Innovations in Comfort, Energy Efficiency, and Safety Solutions for Buildings

2019
Product Range Overview

BELIMO

Small Devices, Big Impact.

CESIM is the Belimo method to innovate building technology with sensors, valves, and actuators. As a member of the UN Global Compact, Belimo is an active stakeholder contributing to the Sustainable Development Goals (SDG) directly. By incorporating the UN Global Compact principles into strategies, policies, and procedures, Belimo is not only upholding their basic responsibilities to people and the planet, but also setting the stage for long-term success of our industry.

CESIM ensures that the "small" Belimo devices have a big impact on Comfort, Energy Efficiency, Safety, Installation, and Maintenance.

Find out more
www.belimo.us/cesim

BELIMO®

PMB, GMB(X), and AMB Non Fail-Safe Damper Actuator Product Range

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input						Control Input MFT				Position Feedback				Bulk Pack
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	100 VAC to 240 VAC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L", Multi-turn "U"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250V	Optional Accessories:Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)	Quantity of Actuators in Bulk Pack
PMB Series 1400 in-lbs [160 Nm]		PMBUP-3-T		●		23	18	35		4X(H)	M			●	●													
		PMBUP-MFT-T		●		19	19 (3.5)	35		4X(H)	M			●	●	●		1		●	●			●				
GMB Series 360 in-lbs [40 Nm] Approx. 90 sq.ft.		GMB24-3	●			6	4.0 (2.0)	150	2		M			●	●												●	
		GMB24-3-T N4	●			6	4.0 (2.0)	150		4X	M			●	●												●	
		GMB24-3-T N4H	●			6	4.0 (2.0)	150		4X(H)	M			●	●												●	
		GMB24-SR	●			6.5	4.5 (2.0)	150	2		M					●								●			●	
		GMB24-SR-T N4	●			6.5	4.5 (2.0)	150		4X	M					●								●			●	
		GMB24-SR-T N4H	●			6.5	4.5 (2.0)	150		4X(H)	M					●								●			●	
		GMB24-IP	●			8	5.5 (5)	150	1		M							2						●	1		●	
		GM24A-MOD	●			7	4 (1.6)	150			M							1							1		●	
		GMB24-MFT	●			7	4.0 (1.5)	150	2		M									●	●	●	●	●			●	
GMX Series 360 in-lbs [40 Nm] Approx. 90 sq.ft.	Customizable*	GMX24-3	●			6	4.0 (2.0)	150	2		M	●	●	●	●												●	
		GMX24-3-T N4	●			6	4.0 (2.0)	150		4X	M	●	●	●	●												●	
		GMX24-3-T N4H	●			6	4.0 (2.0)	150		4X(H)	M	●	●	●	●												●	
		GMX24-SR	●			6.5	4.5 (2.0)	150	2		M	●	●			●								●			●	
		GMX24-SR-T N4	●			6.5	4.5 (2.0)	150		4X	M	●	●			●								●			●	
		GMX24-SR-T N4H	●			6.5	4.5 (2.0)	150		4X(H)	M	●	●			●								●			●	
		GMX24-PC	●			7	4.0 (1.5)	150	2		M	●	●						●					●			●	
		GMX120-3			●	7	4.0 (2.0)	150	2		M	●	●	●	●												●	
		GMX24-MFT	●			7	4.0 (1.5)	75-300 (150)	2		M	●	●							●	●	●	●	●			●	
		GMX24-MFT-T	●			7	4.0 (1.5)	75-300 (150)	1		M	●	●							●	●	●	●	●			●	
		GMX24-MFT N4	●			7	4.0 (1.5)	75-300 (150)		4X	M	●	●							●	●	●	●	●			●	
		GMX24-MFT N4H	●			7	4.0 (1.5)	75-300 (150)		4X(H)	M	●	●							●	●	●	●	●			●	
AMB Series 180 in-lbs [20 Nm] Approx. 45 sq.ft.		AMB24-3	●			5.5	2.5 (0.5)	95	2		M			●	●												●	
		AMB24-3-T N4	●			5.5	2.5 (0.5)	95		4X	M			●	●												●	
		AMB24-3-T N4H	●			5.5	2.5 (0.5)	95		4X(H)	M			●	●												●	
		AMB24-3-S	●			5.5	2.5 (0.5)	95	2		M			●	●											●	●	
		AMB24-SR	●			5	2.5 (0.4)	95	2		M					●								●			●	
		AMB24-SR-T	●			5	2.5 (0.4)	95	1		M					●								●			●	
		AMB24-SR-T N4	●			5	2.5 (0.4)	95		4X	M					●								●			●	
		AMB24-SR-T N4H	●			5	2.5 (0.4)	95		4X(H)	M					●								●			●	
		AMB24-IP	●			8	6 (3)	150	1		M							2						●	1		●	
		SM24A-MOD	●			6	3.5 (1.4)	150			M							1							1		●	
		AMB24-MFT	●			6	3.5 (1.3)	150	2		M									●	●	●	●	●			●	
		AMCB24-MFT	●			6	3.5 (1.3)	35	2		M									●	●	●	●	●			●	
		AMB120-3			●	7	3.0 (0.6)	95	2		M			●	●												●	

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*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

