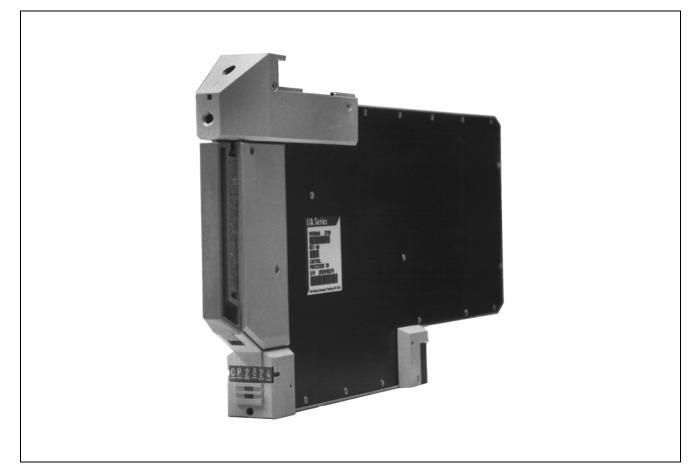


PSS 21H-1B2 B4

I/A Series<sup>®</sup> Hardware Control Processor 30 1000 Block Software



The Control Processor 30 is an optionally faulttolerant station which, together with connected Fieldbus Modules, 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.

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. 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 30 are listed in Table 1. For a detailed description of the various block types, refer to the Product Specification Sheet entitled "Integrated Control Software".



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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

