Using the Process Library

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What will I learn in this session?

• What is the Process Library?
• How does the Process Library benefit me?
• Where do I get the Process Library?
• How do I install the Process Library?
• How do I build my control strategies using the Process Library?
• How do I build my HMI using the Process Library?
• How do I use modular features to grow my control strategy?
• Where do I find documentation and support?
• Where do I find sample applications?
• What will be added to the Process Library in the future?
What is the Process Library?

- Add-On Instructions for Logix
- Graphic Symbols and Faceplate Displays for FTView (SE or ME)
  - For a variety of valves, motors, pumps, drives, inputs, outputs and other devices
  - Supporting instructions for modes, alarms, permissives, interlocks, statistics
- Reference Manuals
- Supported by Tech Support
What is the Process Library?

- Instructions, Graphics and Faceplates for numerous devices, plus their modes, alarms, interlocks, permissives, statistics, etc.

- Motors
  - Single Speed
  - Two Speed
  - Reversing
  - Variable Speed
  - Hand Operated

- Valves
  - Single Solenoid
  - Motor Operated
  - Hand Operated
  - Mix-Proof
  - Analog Control

- Analog Inputs
  - Single Basic
  - Single Advanced
  - Dual Sensor
  - Multiple (up to 8)

- Analog Output

- Discrete Devices
  - Single Input
  - Single Output
  - 2-, 3- or 4-State
  - n-Position (up to 8)
  - Discrete Logic

- Dosing
  - With Flowmeter
  - With Weigh Scale

- Statistics
  - Motor Run Times/Counts
  - Valve Stroke Times/Counts

- Interlocks, Permissives

- Modes, Alarms, Reset

- Tank Strapping Table

- Analog Fanout

- P/T Comp. Flow
How does the Process Library benefit me?

• Tested instructions which model real devices
  – Including simulation of devices for operator training, strategy testing

• Consistent modes of operation
  – Avoid operator confusion
  – Assist maintenance without having to open logic

• Consistent interfaces between objects
  – Modular design eases construction of complex control strategies

• Consistent user interface
  – Standards-based HMI emphasizes abnormal conditions
  – Color palette tool to align HMI objects with your color standards

• Reduced development and maintenance time
Where do I get the Process Library?

• Free download from RockwellAutomation.com KnowledgeBase
  – AnswerID #62682
  – Or search for ‘PlantPAx’

• Included on the RSLogix5000 Installation DVD
  – ‘Start Page’
  – V19 includes Library 1.1-01
  – V20 includes Library 2.0
How do I install the Process Library?

• First, you need:
  – RSLogix 5000 Software
  – FactoryTalk View Studio
    • Machine Edition (ME) or
    • Supervisory Edition (SE)

• Current Library (2.0) requires:
  – RSLogix 5000 V18 or later
  – FactoryTalk View V6.0 or later

• Library Version 1.5 is still available.
  It requires:
  – RSLogix 5000 V16 or later
  – FactoryTalk View V5.1 or later
How do I install the Process Library?

• For your RSLogix 5000 Project, simply import the Add-On Instructions (AOIs) you need.

• Importing an AOI includes:
  – Required User-Defined Types
  – Required String Types
  – Embedded AOIs (Mode, Alarm)
How do I install the Process Library

• Only import the Add-On Instructions you need

• Which AOIs do I need?
  – PDF summary distributed with the library
  – Check the Reference Manual for each instruction
    • TIP: Chapter 1 has a description of features, plus “Use When” and “Do Not Use When” information

• Reference Manuals included with the Library, or at RockwellAutomation.com

Overview

The P_Motor (single speed motor) instruction controls a non-reversing, single speed motor in a variety of modes and monitors for fault conditions.

Use when:

• You want to control a single-speed (running or stopped) motor. The motor can use a full voltage starter (FVNR), a soft starter or other motor protective equipment, and may or may not provide run feedback. The P_Motor instruction includes Faceplates and Graphic Symbols for operator display and manipulation. The instruction provides Alarms for several fault conditions.