AMX, AHB(X), AMQB(X), AHQB(X) Non Fail-Safe Damper Actuator Product Range

5 YEAR WARRANTY

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			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	100 VAC to 240 VAC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L", Multi-turn "U"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250V	Optional Accessories:Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)	Quantity of Actuators in Bulk Pack
AMX Series 180 in-lbs [20 Nm] Approx. 45 sq.ft.	Customizable*	AMX24-3	●			5.5	2.5 (0.5)	95	2		M	●	●	●	●												●	
		AMX24-3-T	●			5.5	2.5 (0.5)	95	1		M	●	●	●	●												●	
		AMX24-3-T N4	●			5.5	2.5 (0.5)	95		4X	M	●	●	●	●												●	
		AMX24-3-T N4H	●			5.5	2.5 (0.5)	95		4X (H)	M	●	●	●	●												●	
		AMX24-SR	●			5	2.5 (0.4)	95	2		M	●	●			●											●	
		AMX24-SR-T	●			5	2.5 (0.4)	95	1		M	●	●			●											●	
		AMX24-SR-T N4	●			5	2.5 (0.4)	95		4X	M	●	●			●											●	
		AMX24-SR-T N4H	●			5	2.5 (0.4)	95		4X (H)	M	●	●			●											●	
		AMX24-PC	●			5.5	3.5 (1.3)	90	2		M	●	●							●							●	
		AMX120-3			●	7	3.0 (0.6)	95	2		M	●	●	●	●												●	
		AMX120-SR			●	7.5	4.0 (1.0)	95	2		M	●	●			●											●	
		AMX24-MFT	●			6	3.5 (1.3)	90-300 (150)	2		M	●	●								●	●	●	●	●			●	
		AMX24-MFT N4	●			6	3.5 (1.3)	90-300 (150)		4X	M	●	●								●	●	●	●	●			●	
		AMX24-MFT N4H	●			6	3.5 (1.3)	90-300 (150)		4X (H)	M	●	●								●	●	●	●	●			●	
		AMCX24-MFT	●			6	3.5 (1.3)	35-120 (35)	2		M	●	●								●	●	●	●	●			●	
		AMX24-MFT95	●			6	3.5 (1.3)	75-150 (150)	2		M	●	●				●								●			●	
AHB Series 101 lbf [450 N Force] 4" or 8" stroke		AHB24-3-100	●			4.5	2.0 (0.5)	150	2		L, 4"			●	●														
		AHB24-3-200	●			4.5	2.0 (0.5)	150	2		L, 8"			●	●														
		AHB24-SR-100	●			4.5	2.5 (0.5)	150	2		L, 4"					●									●				
		AHB24-SR-200	●			4.5	2.5 (0.5)	150	2		L, 8"					●									●				
AHX Series 101 lbf [450 N Force] 4", 8", 12" stroke	Customizable*	AHX24-3-100	●			4.5	2.0 (0.5)	150-450 (150)	2		L, 4"		●	●	●														
		AHX24-3-200	●			4.5	2.0 (0.5)	150-450 (150)	2		L, 8"		●	●	●														
		AHX24-3-300	●			4.5	2.0 (0.5)	150-450 (150)	2		L, 12"		●	●	●														
		AHX120-3-100			●	4.5	2.5 (0.5)	150-450 (150)	2		L, 4"		●	●	●														
		AHX120-3-200			●	4.5	2.5 (0.5)	150-450 (150)	2		L, 8"		●	●	●														
		AHX120-3-300			●	4.5	2.5 (0.5)	150-450 (150)	2		L, 12"		●	●	●														
		AHX24-SR-100	●			4.5	2.5 (0.5)	150-450 (150)	2		L, 4"		●			●									●				
		AHX24-SR-200	●			4.5	2.5 (0.5)	150-450 (150)	2		L, 8"		●			●									●				
		AHX24-MFT-100	●			6	3.5 (1.3)	150-450 (150)	2		L, 4"		●								●	●	●	●	●				
		AHX24-MFT-200	●			6	3.5 (1.3)	150-450 (150)	2		L, 8"		●								●	●	●	●	●				
		AHX24-MFT-300	●			6	3.5 (1.3)	150-450 (150)	2		L, 12"		●								●	●	●	●	●				
AMQB(X) 140 in-lbs [16 Nm]		AMQB24-1	●			26	15 (1.5)	7	2		M			●													●	
		AMQB24-MFT	●			26	15 (1.5)	7	2		M										●		●		●			●	
	C*	AMQX24-MFT	●			26	15 (1.5)	7-15 (7)	2		M	●	●								●		●		●			●	
AHQB(X) 44 lbf [200 N Force]		AHQB24-1-100	●			23	13 (1.5)	7	2		L, 4"			●														
		AHQB24-MFT-100	●			23	13 (1.5)	7	2		L, 4"										●		●		●				
	C*	AHQX24-MFT-100	●			23	13 (1.5)	7-20 (7)	2		L, 4"		●								●		●		●				

