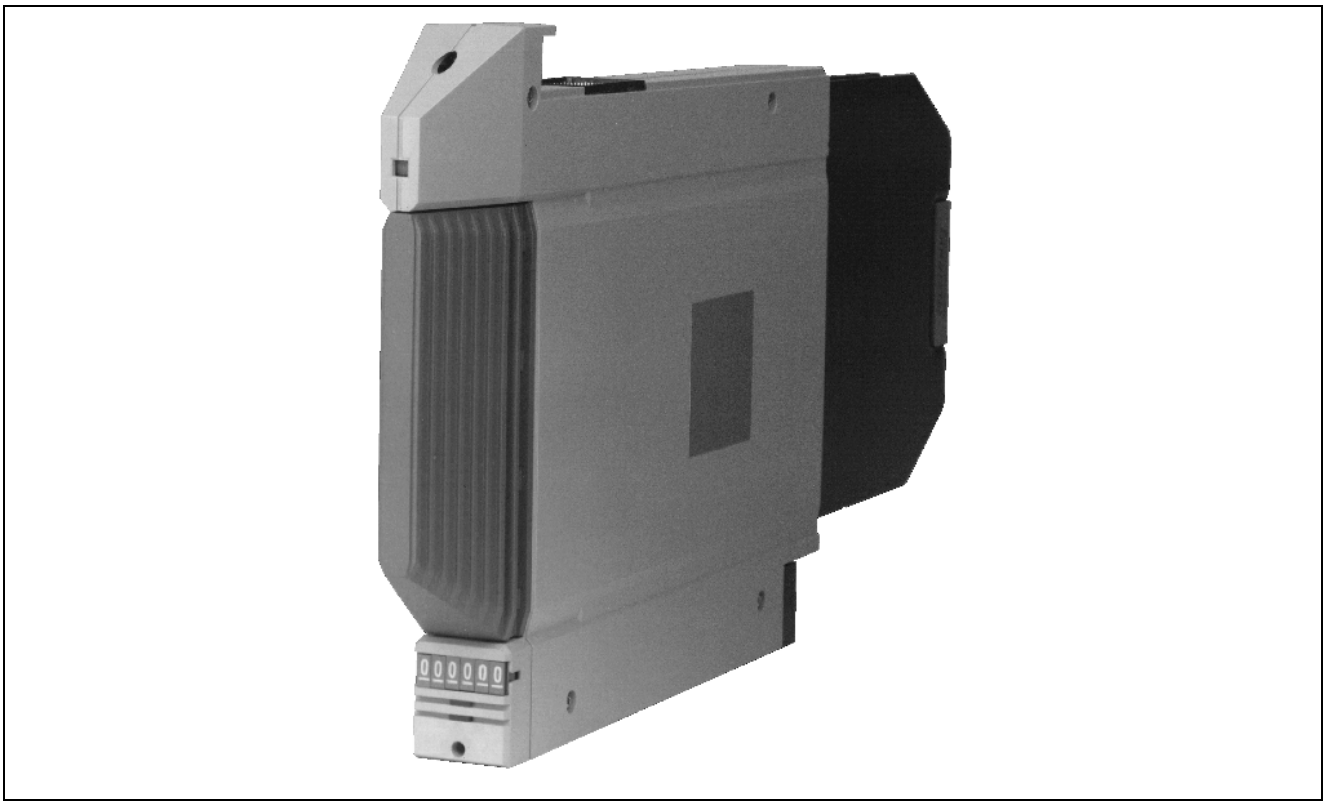
FOXBORO®

PSS 21H-1B1 B4

I/A Series® Hardware
Control Processor 10
275 Block Software



The Control Processor 10 (CP10) is an optionally fault-tolerant station which, together with connected Fieldbus Modules (FBMs), performs regulatory, logic, timing, and sequential control. It also performs data acquisition and alarm detection and notification.

Process variables are controlled using time-proven algorithms (mathematical computations performing specific functions), including the EXACT (EXpert Adaptive Controller Tuning) algorithm. The algorithms are contained in functional control blocks, which are configured by on-site process engineers to implement the desired control strategies.

