Proportional Actuators

These actuators provide electronic proportional control of dampers and valves requiring return to normal position upon power interruption. They are compatible with controllers generating 4 to 20 mA input signals.

Features:

- Spring return.
- 24, 120, and 240 Vac models available.
- Damper models with linkage or base models requiring separate damper or valve linkage available.
- Die cast lower housing with 1/2 in. conduit opening and painted steel upper housing.
- Hydraulic actuator with oil-immersed motor, transducer, and pump.
- Proportional actuators controlled by a variable mAdc input signal.
- 82.5 Ω input impedance.

Model Chart

· Adjustable actuator startpoint.



Valve (Basic) Actuators.									
Model No. ^a	Actuator Power Input			Timing in Seconds @ 72°F (22°C)			Required Linkages		
	AC Voltage (±10%)	50/60 Hz		No Load Stroke		Retract		_	Input Signal
		Watts	VA	Extend	Retract	on Power Loss	Valve Applications	Damper Applications ^b	
MPR-5610	120	10	18	60	30	15	AV-600 AV-601 ^c	AM-601	Compatible
MPR-5611	240								with 4 to 20 mA
MPR-5613	24								

 $^{a}\,$ These MPR-5x1x series valve actuators are compatible with VB-7xxx 1/2 to 2 in. valve bodies.

^b The MPR-5x1x series actuators are basic models which may be equipped for damper applications with the installation of an AM-601 linkage.

^c May be required for steam and hot water. Refer to General Instructions.

Damper Actuators.

	Actuator	Ti	Input Signal				
Model No. ^a	AC Voltage (+10/-15%)	50/60 Hz		No Load Stroke		Retract on	
		Watts	VA	Extend	Retract	Power Loss	
MPR-5630	120	10	18	60	30	15	Compatible with
MPR-5633	24	10					4 to 20 mA

^a Damper models (MPR-5x3x) provided with factory-installed damper linkages. Only base models (MPR-5x1x) require separately ordered linkages.

MPR-5600 Series

Specifications	
Actuator inputs	
Control circuit	MPR-561x and -563x series: Two-wire. 4 to 20 mA.
Input impedance	82.5 Ω for 40 to 20 mA input.
Power input	Refer to Valve (Basic) Actuators Model Chart and Damper Actuators Model Chart.
Connections	Color coded 4 ft. (1.2 m) leads.
Actuator outputs	
Electrical	Position signals: Internal feedback circuitry provides positive positioning of the damper in relation to the controller signal.
Electrical	Startpoint adjustment: Adjustable potentiometer provides manual adjustment of the actuator startpoint.
	Stroke damper: Approximately 2 in. (51 mm) from fully retracted to fully extended (includes AM-601 linkage).
	Valve: Approximately 9/16 in. (14 mm) from fully retracted to fully extended.
Mechanical	Nominal damper area: Actuator sizing should be done in accordance with damper manufacturer's specifications.
	Proportional output torque rating of 15 lb-in. (1.7 N-m), available throughout the entire stroke, based on the lowest force available under normal operation, the spring return stroke, or at a minimum (-10%) supply voltage.
Environment	
Ambient temperature limits	Shipping and storage: -40 to 140°F (-40 to 60°C). Damper: -20 to 140°F (-29 to 60°C).
Humidity	5 to 95% RH, non-condensing.
Location	NEMA Type 1.
Dimensions	
MPR-5x1x series	6 -3/4 H x 3 -1/4 D in. (171 x 83 mm).
MPR-5x3x series	10 H x 4 -1/4 W x 9 -1/2 D in. (254 x 108 x 241 mm).
Timing in Seconds at 72°F (22°C)	
No load stroke	Extend: 60.
	Retract: 30.
Retract on power loss	15.
Agency Listings	
UL 873	Underwriters Laboratories File E9429 Category Temperature-Indicating and Regulating Equipment.
CUL	Certified for use in Canada by Underwriters Laboratories. Canadian Standard C22.2 No. 24-93.
European Community	EMN Directive (89/336/EEC). Low Voltage Directive (72/23/EEC).
General Instructions	Refer to F-23576.

Accessories Model No.

Desc	ription	
Deac	πρασπ	

Damper Linkages	· · · · · · · · · · · · · · · · · · ·
AM-111	Crank arm for 5/16 in. (7.9 mm) diameter damper shaft.
AM-112	Crank arm for 3/8 in. (9.5 mm) diameter damper shaft.
AM-113	Crank arm for 1/2 in. (12.7 mm) diameter damper shaft.
AM-115	Crank arm for 7/16 in. (11.1 mm) diameter damper shaft.
AM-122	Linkage connector straight type.
AM-123	Damper clip.
AM-125	5/16 in. diameter x 20 in. (7.9 x 508 mm) damper rod.
AM-125-048	5/16 in. diameter x 48 in. (7.9 x 1,219 mm) damper rod.
AM-132	Ball joint connector.
AM-161-3	Damper linkage kit.
AM-601	Device includes mounting bracket, damper linkage with spring, and AM-122 straight connector. Required to modify (MPR-5x1x series) valve actuators into 2 in. (51 mm) stroke damper actuators.
AM-602	Spacer.
Valve Linkages and Valves	
AV-600	Valve linkage for 1/2 to 2 in. VB-7xxx and discontinued VB-9xxx valves.
AV-601	Valve linkage extension for hot water and steam applications. Use with AV-7600-1.
AV-7600-1	Valve linkage for VB-7xxx.
Tools (factory available)	
TOOL-19	Spring compression tool for AV-600.
TOOL-209	135 Ω and 0 to 7 mA manual positioner.

Restrictions on Maximum Ambient Temperature for Valve Actuators.

Maximum Temperature of Media in the	Maximum Ambient Temperature of MPR-561x and MPR-573x Series.				
Valve Body (Check Rating of the Valve) °F (°C)	AV-600 (only) °F (°C)	AV-600 and AV-601 °F (°C)			
366 (186)		88 (31) ^a			
340 (171)	Do Not Lloo	93 (34)			
281 (138)	Do Not Ose	103 (39) ^b			
181 (83)		120 (48) ^b			
80 (26)	140 (60) ^b	140 (60) ^b			

 a Minimum allowable ambient temperautre of the actuators is -20°F (-29°C).

^b Maximum allowable ambient temperature of the actuator must never exceed 140°F (60°C).

Typical Applications



Figure 1 Wiring Diagram 4 to 20 mAdc Controllers.