NMB(X), NMQB(X) Non Fail-Safe Damper Actuator Product Range

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	100 VAC to 240 VAC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L", Multi-turn "U"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	BACnet: MS/TP or Modbus RTU (1)	BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250V	Optional Accessories:Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)	Quantity of Actuators in Bulk Pack
NMB Series 90 in-lbs [10 Nm] Approx. 22 sq. ft.		NMB24-3	●			4	2.0 (0.2)	95	2		M			●	●														●	
		NMB24-3-T N4	●			4	2.0 (0.2)	95		4X	M			●	●														●	
		NMB24-3-T N4H	●			4	2.0 (0.2)	95		4X(H)	M			●	●														●	
		NMCB24-3	●			4	2.5 (0.2)	45	2		M			●	●														●	
		NMB24-SR	●			5	2.5 (0.4)	95	2		M					●													●	
		NMB24-SR-T	●			5	2.5 (0.4)	95	1		M					●													●	
		NMB24-SR-T N4	●			5	2.5 (0.4)	95		4X	M					●													●	
		NMB24-SR-T N4H	●			5	2.5 (0.4)	95		4X(H)	M					●													●	
		NMCB24-SR	●			5	2.5 (0.4)	45	2		M					●													●	
		NMB24-IP	●			6	4 (3)	150	1		M								2										●	
		NM24A-MOD	●			6	3.5 (1.4)	150			M								1								1		●	
		NMB24-MFT	●			6	3.5 (1.3)	150	2		M	●	●								●	●	●	●	●				●	
NMX Series 90 in-lbs [10 Nm] Approx. 22 sq. ft.	Customizable*	NMX24-3	●			4	2.0 (0.2)	95	2		M	●	●	●	●														●	
		NMX24-3-T	●			4	2.0 (0.2)	95	1		M	●	●	●	●														●	
		NMX24-3-T N4	●			4	2.0 (0.2)	95		4X	M	●	●	●	●														●	
		NMX24-3-T N4H	●			4	2.0 (0.2)	95		4X(H)	M	●	●	●	●														●	
		NMX24-SR	●			5	2.5 (0.4)	95	2		M	●	●			●													●	
		NMX24-SR-T	●			5	2.5 (0.4)	95	1		M	●	●			●													●	
		NMX24-SR-T N4	●			5	2.5 (0.4)	95		4X	M	●	●			●													●	
		NMX24-SR-T N4H	●			5	2.5 (0.4)	95		4X(H)	M	●	●			●													●	
		NMX120-3			●	5.5	2.5 (0.6)	150	2		M	●	●	●	●														●	
		NMX120-SR			●	6.5	3.5 (1.0)	150	2		M	●	●			●													●	
		NMX24-MFT	●			6	3.5 (1.3)	45-150 (150)	2		M	●	●								●	●	●	●	●				●	
		NMX24-MFT N4	●			6	3.5 (1.3)	45-150 (150)		4X	M	●	●								●	●	●	●	●				●	
		NMX24-MFT N4H	●			6	3.5 (1.3)	45-150 (150)		4X(H)	M	●	●								●	●	●	●	●				●	
		NMX24-MFT95	●			6	3.5 (1.3)	45-150 (150)	2		M	●	●				●								●				●	
		NMCX24-MFT	●			5	3.0 (0.6)	20-75 (45)	2		M	●	●								●	●	●	●	●				●	
NMQB(X) 70 in-lbs [8 Nm]		NMQB24-1	●			20	13 (1.5)	4	2		M			●														●	
		NMQB24-MFT	●			20	13 (1.5)	4	2		M										●		●		●				●	
	C*	NMQX24-MFT	●			23	13 (1.5)	4-20 (4)	2		M	●	●								●		●		●				●	

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LMB(X), LHB Non Fail-Safe Damper Actuator Product Range

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input						Control Input MFT					Position Feedback				Bulk Pack
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	100 VAC to 240 VAC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L", Multi-turn "U"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250V	Optional Accessories:Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)	Quantity of Actuators in Bulk Pack
LMB Series 45 in-lbs [5 Nm] Approx. 11 sq. ft.		LMB24-3	●			2	1.5 (0.2)	95	2		M			●	●												●	
		LMCB24-3	●			2.5	1.5 (0.2)	35	2		M			●	●												●	
		LMB24-3.1	●			2	1.5 (0.2)	95	2		M			●	●												●	24
		LMB24-3-S	●			2	1.5 (0.2)	95	2		M			●	●											●	●	
		LMB24-3-T	●			2	1.5 (0.2)	95	1		M			●	●												●	
		LMCB24-3-T	●			2.5	1.5 (0.2)	35	1		M			●	●												●	
		LMB24-3-T.1	●			2	1.5 (0.2)	95	1		M			●	●												●	36
		LMB24-3-P5-T	●			2	1.5 (0.2)	95	1		M			●	●											5kΩ	●	
		LMB24-3-P5-T.1	●			2	1.5 (0.2)	95	1		M			●	●											5kΩ	●	36
		LMB24-3-P10-T	●			2	1.5 (0.2)	95	1		M			●	●											10kΩ	●	
		LMB120-3			●	4	2.0 (0.5)	150	2		M			●	●												●	
		LMB24-SR	●			3	1.5 (0.4)	95	2		M					●									●		●	
		LMCB24-SR	●			3	1.5 (0.4)	35	2		M					●									●		●	
		LMB24-SR.1	●			3	1.5 (0.4)	95	2		M					●									●		●	24
		LMB24-SR-T	●			3	1.5 (0.4)	95	1		M					●									●		●	
		LMCB24-SR-T	●			3	1.5 (0.4)	35	1		M					●									●		●	
		LMB24-SR-T.1	●			3	1.5 (0.4)	95	1		M					●									●		●	36
		LMB24-IP	●			4.5	3 (2)	150	1		M							2							●	1	●	
		LM24A-MOD	●			5	2.5 (1.3)	150	2		M							1								1	●	
		LMB24-MFT	●			5	2.5 (1.2)	150	2		M									●	●	●	●	●			●	
		LMB24-HM	●			2	1.5 (0.2)	95	1		M																●	
		LMB24-10P-HM	●			2	1.5 (0.2)	95	1		M															10kΩ	●	
LMX Series 45 in-lbs [5 Nm] Approx. 11 sq. ft.	Customizable*	LMX24-3	●			2	1.5 (0.2)	95	2		M	●	●	●	●												●	
		LMX24-3-T	●			2	1.5 (0.2)	95	1		M	●	●	●	●												●	
		LMX24-SR	●			3	1.5 (0.4)	95	2		M	●	●			●									●		●	
		LMX24-SR-T	●			3	1.5 (0.4)	95	1		M	●	●			●									●		●	
		LMX120-3			●	4	2.0 (0.5)	150	2		M	●	●	●	●												●	
		LMX120-SR			●	4.5	2.5 (1.0)	150	2		M	●	●			●									●		●	
		LMX24-MFT	●			5	2.5 (1.2)	35-200 (150)	2		M	●	●							●	●	●	●	●			●	
		LMX24-MFT95	●			5	2.5 (1.2)	35-150 (150)	2		M	●	●				●								●		●	
LHB Series 34 lbf [150 N Force] 4" or 8" stroke		LHB24-3-100	●			3	1.5 (0.5)	150	2		L, 4"			●	●													
		LHB24-3-T-100	●			3	1.5 (0.5)	150	2		L, 4"			●	●													
		LHB24-3-200	●			3	1.5 (0.5)	300	2		L, 8"			●	●													
		LHB24-SR-100	●			3	1.5 (0.5)	150	2		L, 4"					●									●			
		LHB24-SR-200	●			3	1.5 (0.5)	300	2		L, 8"					●									●			

