorithms (no form).

Setpoint extended Engineering Unit low range.

**Source** User**Default Value** ----**Access Lock** Read Only**Value Type** Real**Value Range** >= SPEXEUHI**SPFORMAT****Point Type** RegulatoryConfigure on Form *AM88-441*.

Applies to Control algorithms.

Setpoint decimal place format. Controls the on-process MMI display format for the SP and SP-related parameters. The number “D” in each selection indicates how many digits after the decimal point are displayed.

Example: Selecting D2 causes the number 8.237245 to be displayed as 8.23.

**Source** User**Default Value** D1**Access Lock** Engr-DEB**Value Type** VALFORMT enumeration

**Value Range** D0—display no digits after the decimal point  
 D1—display one digit after the decimal point  
 D2—display two digits after the decimal point  
 D3—display three digits after the decimal point  
 D4—display four digits after the decimal point  
 D5—display five digits after the decimal point  
 D6—display decimal point

**SPHIFL****Point Type** Regulatory

Applies to Control algorithms (no form).

SP high limit violation flag.**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** Off—If SP <= SPHILMOn—If SP > SPHILM**SPHILM****Point Type** RegulatoryConfigure on Form *AM88-441*.

Applies to Control algorithms.

Setpoint high limit in Engineering Units of PV.

**Source** User**Default Value** NaN**Access Lock** Supvr**Value Type** Real, NaN**Value Range** SPLOLM to SPEXEUHI, or NaN (causes the value in SPEXEUHI to be stored in SPHILM)**SPLOCK****Point Type** TimerConfigure on Form *AM88-430*.Setpoint lock for Timer data points. Prohibits or permits a US operator to change the set-time value in SP (3.5 in *AM Control Functions*) (Form *AM88-430*).**Source** User**Default Value** Permit**Access Lock** Engr-DEB**Value Type** MODEPERM enumeration**Value Range** Permit—Allow operator to change the timer's set-time parameter

NotPerm—Do not allow the operator to change the timer's set-time parameter

**SPLOFL****Point Type** Regulatory

Applies to Control algorithms (no form).

Setpoint low limit violation flag.

**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** Off— $SP \geq SPLOLM$   
On— $SP < SPLOLM$ **SPLOLM****Point Type** RegulatoryConfigure on Form *AM88-441*.

Applies to Control algorithms.

Setpoint low limit.

**Source** User**Default Value** NaN**Access Lock** Supvr**Value Type** Real, NaN**Value Range** SPEXEULO to SPHILM, or NaN (causes the value in SPEXEULO to be stored in SPLOLM)**SPOPT****Point Type** RegulatorySetpoint-processing option for regulatory data points (3.1.6 in *AM Control Functions*) (Form *AM88-441*).**Source** User**Default Value** None**Access Lock** Prog**Value Type** SPOPT enumeration**Value Range** None—normal setpoint processing  
Tv—target-value processing (3.1.6.2 in *AM Control Functions*).  
Asp—advisory-deviation alarming (3.1.6.3 in *AM Control Functions*).

**SPP****Point Type** Regulatory

Applies to Control algorithms (no form).

Setpoint in percent.

**Source** User                      **Default Value** ----                      **Access Lock** Read Only**Value Type** Real**Value Range** SPLOLM to SPHRLM**SPSTS****Point Type** Regulatory

Applies to Control algorithms (no form).

Setpoint value status.

**Source** User                      **Default Value** Normal                      **Access Lock** Read Only**Value Type** PVVALST enumeration**Value Range** Normal—The value is good  
Uncertn—The value is uncertain  
Bad—The value is NaN**SPTV****Point Type** Regulatory

Applies to Control algorithms (no form).

Setpoint target value in Engineering Units (3.1.6.2 in *AM Control Functions*).**Source** User                      **Default Value** ----                      **Access Lock** Oper**Value Type** Real**Value Range** SPEXEULO to SPEXEUHI

**SPTVP****Point Type** RegulatorySPTV value expressed in % of range.**Source** User**Default Value** ----**Access Lock** Read Only**Value Type** Real**Value Range** SPLOLM to SPHILM**STATE****Point Type** Regulatory, Timer, and CounterApplies to Totalizr algorithm (no form).State of the totalizer (3.3.6, 3.3.8, 3.3.11, 3.5.1, and 3.5.4 in *AM Control Functions*).**Source** User**Default Value** Stopped**Access Lock** Read Only**Value Type** STATE enumeration**Value Range** Running—Normal running operation  
Stopped—The timer or accumulation has stopped.**STATE1****Point Type** FlagConfigure on Form *AM88-410*.State 1 descriptor. (See PVSTATES[0], PVSTATES[1]) (3.4 in *AM Control Functions*).**Source** User**Default Value** Blanks**Access Lock** Engr-DEB**Value Type** String**Value Range** Up to 8 characters

