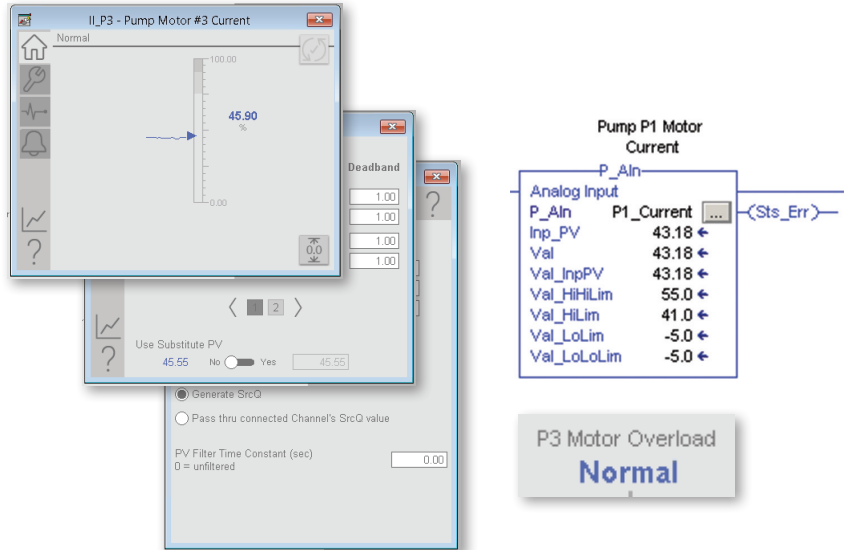


Rockwell Automation Library of Process Objects

Reducing Development Time

Features and Benefits

- Process objects for a range of field devices and functions
- Standards-based display elements with consistent user interface
 - Quickly identify abnormal situations
- Includes consistent modes of operation, overrides and simulation options
 - Assist maintenance operations without having to open controller code
- Modular design eases construction of complex control strategies
 - Reduced development and maintenance time
- Comprehensive documentation and support
- Built-in Security Allows for Role and/or Area Based User Authorization



Efficient Design and Operation

The Rockwell Automation® Library of Process Objects is a predefined library of controller code (Add-On Instructions), display elements (global objects), and faceplates that let you quickly assemble large applications with proven strategies, rich functionality, and known performance.

Built with consideration given to international standards such as color, functionality and symbols, these objects are a good fit for many industry sectors.

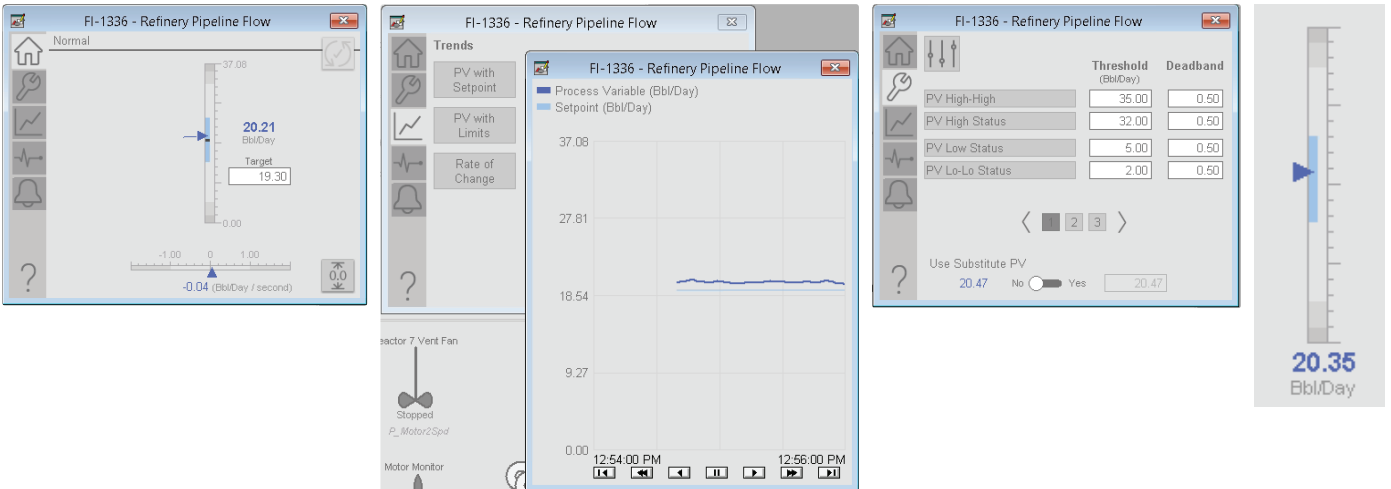
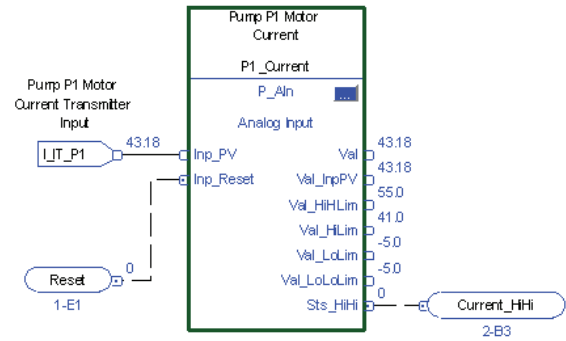
Library Resources