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

LHX, LMQB(X), LHQB(X), LUB(X), and CMB Non Fail-Safe Damper Actuator Product Range

5 YEAR WARRANTY

CE LISTED 94 D5 TEMP, IND. & REG. EQUIP. c UL us

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	100 VAC to 240 VAC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L", Multi-turn "U"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250V	Optional Accessories:Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)	Quantity of Actuators in Bulk Pack
LHX Series 34 lbf [150 N Force] 4", 8", 12" stroke	Customizable*	LHX24-3-100	●			3	1.5 (0.5)	70-270 (150)	2		L, 4"		●	●	●														
		LHX24-3-200	●			3	1.5 (0.5)	140-540 (300)	2		L, 8"		●	●	●														
		LHX24-3-300	●			3	1.5 (0.5)	200-810 (450)	2		L, 12"		●	●	●														
		LHX120-3-100			●	2.5	1.5 (0.5)	70-270 (150)	2		L, 4"		●	●	●														
		LHX120-3-200			●	2.5	1.5 (0.5)	140-540 (300)	2		L, 8"		●	●	●														
		LHX120-3-300			●	2.5	1.5 (0.5)	200-810 (450)	2		L, 12"		●	●	●														
		LHX24-SR-100	●			3	1.5 (0.5)	70-270 (150)	2		L, 4"		●			●									●				
		LHX24-SR-200	●			3	1.5 (0.5)	140-540 (300)	2		L, 8"		●			●									●				
		LHX24-MFT-100	●			5	2.5 (1.2)	70-270 (150)	2		L, 4"		●							●	●	●	●	●					
		LHX24-MFT-200	●			5	2.5 (1.2)	140-540 (300)	2		L, 8"		●							●	●	●	●	●					
		LHX24-MFT-300	●			5	2.5 (1.2)	200-810 (450)	2		L, 12"		●							●	●	●	●	●					
LMQB(X) Series 35 in-lbs [4 Nm]		LMQB24-1	●			20	13 (1.5)	2.5	2		M			●													●		
		LMQB24-MFT	●			20	13 (1.5)	2.5	2		M									●		●		●			●		
	C*	LMQX24-MFT	●			20	13 (1.5)	2.5-10 (2.5)	2		M	●	●							●		●		●			●		
LHQB(X) 22 lbf [100 N Force]		LHQB24-1-100	●			23	13 (1.5)	3.5	2		L, 4"			●															
		LHQB24-MFT-100	●			23	13 (1.5)	3.5	2		L, 4"									●		●		●					
	C*	LHQX24-MFT-100	●			23	13 (1.5)	3.5-15 (3.5)	2		L, 4"		●							●		●		●					
LUB Series 27 in-lbs [3 Nm]		LUB24-3	●			2.5	1.0 (0.5)	600	2		U, 360°			●	●														
		LUB24-SR	●			3	3.0 (0.5)	600	2		U, 360°					●									●				
LUX Series 27 in-lbs [3 Nm]	Customizable*	LUX24-3	●			2.5	1.0 (0.5)	150	2		U, 360°	●	●	●	●														
		LUX24-SR	●			3	1.5 (0.5)	150	2		U, 360°	●	●			●									●				
		LUX24-MFT	●			5	2.5 (1.2)	75-150 (150)	2		U, 360°	●	●							●	●	●	●	●					
CMB Series 18 in-lbs [2 Nm] Approx. 4.5 sq. ft.		CMB24-3	●			1.5	1.0 (0.2)	35	2		M			●	●														
		CMB24-3.1	●			1.5	1.0 (0.2)	35	2		M			●	●														20
		CMB120-3			●	3.5	1.5 (1.0)	35	2		M			●	●														
		CMB24-3-T	●			1.5	1.0 (0.2)	35	1		M			●	●														
		CMB24-3-T.1	●			1.5	1.0 (0.2)	35	1		M			●	●														20
		CMB24-SR-R	●			2.5	1.5 (0.5)	35	2		M					●													
		CMB24-SR-L	●			2.5	1.5 (0.5)	35	2		M					●													
		CHB24-3-T-100.1	●			1	0.5 (0.2)	380	1		L, 4"			●	●														20