**STATE2****Point Type** FlagConfigure on Form *AM88-410*.State 2 descriptor (see PVSTATES[0], PVSTATES[1]) (3.4 in *AM Control Functions*).**Source** User**Default Value** Blanks**Access Lock** Engr-DEB**Value Type** String**Value Range** Up to 8 characters**STRAVGC****Point Type** Processor Status

Average number of parameter stores per second during the current hour (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$ **STRAVGP****Point Type** Processor Status

Average number of parameter stores per second during the previous hour (no form).

**Source** User**Default Value** 0**Access Lock** Read Only**Value Type** Real**Value Range**  $\geq 0.0$

**STRAVGS**

**Point Type** Processor Status

Average number of parameter stores per second during the last snapshot period (nominally 10 seconds) (no form).

**Source** User

**Default Value** 0

**Access Lock** Read Only

**Value Type** Real

**Value Range**  $\geq 0.0$

**STRTSTOP**

**Point Type** Timer

Start/Stop Timer Control (no form) (3.3.8 and 3.3.10 in *AM Control Functions*).

**Source** User

**Default Value** Stop

**Access Lock** Oper

**Value Type** STRTSTOP enumeration

**Value Range** Start—Start timer operation  
Stop—Stop timer operation

## Summer (Control Algorithm)

### Summer (Control Algorithm)

This algorithm is similar to PV-algorithm [Summer](#).

This algorithm calculates an output that is the scaled sum of up to three input variables. A bias value can be included in the sum.

Two equations are available. One adds a single scaled input to the bias value. The other adds up to four scaled inputs, multiplies the result by an overall scale factor, and adds the bias value.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>Control Common Display</b>	<b>Setpoint Display</b>	<b>Mul/Div Algo Display</b>	<b>Control Input Connections Display</b>	<b>Control Output Connections Display</b>
NMODE NMODATTR MODEPERM EXTSWOPT	SPFORMAT SPEUHI SPEULO SPHILM SPLOLM SP SPOPT AVDEVTP	CTLEQN INITTYPE K B K M K1 K2 K3 K4	NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

### Summer (PV Algorithm)

This algorithm calculates a PV ([PVCALC](#)) that is one of up to eight input values. The input values can be scaled, the combined inputs can be scaled, and a bias value can be added to the result.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>PV Common Display</b>	<b>AM-Reg PV Summer Display</b>	<b>Input Connections Display</b>
PVFORMAT PVEUHI PVEULO PVEUHI PVEUULO PVCLAMP PVSRCOPT PVSOURCE PVFLTPT TF IN MIN PVTV	PVEQN C D N C1 : C8	NOPINPTS PISRC(N) PIDSTN(N) PIACTSTS(N)

**SumProd (PV Algorithm)**

**SumProd (PV Algorithm)**

This algorithm calculates a PV (PV CALC) that is either the sum of two 2-term products (Equation A) or the sum of two 3-term products (Equation B). The individual inputs and the whole calculation can be scaled, bias values can be added to the inputs, and a bias can be added to the whole calculation.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

PV Common Display	AM-Reg PV Sumprod Display	Input Connections Display
PV FORMAT PVEUHI PVEULO PVEXEUHI PVXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLTOPT TFINMIN PVTV	PVEQN C D (Scaling Constant): INPUT1 } : } * INPUT7 } (Bias Constant): INPUT1 } : } ** INPUT7 } P2 : P7	NOIMPTS PISRC(N) PIDSTN(N) PIACTSTS(N)

\* Appears on Detail display as C1-C7.  
 \*\* Appears on Detail display as D1-C7.

## Switch (Control Algorithm)

### Switch (Control Algorithm)

This algorithm operates as a single-pole, 4-position rotary switch. An operator at a Universal Station, a user-written program, or user-configured logic can change the position of the switch, thereby selecting any one of the four inputs to be the control-algorithm output value, CV.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<b>Control Common Display</b>	<b>Control Switch Algo Display</b>	<b>Control Output Connections Display</b>
NMODE NMODATTR MODEPERM EXTSWOPT	CTLEQN INITTYPE M XEUHI XEULO TRACKING NOCINPTS CISRC(N) CIDSTN(N) CIACTSTS(N)	NOCOPTS CODSTN(N) COACTSTS(N) OPHILM OPLOLM OPMCHLM OPROCLM

### SUPPIO

**Point Type** Regulatory

Permits or suppresses display of the PV input and output (OP) for this point on its Overview and Group displays (Form *AM88-401*).