AIN - Analog Input BOOL - Boolean Variable Block   AINR - Redundant Analog Input LONG - Long Integer Variable   AOUT - Analog Output PACK - Packed Boolean Variable   AOUT - Analog Output PACK - Packed Boolean Variable   COUT - Contact Output Straible   MAIN - Multiple Analog Input DEP - Dependent   MCOUT - Multiple Contact Output IND - Independent   MCOUT - Multiple Contact Output IND - Independent   MCOUT - Accumulator GDEV - General Device   BIAS - Bias Computation Motor   CALCA - Advanced Calculator MDACT - Motor Ontroller   CHARC - Characterizer MTR - Motor Ontroller   DFP - Differential Gap MOVLV - Motor-Operated Valve   DPIDA - Distributed Advanced PID VLV - Valve On/Off Controller   DTME - Dead Time ALMPRI - Alarm Priority Change   LLQG - Lead/Lag BLNALM - Boolean Alarm   LLQG - Lead/Lag BLNALM - Boolean Alarm   PIDA - Advanced PID used in Conjunction with FBTUNE and Pitter - Readforward Self-Tuner PATLAM - Pattern Alarm   PID - Proportional, Integral, Derivative REALM - Real Alarm   PID - Proportional, Integral, Derivative PLB - Programmable Logic Block	Input/Output	Data
AINR - Redundant Analog Input LONG - Long Integer Variable   AOUTT - Analog Output PACK - Packed Boolean Variable   AOUTT - Contact Input STRING - String Variable   COUT - Contact Input SEquence   MAIN - Multiple Analog Input DEP - Dependent   MCIN - Multiple Contact Input EXC - Exception   MCOUT - Accumulator TIM - Timer   MAS - Bias Computation GDEV - General Device   ACLOM - Accumulator TIM - Timer   BIAS - Bias Computation GDEV - General Device   CALCA - Advanced Calculator MDACT - Motor Driven Actuator Controller   CHARC - Characterizer MTR - Motor Controller   DPIDA - Differential Gap MOUV - Valve On/Off Controller   DTME - Dead Time Alarm   LLG - Logic MEALM - Measurement Alarm   MATH - Math MSG - Message Alarm   PIDA - Differential, Integral, Derivative PALM - Pattern Alarm   PID - Proportional, Integral, Derivative REALM - Real Alarm   FBTUNE - Feedback Self-Tuner FIEVENT - Event Reporting   FBTUNE - Feedback Self-Tuner PLN - Piogrammable Logic Block   PIDX - PID Extended DSI - Panel Display Station Interface	· ·	
ACUT - Analog Output AOUTR - Redundant Analog Output CIN - Contact Input COUT - Contact Output MAIN - Multiple Contact Output MCIN - Multiple Contact Input COUT - Multiple Contact Output MCOUT - Multiple Contact Output Control ACCUM - Accumulator BIAS - Bias Computation CALC - Calculator CALCA - Advanced PID DIDA - Distributed Advanced PID DITME - Dead Time LIM - Limiter LIMG - Lead/Lag LLAG - Lead/Lag LLAG - Lead/Lag LLAG - Lead/Lag LLAG - Lead/Lag LLAG - Lead/Lag LLAG - Edet PIDA - Advanced PID used in Conjunction with FBTUNE advanced PID PID - Proportional, Integral, Derivative FBTUNE - Feedback Self-Tuner FFTUNE - Feedforward Self-Tuner FTUNE - Feedforward Self-Tuner FTUNE - Feedforward Self-Tuner FTUNE - PID Extended PIDX - PI		
AOUTR - Redundant Analog Output REAL - Real Variable   CIN - Contact Input STRING - String Variable   COUT - Contact Output DEP - Dependent   MAIN - Multiple Contact Output IND - Independent   MCOUT - Multiple Contact Output IND - Independent   MCOUT - Multiple Contact Output IND - Independent   MCOUT - Multiple Contact Output IND - Independent   COUT - Control MONN - Monitor   ACCUM - Accumulator GDEV - General Device   GALC - Calculator GDEV - General Device   CALC - Calculator GDEV - Motor Operated Valve   DGAP - Differential Gap MOVLV - Motor-Operated Valve   DPIDA - Distributed Advanced PID VLV - Valve On/Off Controller   DTME - Dead Time Alarm   LIAG - Lead/Lag BLNARI - Alarm Priority Change   LIAG - Lead/Lag BLNARI - Pattern   PID - Proportional, Integral, Derivative REALM - Real Alarm   PID - Proportional, Integral, Derivative REALM - Real Alarm   FBTUNE - Feedback Self-Tuner FID - Programmable Logic Block   PID - Proportional, Integral, Derivative PLB - Programmable Logic Block   PID - PID with EXACT Tuning Distreporting		
CIN - Contact InputSTRING - String VariableCOUT - Contact OutputSequenceMAIN - Multiple Analog InputDEP - DependentMCIN - Multiple Contact InputEXC - ExceptionMCOUT - Multiple Contact OutputIND - IndependentMCOUT - AccumulatorTIM - TimerBIAS - Bias ComputationDEV - General DeviceCALC - CalculatorGDEV - General DeviceCALC - CalculatorMDACT - Motor Driven Actuator ControllerCHAR - CharacterizerMTR - Motor ControllerDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmFFTUNE - Feedback Self-TunerFBTUNE and FTUNEFBTUNE - Feedback Self-TunerPLB - Programable Logic BlockPIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID ExtendedAMSSEC - Gas Chromatograph SecondaryPITC - Proportional Time ControlWindow Equipment Control BlocksPIDX - PID ExtendedECB13 - Hydrostatic Tank GaugePIDX - PID ExtendedECB13 - Hydrostatic Tank Gauge		
COUT - Contact OutputSequenceMAIN - Multiple Analog InputDEP - DependentMCIN - Multiple Contact OutputIND - IndependentMCOUT - Multiple Contact OutputIND - IndependentControlMON - MonitorACCUM - AccumulatorTIM - TimerBIAS - Bias ComputationGDEV - General DeviceCALC - CalculatorGDEV - General DeviceCALC - CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveVIV - Jubitibuted Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPID - Proportional, Integral, DerivativeSTALM - State AlarmFTUNEFeedback Self-TunerFVIN - Event ReportingFTUNE - Feedback Self-TunerPLB - Programmable Logic BlockPID - PID with EXACT TuningDYInoalPIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningMindow Equipment Control BlocksPIDX - PID Extended, with EXACT TuningWindow Equipment Control BlocksPIDX - PID Extended, with EXACT TuningSi - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT Tuni		