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

PKB, GKB(X), EFB Fail-Safe Damper Actuator Product Range

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT				Position Feedback			
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	120 VAC ±10%	230 VAC ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	3kΩ (1), 10KΩ (2) NTC Thermistor	6-9 VDC , 20 VDC Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC (2.0) Span 2.5 to 32 VDC (8.0)	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)
PKB Series 1400 in-lbs [160 Nm]		PKBUP-MFT-T		●			49	47 (4)	35	30	2	4X(H)	M										1		●	●	●		●			
GKB Series 360 in-lbs [40 Nm] Approx. 90 sq. ft.		GKB24-3	●				21	11 (3)	150	35	2		M			●	●														●
		GKB24-3-T N4H	●				21/21	11/21 (3)	150	35		4X(H)	M			●	●															●
		GKB24-SR	●				21	11 (3)	150	35	2		M					●											●			●
		GKB24-SR-T N4H	●				21/21	11/21 (3)	150	35		4X(H)	M					●											●			●
		GKB24-IP	●				21	11 (3)	150	35	1		M										2						●	1		●
		GKB24-MFT	●				21	11 (3)	150	35	2		M												●	●	●		●			●
		GKB24-MFT-T N4H	●				21/21	11/21 (3)	150	35		4X(H)	M												●	●	●		●			●
GKX Series 360 in-lbs [40 Nm] Approx. 90 sq. ft.	Customizable*	GKX24-3	●				21	11 (3)	150	35	2		M	●	●	●	●[3]															●
		GKX24-3-T N4	●				21/21	11/21 (3)	150	35		4X	M	●	●	●	●[3]															●
		GKX24-SR	●				21	11 (3)	150	35	2		M	●	●			●											●			●
		GKX24-SR-T N4	●				21/21	11/21 (3)	150	35		4X	M	●	●			●											●			●
		GKX24-MFT	●				21	11 (3)	150	35	2		M	●	●										●	●	●		●			●
		GKX24-MFT-T N4	●				21/21	11/21 (3)	150	35		4X	M	●	●										●	●	●		●			●
EFB Series 270 in-lbs [30 Nm]		EFB24	●				16	9.5 (4.5)	75	<20	2		M			●															
		EFB24 N4	●				16	9.5 (4.5)	75	<20		4	M			●																
		EFB24-S	●				16	9.5 (4.5)	75	<20	2		M			●															2	
		EFB120			●	●	21	9.5 (4.5)	75	<20	2		M			●																
		EFB120-S			●	●	21	9.5 (4.5)	75	<20	2		M			●															2	
		EFB120-S N4			●	●	21	9.5 (4.5)	75	<20		4	M			●															2	
		EFB24-SR	●				14	8.0 (4.5)	95	<20	2		M					●											●			
		EFB24-SR N4	●				14	8.0 (4.5)	95	<20	2	4	M					●											●			
		EFB24-SR-S	●				14	8.0 (4.5)	95	<20	2		M					●											●		2	
		EFB24-MFT	●				16	9.5 (4.5)	60-150 (150)	<20	2		M												●	●	●	●	●			
		EFB24-MFT-S	●				16	9.5 (4.5)	60-150 (150)	<20	2		M												●	●	●	●	●		2	

