

Butterfly Valve with Lug types

- Disc 304 stainless steel
- Bubble tight shut-off
- Resilient seat
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- Completely assembled and tested, ready for installation



5-year warranty

Type overview

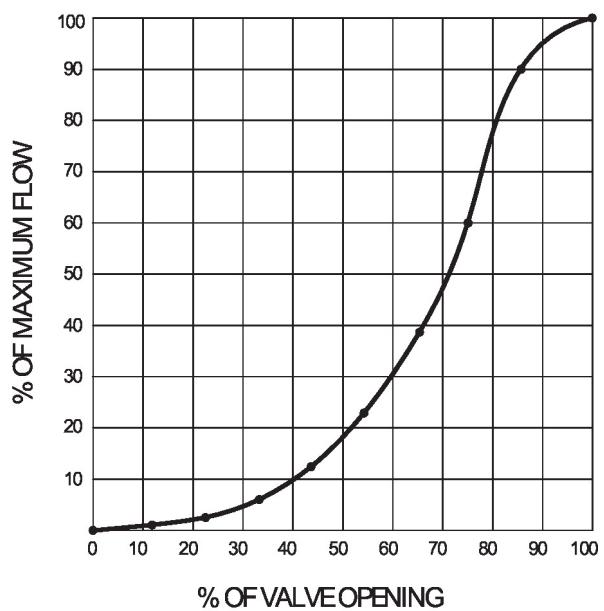
Type	DN
F680HD	80

Technical data

Functional data	Valve size [mm]	3" [80]
Fluid	chilled or hot water, up to 60% glycol	
Fluid Temp Range (water)	-22...250°F [-30...120°C]	
Body Pressure Rating	ANSI Class Consistent with 125, 232 psi CWP	
Close-off pressure Δps	200 psi	
Flow characteristic	modified equal percentage	
Leakage rate	0% leakage, leakage rateA	
Pipe connection	Flange for use with ASME/ANSI class 125/150	
Servicing	maintenance-free	
Flow Pattern	2-way	
Controllable flow range	90° rotation	
Cv	302	
Maximum Velocity	12 FPS	
Lug threads	5/8-11 UNC	
Materials	Valve body	Ductile cast iron ASTM A536
	Body finish	epoxy powder coating (blue RAL 5002)
	Stem	416 stainless steel
	Stem seal	EPDM (lubricated)
	Seat	EPDM
	Bearing	RPTFE
	Disc	304 stainless steel
Suitable actuators	Non Fail-Safe	GRB(X)
	Spring	2*AFB(X)
	Electrical fail-safe	GKRB(X)