**Source** User

**Default Value** NoSuppr

**Access Lock** Engr-DEB

**Value Type** SUPPIO enumeration

**Value Range** NoSuppr—No display suppression  
InpSuppr—Suppress PV-input display  
OutSuppr—Suppress OP display

**SWALM1PR – SWALM3PR**

**Point Type** Switch.

Alarm priority parameters for Switch Alarms 1, 2, and 3 (Form AM88-550) (3.7 in *AM Control Functions*).

**Source** User

**Default Value** Low

**Access Lock** Engr

**Value Type** ALPRIOR enumeration

**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

## -T-

## T

**Point Type** Regulatory

Measured, actual temperature input to the FlowComp PV algorithm. Typically acquired with a general-input connection, but can be configured with a constant value (4.5 in *AM Algorithm Engineering Data*) (Form AM88-512).

**Source** User

**Default Value** 1.0

**Access Lock** Engr-DEB

**Value Type** Real

**Value Range** Any real number

## T0

**Point Type** Regulatory

Zero reference for temperature for the FlowComp PV algorithm. In the same engineering units as T, typically 459.69 for °F or 273.15 for °C (minus sign is omitted—the algorithm assumes it) (4.5 in *AM Algorithm Engineering Data*) (Form AM88-512).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** Any real number

## T1

**Point Type** Regulatory

Configure on Forms *AM88-551*, *552*, *555*, and *556*.

Applies to Control algorithms Pid, Pid External Reset Feedback, Pid Feedforward, and LeadLag.

For Pid algorithms, T1 is integral (or reset) time in minutes. Integral action can be disabled by setting T1 to 0.0.

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** 0.0 to 2880.0

**T2****Point Type** RegulatoryConfigure on Forms *AM88-551*, *552*, *555*, and *556*.

Applies to Control algorithms Pid, Pid External reset Feedback, Pid Feedforward, and LeadLag.

For Pid algorithms, T2 is derivative time in minutes. Derivative action can be disabled by setting T2 to 0.0.For LeadLag algorithm, T2 is Lead Time constant in minutes. T1 must be nonzero to specify T2.**Source** User                      **Default Value** 0.0                      **Access Lock** Supvr**Value Type** Real**Value Range** For PID algorithms, 0.0 to 1440.0  
For Lag algorithm, -1440.0 to 1440.0**T3****Point Type** RegulatorySecond lag-time constant for LeadLag control algorithm (Section 16 in *AM Algorithm Engineering Data*) (Form *AM88-552*).**Source** User                      **Default Value** 0.0                      **Access Lock** Supvr**Value Type** Real**Value Range** 0.0 to 1440.0**TD****Point Type** RegulatoryDead-time value for the VdtLdLag PV algorithm (Section 12 in *AM Algorithm Engineering Data*) (Form *AM88-518*).**Source** User                      **Default Value** 0.0                      **Access Lock** Supvr**Value Type** Real**Value Range** >= 0.0

**TESTSTAT(N)**

**Point Type** Regulatory, Custom, and Switch

CL block test status (no form).

**Source** User

**Default Value** False

**Access Lock** Engr-DEB

**Value Type** Array (1..255) of Boolean

**Value Range** True—CL block is under test  
False—CL block is not under test

**TF**

**Point Type** Regulatory

Lag time-constant, in minutes, for PV filtering (3.1.5.3 in *AM Control Functions*) (Form AM88-502).

**Source** User

**Default Value** 0.0

**Access Lock** Supvr

**Value Type** Real

**Value Range** 0.0 to 1440.0

**TIMEBASE**

**Point Type** Regulatory and Timer

Timebase for Totalizr PV algorithm (7.5 in *AM Algorithm Engineering Data*), and for Timer points (3.5.1 in *AM Control Functions*) (Form AM88-519 and 530).

**Source** User

**Default Value** Minutes

**Access Lock** Engr-DEB

**Value Type** TIMEBASE enumeration

**Value Range** Seconds  
Minutes  
Hours

**TIMEDOWN(I)**

**Point Type** Processor Status

Number of seconds the Unit was down before the last startup (no form).

