P2075B100, 3/4”, Pressure Independent Valve

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 reheat 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.

Suitable Actuators

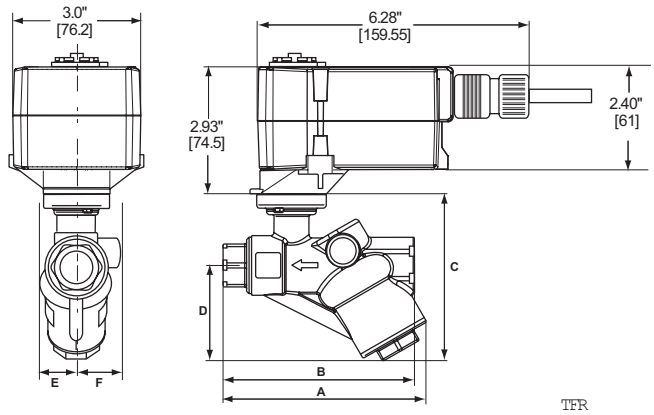
	Non-Spring	Spring
P2075B100	LR, LRC, KR	LF

Technical data

Service	chilled, hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
Size [mm]	0.75” [20]
End Fitting	NPT female ends
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon® PTFE
Seat O-ring	EPDM (lubricated)
Characterized Disc	Brass
Packing	EPDM
Diaphragm	Nomex reinforced Silicone
Regulator Components	stainless steel / brass / Nitrile
Body Pressure Rating [psi]	600
Media Temp Range	0°F to 212°F [-18°C to +100°C]
Media Temperature Range (Water)	0°F to 250°F [-18°C to 120°C]
Differential Pressure Range	5 to 50 psi
Closing pressure Δps	200 psi
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)
Rangeability	100:1
Valve Accuracy	± 5%*
Weight	2 lb [0.9 kg]
GPM	10
GPM Range	0...(5.7-10)

*See page 3 of the PICCV technical documentation for details.

Dimensions (Inches [mm])

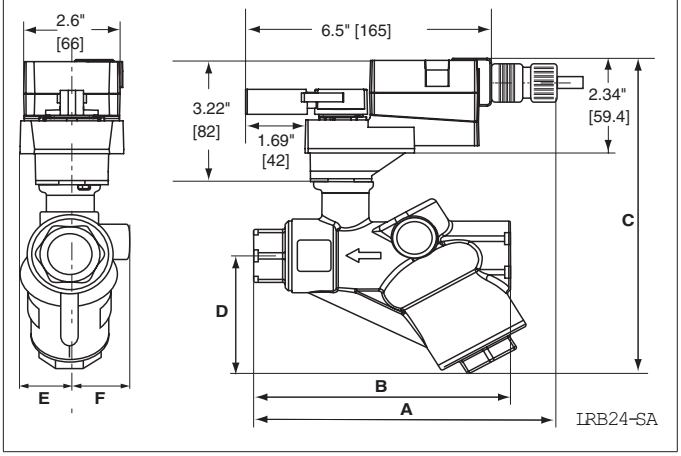


A	B	C	D	E	F
4.94” [125.5]	4.90” [124.5]	4.05” [102.9]	2.34” [59.4]	0.99” [25.1]	

P2075B100, 3/4", Pressure Independent Valve

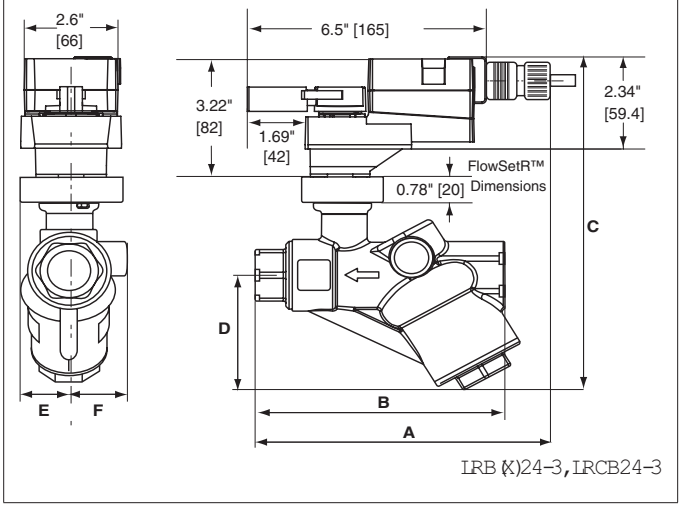
Chrome Plated Brass Ball and Brass Stem, NPT Female Ends

Dimensions (Inches [mm])



