



5-year warranty



Technical data

Functional data	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
	Body pressure rating note	600 psi
	Close-off pressure Δps	200 psi
	Flow characteristic	A-port equal percentage, B-port modified for constant common port flow
	Servicing	maintenance-free
	Flow Pattern	3-way Mixing/Diverting
	Leakage rate	0% for A – AB, <2.0% for B – AB
	Controllable flow range	75°
	Cv	1.9
	Cv Flow Rating	A-port: as stated in chart B-port: 70% of A – AB Cv
	Materials	Valve body
Stem		stainless steel
Stem seal		EPDM (lubricated)
Seat		PTFE
Characterizing disk		TEFZEL®
Pipe connection		NPT female ends
O-ring		EPDM (lubricated)
Ball		stainless steel
Suitable actuators	Non-Spring	TR LRB(X) NRB(X) N4
	Spring	TFB(X) LF

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

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 or constant flow.

Flow/Mounting details



Dimensions

Dimensional drawings



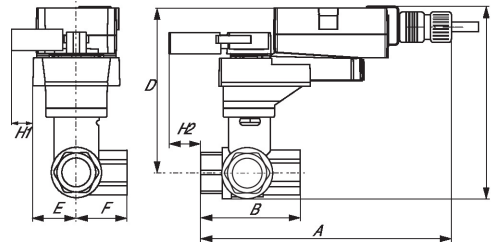
LRB, LRX

Type

DN

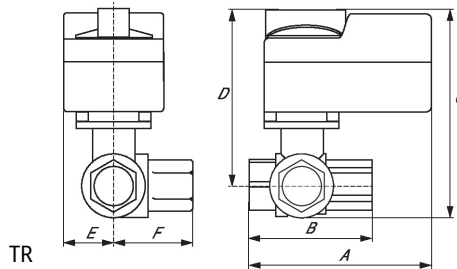
Weight [kg]
[kg]

B311	15	0.30						
	A	B	C	D	E	F	H1	H2
	8.5" [216]	2.4" [60]	5.2" [132]	4.6" [117]	1.3" [33]	1.3" [33]	1.2" [30]	1.1" [28]



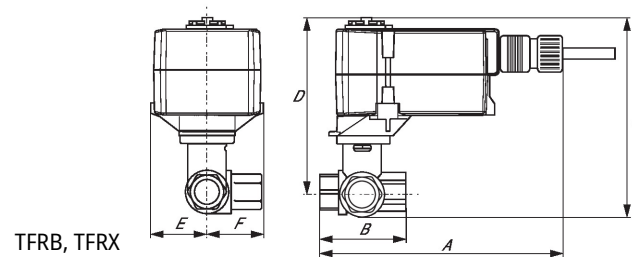
LRQB, LRQX

	A	B	C	D	E	F	H1	H2
	8.9" [226]	2.4" [60]	5.7" [146]	5.2" [131]	1.6" [40]	1.6" [40]	1.2" [30]	1.3" [33]



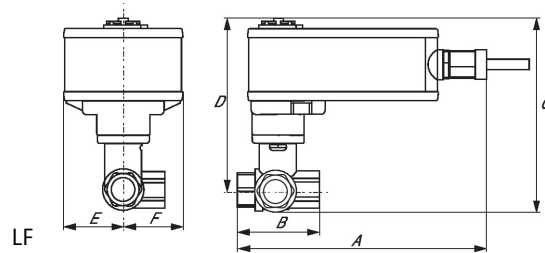
TR

	A	B	C	D	E	F
	3.7" [95]	2.4" [60]	4.8" [122]	4.2" [107]	1.3" [33]	1.2" [31]