LIBRARY OBJECT	LIBRARY OBJECT	LIBRARY OBJECT
I/O PROCESSING	PowerFlex 755 Drive (P_PF755)	CROSS FUNCTIONAL
Basic Analog Input (P_AIn)	SMC™-50 Smart Motor Controller (P_SMC50)	Condition Gate Delay (P_Gate)
Analog Input Channel (P_AIChan)	SMC™ Flex Smart Motor Controller (P_SMCFlex)	Interlocks with First Out and Bypass (P_Intlk)
Advanced Analog Input (P_AInAdv)	Variable-speed Drive (P_VSD)	Interlocks with First Out and Bypass - Advanced (P_IntlkAdv)
Dual Sensor Analog Input (P_AInDual)	E1 Plus™ Electronic Overload Relay (P_E1PlusE)	Permissives with Bypass (P_Perm)
Multiple Analog Input (P_AInMulti)	E3/E3 Plus Overload Relay (P_E3Ovld)	Central Reset (P_Reset)
Discrete Input Object (P_DIn)	E300 Overload Relay (P_E300Ovrd)	Discrete 2-, 3-, 4-state Device (P_D4SD) (typically used for specialized valves and motors)
Discrete Input Object Advanced (P_DInAdv)	Run Time and Start Counter (P_RunTime)	Common Alarm Block (P_Alarm)
Discrete Output (P_DOut)	Restart Inhibit for Large Motor (P_ResInh)	Common Command Source Block (P_CmdSrc)
Analog Output (P_AOut)	PowerFlex 6000 Drive (P_PF6000)	Operator Prompt (P_Prompt)
Pressure/Temperature Compensate Flow (P_PTComp)	PowerFlex 7000 Drive (P_PF7000)	Boolean Logic with Snapshot (P_Logic)
Tank Strapping Table (P_StrapTbl)	VALVES	LOGIX DIAGNOSTIC OBJECTS
HART Analog Input (P_AInHART)	Analog/Pulsed Control Valve (P_ValveC)	Logix Change Detector (L_ChangeDet)
HART Analog Output (P_AOutHART)	Hand-operated Valve (P_ValveHO)	Logix Controller CPU Utilization (L_CPU)
REGULATORY CONTROL	Motor-operated Valve (P_ValveMO)	Logix Redundant Controller Monitor (L_Redun)
Proportional + Integral + Derivative Enhanced (P_PIDE)	Mix-proof Valve (P_ValveMP)	Logix Task Monitor (L_TaskMon)
Analog Fanout (P_Fanout)	Solenoid-operated Valve (P_ValveSO)	Logix Module Status (L_ModuleSts)
High or Low Selector (P_HiLoSel)	2-state Valve Statistics (P_ValveStats)	DISPLAY ELEMENTS AND FACEPLATES FOR BUILT-IN INSTRUCTIONS
Deadband Controller (P_DBC)	n-Position Device (P_nPos)	Built-in Autotuner
PROCEDURAL CONTROL	STEAM TABLE	Coordinated Control (CC)
Sequencer Object (P_Seq)	Saturated Steam Pressure (P_PSat)	Internal Model Control (IMC)
Dosing (Weight Scale or Flowmeter) (P_Dose)	Saturated Steam Temperature (P_TSat)	Modular Multivariable Control (MMC)
Lead/Lag/Standby Motor Group (P_LLS)	General Steam Table (P_Steam)	Ramp Soak (RMPS)
MOTORS	Entropy (P_Steam_hs)	Totalizer (TOT)
Single-speed Motor (P_Motor)	Steam Properties Given Pressure and Enthalpy (P_Steam_ph)	P_DInAdv (speed switch)
Two-speed Motor (P_Motor2Spd)	Steam Properties Given Pressure and Entropy (P_Steam_ps)	P_IntlkAdv (interlocks)
Reversing Motor (P_MotorRev)	Hand-operated Motor (P_MotorHO)	
Hand-operated Motor (P_MotorHO)	Modular Multivariable Control (MMC)	
Discrete 2-, 3-, or 4-state Device (P_D4SD) (also used for valves)	Proportional + Integral + Derivative Enhanced (PIDE)	
PowerFlex® 523/525 VF Drives (P_PF52x)	Ramp Soak (RMPS)	
PowerFlex 753 Drive (P_PF753)	Totalizer (TOT)	
	Entropy (P_Steam_hs)	