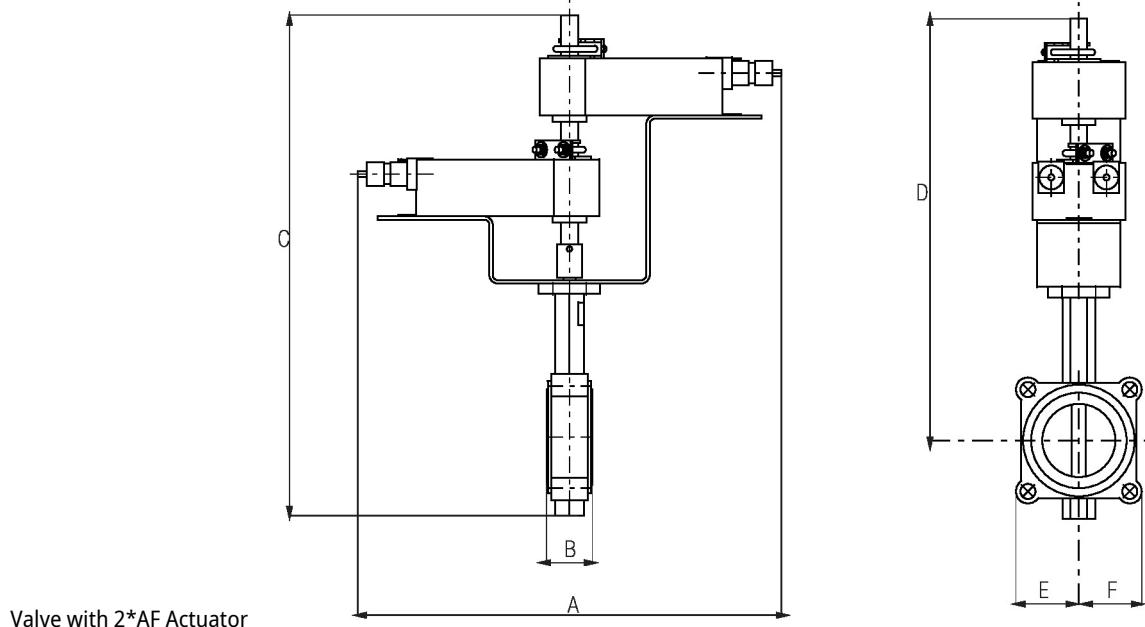
Product features

Flow/Mounting details

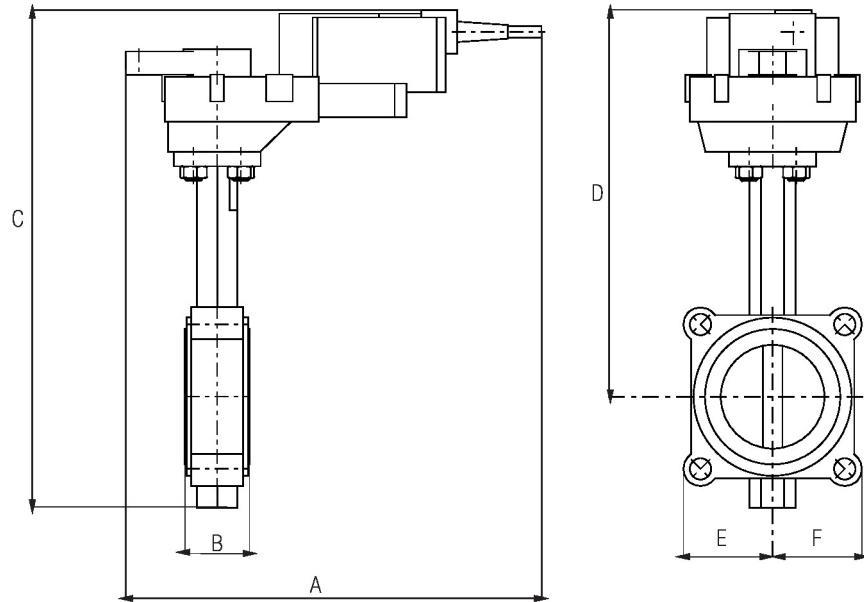


Dimensions

Type	DN	Weight
F680HD	80	16 lb [7.4 kg]

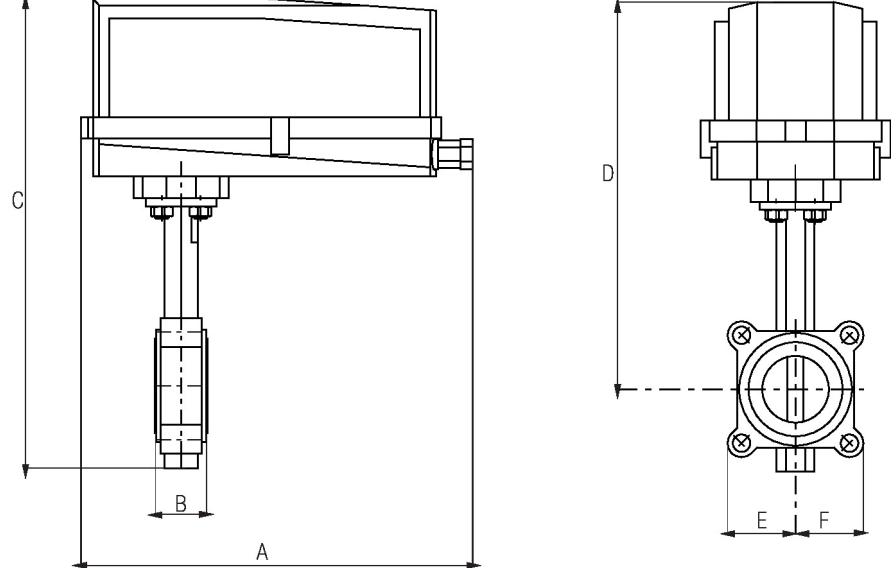


A	B	C	D	E	F	Number of Bolt Holes
17.6" [448]	1.9" [49]	21.4" [544]	18.0" [457]	3.5" [89]	3.5" [89]	4