**Source** System                      **Default Value** N/A                      **Access Lock** Read Only

**Value Type** Array (1..100) of Time/Date

**Value Range** >= 0.0

**TIMELEFT**

**Point Type** Timer

Remaining time (no form) (3.5.1 in *AM Control Functions*).

**Source** User                      **Default Value** \*                      **Access Lock** Read Only  
 \*Calculated as (SP-PV)  
 if SP ≠ NaN; else = NaN.

**Value Type** Real, NaN

**Value Range** 0 to 999999 or NaN

**TIMOUTAL**

**Point Type** Timer

Configure on Form *AM88-530*.

Timeout Alarm Configuration (3.5.1 and 3.5.2 in *AM Control Functions*).

**Source** User                      **Default Value** Off                      **Access Lock** Supvr

**Value Type** Boolean

**Value Range** Off—No Time-Out alarm configuration.  
 On—Time-out alarm is detected when PV is greater than or equal to SP (and SP is not NaN).

**TIMOUTFL****Point Type** TimerTime Out Alarm Flag (no form) (3.5.1, 3.5.2, and 3.5.4 in *AM Control Functions*).**Source** User**Default Value** Off**Access Lock** Read Only**Value Type** Boolean**Value Range** Off—If  $PV < SP$   
On—If  $PV \geq SP$ **TIMOUTPR****Point Type** Timer.Alarm priority parameter for the Timeout alarm (Form AM88-530) (3.5.2, and 3.5.5 in *AM Control Functions*).**Source** User**Default Value** Low**Access Lock** Engr**Value Type** ALPRIOR enumeration**Value Range** No Action—Alarm is not displayed, printed, annunciated, or recorded in a journal.  
Journal—Alarm is recorded only in the alarm journal. It is not displayed, printed, or annunciated.  
Low, High, and Emergency—Alarm is displayed, printed, and recorded in the alarm journal with the Low, High, and Emergency priority shown.  
Printer—Alarm is printed. It is not displayed, journaled, or annunciated.  
Jnlprint—Alarm is journaled and printed. It is not displayed or annunciated.

**TLD****Point Type** Regulatory

Lead-compensation time constant in minutes for the VdtLdLag PV algorithm (Section 12 in *AM Algorithm Engineering Data*) (Form AM88-518).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range** -1440.0 to +1440.0

When set to zero, the lead component is eliminated.

TLD must satisfy the following inequality:

(10 times PERIOD [in minutes] is equal to or less than  $\text{ABS}(\text{TLD})$  is equal to or less than (10 times TLG1).

**TLG1****Point Type** Regulatory

Lag-compensation time constant 1, in minutes for the VdtLdLag PV algorithm (Section 12 in *AM Algorithm Engineering Data*) (Form AM88-518).

**Source** User**Default Value** 0.0**Access Lock** Supvr**Value Type** Real**Value Range** 0.0 to 1440.0; when set to 0.0, the lag component is eliminated.TLG1 must be equal to or greater than two times PERIOD (in minutes).

**TLG2**

**Point Type** Regulatory

Lag-compensation time constant 2, in minutes for the VdtLdLag PV algorithm (Section 12 in *AM Algorithm Engineering Data*) (Form AM88-518).

**Source** User                                      **Default Value** 0.0                                      **Access Lock** Supvr

**Value Type** Real

**Value Range** 0.0 to 1440.0  
 When set to 0.0, the, the lag component is eliminated.  
TLG2 must be equal to or greater than two times PERIOD (in minutes).

**TMEMCDPN**

**Point Type** Processor Status

Total memory used for Custom Data Descriptions and for point names in the AM (no form).

**Source** System                                      **Default Value** 0.0                                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**TMEMCL**

**Point Type** Processor Status

Total memory used for CL storage in the AM (no form).

**Source** System                                      **Default Value** N/A                                      **Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**TMEMPTS**

**Point Type** Processor Status

Total memory used for data points in the AM (no form).

**Source** System

**Default Value** N/A

**Access Lock** Read Only

**Value Type** Real

**Value Range** >= 0.0

**Totalizr (PV algorithm)**

This algorithm provides a time-scaled accumulation of a single-input value. The input value is typically a flow measurement. The time-base can be seconds, minutes, or hours.

A data point that uses this algorithm cannot use a control algorithm.

The accumulation can be started, stopped, and reset by commands from a Universal Station operator or from a user-written program. An operator or user-written program can establish a target value for the accumulation. Status indicators are available to indicate that the accumulation is near the target value, nearer to the target value, or is complete (has reached or exceeded the target value).