MAIN - Multiple Analog InputDEP - DependentMCIN - Multiple Contact InputEXC - ExceptionMCOUT - Multiple Contact OutputIND - IndependentControlMON - MonitorACCUM - AccumulatorTIM - TimerBIAS - Bias ComputationGDEV - General DeviceCALC - CalculatorGDEV - General DeviceCALCA - Advanced CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - PatternPATALM - Pattern AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andFTUNEFBTUNE - Feedforward Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningWindow Equipment Control BlocksPIDX - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRAMP - Switch Position SelectorECB22 - Mass Flow Transmitter		
MCIN - Multiple Contact InputEXC - ExceptionMCOUT - Multiple Contact OutputIND - IndependentControlMON - MonitorACCUM - AccumulatorTIM - TimerBIAS - Bias ComputationGDEV - General DeviceCALC - CalculatorGDEV - General DeviceCALCA - Advanced CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLIAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmFBTUNE - Feedforward Self-TunerFLALM - Real AlarmFIDUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT TuningDytionalPIDX - Proportional, Integral, with EXACT TuningDSI - Panel Display Station InterfacePIDX - PiD ExtendedDSI - Panel Display Station InterfacePIDX - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRAMP - Switch Position SelectorECS22 - Mass Flow Transmitter		-
MCOUT - Multiple Contact Output Control IND - Independent   ACCUM - Accumulator 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 MDACT - Motor Operated Valve   DPIDA - Differential Gap MOVLV - Motor-Operated Valve   DPIDA - Distributed Advanced PID VLV - Valve On/Off Controller   DTME - Dead Time Alarm   LIAG - Lead/Lag BLNALM - Boolean Alarm   LOGIC - Logic MEALM - Measurement Alarm   MATH - Math MSG - Message Alarm   PID - Proportional, Integral, Derivative REALM - Real Alarm   PID - Proportional, Integral, Derivative REALM - State Alarm   FFTUNE Feedback Self-Tuner FEALM - State Alarm   FFTUNE Feedback Self-Tuner PLB - Programmable Logic Block   PIDX - PID Extended DSI - Panel Display Station Interface   PIDX - PID Extended, with EXACT Tuning Diftore Transmitter   PIDX - PiD Extended, with EXACT Tuning Miscellapent Control Blocks   OUTSEL - Output Select		
ControlMON - MonitorACCUM - AccumulatorTIM - TimerBIAS - Bias ComputationGDEV - General DeviceCALC - CalculatorGDEV - General DeviceCALCA - Advanced CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeALMPRI - Alarm Priority ChangeLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmFBTUNE - Feedback Self-TunerPLB - Programmable Logic BlockFBTUNE - Feedback Self-TunerPLB - Programmable Logic BlockFFTUNEFeedforward Self-TunerFIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas Chromatograph SecondaryPTC - Proportional Time ControlECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow Transmitter		
BIAS - Bias ComputationMotorCALC - CalculatorGDEV - General DeviceCALCA - Advanced CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPID - Proportional, Integral, DerivativeRALM - Pattern AlarmPID - Proportional, Integral, DerivativeSTALM - State AlarmFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedback Self-TunerDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningDSI - Panel Display Station InterfacePIDX E - PID Extended, with EXACT TuningMindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Hydrostatic Tank GaugeRATIO - Ratio Position SelectorECB13 - Hydrostatic Tank Gauge		•
CALC - CalculatorGDEV - General DeviceCALCA - Advanced CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPID - Proportional, Integral, DerivativePATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmFBTUNEFeedback Self-TunerFFTUNEFeedback Self-TunerFFTUNEFeedback Self-TunerPID - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningMiscel - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksQUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow Transmitter	ACCUM - Accumulator	TIM - Timer
CALCA - Advanced CalculatorMDACT - Motor Driven Actuator ControllerCHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmDTME - Lead/LagALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE and FFTUNESTALM - State AlarmFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedback Self-TunerDSI - Panel Display Station InterfacePIDA - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningDSI - Panel Display Station InterfacePIDXE - PiD Extended, with EXACT TuningMiscellaneousPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow Transmitter	BIAS - Bias Computation	Motor
CHARC - CharacterizerMTR - Motor ControllerDGAP - Differential GapMOVLV - Motor-Operated ValveDFIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmFTTUNESTALM - State AlarmFTTUNEFBTUNE - Feedback Self-TunerFBTUNE - Feedback Self-TunerEVENT - Event ReportingFTDNE - PID with EXACT TuningDel - Programmable Logic BlockPIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow Transmitter	•	GDEV - General Device
DGAP - Differential GapMOVLV - Motor-Operated ValveDPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmFBTUNEFBTUNE - Feedback Self-TunerFBTUNE - Feedback Self-TunerPLB - Programmable Logic BlockFID - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningMSSEC - Gas Chromatograph SecondaryVTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow Transmitter	CALCA - Advanced Calculator	MDACT - Motor Driven Actuator Controller
DPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNEBEVENT - Event ReportingFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDA - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningMissee - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographOUTSEL - Output SelectECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow Transmitter	CHARC - Characterizer	MTR - Motor Controller
DPIDA - Distributed Advanced PIDVLV - Valve On/Off ControllerDTME - Dead TimeAlarmLIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNEBEVENT - Event ReportingFFTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDA - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningMissee - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographOUTSEL - Output SelectECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow Transmitter	DGAP - Differential Gap	MOVLV - Motor-Operated Valve
