

Factory Set

P2... Series Pressure Independent Characterized Control Valves (PICCV)

Chrome Plated Brass Ball and Brass Stem, NPT Female Ends



Application

The Pressure Independent Characterized Control Valve is typically used in air handling units on heating and cooling coils, and fan coil unit heating or cooling coils. Some other common applications include unit ventilators and VAV re-heat coils. This valve is suitable for use in a hydronic system with constant or variable flow.

This valve is designed with MFT functionality which facilitates the use of various control input.

Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Size	½", ¾", 1"
Type of end fitting	female, NPT
Materials	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	chrome plated brass
Seat O-rings	Viton
Seat	fiberglass reinforced Teflon® PTFE
Characterizing disc	½" & ¾" Brass 1" TEFZEL®
Packing	2 EPDM O-rings, lubricated
Diaphragm	½" & ¾" silicone and Nomex 1" polyester reinforced silicone
Regulator components	stainless steel/brass/Nitrile
Spring	stainless steel
Body pressure rating	600 PSI
Media temp. range	0°F to 212°F [-18°C to +100°C]
Close off pressure	200 PSI
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)
Rangeability	100 : 1
Differential pressure	5 to 50 PSI operating range
Valve accuracy	± 5% *
Weight of valve body	½" = 2.52 lbs ¾" = 2.52 lbs 1" = 4.98 lbs

½" body has three discs with different flow capabilities (.50 GPM to 1 GPM), (1.5 GPM to 2.5 GPM), (3 GPM to 5.5 GPM)

1" body has two discs with different flow capabilities (11 GPM to 16 GPM), (17 GPM to 19 GPM)

Tefzel® and Teflon® are registered trademarks of Dupont™

* See page 3 of the PICCV Technical Documentation for more details.

Valve Model	Flow Rate		Valve Nominal Size		Close-off PSI	Suitable Actuators		
	GPM	Liter/sec	Inches	DN mm		Spring Return	Non-Spring Return	
P2050B005(-P)	0.5	0.03	½	15	200	TFR24-MFT US	LRB(X)24-3	LRX24-MFT
P2050B010(-P)	1	0.06	½	15	200			
P2050B015(-P)	1.5	0.09	½	15	200			
P2050B020(-P)	2	0.13	½	15	200			
P2050B025(-P)	2.5	0.16	½	15	200			
P2050B030(-P)	3	0.19	½	15	200			
P2050B035(-P)	3.5	0.22	½	15	200			
P2050B040(-P)	4	0.25	½	15	200			
P2050B045(-P)	4.5	0.28	½	15	200			
P2050B050(-P)	5	0.32	½	15	200			
P2050B055(-P)	5.5	0.35	½	15	200	LF24-MFT US	LRB(X)24-3	LRX24-MFT
P2075B060(-P)	6	0.38	¾	20	200			
P2075B065(-P)	6.5	0.41	¾	20	200			
P2075B070(-P)	7	0.44	¾	20	200			
P2075B075(-P)	7.5	0.47	¾	20	200			
P2075B080(-P)	8	0.50	¾	20	200			
P2075B085(-P)	8.5	0.54	¾	20	200			
P2075B090(-P)	9	0.57	¾	20	200			
P2075B095(-P)	9.5	0.60	¾	20	200			
P2075B100(-P)	10	0.63	¾	20	200			
PICCV-25-011(-P)	11	0.69	1	25	200	LRB24-3 Heat Pump Only	LRB24-3 Heat Pump Only	LRB24-3 Heat Pump Only
PICCV-25-012(-P)	12	0.76	1	25	200			
PICCV-25-013(-P)	13	0.82	1	25	200			
PICCV-25-014(-P)	14	0.88	1	25	200			
PICCV-25-015(-P)	15	0.95	1	25	200			
PICCV-25-016(-P)	16	1.01	1	25	200			
PICCV-25-017(-P)	17	1.07	1	25	200			
PICCV-25-018(-P)	18	1.14	1	25	200			
PICCV-25-019(-P)	19	1.20	1	25	200			

