



5-year warranty



Technical data

<b>Functional data</b>	Valve Size	0.5" [15]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	0...250°F [-18...120°C]
	Body Pressure Rating	600 psi
	Close-off pressure Δps	200 psi
	Flow characteristic	equal percentage
	Servicing	maintenance-free
	Flow Pattern	2-way
	Leakage rate	0% for A – AB
	Controllable flow range	75°
	Cv	3
	Body pressure rating note	600 psi
	Cv Flow Rating	A-port: as stated in chart B-port: 70% of A – AB Cv
<b>Materials</b>	Valve body	Nickel-plated brass body
	Stem seal	EPDM (lubricated)
	Seat	PTFE
	Pipe connection	NPT female ends
	O-ring	EPDM (lubricated)
	Ball	chrome plated brass
<b>Suitable actuators</b>	Non-Spring	TR LRB(X)

Safety notes



- **WARNING:** This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

Product features

**Application** This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

Flow/Mounting details



Dimensions

Dimensional drawings



LRB, LRX

A	B	C	D	E	F	H1	H2
9.4" [239]	2.4" [60]	5.6" [141]	5.0" [127]	1.3" [33]	1.3" [33]	1.2" [30]	1.1" [28]



TR

A	B	C	D	E	F
3.7" [95]	2.4" [60]	5.2" [132]	4.6" [117]	1.3" [33]	1.3" [33]



TFRB, TFRX

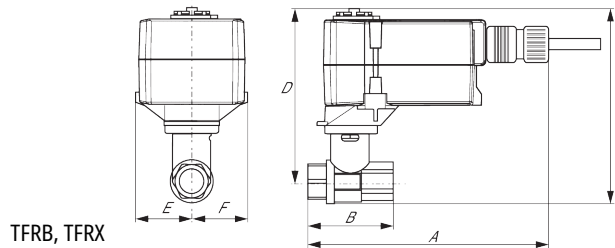
A	B	C	D	E	F
6.6" [167]	2.4" [60]	5.5" [139]	4.7" [120]	1.5" [39]	1.5" [39]



LF

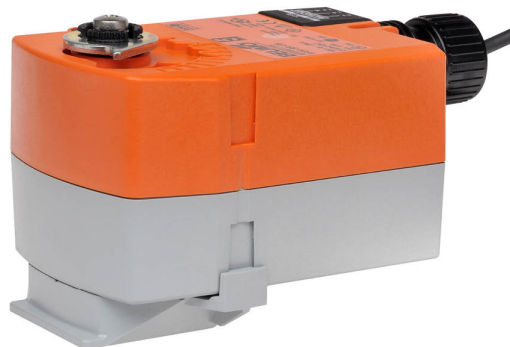
A	B	C	D	E	F
7.9" [200]	2.4" [60]	6.1" [154]	5.5" [140]	1.8" [46]	1.8" [46]

A	B	C	D	E	F
7.9" [200]	2.4" [60]	6.1" [154]	5.5" [140]	1.8" [46]	1.8" [46]



TFRB, TFRX

A	B	C	D	E	F
6.6" [167]	2.4" [60]	5.5" [139]	4.7" [120]	1.5" [39]	1.5" [39]



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## Technical data

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	2.5 W
	Power consumption in rest position	1 W
	Transformer sizing	4 VA (class 2 power source)
	Auxiliary switch	1 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 0...95°
	Switching capacity auxiliary switch	3 A resistive (0.5 A inductive) @ AC 250 V
	Electrical Connection	(2) 18 GA appliance cables with 1/2" conduit connectors, 3 ft [1 m],
	Overload Protection	electronic throughout 0...95° rotation
<b>Functional data</b>	Input Impedance	1000 Ω (0.6 W)
	Position feedback U note	No Feedback
	Direction of motion motor	selectable with switch 0/1
	Direction of motion fail-safe	reversible with cw/ccw mounting
	Angle of rotation	Max. 95°, 90°
	Angle of rotation note	90°
	Running Time (Motor)	95 s
	Running time fail-safe	<25 s t <sub>amb</sub> = 68°F [20°C]
	Noise level, motor	35 dB(A)
	Noise level, fail-safe	62 dB(A)
Position indication	Mechanical	
<b>Safety data</b>	Degree of protection IEC/EN	IP42
	Degree of protection NEMA/UL	NEMA 2 UL Enclosure Type 2
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC
	Quality Standard	ISO 9001
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	max. 95% r.H., non-condensing
	Servicing	maintenance-free
<b>Weight</b>	Weight	1.1 lb [0.80 kg]
<b>Materials</b>	Housing material	UL94-5VA

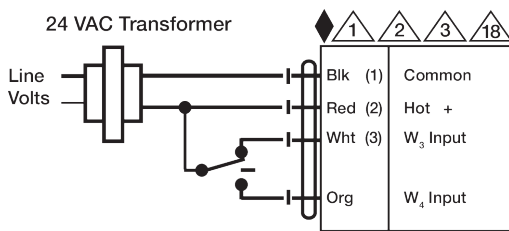
## Electrical installation

**✂ INSTALLATION NOTES**

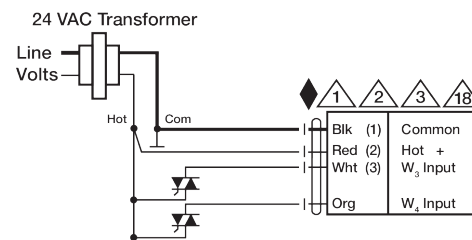
- Ⓐ Actuators with appliance cables are numbered.
- ⚠️ Provide overload protection and disconnect as required.
- ⚠️ Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- ⚠️ Actuators may also be powered by 24 VDC.
- ⚠️ Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.
- ⚠️ One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.
- ⚠️ Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.
- ◆ Meets cULus requirements without the need of an electrical ground connection.

**⚠️ Warning! Live Electrical Components!**

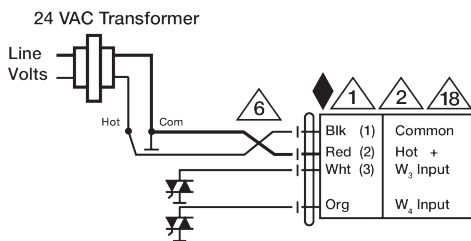
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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



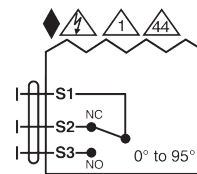
Floating Point



Floating Point - Triac Source



Floating Point - Triac Sink



Auxiliary Switches