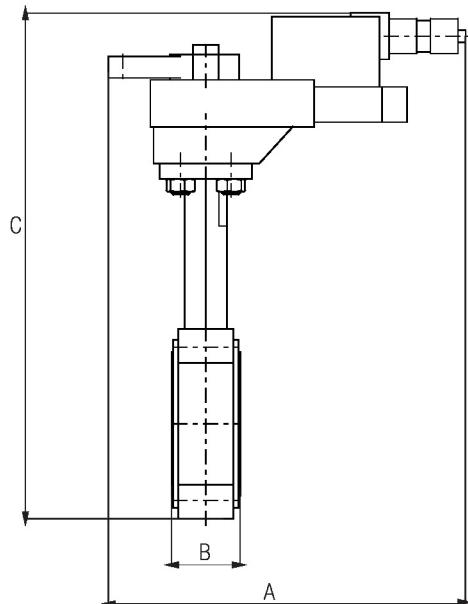
Valve with GK Actuator

A	B	C	D	E	F	Number of Bolt Holes
10.9" [277]	1.9" [49]	16.5" [419]	13.1" [334]	3.5" [89]	3.5" [89]	4

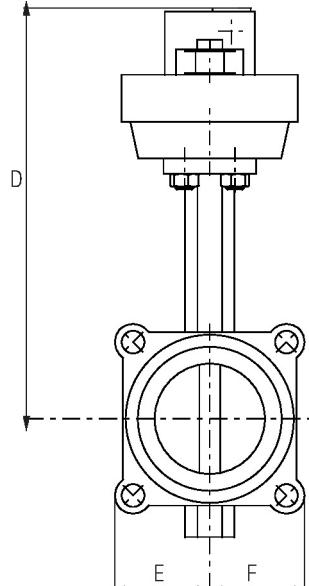


Valve with GR/GK..N4 Actuator

A	B	C	D	E	F	Number of Bolt Holes
14.1" [358]	1.9" [49]	17.8" [451]	14.3" [363]	3.7" [95]	3.7" [95]	4

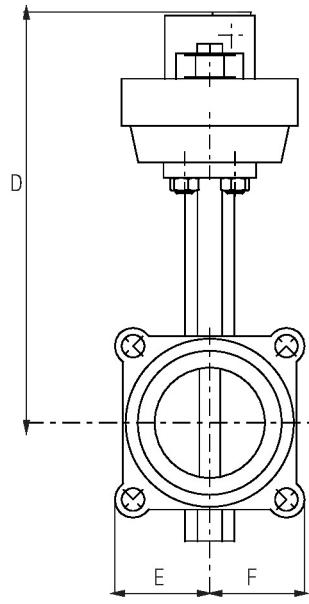
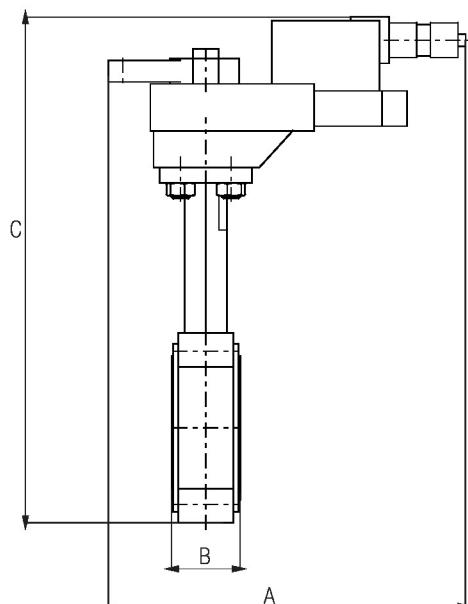