LIM - LimiterALMPRI - Alarm Priority ChangeLLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFTTUNEFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPID2 - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningMMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB13 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow TransmitterSWCH - Switch Position SelectorECB22 - Mass Flow Transmitter	DPIDA - Distributed Advanced PID	
LLAG - Lead/LagBLNALM - Boolean AlarmLOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNEFeedback Self-TunerEVENT - Event ReportingFFTUNE - Feedback Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorSWCH - Switch Position Selector	DTME - Dead Time	Alarm
LOGIC - LogicMEALM - Measurement AlarmMATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNEFBTUNE - Feedback Self-TunerEVENT - Event ReportingFBTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT TuningDSI - Panel Display Station InterfacePIDXE - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorSWCH - Switch Position Selector	LIM - Limiter	ALMPRI - Alarm Priority Change
MATH - MathMSG - Message AlarmPATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNESTALM - State AlarmFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDZ - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningWindow Equipment Control BlocksPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorHome Secure Sec	LLAG - Lead/Lag	BLNALM - Boolean Alarm
PATT - PatternPATALM - Pattern AlarmPID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNEMiscellaneousFBTUNE - Feedback Self-TunerEVENT - Event ReportingFBTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorSWCH - Switch Position Selector	LOGIC - Logic	MEALM - Measurement Alarm
PID - Proportional, Integral, DerivativeREALM - Real AlarmPIDA - Advanced PID used in Conjunction with FBTUNE andSTALM - State AlarmFFTUNESTALM - State AlarmFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT TuningOptionalPIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow TransmitterSWCH - Switch Position SelectorSWCH - Switch Position Selector	MATH - Math	MSG - Message Alarm
PIDA - Advanced PID used in Conjunction with FBTUNE and FFTUNESTALM - State AlarmFFTUNEMiscellaneousFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDX - PID Extended, with EXACT TuningWindow Equipment Control BlocksOUTSEL - Output SelectAMSSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorKet Alarm	PATT - Pattern	PATALM - Pattern Alarm
FFTUNEMiscellaneousFBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT Tuning <b>Optional</b> PIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorSWCH - Switch Position Selector	PID - Proportional, Integral, Derivative	REALM - Real Alarm
FBTUNE - Feedback Self-TunerEVENT - Event ReportingFFTUNE - Feedforward Self-TunerPLB - Programmable Logic BlockPIDE - PID with EXACT Tuning <b>Optional</b> PIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorSWCH - Switch Position Selector	PIDA - Advanced PID used in Conjunction with FBTUNE and	STALM - State Alarm
FFTUNE - Feedforward Self-TunerPLB - Programmable Logic Block OptionalPIDE - PID with EXACT TuningDSI - Panel Display Station InterfacePIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorSWCH - Switch Position Selector	FFTUNE	Miscellaneous
PIDE - PID with EXACT TuningOptionalPIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorECB2 - Mass Flow Transmitter	FBTUNE - Feedback Self-Tuner	EVENT - Event Reporting
PIDX - PID ExtendedDSI - Panel Display Station InterfacePIDXE - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorECB2 - Mass Flow Transmitter	FFTUNE - Feedforward Self-Tuner	
PIDXE - PID Extended, with EXACT TuningAMSSEC - Gas Chromatograph SecondaryPTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorECB2 - Mass Flow Transmitter	PIDE - PID with EXACT Tuning	
PTC - Proportional Time ControlWindow Equipment Control BlocksOUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorECB2 - Mass Flow Transmitter	PIDX - PID Extended	DSI - Panel Display Station Interface
OUTSEL - Output SelectAMSPRI - Gas ChromatographRAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB2 - Mass Flow TransmitterSWCH - Switch Position SelectorECB2 - Mass Flow Transmitter	PIDXE - PID Extended, with EXACT Tuning	
RAMP - Multi-Ramp SequenceECB13 - Hydrostatic Tank GaugeRATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow TransmitterSWCH - Switch Position SelectorECB22 - Mass Flow Transmitter		
RATIO - Ratio ComputationECB18 - Intelligent TransmitterSIGSEL - Signal SelectorECB22 - Mass Flow TransmitterSWCH - Switch Position SelectorECB22 - Mass Flow Transmitter	OUTSEL - Output Select	
SIGSEL - Signal Selector ECB22 - Mass Flow Transmitter   SWCH - Switch Position Selector ECB22 - Mass Flow Transmitter		, ,
SWCH - Switch Position Selector		
	•	ECB22 - Mass Flow Transmitter
STATE - State		
	STATE - State	

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

Table 2. Control Functions (Cont.)

### PERFORMANCE SPECIFICATIONS

Memory Allocation for Blocks

650 Kb (1,000 Blocks at 650 Bytes, average)

Number of FBMs Supported 64 (excluding Expansion Modules)

Minimum Block Processing Cycle (BPC) 100 ms

### **Configurable Block Periods**

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, or 2.0 seconds, selectable at system configuration time

# **IPC Connections**

51

#### **Object Manager (OM) Lists (Maximum)** 60

Block Executions Per Second 300 Blocks/Second, Typical

Memory Allocation for OM Scanner Points 100 K Bytes

# Maximum OM Scanner Data Base 2,000 Points

# Sequence Block Size

32 K Bytes Maximum for Each Block

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