Objects Based Configuration

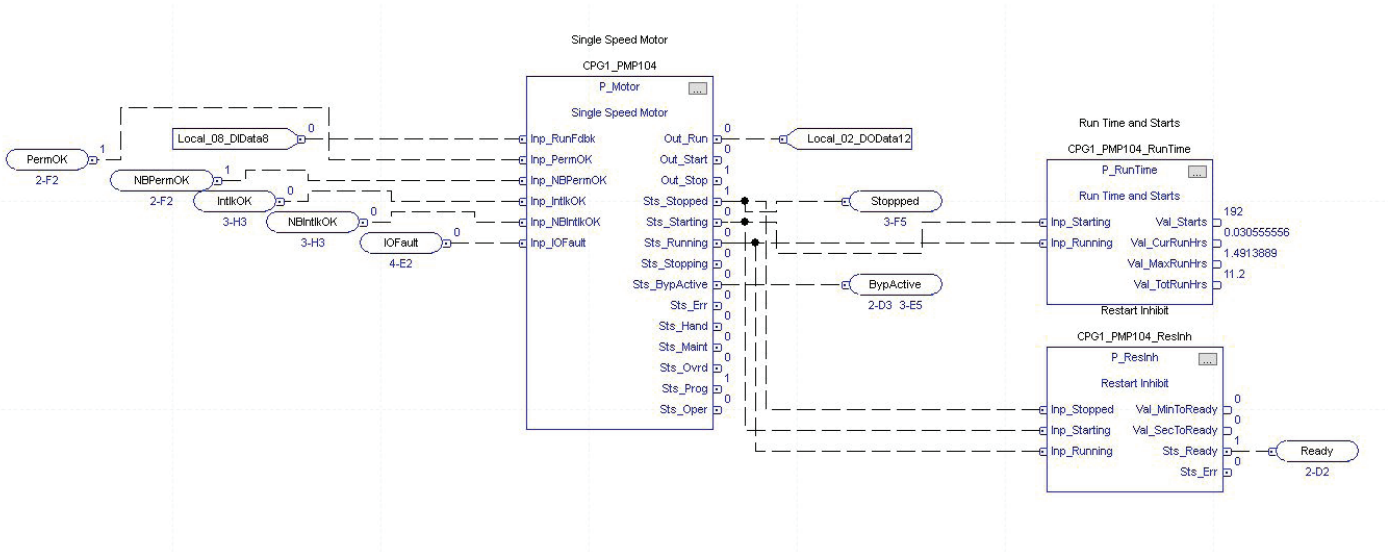
By using the Rockwell Automation Library of Process Objects, the end user is able to configure a control application using pre-defined objects for common functions helping to reduce engineering time. The Add-On Instructions allow modules of code, with pre-defined functionality, to be connected together in a drag and drop environment to rapidly define a control function.

When coupled to global objects and faceplates in FactoryTalk® View Studio, these objects enable configuration of a device from I/O to operator interface in a few mouse clicks.