Do NOT use when:

• You want to control a two-speed (fast/slow/stopped) motor. Use the P_Motor2Spd (Two Speed Motor) Instruction instead.
• You want to control a reversing (forward/stopped/reverse) motor. Use the P_MotorRev (Reversing Motor) Instruction instead.
• You want to control a motor with continuously-varying speed. Use the P_VSD (Variable Speed Drive) Instruction instead.
• You want to control a motor that is part of a valve actuator. Use the P_ValveMO (Motor-Operated Valve) Instruction instead.
• You need to monitor, and optionally trip, a locally-operated (hand-operated) motor. The motor can be single-speed, two-speed or reversing. Use the P_MotorHO Instruction instead.
How do I install the Process Library?

- For FactoryTalk View HMI
  - SE or ME
- Step 1: Import the Images (.bmp) (all)
How do I install the Process Library?

• Step 2: Import the Global Objects (.ggfx) (all)
How do I install the Process Library?

• Step 3: Import the Displays you **need** (only)
• But what do I **need**? (back 3 slides...)

• For each AOI:
  – Faceplate
  – Help Display
• And for most motors, valves, and other devices:
  – Mode Help
  – Mode Config
  – Alarm Help
How do I build my control strategy?

• Add an AOI instance to your application code
• Create its backing tag
• Connect its I/O
How do I build my control strategy?

- **IMPORTANT:** Every instruction defaults to its simplest, basic device configuration.
  - Motors: outputs only with no run feedback
  - Valves: outputs only with no limit switch feedback
- Additional features are used if you configure / enable them
- Details are in the Reference Manual for each instruction
How do I build my control strategy?

- You can build your strategy in any of the RSLogix 5000 programming languages
  - Function Block Diagram
  - Ladder Diagram
  - Structured Text
    - Including Structured Text within a Sequential Function Chart routine
How do I build my HMI?

- Open your display in FactoryTalk View Studio
- Open the Global Object file containing the Graphics Library for your instruction
  - e.g., P_Motor Graphics Library
- Drag the Graphic Symbol you want into your display
How do I build my HMI?

- Configure the Logix Tag in the Global Object Parameter
How do I build my HMI?

• Start the HMI client or station
• Call up the display you built
• Click the Graphic Symbol to call up the Faceplate
• Operate the device
How do I configure my devices?

- You can use RSLogix 5000
  - Click on an instance
  - Enter parameter values

- You can use the HMI Faceplate
  - Click on an instance
  - Use the Engineering Tab

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How do I configure my devices?

- Configured Strings are used on Graphic Symbols and the Faceplate
- Many devices have more than one page on the Engineering Tab
How do I add features to my devices?

- Permissive, Interlock, Statistics AOIs are designed to “plug in”
- Add to you strategy
- Enable on the Faceplate
How do I add features to my devices?

- As you add related AOIs, add their Tags to the device’s Global Object Parameter list

![Global Object Parameter Values](image)
How do I add features to my devices?

- As you add and enable features, they become available on the Faceplate
  - Indicators change to navigation buttons
  - Other navigation buttons become visible
How else can I grow my control strategy?

• Use built-in instructions
  – PIDE for Proportional + Integral + Derivative control
  – TOT for Flow Totalizer
  – RMPS for Ramp / Soak profiles

TIP: Graphic Symbols and Faceplates for these built-in instructions are included with the Library

• Add Interlocks and Permissives

• Add logic for other Modes
  – Program
  – Override
  – Hand

• Add logic for sequences
  – LBSM (Logix-Based Sequence Manager)
  – FactoryTalk Batch with Logix Phase Manager
Where can I find sample applications?

- Installed with RSLogix 5000 Software
  - V19: using Library 1.1-01
  - V20: using Library 2.0

- RSLogix 5000 ACD
- FTView SE APA
- Design documentation
Where can I find documentation?

• Each Add-On Instruction has a complete Reference Manual
  – Included in Library download
  or
  – RockwellAutomation.com
    • Literature Library
    • Search: “SYSLIB”
Where can I find support?

• Rockwell Automation Technical Support
  – PlantPAx specialists trained
  – Issues can be escalated
  – Be sure to ask for “PlantPAx” when you call

• Online KnowledgeBase
  – Download page: AnswerID #62682
  Check here for updates
  – Search “PlantPAx” for related articles

• Global Process Technical Consultants
What will be added to the Library?

- Watch for announcements during other Process Solutions User Group sessions

- **You tell us!**
  - Check out the Town Hall Voting Sessions
  - Catch us on the Automation Fair® floor
Thank you!

Questions