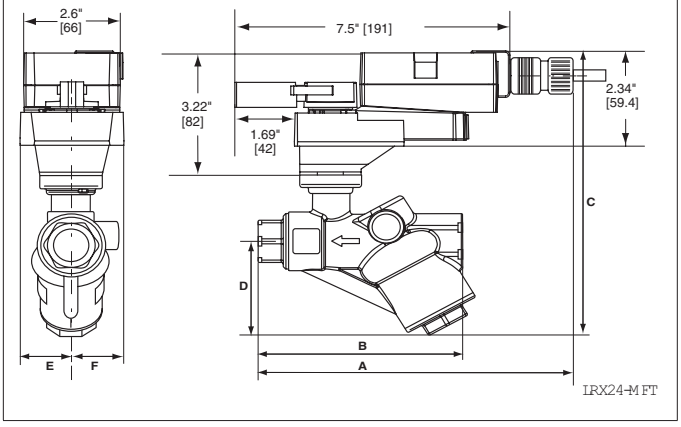
A	B	C	D	E	F
7.98" [203]	5.4" [137]	7.13" [181]	2.34" [59.4]	1.48" [38]	

Dimensions (Inches [mm])



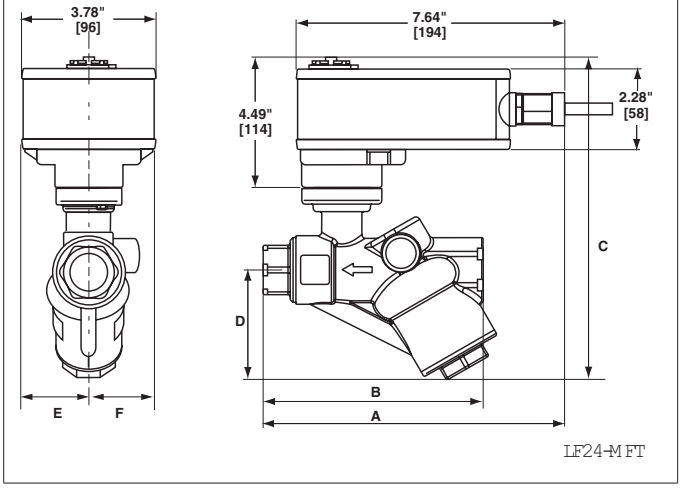
A	B	C	D	E	F
7.98" [203]	5.4" [137]	7.91" [201]	2.34" [59.4]	1.48" [38]	

Dimensions (Inches [mm])



A	B	C	D	E	F
8.98" [228]	5.4" [137]	7.13" [181]	2.34" [59.4]	1.48" [38]	

Dimensions (Inches [mm])



A	B	C	D	E	F
8.3" [211]	5.4" [137]	8.54" [217]	2.34" [59.4]	1.89" [48]	

TFRX24-MFT

Modulating, Spring Return, Multi-Function Technology®

Technical Data	
Power Supply	24 VAC ± 20%, 50/60 Hz, 24 VDC ± 10%
Power Consumption Running	2.5 W
Power Consumption Holding	1 W
Transformer Sizing	4 VA (class 2 power source)
Shaft Diameter	1/4" to 1/2" round, centers on 1/2"
Electrical Connection	3 ft [1 m], 18 GA plenum cable with 1/2" conduit connector
Overload Protection	electronic throughout 0° to 95° rotation
Electrical Protection	actuators are double insulated
Operating Range	2 to 10 VDC, 4 to 20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
Input Impedance	100 k Ω for 2 to 10 VDC (0.1 mA), 500 Ω for 4 to 20 mA, 1500 Ω for PWM, floating point and On/Off
Position Feedback	2 to 10 VDC, 0.5 mA max, VDC variable
Angle of Rotation	max. 95°, adjustable with mechanical stop
Direction of Rotation (Motor)	reversible with built-in switch
Direction of Rotation (Fail-Safe)	reversible with CW/CCW mounting
Position Indication	visual indicator, 0° to 95° (0° is full spring return position)
Manual Override	No
Running Time (Motor)	150 sec (default), variable (75 to 300 sec)
Running Time (Fail-Safe)	<25 sec
Angle of Rotation Adapation	Off (default)
Override Control	min. position = 0% , mid. Position = 50% , max. position = 100% (Default)
Humidity	max. 95% RH non-condensing
Ambient Temperature Range	-22°F to 122°F [-30°C to 50°C]
Storage Temperature Range	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA 2, IP42, UL enclosure type 2
Housing Material	UL94-5VA
Agency Listings†	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC
Sound power level	1121
Noise Level (Fail-Safe)	<62 dB (A)
Servicing	maintenance free
Quality Standard	ISO 9001
Weight	2 lb [0.9 kg]

*Variable when configured with MFT options.
†Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 3

TFRX24-MFT

Modulating, Spring Return, Multi-Function Technology®

Typical Specification

On/Off spring return damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a shaft up to a 1/2" diameter and center a 1/2" shaft. The actuators must be designed so that they may be used for either clockwise or counter clockwise fail-safe operation. Actuators shall be protected from overload at all angles of rotation. If required, one SPDT auxiliary switch shall be provided having the capability of being adjustable. Actuators with auxiliary switch must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be cULus listed, have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

Wiring Diagrams

INSTALLATION NOTES

(A) Actuators with appliance cables are numbered.