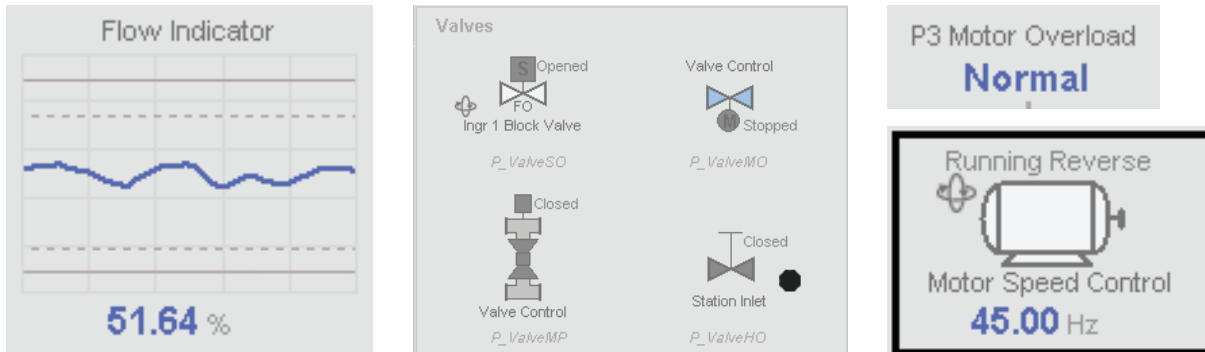
Process Strategies

To reduce implementation time and minimize risk, Process Strategy templates are delivered with the Rockwell Automation Library of Process Objects that provide pre-connected functionality to meet control system needs. These individually importable Function Block Diagrams include instructions from the Rockwell Automation Library of Process Objects that have been configured to represent many common control and equipment scenarios encountered in process automation (i.e. I/O monitoring, regulatory control, motor and valve control).



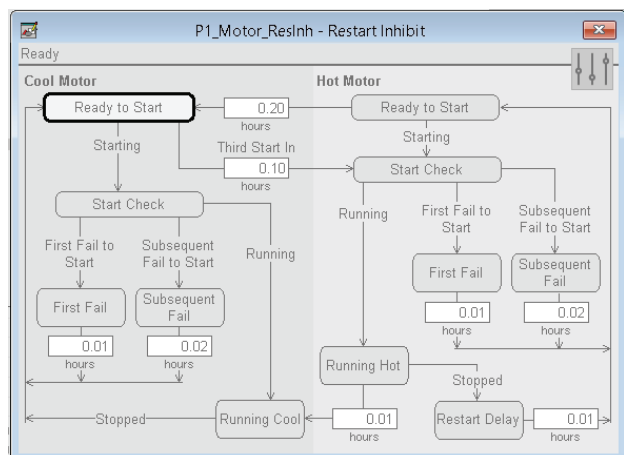
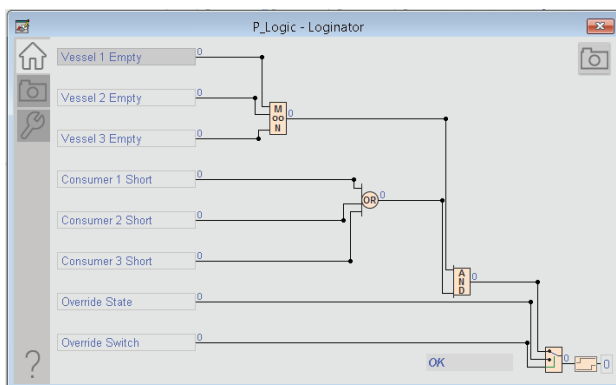
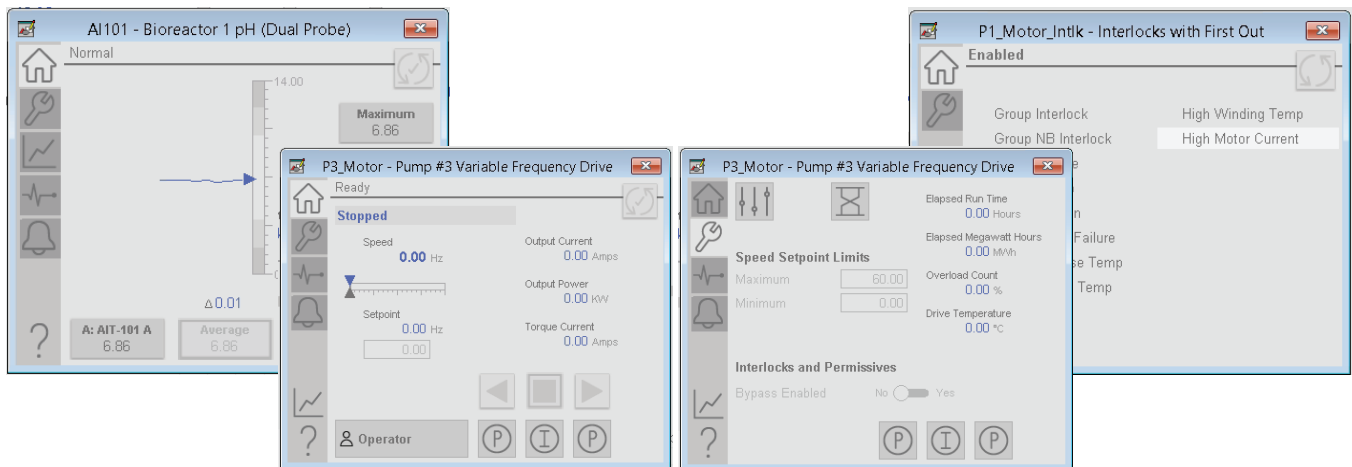
Global Objects

For rapid development of information-rich operator displays, the Rockwell Automation Library of Process Objects provides a collection of display objects that are linked to the Add-On Instructions with a drag and drop wizard. This allows rapid development of main plant display graphics.