[3] 24 VAC only

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

EFX, AFB, and AKB Fail-Safe Damper Actuator Product Range

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input									Control Input MFT					Position Feedback			
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz	24 to 125 VDC ± 10%	120 VAC ±10%	230 VAC ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	3kΩ (1), 10KΩ (2) NTC Thermistor	6-9 VDC , 20 VDC Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC (2.0) Span 2.5 to 32 VDC (8.0)	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)
EFX Series 270 in-lbs [30 Nm]	Customizable*	EFX24	●					16	9.5 (4.5)	75	<20	2		M	●	●	●																
		EFX24-S	●					16	9.5 (4.5)	75	<20	2		M	●	●	●															2	
		EFX24-S N4	●					16	9.5 (4.5)	75	<20		4	M	●	●	●															2	
		EFX24-S N4H	●					16 (21)	9.5/21 (4.5)	75	<20		4(H)	M	●	●	●															2	
		EFCX24-S N4	●					16	9.5 (4.5)	75	<10		4	M	●	●	●															2	
		EFX120			●	●		21	9.5 (4.5)	75	<20	2		M	●	●	●																
		EFX120-S			●	●		21	9.5 (4.5)	75	<20	2		M	●	●	●															2	
		EFX120-S N4			●	●		21	9.5 (4.5)	75	<20		4	M	●	●	●															2	
		EFX120-S N4H			●	●		21/22	9.5/22 (4.5)	75	<20		4(H)	M	●	●	●															2	
		EFCX120-S N4			●	●		21	9.5 (4.5)	75	<10		4	M	●	●	●															2	
		EFX24-SR	●					14	8.0 (4.5)	95	<20	2		M	●	●			●												●		
		EFX24-SR-S	●					14	8.0 (4.5)	95	<20	2		M	●	●			●												●	2	
		EFX24-SR-S N4	●					14	8.0 (4.5)	95	<20		4	M	●	●			●												●	2	
		EFX24-SR-S N4H	●					14/21	8.0/21 (4.5)	95	<20		4(H)	M	●	●			●												●	2	
		EFX120-SR N4			●	●		21	9.0 (5.5)	95	<20		4	M	●	●			●												●		
		EFX120-SR-S N4			●	●		21	9.0 (5.5)	95	<20		4	M	●	●			●												●	2	
		EFX24-MFT	●					16	9.5 (4.5)	60-150 (150)	<20	2		M	●	●									●	●	●	●	●			
		EFX24-MFT-S	●					16	9.5 (4.5)	60-150 (150)	<20	2		M	●	●									●	●	●	●	●			2	
		EFX24-MFT-S N4	●					16	9.5 (4.5)	60-150 (150)	<20		4	M	●	●									●	●	●	●	●			2	
		EFX24-MFT-S N4H	●					16/21	9.5/21 (4.5)	60-150 (150)	<20		4(H)	M	●	●									●	●	●	●	●			2	
AFB, AKB Series 180 in-lbs [20 Nm] Approx. 45 sq. ft.		AFB24	●					7.5	5 (2)	<75	<20	2		M			●																
		AFB24 N4H	●					7.5	5 (2)	<75	<20		4X(H)	M			●																
		AFB24-S	●					7.5	5 (2)	<75	<20	2		M			●															2	
		AFB24-S N4H	●					7.5	5 (2)	<75	<20		4X(H)	M			●															2	
		AFBUP		●				8.5	7 (3.5)	<75	<20	2		M			●																
		AFBUP N4H		●				8.5/25	7/25 (3.5)	<75	<20		4X(H)	M			●																
		AFBUP-S		●				8.5	7 (3.5)	<75	<20	2		M			●															2	
		AFBUP-S N4H		●				8.5/25	7/25 (3.5)	<75	<20		4X(H)	M			●															2	
		AFB24-SR	●					8.5	5.5 (3)	95	<20	2		M					●												●		
		AFB24-SR N4H	●					8.5/25	5.5/25 (3)	95	<20		4X(H)	M					●												●		
		AFB24-SR-S	●					8.5	5.5 (3)	95	<20	2		M					●												●	2	
		AFB24-SR-S N4H	●					8.5/25	5.5/25 (3)	95	<20		4X(H)	M					●												●	2	
		AFB24-PC	●					10	7.5 (3)	150	<20	2		M											●						●		
		AFB24-IP	●					13	5.5 (5)	150	<20	1		M										2							●	1	
		AKB24-IP	●					21	13 (9)	150	35	1		M										2							●	1	
		SF24-A-MOD	●					11	8.5 (3.5)	150	<20			M										1								1	
		AFB24-MFT	●					10	7.5 (3)	70-220 (150)	<20	2		M					●						●	●	●	●	●			
		AFB24-MFT N4H	●					10/25	7.5/25 (3)	70-220 (150)	<20		4X(H)	M					●						●	●	●	●	●			
		AFB24-MFT-S	●					10	7.5 (3)	70-220 (150)	<20	2		M					●						●	●	●	●	●			2	
		AFB24-MFT-S N4H	●					10/25	7.5/25 (3)	70-220 (150)	<20		4X(H)	M					●						●	●	●	●	●			2	
		AFB24-MFT95	●					10	7.5 (3)	70-220 (150)	<20	2		M						●									●				
		AFB24-MFT95 N4H	●					10/25	7.5/25 (3)	70-220 (150)	<20		4X(H)	M						●									●				

