

Product Overview | 8390 Valve and Flow Profiler

Bulletin 8390
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CHARACTERIZE MULTIPLE VALVES OR FLOWS OVER THE WHOLE RANGE OF DEMAND INPUT

- Replaces complex mechanical linkages linkages
- Complete flexibility in profiling
- On line profile entry
- Touchscreen HMI
- User selectable name for each loop
- Selection of a feedback signal and alarming per loop
- Closed loop control

Most valves have a characteristic non-linear relationship between flow and percent open. In most combustion systems, controlling multiple valve positions simultaneously allows for efficient combustion over the full operating range. North American's 8390 Valve and Flow Profiler is an easy-to-use controller that replaces linked-valve arrangements and provides precise positioning of air, fuel, O₂, FGR, and other valves.

The Valve and Flow Profiler accepts a 4-20 mA signal as its demand input from any process control device (PC, PLC, or single loop controller). This signal dictates the loop setpoints or valve positions according to their respective predefined profiles. Each valve is entirely independent of the others and depends only on the demand signal and its own profile.

Minor adjustments to each valve position can be made based on a trimming input signal. Valve positions can also be configured (via operator input) with a constant bias. These features can be enabled separately for any of the four valve positions. The trim input signal can represent O₂ trim, XSA trim or any other 4-20 mA trim signal.

Two 4-20 mA temperature inputs are available to temperature compensate flows used for loop feedback. Each loop can be configured to use either input or none.

Configuring the 8390 Valve and Flow Profiler is easy. Each of the six possible profiles consists of up to 11 demand settings between 0% and 100%, and each profile can contain up to four motors. Setup requires only the entry of the loop setpoints or valve positions of each valve in use. Parameters in the setup also determine the behavior of each valve with respect to furnace conditions of purge, low fire, light-off, and excess air. Profiles can be adjusted at any time, even while in use.

The Valve and Flow Profiler can be factory configured if a completed configuration sheet (8390-1) is supplied.

SPECIFICATIONS

Processor and I/O (Panel Mounted)

Operating temperature: 0 to 130°F (-17 to 55°C)
Approvals: CE, CSA, UL, CUL
Power supply - Voltage: 85 to 264 VAC
Power Supply - Current: 0.3 A at 120 VAC (0.15 A at 240 VAC)
Line Frequency: 50/60 Hz
Power Dissipation: 18.5 W
Built in 24VDC Power Supply: 400mA Max (not for customer use)
Dimensions: 8" x 4.57" x 3" (204 x 116 x 75 mm)
Profinet Port Address: 10.1.220.198

Operator Interface Terminal (Door Mounted)

Operating Temperature: 32 to 122°F (0 to 50°C)
Enclosure Type 4X (Indoor use only)
Approvals: CE, CSA, UL, CUL Listed 74D7
Power Supply Voltage: 24 VDC (19.2 to 28.8 VDC)
Power Supply Current: 0.44 A
Dimensions - Front Panel: 8.424" x 6.22" (214 x 158 mm)
Dimensions - Panel Cutout: 7.756" x 5.551" (197 x 141 mm)
Display: 7" Touch screen with 8 pushbuttons
Profinet Port Address: 10.1.220.199

External 24 VDC Power Supply (Required)

Power Supply - Voltage: 19.2 to 28.8 VDC
Power Supply - Current : 0.64 Amp (minimum)

Digital Inputs (Quantity 13)

Voltage: 24 VDC
Current: 4 mA nominal

Digital Outputs (Quantity 8)

Type: Relay, Dry Contact
Voltage: 5 to 30 VDC or 5 to 250 VAC
Current: 2.0 A max

Analog Inputs - Current (Quantity 8)

Range: 0 to 20 m A, 0-5 VDC
Impedance: 250 ohm
Max Voltage: +/-35 VDC
Max Current: +/-40 mA
Cable Length: 100 meters twisted and shielded

Analog Outputs (Quantity 4)

Range: 0 to 20 mA
Load Impedance: <600 ohms
Cable Length: 100 meters twisted and shielded

Control Valve Actuators

Modulating Accuracy: Minimum 160 repositions through 90 degrees of travel are recommended (North American 1615 series or similar).

Note: Low accuracy actuators will likely produce large flow variations and continuous hunting. Models with 55 repositions through 90 degrees of travel are not recommended.