(-P) optional, ΔP verification across valve using PT ports

LRX24-MFT Actuators, Multi-Function Technology



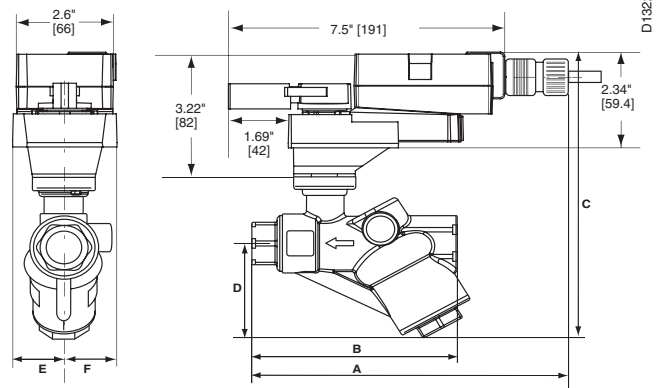
Model

LRX24-MFT

Technical Data	
Power supply	24 VAC $\pm$ 20% 50/60 Hz 24 VDC $\pm$ 10%
Power consumption	running 2 W holding 1.2 W
Transformer sizing	5 VA (class 2 power source)
Electrical connection	18 GA plenum rated cable 1/2" conduit connector 3 ft. [1m] 10 ft. [3m] 16 ft. [5m]
Overload protection	electronic throughout 0° to 95° rotation
Operating range Y	2 to 10 VDC, 4 to 20 mA (default) variable (VDC, PWM, floating point, on/off)
Input impedance	100 k Ω (0.1 mA), 500 Ω 1500 Ω (PWM, floating point, on/off)
Feedback output U	2 to 10 VDC, 0.5mA max VDC variable
Angle of rotation	max. 95°, adjust. with mechanical stop electronically variable
Torque	45 in-lbs [5 Nm]
Direction of rotation	reversible with protected switch
Position indication	handle
Manual override	external push button
Running time	100 seconds variable (35 to 150 seconds)
Humidity	5 to 95% RH non condensing (EN 60730-1)
Ambient temperature	-22°F to +122°F [-30°C to +50°C]
Storage temperature	-40°F to +176°F [-40°C to +80°C]
Housing	NEMA 2/IP54
Housing material	UL94-5VA
Agency listings†	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level	<35dB(A)
Quality standard	ISO 9001
Weight	1.5 lbs [0.7 kg]

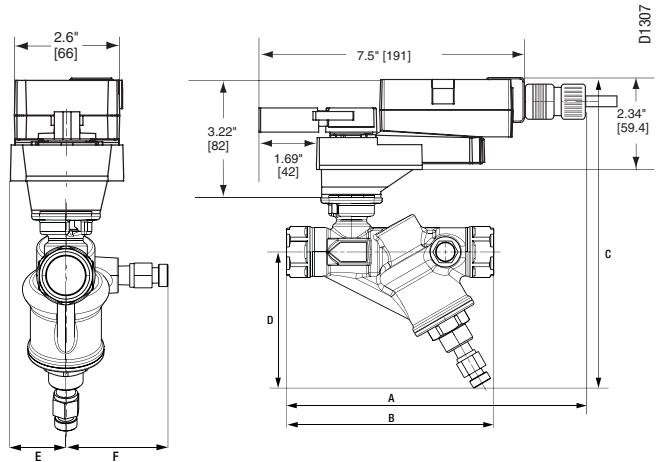
† Rated impulse voltage 800V, Control pollution degree 3,
Type of action 1 (1.B for -S models)

Dimensions (inches [mm])



Valve		Dimensions (Inches [mm])					
Nominal Size	DN [mm]	A	B	C	D	E	F
1/2"	15	8.68" [220]	4.47" [114]	7.13" [181]	2.34" [59]	1.48" [38]	1.48" [38]
3/4"	20	8.98" [228]	5.4" [137]	7.13" [181]	2.34" [59]	1.48" [38]	1.48" [38]
1"	25	9.9" [251]	6.85" [174]	8.02" [204]	3.23" [82]	1.6" [41]	1.6" [41]

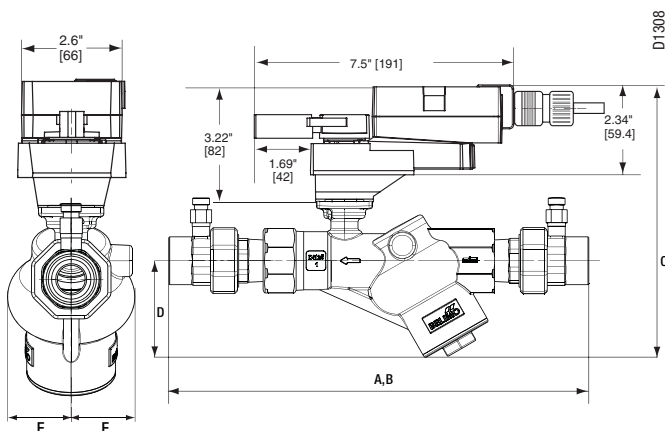
Dimensions with PT Port (Inches [mm])