AFX, AHKX, and NFB Fail-Safe Damper Actuator Product Range

5 YEAR WARRANTY

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			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input										Control Input MFT					Position Feedback			
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	120 VAC ±10%	230 VAC ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	3kΩ (1), 10KΩ (2) NTC Thermistor	6-9 VDC , 20 VDC Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC (2.0) Span 2.5 to 32 VDC (8.0)	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)
AFX Series 180 in-lbs [20 Nm] Approx. 45 sq.ft.	Customizable*	AFX24	●				7.5	5 (2.5)	<75	<20	2		M	●	●	●																	
		AFX24 N4	●				7.5	5 (2.5)	<75	<20		4X	M	●	●	●																	
		AFX24-S	●				7.5	5 (2.5)	<75	<20	2		M	●	●	●																2	
		AFX24-S N4	●				7.5	5 (2.5)	<75	<20		4X	M	●	●	●																2	
		AFXUP		●			8.5	7 (3.5)	<75	<20	2		M	●	●	●																	
		AFXUP N4		●			8.5	7 (3.5)	<75	<20		4X	M	●	●	●																	
		AFXUP-S		●			8.5	7 (3.5)	<75	<20	2		M	●	●	●																2	
		AFXUP-S N4		●			8.5	7 (3.5)	<75	<20		4X	M	●	●	●																2	
		AFX24-SR	●				8.5	5.5 (3)	95	<20	2		M	●	●			●												●			
		AFX24-SR N4	●				8.5	5.5 (3)	95	<20		4X	M	●	●			●												●			
		AFX24-SR-S	●				8.5	5.5 (3)	95	<20	2		M	●	●			●												●		2	
		AFX24-SR-S N4	●				8.5	5.5 (3)	95	<20		4X	M	●	●			●												●		2	
		AFX24-MFT	●				10	7.5 (3)	70-220 (150)	<20	2		M	●	●			●							●	●	●	●	●				
		AFX24-MFT N4	●				10	7.5 (3)	70-220 (150)	<20		4X	M	●	●			●							●	●	●	●	●				
		AFX24-MFT-S	●				10	7.5 (3)	70-220 (150)	<20	2		M	●	●			●							●	●	●	●	●			2	
		AFX24-MFT-S N4	●				10	7.5 (3)	70-220 (150)	<20		4X	M	●	●			●							●	●	●	●	●			2	
		AFX24-MFT95	●				10	7.5 (3)	70-220 (150)	<20	2		M	●	●				●										●			
		AFX24-MFT95 N4	●				10	7.5 (3)	70-220 (150)	<20		4X	M	●	●				●										●			
AHKX Series 101 lbf [450 N]	C*	AHKX24-MFT-100	●				22	11 (3)	90-150 (150)	35	2		L, 4		●			●							●	●	●	●	●				
NFB Series 90 in-lbs [10 Nm] Approx. 22 sq.ft.		NFB24	●				8.5	6 (2.5)	<75	<20	2		M			●																
		NFB24 N4H	●				8.5/25	6/25 (2.5)	<75	<20		4X(H)	M			●																
		NFB24-S	●				8.5	6 (2.5)	<75	<20	2		M			●																2	
		NFB24-S N4H	●				8.5/25	6/25 (2.5)	<75	<20		4X(H)	M			●																2	
		NFBUP		●			6.5	6 (2.5)	<75	<20	2		M			●																	
		NFBUP N4H		●			6.5/25	6/25 (2.5)	<75	<20		4X(H)	M			●																	
		NFBUP-S		●			6.5	6 (2.5)	<75	<20	2		M			●																2	
		NFBUP-S N4H		●			6.5/25	6/25 (2.5)	<75	<20		4X(H)	M			●																2	
		NFB24-SR	●				6	3.5 (2.5)	95	<20	2		M					●												●			
		NFB24-SR N4H	●				6/25	3.5/25 (2.5)	95	<20		4X(H)	M					●												●			
		NFB24-SR-S	●				6	3.5 (2.5)	95	<20	2		M					●												●		2	
		NFB24-SR-S N4H	●				6/25	3.5/25 (2.5)	95	<20		4X(H)	M					●												●		2	
		NFB24-MFT	●				9	6.5 (3)	40-150 (150)	<20	2		M												●	●	●	●	●				
		NFB24-MFT N4H	●				9/25	6.5/25 (3)	40-150 (150)	<20		4X(H)	M												●	●	●	●	●				
		NFB24-MFT-S	●				9	6.5 (3)	40-150 (150)	<20	2		M												●	●	●	●	●			2	
		NFB24-MFT-S N4H	●				9/25	6.5/25 (3)	40-150 (150)	<20		4X(H)	M												●	●	●	●	●			2	

NFX and NKQB(X) Fail-Safe Damper Actuator Product Range

			Power Supply					Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input									Control Input MFT					Position Feedback			
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	120 VAC ±10%	230 VAC ±10%		VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	3kΩ (1), 10KΩ (2) NTC Thermistor	6-9 VDC , 20 VDC Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut		On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC (2.0) Span 2.5 to 32 VDC (8.0)	PWM adj., 0.02 to 50.0 Seconds		2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)
NFX Series 90 in-lbs [10 Nm] Approx. 22 sq.ft.	Customizable*	NFX24	●					8.5	6 (2.5)	<75	<20	2		M	●	●	●																
		NFX24 N4	●					8.5	6 (2.5)	<75	<20		4X	M	●	●	●																
		NFX24-S	●					8.5	6 (2.5)	<75	<20	2		M	●	●	●															2	
		NFX24-S N4	●					8.5	6 (2.5)	<75	<20		4X	M	●	●	●															2	
		NFXUP		●				6.5	6 (2.5)	<75	<20	2		M	●	●	●																
		NFXUP N4		●				6.5	6 (2.5)	<75	<20		4X	M	●	●	●																
		NFXUP-S		●				6.5	6 (2.5)	<75	<20	2		M	●	●	●															2	
		NFXUP-S N4		●				6.5	6 (2.5)	<75	<20		4X	M	●	●	●															2	
		NFX24-SR	●					6	3.5 (2.5)	95	<20	2		M	●	●			●												●		
		NFX24-SR N4	●					6	3.5 (2.5)	95	<20		4X	M	●	●			●												●		
		NFX24-SR-S	●					6	3.5 (2.5)	95	<20	2		M	●	●			●												●	2	
		NFX24-SR-S N4	●					6	3.5 (2.5)	95	<20		4X	M	●	●			●												●	2	
		NFX24-MFT	●					9	6.5 (3)	40-150 (150)	<20	2		M	●	●										●	●	●	●	●			
		NFX24-MFT N4	●					9	6.5 (3)	40-150 (150)	<20		4X	M	●	●										●	●	●	●	●			
		NFX24-MFT-S	●					9	6.5 (3)	40-150 (150)	<20	2		M	●	●										●	●	●	●	●		2	
		NFX24-MFT-S N4	●					9	6.5 (3)	40-150 (150)	<20		4X	M	●	●										●	●	●	●	●		2	
NKQB Series 54 in-lbs [6 Nm] Approx. 12 sq.ft.		NKQB24-1	●					22	11 (3)	4	4	2		M			●															●
		NKQB24-SR	●					22	11 (3)	4	4	2		M					●												●		●
NKQX Series 54 in-lbs [6 Nm]	Customizable*	NKQX24-1	●					22	11 (3)	4,7,10 (4)	4	2		M	●	●	●																●
		NKQX24-SR	●					22	11 (3)	4,7,10 (4)	4	2		M	●	●			●												●		●
		NKQX24-MFT	●					22	11 (3)	4,7,10 (4)	4	2		M	●	●										●	●	●	●	●			●