For situations where the flow transmitter may not be precisely calibrated near the zero-flow value, a zero-flow cutoff feature is provided that avoids accumulating negative-flow values. When the flow is below a user-specified cutoff value, the input is clamped to zero.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

PV Common Display	AM-Reg PV Totalizer Display
PVFORMAT PVEUHI PVEULO PVEXEUHI PVEXEULO PVCLAMP PVSRCOPT PVSOURCE PVFLT OPT TF IN MIN PVTV	PVEQN TIMEBASE C COMMAND RESETVAL CUTOFFLM AVTV AVDEV1TP AVDEV2TP NOPINTPTS PISRC(N) PIDSTN(N) PIACTSTS(N)

**TRACKING****Point Type** Regulatory

Tracking option for the Switch control algorithm (25.4.3 in *AM Algorithm Engineering Data*) (Form AM88-562).

**Source** User**Default Value** Off**Access Lock** Engr-DEB**Value Type** Boolean

**Value Range** Off—The nonselected inputs are not initialized to track the selected input.  
 On—The nonselected inputs are initialized to track the selected input to be changed without a bump on the output.

**TRFB****Point Type** Regulatory

Applies to Pid External Reset Feedback algorithm (no form).

The tracking feedback input must be in percent.

**Source** User**Default Value** NaN**Access Lock** Read Only**Value Type** Real**Value Range** Any real number**TRFBSTS****Point Type** Regulatory

Applies to Pid External Reset Feedback algorithm (no form).

Value status of RFB input.

**Source** User**Default Value** Bad**Access Lock** Read Only**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good.  
 Uncertn—The value is uncertain.  
 Bad—The value is NaN.

**TS****Point Type** RegulatoryAll scheduled points (2.2.1 in *AM Control Functions*).

Time scale—The interval in PERIOD converted to minutes. For example, if PERIOD contains 30 sec, TS contains 0.5 minutes; if PERIOD contains 1 hr, TS contains 60.0 minutes.

**Source** User                      **Default Value** 0.0 \*                      **Access Lock** Read Only**Value Type** Real**Value Range** \* Parameter value is calculated from the assigned scheduled period.**TSTS****Point Type** RegulatoryStatus of the value in T for the FlowComp PV algorithm (4.5 in *AM Algorithm Engineering Data*) (no form).**Source** User                      **Default Value** Normal                      **Access Lock** Read Only**Value Type** PVSTS enumeration

**Value Range** Normal—The value is good.  
 Uncertain—The value is uncertain.  
 Bad—The value is NaN.

**TVPROC****Point Type** RegulatorySP Target-value processor state (3.1.6.2 in *AM Control Functions*).**Source** User                      **Default Value** Off                      **Access Lock** Oper**Value Type** TVPROC enumeration

**Value Range** Off—Normal operation  
 Preset—Set up SPTV and Ramptime  
 Run—Ramping function



**UNMEMTOT(I)****Point Type** Processor Status

Total memory required for point, CL, Custom Data description, Checkpoint, and off-node I/O buffers for the given unit. I = Unit index.

**Source** User**Default Value** N/A**Access Lock** Read Only**Value Type** Array (1..100) of Real**Value Range**  $\geq 0.0$

**VDTLdLag (PV Algorithm)**

This algorithm (PV Variable Dead Time With LeadLag Compensation) calculates a PV (PVCALC) in which value changes may be delayed from the time that the corresponding change occurred in the P1 input. Dynamic lead-lag compensation to the PV can also be provided. Lag compensation is available in combination with the delay or with no delay. The delay time can be fixed or can be varied as the value of an input varies.

Parameters involved in configuring this algorithm are the following and those listed in Section 2 under Regulatory Point.

<u>PV Common Display</u>	<u>AM-Reg PV VDT Lead/Lag Display</u>	<u>Input Connections Display</u>
PVFORMAT	PVEQN	NOPINPTS
PVEUHI	C	PISRC(N)
PVEULO	D	PIDSTS(N)
PVEXEUHI	TLG1 IN MIN	PIACTSTS(N)
PVEXEULO	TLG2 IN MIN	
PVCLAMP	TLD IN MIN	
PVSRCOPT	TD IN MIN	
PVSOURCE	CUTOFFLM	
PVFLTOPT	C1	
TF IN MIN	C2	
PVTV	D1	
	D2	



-X-

X

**Point Type** Regulatory

Measured, actual steam compressibility input to the FlowComp PV algorithm (4.5 in *AM Algorithm Engineering Data*) (Form AM88-512).