1 Provide overload protection and disconnect as required.

2 Actuators may be connected in parallel. Power consumption and input impedance must be observed.

3 Actuators may also be powered by 24 VDC.

4 Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.

5 Only connect common to negative (-) leg of control circuits.

7 A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.

8 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 VAC line.

10 For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.

11 Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

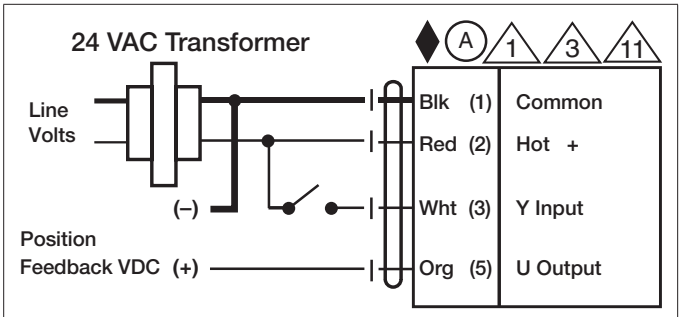
12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).

APPLICATION NOTES

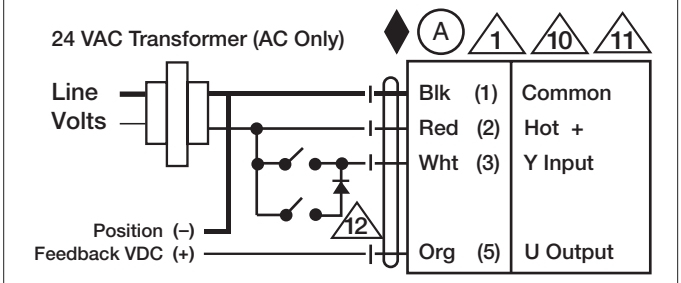
◆ Meets cULus requirements without the need of an electrical ground connection.

WARNING! LIVE ELECTRICAL COMPONENTS!

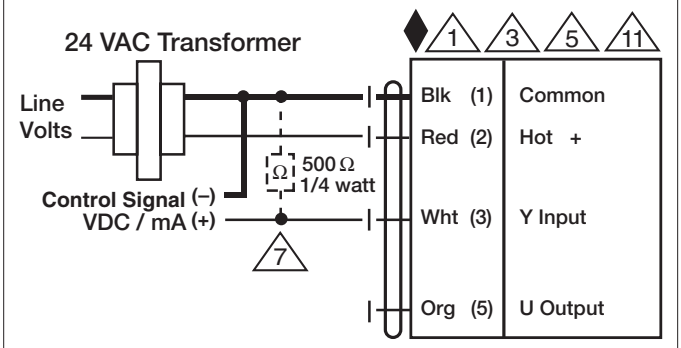
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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



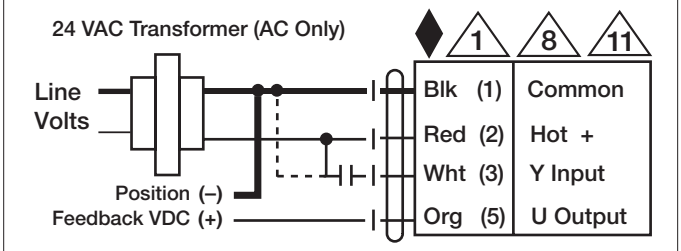
On/Off



Floating Point



VDC/mA Control



PWM Control

TFRX24-MFT

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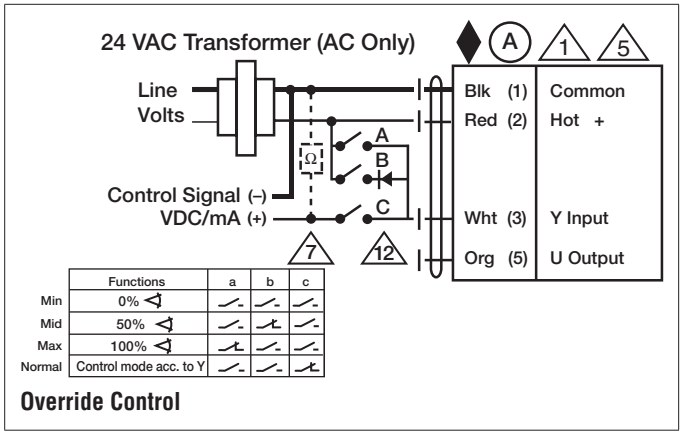

	Functions	a	b	c
Min	0%			
Mid	50%			
Max	100%			
Normal	Control mode acc. to Y			

Override Control