Valve with GR Actuator



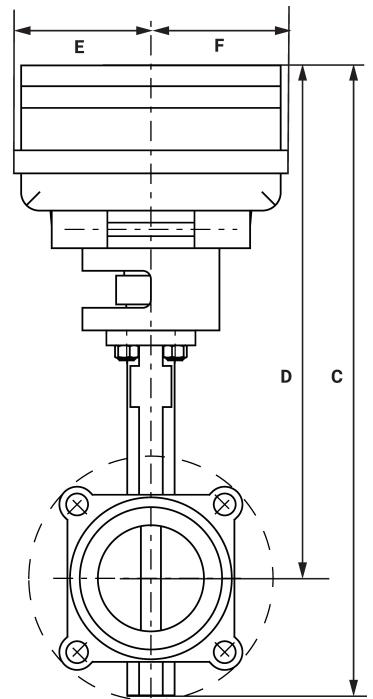
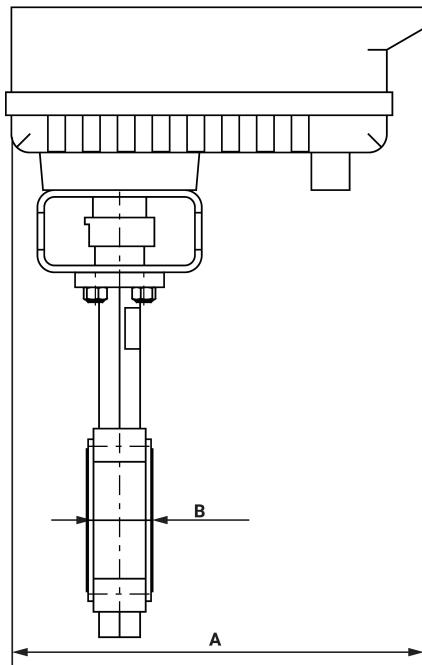
Valve with GM Actuator

A	B	C	D	E	F	Number of Bolt Holes
10.8" [275]	1.9" [49]	14.3" [362]	11.0" [279]	3.5" [89]	3.5" [89]	4



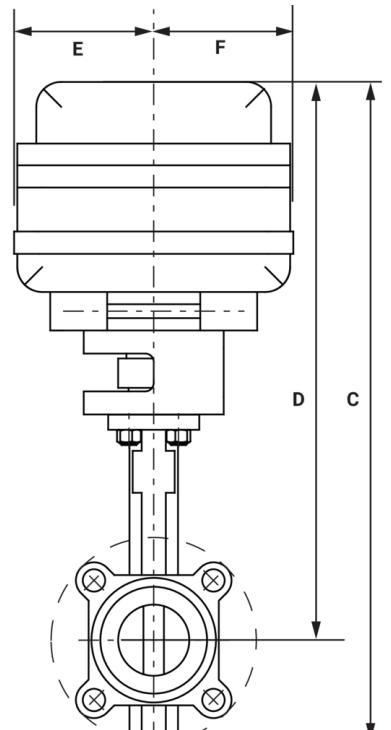
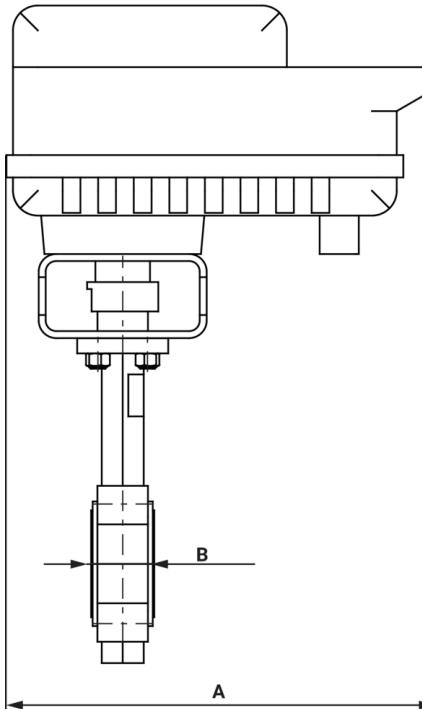
A	B	C	D	E	F	Number of Bolt Holes
9.1" [231]	1.9" [49]	16.5" [419]	13.1" [334]	3.5" [89]	3.5" [89]	4