The versatility of the algorithms, coupled with the variety of Fieldbus Modules available, provides control capabilities suited to a broad range of process control applications. Control strategies ranging from simple feedback and cascade control to highly sophisticated feedforward, nonlinear, and complex characterization control schemes are readily implemented.

Specific functions performed by the CP10 are listed in Table 1. For a detailed description of the various block types, refer to the Product Specification Sheet, "Integrated Control Software."

Display and adjustment of control parameters are implemented through operator interface devices (video monitors, keyboards, touchscreens, etc.) in the I/A Series system. The control processor interacts with these devices by communicating with the workstation processors and/or application processors to which they are connected. Communication takes place via the Nodebus, and via a higher-level Local Area Network (LAN), if implemented. Various other system stations also communicate with each other over these links.

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Product Specifications

Table 1. Control Functions

Input/Output

AIN - Analog Input
AOUT - Analog Output
CIN - Contact Input
COUT - Contact Output
MAIN - Multiple Analog Input
MCIN - Multiple Contact Input
MCOUT - Multiple Contact Output

Control

ACCUM - Accumulator
BIAS - Bias Computation
CALC - Calculator
CHARC - Characterizer
DGAP - Differential Gap
DTME - Dead Time
LIM - Limiter
LLAG - Lead/Lag
PID - Proportional, Integral, Derivative
PIDE - PID with EXACT Tuning
PIDX - PID Extended
PIDXE - PID Extended, with EXACT Tuning
PTC - Proportional Time Control
RAMP - Multi-Ramp Sequence
RATIO - Ratio Computation
SIGSEL - Signal Selector
SWCH - Switch Position Selector

Sequence

DEP - Dependent
EXC - Exception
IND - Independent
MON - Monitor
TIM - Timer

Motor

GDEV - General Device
MDACT - Motor Driven Actuator Controller
MTR - Motor Controller
MOVLV - Motor-Operated Valve
VLV - Valve On/Off Controller

Alarm

ALMPRI - Alarm Priority Change
BLNALM - Boolean Alarm
MEALM - Measurement Alarm
PATALM - Pattern Alarm
REALM - Real Alarm

Miscellaneous

EVENT - Event Reporting
PLB - Programmable Logic Block

Optional

DSI - Panel Display Station Interface (DP10)
AMSSEC - Gas Chromatograph Secondary

Window Equipment Control Blocks

AMSPRI - Gas Chromatograph
ECB13 - Hydrostatic Tank Gauge
ECB18 - Intelligent Transmitter
ECB22 - Mass Flow Transmitter

Equipment Control Blocks

ECB01 - Analog Input
ECB02 - Analog Input & Analog Output
ECB04 - Pulse In & Analog Output
ECB05 - Digital In, Sustained/ Momentary, Digital Out
ECB06 - Sequence of Events Input
ECB07 - Digital In & Pulse Count Input
ECB08 - Ladder Logic - OR - dc Out/Validated Input
ECB09 - Remote/Manual Station (Analog I/O,Digital I/O)
ECB11 - Reserved for Primary FBM
ECB12 - Parent ECB for Window ECB18
ECB12 - Multibaud FBM43
ECB14 - Panel Mounted Display
ECB23 - Multibaud FBM44
ECB34 - MDACT Feedback Tri-State
ECB36 - MDACT PWM Tri-State

PERFORMANCE SPECIFICATIONS

Memory Allocation for Blocks
180 Kb (275 Blocks at 650 Bytes, average)*

Number of FBMs Supported
48 (excluding Expansion Modules)

Minimum Block Processing Cycle (BPC)
100 ms

Configurable Block Periods
0.1, 0.2, 0.5, 1, 2, 5, 10, 30 seconds
1, 10, 60 minutes

Basic Processing Cycle
0.1, 0.2, 0.5, 1.0, or 2.0 seconds, selectable at system configuration time

IPC Connections
17

Object Manager (OM) Lists (Maximum)
50

Block Executions Per Second
150 Blocks/Second, Typical

Memory Allocation for OM Scanner Points
10 K Bytes*

Sequence Block Size
10 K Bytes Maximum for Each Block

* 190 K Bytes of memory are shared between blocks and OM scanner points. OM scanner memory utilization may be increased beyond 10 K Bytes if block memory is correspondingly reduced.

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