Faceplates

All global objects have an associated faceplate which appears when the global object is clicked. These faceplates require no additional configuration. When an object has additional support functions linked, such as Run Time Monitor, Interlock Block, or others, the faceplate for these extended functions will also be accessible from the faceplate.



Using Library Object Documentation

Each Library object has its own pair of reference manuals that define the logic parameters in the Add-On Instruction (1st manual) and HMI display elements (2nd manual) that are specific to the object. The manuals are structured with the following subsections:

Add-on Instructions

- Guidelines – Explains when to use this instruction and alternative Add-On instructions for situations that do not apply for this instruction.
- Functional Description – Provides details on how the instruction operates to acquaint you with the capabilities of the instruction.
- Required Files – Includes the controller files that you must import into your project to use this instruction.
- Controller Code – Describes the input and output parameters and local configuration tags for controller configuration and maintenance.
- Operations – Describes primary operations for Add-On Instructions, including modes, alarms, and simulation.
- Programming Example (selected manuals) – Illustrates the use of the instruction for a better understanding of the instruction logic.

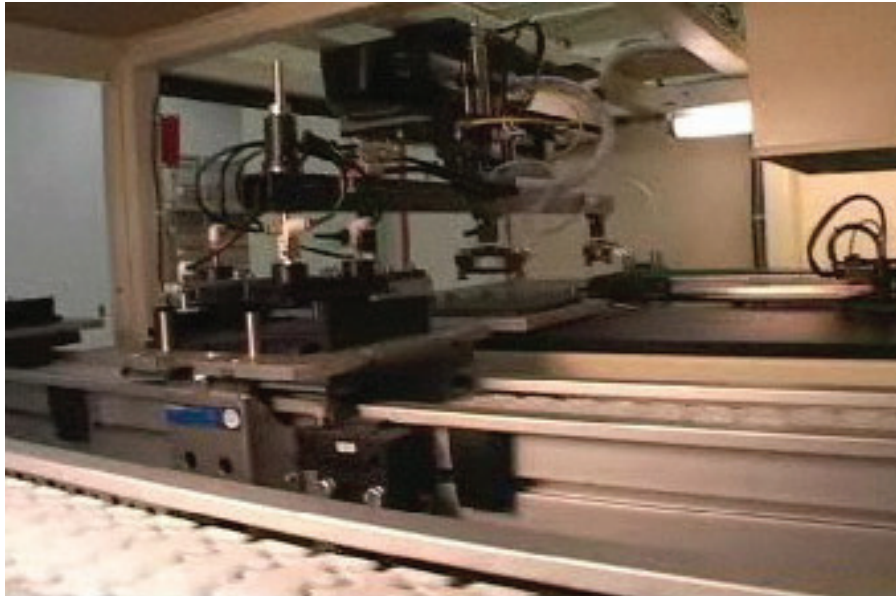
HMI Display Elements

- Display Elements – Depicts the display elements to aid in choosing the ones that you need.
- Quick Display – A small screen that lets operators perform simple interactions with the respective instruction. From the Quick Display, you can navigate to the faceplate for full access for operation, maintenance, and configuration.
- Faceplate – Explains how to use and understand the faceplate.
- Required Files – Includes the visualization files that you must import into your project to use this instruction.

A brief description of each Library object is provided in the following pages to help you select functionality for your system. The overviews include sample displays and links to the respective Add-On Instruction manual.

Area and Role Based User Security

The faceplates are delivered with capabilities to segregate by role and area user functions. There are 7 default role groupings (such as Operator, Engineer, etc), as well as the ability to segregate functions between two or more plant areas.



Modes of Operation and Security

A comprehensive security model is implemented allowing different functions to be granted or denied access based on a defined user or group. This is fully configurable to allow highly defined security schemes to be implemented.