Valve with PR Actuator



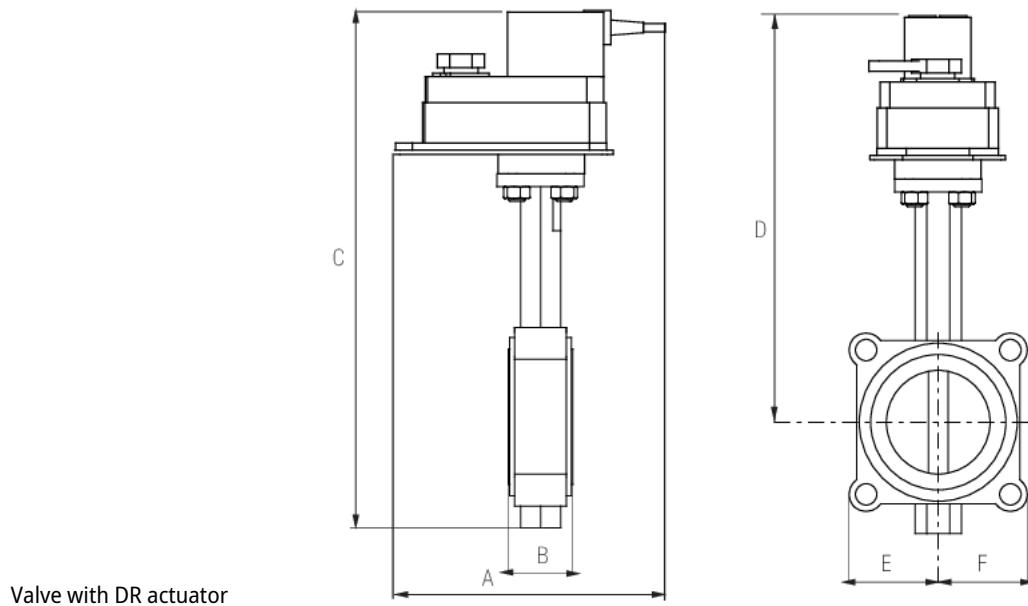
A	B	C	D	E	F	Number of Bolt Holes
12.0" [304]	1.9" [49]	18.2" [463]	14.7" [374]	3.9" [100]	3.9" [100]	4

Valve with PK actuator



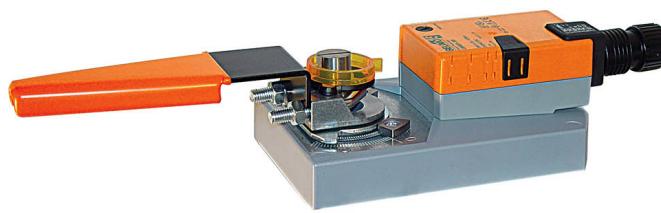
A	B	C	D	E	F	Number of Bolt Holes
12.0" [304]	1.9" [49]	19.8" [502]	16.5" [419]	3.9" [100]	3.9" [100]	4

Dimensions



A	B	C	D	E	F	Number of Bolt Holes
11.3" [286]	1.9" [49]	15.6" [397]	12.4" [315]	3.5" [89]	3.5" [89]	4

MFT/programmable, Non fail-safe, 24 V



Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	4.5 W
	Power consumption in rest position	1.5 W
	Transformer sizing	7 VA
	Electrical Connection	18 GA plenum cable, 3 ft [1 m], with 1/2" NPT conduit connector (10 ft [3 m] and 16 ft [5 m] available)
	Overload Protection	electronic throughout 0...95° rotation
Functional data	Torque motor	40 Nm
	Operating range Y	2...10 V
	Operating range Y note	4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
	Input impedance	100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for PWM, On/Off and Floating point
	Operating range Y variable	Start point 0.5...30 V End point 2.5...32 V
	Operating modes optional	variable (VDC, on/off, floating point)
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Position feedback U variable	VDC variable
	Direction of motion motor	selectable with switch 0/1
	Manual override	external push button
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	150 s / 90°
	Running time motor variable	90...150 s
	Noise level, motor	45 dB(A)
	Position indication	Mechanical, 30...65 mm stroke
Safety data	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP54
	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
	Quality Standard	ISO 9001

Technical data

Safety data	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
Ambient humidity	Max. 95% RH, non-condensing	
Ambient temperature	-22...122°F [-30...50°C]	
Storage temperature	-40...176°F [-40...80°C]	
Servicing	maintenance-free	
Weight	Weight	3.4 lb [1.5 kg]
Materials	Housing material	Galvanized steel and plastic housing

Footnotes †Rated Impulse Voltage 800V, Type action 1, Control Pollution Degree 3.