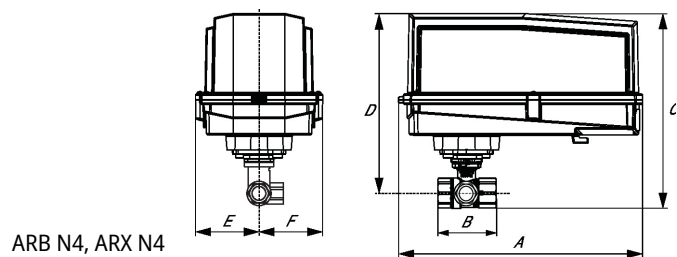
TFRB, TFRX

A	B	C	D	E	F
6.6" [167]	2.4" [60]	4.9" [124]	4.3" [110]	1.5" [39]	1.5" [39]



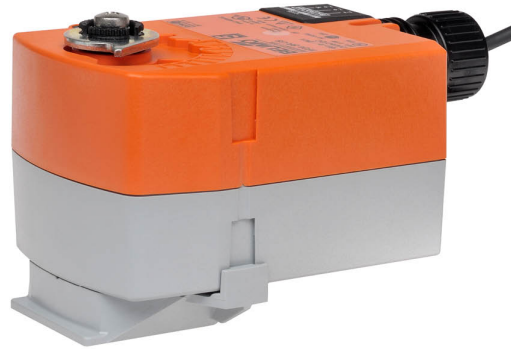
LF

A	B	C	D	E	F
7.9" [200]	2.4" [60]	5.7" [146]	5.1" [129]	1.8" [46]	1.8" [46]



ARB N4, ARX N4

A	B	C	D	E	F
11.4" [289]	2.4" [60]	7.2" [184]	6.7" [169]	3.1" [80]	3.1" [80]



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Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	2 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, 3 ft [1 m], 10 ft [3 m] or 16ft [5 m], with 1/2" conduit connectors
	Overload Protection	electronic throughout 0...95° rotation
Functional data	Direction of motion motor	selectable with switch 0/1
	Direction of motion fail-safe	reversible with cw/ccw mounting
	Angle of rotation	Max. 95°, adjustable with mechanical stop
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	95 s
	Running time fail-safe	<25 s @ -10...55°C / <60 s @ -30...-10°C
	Noise level, motor	35 dB(A)
	Noise level, fail-safe	62 dB(A)
Position indication	Mechanical	
Safety data	Degree of protection IEC/EN	IP42
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	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% RH, non-condensing
	Servicing	maintenance-free
	Weight	Weight
Materials	Housing material	UL94-5VA

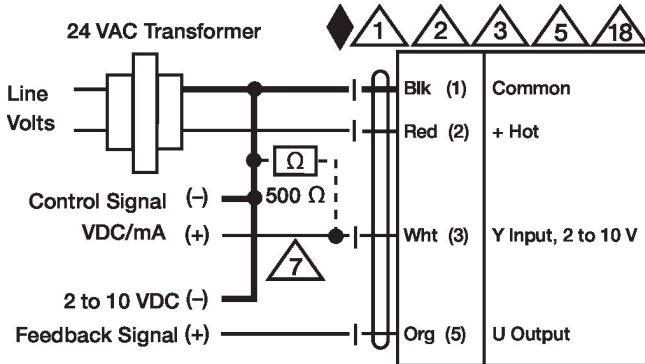
Electrical installation

✂ INSTALLATION NOTES

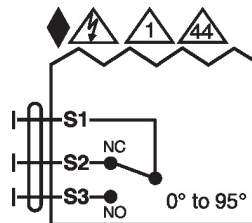
- (A)** Actuators with appliance cables are numbered.
- (1)** Provide overload protection and disconnect as required.
- (2)** Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- (3)** Actuators may also be powered by DC 24 V.
- (5)** Only connect common to negative (-) leg of control circuits.
- (7)** A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- (44)** One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.
- ◆** Meets cULus requirements without the need of an electrical ground connection.
- (⚠)** 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.
- (⚠) 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.

Wiring diagrams

2...10 V / 4...20 mA Control



Auxiliary Switches



Dimensions