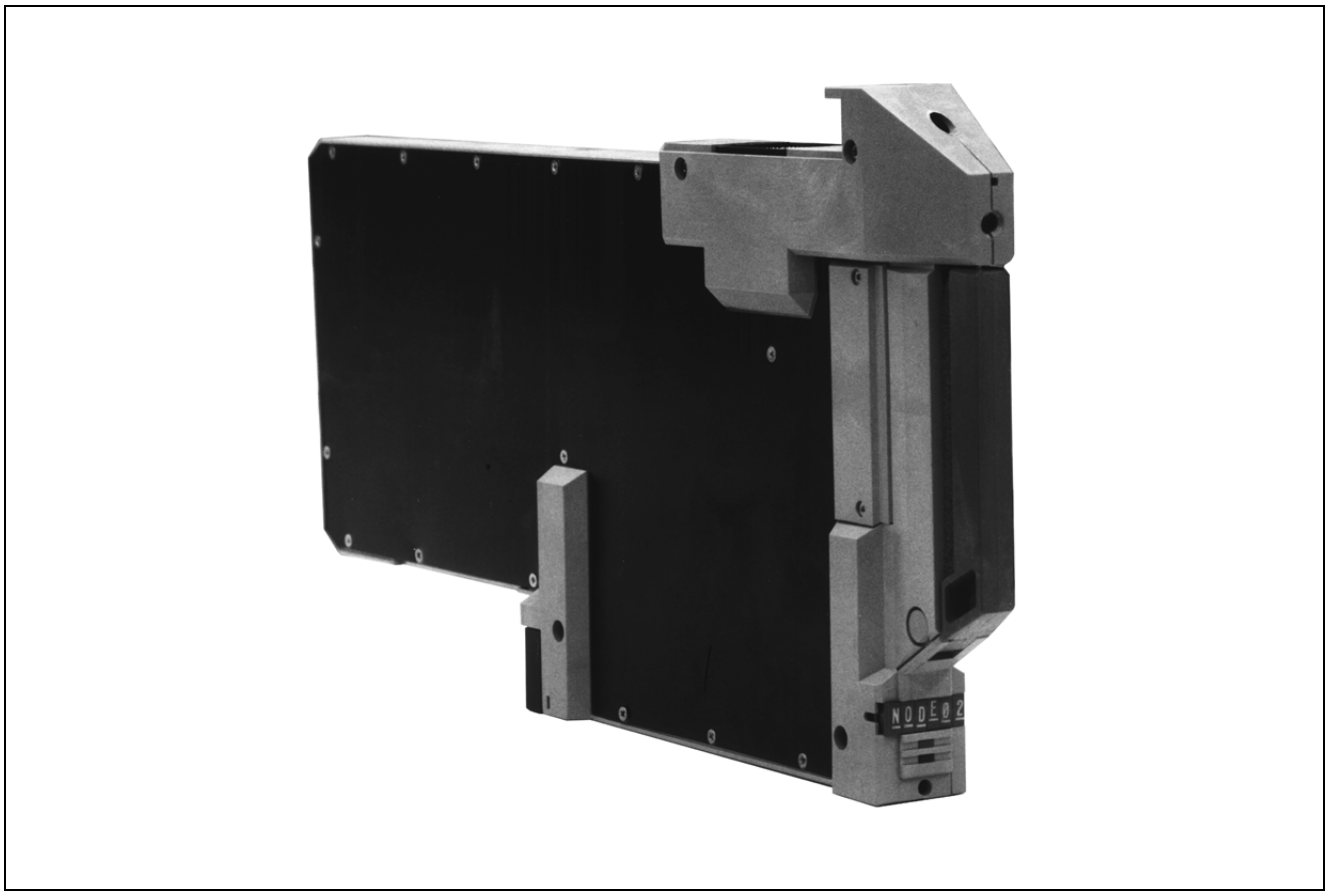
FOXBORO®

PSS 21H-1B5 B4

I/A Series® Hardware
Control Processor 40, Style B
2000 Block Software



The Control Processor 40, Style B is a high-end optionally fault-tolerant station that provides:

- a large memory capacity for supporting additional blocks
- increased block processing due to a faster processor
- increased input/output capabilities

Together with connected Fieldbus Modules (FBMs), the Control Processor 40, Style B performs regulatory, logic, timing, and sequential control. It also performs data acquisition (via the Fieldbus Modules), alarm detection and notification, and may optionally serve as an interface for one or more Panel Display Stations. The non-fault-tolerant version of the Control Processor 40, Style B is a single-width processor module. The fault-tolerant version consists of two single-width processor modules.

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

Invensys
An Invensys company

Product Specifications

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 Control Processor 40, Style B are listed in Table 1. For a description of the various block types, refer to PSS 21S-3B1 B3 Integrated Control Software.