Accessories

Electrical accessories	Description	Type
Battery backup system, for non-spring return models		NSV24 US
Battery, 12 V, 1.2 Ah (two required)		NSV-BAT
Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices		ZTH US

Electrical installation

 **INSTALLATION NOTES**

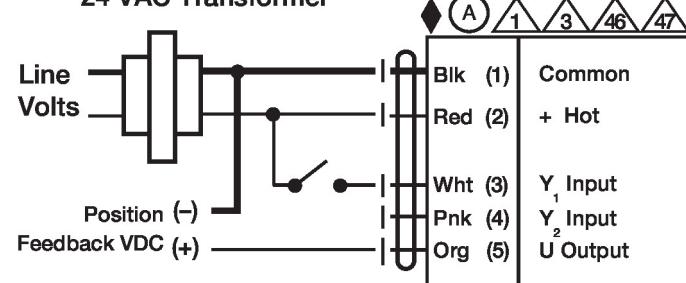
-  **A** Actuators with appliance cables are numbered.
-  **1** Provide overload protection and disconnect as required.
-  **3** Actuators may also be powered by DC 24 V.
-  **5** Only connect common to negative (-) leg of control circuits.
-  **7** A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
-  **8** Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V 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.
-  **12** IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
-  **16** Actuators may be controlled in parallel. Current draw and input impedance must be observed.
-  **47** Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).
-  Meets cULus requirements without the need of an electrical ground connection.
-  **1** **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.

Electrical installation

Wiring diagrams

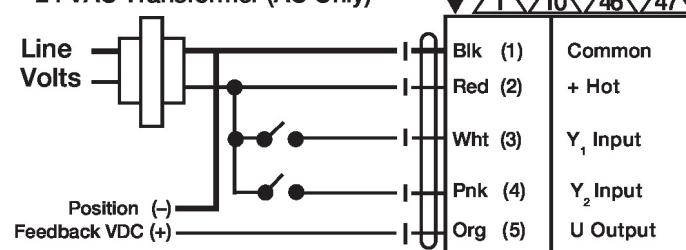
On/Off

24 VAC Transformer



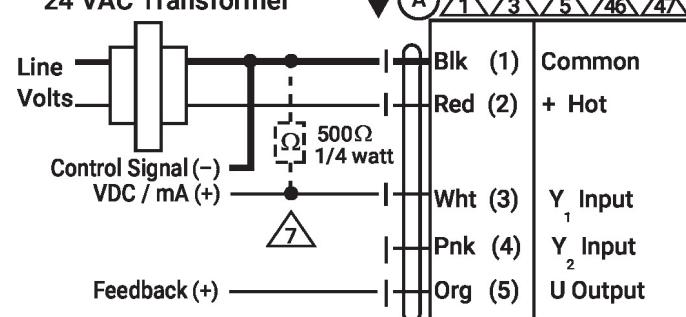
Floating Point

24 VAC Transformer (AC Only)



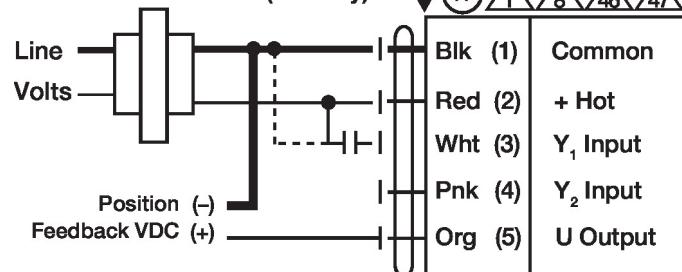
VDC/mA Control

24 VAC Transformer



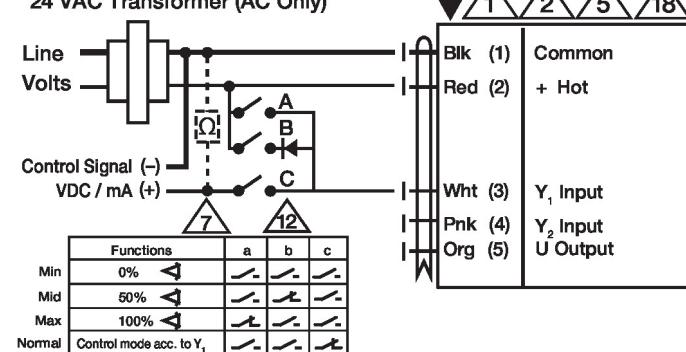
PWM Control

24 VAC Transformer (AC only)



Override Control

24 VAC Transformer (AC Only)



Primary - Secondary