All objects operate within a pre-defined set of modes, these may include:

Operator – Controlled from the HMI

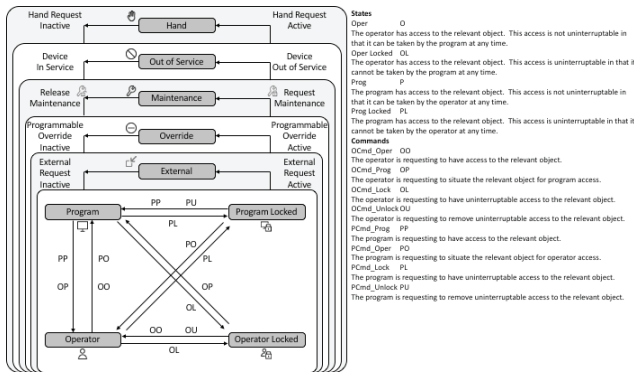
Program – Controlled from the application code

Override – Where selected interlocks and permissive conditions can be bypassed

Maintenance – Where all interlocks, permissive conditions and internal checks are bypassed

Hand – Under control of hardwired control stations

External – Controlled by an external source



Alarm State Model

The PlantPAX® system implements the complete state model defined in ANSI/ISA-18.2-2016, Management of Alarm Systems for the Process Industries. This implementation provides three mechanisms to prevent prolonged indications of an alarm: Suppress, Shelf, and Disable. The Shelf mechanism provides an operator initiated means to prevent an alarm from indicating for a configurable period of time.

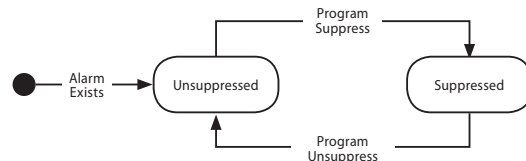
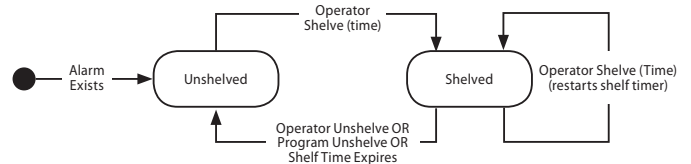
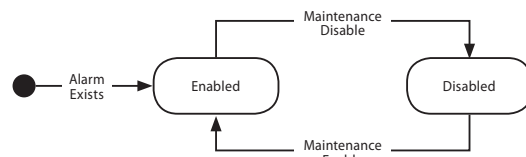
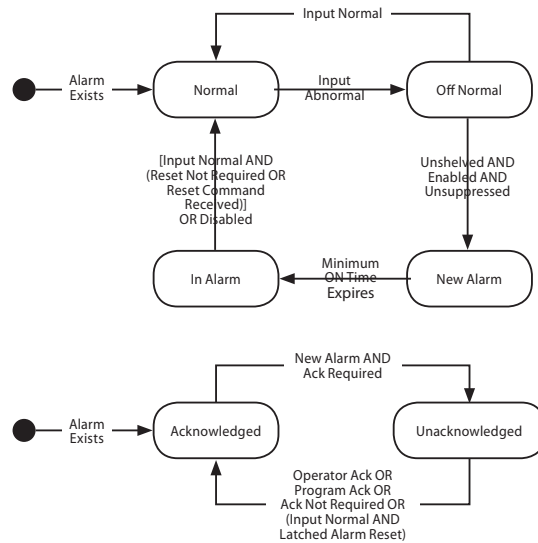
Alarms which are shelved continue to function normally except that, once acknowledged, they do not transition to the unacknowledged state. Alarms can be unshelved by the operator, when the shelving timer expires, or by program logic. The latter makes it possible to ensure that alarms are not inadvertently shelved by creating unshelved logic that is triggered by an event such as shift change.

The Suppress mechanism provides a control logic initiated means to programmatically prevent an alarm from indicating based on process state or condition.

Alarms which are suppressed continue to function normally except that, once acknowledged, they do not transition to the unacknowledged state. The suppress state makes it possible to implement “suppress by design” logic which, for examples, suppresses alarming when a piece of equipment is not in use.

The Disable mechanism provides a maintenance initiated means to take an alarm out of service without modifying the underlying control logic.

Alarms which are disabled do not transition alarm status and are not logged in the historical database.



Where To Get The Rockwell Automation Library of Process Objects

The Rockwell Automation Library of Process Objects can be downloaded from the Product Compatibility Download Center at:

<http://www.rockwellautomation.com/rockwellautomation/support/pcdc.page>

A TechConnect SM contract is required for access

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