Valve		Dimensions (Inches [mm])					
Nominal Size	DN [mm]	A	B	C	D	E	F
1/2"	15	8.68" [220]	4.47" [114]	8.47" [215]	3.54" [90]	1.48" [38]	2.4" [61]
3/4"	20	8.98" [228]	5.4" [137]	8.47" [215]	3.54" [90]	1.48" [38]	2.4" [61]

P10410 - 09/13 - Subject to change. © Belimo Aircontrols (USA), Inc.

Dimensions with PT Port (Inches [mm])



Valve Nominal Size		Dimensions (Inches [mm])					
In.	DN [mm]	A	B	C	D	E	F
1"	25	12.6" [320]	12.6" [320]	8.02" [204]	2.95" [75]	1.6" [41]	1.6" [41]

Wiring Diagrams

INSTALLATION NOTES

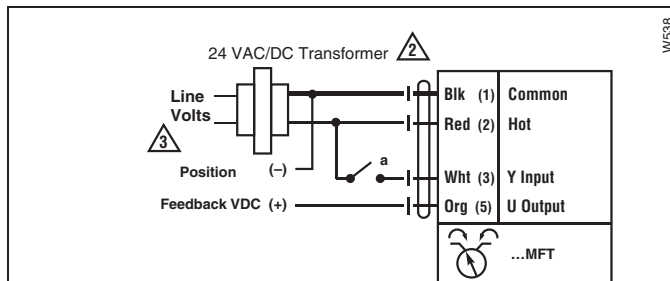
- CAUTION Equipment damage!**
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.
- Actuators may also be powered by 24 VDC.
- Position feedback cannot be used with Triac sink controller.
The actuator internal common reference is not compatible.
Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
- Contact closures A & B also can be triacs.
- A & B should both be closed for triac source and open for triac sink.
- For triac sink the common connection from the actuator must be connected to the hot connection.

APPLICATION NOTES

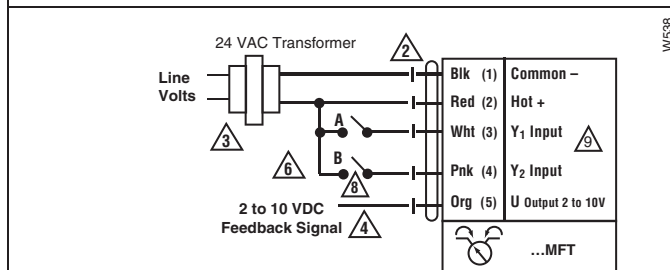
- The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

WARNING Live Electrical Components!

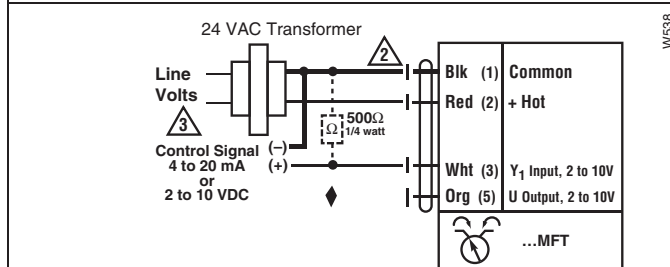
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



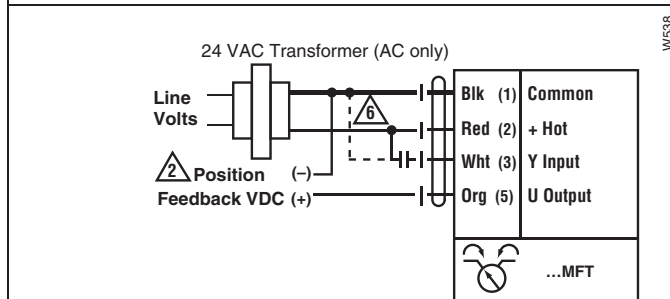
On/Off Control



Floating Point



VDC/4-20 mA



PWM