The 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.

Table 1. Control Functions

Input/Output	**Data**
AIN - Analog Input	BOOL- Boolean Variable Block
AINR - Redundant Analog Input	LONG - Long Integer Variable
AOUT - Analog Output	PACK - Packed Boolean Variable
AOUTR - Redundant Analog Output	REAL - Real Variable
CIN - Contact Input	STRING - String Variable
COUT - Contact Output	**Sequence**
MAIN - Multiple Analog Input	DEP - Dependent
MCIN - Multiple Contact Input	EXC - Exception
MCOUT - Multiple Contact Output	IND - Independent
Control	MON - Monitor
ACCUM - Accumulator	TIM - Timer
BIAS - Bias Computation	**Motor**
CALC - Calculator	GDEV - General Device
CALCA - Advanced Calculator	MDACT - Motor Driven Actuator Controller
CHARC - Characterizer	MTR - Motor Controller
DGAP - Differential Gap	MOVLV - Motor-Operated Valve
DPIDA - Distributed Advanced PID	VLV - Valve On/Off Controller
DTIME - Dead Time	**Alarm**
LIM - Limiter	ALMPRI - Alarm Priority Change
LLAG - Lead/Lag	BLNALM - Boolean Alarm
LOGIC - Logic	MEALM - Measurement Alarm
MATH - Math	MSG - Message Alarm
PATTERN - Pattern	PATALM - Pattern Alarm
PID - Proportional, Integral, Derivative	REALM - Real Alarm
PIDA - Advanced PID used in conjunction with FBTUNE and FFTUNE	STALM - State Alarm
	Miscellaneous
FBTUNE - Feedback Self-Tuner	EVENT - Event Reporting
FFTUNE - Feedforward Self-Tuner	PLB - Programmable Logic Block
PIDE - PID with EXACT Tuning	**Optional**
PIDX - PID Extended	DSI - Panel Display Station Interface
PIDXE - PID Extended, with EXACT Tuning	AMSSEC - Gas Chromatograph Secondary
PTC - Proportional Time Control	**Window Equipment Control Blocks**
OUTSEL - Output Select	AMSPRI - Gas Chromatograph
RAMP - Multi-Ramp Sequence	ECB13 - Hydrostatic Tank Gauge
RATIO - Ratio Computation	ECB18 - Intelligent Transmitter
SIGSEL - Signal Selector	ECB22 - Mass Flow Transmitter
SWCH - Switch Position Selector	
STATE - State	

Table 1. Control Functions (Cont.)

Equipment Control Blocks	
ECB01 - Analog Input	ECB14 - Panel Mounted Display
ECB02 - Analog Input & Analog Output	ECB23 - Multibaud FBM44; FBM39 IT 2 Interface Parent
ECB04 - Pulse In & Analog Output	ECB34 - MDACT Feedback Tri-State
ECB05 - Digital In, Sustained/ Momentary, Digital Out	ECB36 - MDACT Pulse Width Modulation Tri-State
ECB06 - Sequence of Events Input	ECB38R - IT2 Interface Redundant Parent
ECB07 - Digital In & Pulse Count Input	ECB41 to ECB46 - Cluster and SPECTRUM I/O ECBs
ECB08 - Ladder Logic - OR - dc Out/Validated Input	ECB47 to ECB51 - Cluster and SPECTRUM FBP ECBs
ECB09 - Remote/Manual Station (Analog/Digital I/O)	ECB48R - Redundant SPECTRUM UCM
ECB11 - Reserved for Primary FBM	ECB52 - DPIDA Controller
ECB12 - Parent ECB for Window ECB18	
ECB12 - Multibaud FBM43	

PERFORMANCE SPECIFICATIONS

Memory Allocation for Blocks
1.3 MB (2,000 blocks at 650 bytes, average)

Number of FBMs Supported
64 (excluding expansion modules)

Minimum Block Processing Cycle (BPC)
50 ms

Configurable Block Periods
.05, 0.1, 0.2, 0.5, 0.6, 1, 2, 5, 6, 10, 30 seconds
1, 10, 60 minutes

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

IPC Connections
51

Object Manager (OM) Lists (Maximum)
360

Block Executions Per Second
3400 blocks/second, typical

Memory Allocation for OM Scanner Points
600 K bytes

Maximum OM Scanner Data Base
12,000 points

Sequence Block Size
32 K bytes maximum for each block

The Foxboro Company
33 Commercial Street
Foxboro, Massachusetts 02035-2099
United States of America
http://www.foxboro.com
Inside U.S.: 1-508-543-8750 or 1-888-FOXBORO (1-888-369-2676)
Outside U.S.: Contact your local Foxboro Representative.

MB 021 Printed in U.S.A. 0299

An Invensys company