**Source** User**Default Value** 1.0**Access Lock** Engr-DEB**Value Type** Real**Value Range** Any real number or NaN

X1

**Point Type** Regulatory

X input number 1 to an AutoMan, IncrSum, OrSel, or Switch control algorithm.

References:

AutoMan—Section 14 in *AM Algorithm Engineering Data*

IncrSum—Section 15 in *AM Algorithm Engineering Data*

OrSel—Section 23 in *AM Algorithm Engineering Data*

Switch—Section 25 in *AM Algorithm Engineering Data*

**Source** User**Default Value** NaN**Access Lock** Engr-DEB**Value Type** Real, NaN**Value Range** Any real, NaN

## X1STS – X4STS

### X1STS – X4STS

**Point Type** Regulatory

Applies to Control algorithms Incremental Summer, Auto Manual Station, Multiply Divide, Ratio, Override Selector, and Switch (no form).

Value status of X1 through X4 inputs, where X1STS through X4STS applies as follows:

Control Algorithm	X1STS	X2STS	X3STS	X4STS
Incremental Summer	X	X	X	X
Auto Manual Station	X			
Summer		X	X	X
Multiply Divide		X	X	X
Ratio		X		
Override Selector	X	X	X	X
Switch	X	X	X	X

**Source** User

**Default Value** Bad

**Access Lock** Read Only

**Value Type** PVVALST enumeration

**Value Range** Normal—The value is good.  
Uncertn—The value is uncertain.  
Bad—The value is NaN.

**X2 through X4**

**Point Type** Regulatory

X input number 2, 3, or 4 to one of the control algorithms listed in the table below. Except for the MulDiv algorithm, the Xn parameter name doesn't appear on a configuration form, instead you enter the Xn parameter name as the destination parameter when you configure the input source (in TagName.Param form).

<b>Control Algorithm</b>	<b>Default Value</b>	<b>Access Lock</b>	<b>Value Type/Range</b>	<b>Applies To</b>
<u>IncrSum</u>	NaN	Prog	Real, NaN	X2, X3, X4
<u>MulDiv</u>	1.0	Engr-DEB*	Real	X2, X3, X4
<u>OrSel</u>	NaN	Prog	Real, NaN	X2, X3, X4
<u>Ratio</u>	NaN	Read Only	Real, NaN	X2
<u>Summer</u>	NaN	Read Only	Real	X2, X3, X4
<u>Switch</u>	NaN	Prog	Real, NaN	X2, X3, X4

\*Configure on Form AM88-454.

**References:**

IncrSum—Section 15 in *AM Algorithm Engineering Data*

MulDiv—Section 17 in *AM Algorithm Engineering Data*

OrSel—Section 23 in *AM Algorithm Engineering Data*

Ratio—Section 21 in *AM Algorithm Engineering Data*

Summer—Section 24 in *AM Algorithm Engineering Data*

Switch—Section 25 in *AM Algorithm Engineering Data*

**Source** User

**Default Value** See table

**Access Lock** See table

**Value Type** Real, NaN

**Value Range** See table

**XEUHI****Point Type** RegulatoryConfigure on Forms *AM88-557*, *558*, *561*, and *562*.

Applies to these Control algorithms: Incremental Summer, Auto Manual Station, Override Selector, and Switch.

X-input Engineering Units high-range value corresponding to 100%.

**Source** User                      **Default Value** 100.0                      **Access Lock** Engr-DEB**Value Type** Real**Value Range**  $\geq$  XEULO  
(NaN) cannot be stored**XEULO****Point Type** RegulatoryConfigure on Forms *AM88-557*, *558*, *561*, and *562*.

Applies to these Control algorithms: Incremental Summer, Auto Manual Station, Override Selector, and Switch.

X-input Engineering Units low-range value corresponding to 0%.

**Source** User                      **Default Value** 0.0                      **Access Lock** Engr-DEB**Value Type** Real, NaN**Value Range**  $\leq$  XEUHI  
(NaN) cannot be stored**XSTS****Point Type** Regulatory

Applies to Flow Compensation algorithm (no form).

**Source** User                      **Default Value** Normal                      **Access Lock** Read Only**Value Type** PVVALST enumeration**Value Range** Normal—The value is good.  
Uncertn—The value is uncertain.  
Bad—The value is NaN.

## READER COMMENTS

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**COMMENTS:** \_\_\_\_\_  
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**RECOMMENDATIONS:** \_\_\_\_\_  
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