MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected ABB reference pages; not a complete installation manual

800 Series Turbine / VPM810

VPM810

TURBINE VALVE POSITIONING MODULE

OFFICIAL SOURCES

ABB VP800 sales brochure Rev B; Symphony Plus catalogue. Original reference pages retained unchanged.

800 Series Turbine Modules

Valve Positioner VP800







800 Series Turbine Modules

Valve Positioner VP800

The Valve Positioner VP800 adds turbine valve control capability to the System 800xA or to any other controller with Profibus interface. It is intended for modulation of hydraulic actuators via servo valves or I/H converters.

The typical application involves driving dual coil integrating servos with either single or redundant LVDT's. The VP800 performs closed loop control utilizing the position demand from the master controller and the position feedback from the LVDT's. The Proportional and Integral parameters establish the rate of movement and the settling characteristics of the control loop.

The most common applications of the VP800 include the positioning of steam turbine throttle and control valves and gas turbine fuel valves.

Additional Features

Built-in Profibus Interface

- Non-proprietary communication for true open architecture integration
- Master and Line Redundancy

I/H Converter Mode

Drives linear positioning devices (I/H Converters) via direct linear mapping of the demand signal into a voltage output using an open-loop control scheme (no feedback).

Inner-Outer Loop Mode

Addresses applications with two cascaded, non-mechanically linked control elements (some servo-pilot valve arrangements).

The cascaded PI control loop for this mode utilizes two feedback devices (for pilot and steam valve position) to form a closed-loop control system.

Manual Mode

Allows the operator to directly control the hydraulic actuator in the event of a master controller communication failure. In this mode, the operator can issue hard-wired raise and lower commands to the VP800.

Integrated Valve Curve

Provides automatic implementation of the mapping function to translate flow demand into valve position demand to achieve linear changes in turbine steam or gas flow.

Integrated Valve Testing

Provides automatic valve testing (upon master controller request) to ensure proper operation of electronic and hydraulic components. Testing algorithms are flexible to account for different testing schemes.

Automatic Calibration

Performs automatic calibration of the position feedback device settings, including LVDT voltage range and demodulator gain.

Inputs

2 Position Feedback Inputs

- AC LVDT, DC LVDT, AC LVRT, or 4-20 mA device
- Single, Redundant or Dual

2 Digital Inputs (24/48VDC)

- Open/Close Limit Switch; or
- Emergency Manual Raise/Lower

Outputs

Dual Coil Servo Output

- Linear or Integrating Outputs
- 227mA Maximum

4 Relay Outputs

- Fast Dump Solenoid
- Trip Solenoid
- Manual Mode Indicator
- User Defined

800 Series Turbine Modules

Valve Positioner VP800

Applicable Hardware

The Valve Positioner VP800 has three main components, conveniently designed for simple integration and quick assembly.

- Common Processor Module (CPM810)

  Executes the valve positioning software algorithms and communicates with the master controller via Profibus DP.

- Valve Position Module (VPM810)

  Receives and digitizes the field inputs, and generates the valve positioning outputs.

- Terminal Base Unit

  Houses the CPM810 and VPM810 modules and provides terminals for power, field I/O, and communication.

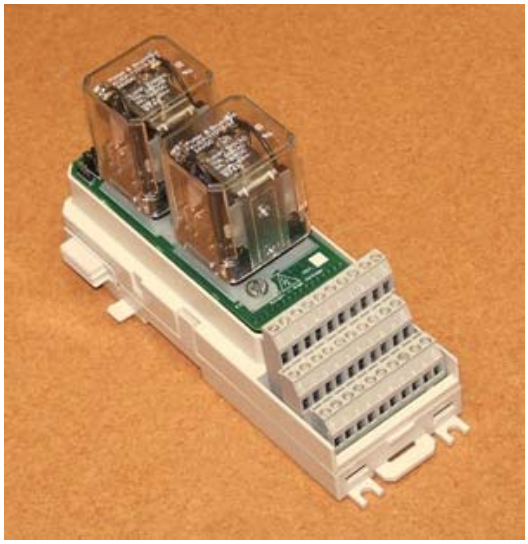
The VP800 can interface to one or more Relay Output Modules (ROM810), based on the requirements of each specific application.

AS800 Hardware

- 1 -CPM810 Common Processor Module
- 1 -VPM810 Valve Position Module
- 1 -TBU810 Terminal Base Unit
- ROM810 Relay Output Module



VP800 (CPM810 + VPM810 + TBU810)



ROM810

800 Series Turbine Modules

The Next Way of Thinking

Built-in Profibus Interface

- Non-proprietary communication for true open architecture integration
- Master and Line Redundancy

Flexible Installation Configurations

- Din Rail Mountable
- Standard 24VDC power supplies
- Existing cabinet installation for retrofits
- Turbine deck mounting eliminates wiring for new installations

Component Commonality

- CPM810, TBU810 and ROM810 are common to all three turbine products (AS800, TP800, and VP800)
- Provides application flexibility and convenience
- Reduces spare part costs



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