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

LF Fail-Safe Damper Actuator Product Range

		Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT				Position Feedback			
		24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	120 VAC ±10%	230 VAC ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	3kΩ (1), 10KΩ (2) NTC Thermistor	6-9 VDC , 20 VDC Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC (2.0) Span 2.5 to 32 VDC (8.0)	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)
LF Series 35 in-lbs [4 Nm] Approx. 8.5 sq.ft.	LF24 US	●				7	5 (2.5)	<40-75	<25	2		M			●															
	LF24-S US	●				7	5 (2.5)	<40-75	<25	2		M			●															1	
	LF120 US			●		7.5	5.5 (3.5)	<40-75	<25	2		M			●																
	LF120-S US			●		7.5	5.5 (3.5)	<40-75	<25	2		M			●															1	
	LF230 US				●	7	5 (3)	<40-75	<25	2		M			●																
	LF230-S US				●	7	5 (3)	<40-75	<25	2		M			●															1	
	LF24-SR US	●				5	2.5 (1)	150	<25	2		M					●												●			
	LF24-SR-S US	●				5	2.5 (1)	150	<25	2		M					●												●		1	
	LF24-SR-E US	●				5	2.5 (1)	150	<25	2		M					●												●			
	LF24-3 US	●				5	2.5 (1)	150	<25	2		M			●	●																
	LF24-3-S US	●				5	2.5 (1)	150	<25	2		M			●	●															1	
	LF24-ECON-R03 US	●				5	2.5 (1)	95	<25	2		M							1										●			
	LF24-ECON-R10 US	●				5	2.5 (1)	95	<25	2		M							2										●			
	LF24-MFT US	●				5	2.5 (1)	75-300 (150)	<25	2		M												●	●	●	●	●			
	LF24-MFT-S US	●				5	2.5 (1)	75-300 (150)	<25	2		M												●	●	●	●	●		1	
	LF24-MFT-20 US	●				6	3.5 (1.5)	150	<25	2		M									●			●	●	●	●	●			
	LF24-MFT-S-20 US	●				6	3.5 (1.5)	150	<25	2		M									●			●	●	●	●	●		1	
	LFC24-3-R US	●				5	2.5 (1)	90	<25	2		M				●															
	LFC24-3-S US	●				5	2.5 (1)	90	<25	2		M				●															1	

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

TFB(X) Fail-Safe Damper Actuator Product Range

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input									Control Input MFT					Position Feedback			
			24 VAC ± 20%, 50/60 Hz VDC ±10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC ± 10%	120 VAC ±10%	230 VAC ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1 or 2	NEMA 4/4X, (with Heater)	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0-135 Ω	3kΩ (1), 10KΩ (2) NTC Thermistor	6-9 VDC , 20 VDC Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0-20v Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC (2.0) Span 2.5 to 32 VDC (8.0)	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (PxxA GR)
TFB Series 22 in-lbs [2 Nm] Approx. 5.5 sq.ft.		TFB24	●				5	2 (1.3)	<75	<25	2		M			●																
		TFB24-S	●				5	2 (1.3)	<75	<25	2		M			●															1	
		TFLB24	●				5	2 (1.3)	<75	<75	2		M			●																
		TFB120			●	●	5	2.5 (1.3)	<75	<25	2		M			●																
		TFB120-S			●	●	5	2.5 (1.3)	<75	<25	2		M			●															1	
		TFLB120			●	●	5	2.5 (1.3)	<75	<75	2		M			●																
		TFCB120-S			●	●	6	3 (1.5)	<75	<25	2		M			●															1	
		TFB24-SR	●				4	2 (1)	95	<25	2		M					●											●			
		TFB24SR-S	●				4	2 (1)	95	<25	2		M					●											●		1	
		TFB120-SR			●	●	5.5	2.5 (2)	95	<25	2		M					●											●			
		TFB24-3	●				4	2.5 (1)	95	<25	2		M			●	●															
		TFB24-3-S	●				4	2.5 (1)	95	<25	2		M			●	●															1	
		TFB24-MFT	●				4	2.5 (1)	75-300 (150)	<25	2		M												●	●	●	●	●			
		TFB24-MFT-S	●				4	2.5 (1)	75-300 (150)	<25	2		M												●	●	●	●	●		1	
TFX Series 22 in-lbs [2 Nm] Approx. 5.5 sq.ft.	Customizable*	TFX24	●				5	2 (1.3)	<75	<25	2		M	●	●	●																
		TFX24-S	●				5	2 (1.3)	<75	<25	2		M	●	●	●															1	
		TFX120			●	●	5	2.5 (1.3)	<75	<25	2		M	●	●	●																
		TFX120-S			●	●	5	2.5 (1.3)	<75	<25	2		M	●	●	●															1	
		TFCX120-S			●	●	6	3 (1.5)	<75	<25	2		M	●	●	●																
		TFX24-SR	●				4	2 (1)	95	<25	2		M	●	●			●											●			
		TFX24-SR-S	●				4	2 (1)	95	<25	2		M	●	●			●											●		1	
		TFX24-3	●				4	2.5 (1)	95	<25	2		M	●	●	●	●															
		TFX24-3-S	●				4	2.5 (1)	95	<25	2		M	●	●	●	●															1	
		TFX24-MFT	●				4	2.5 (1)	75-300 (150)	<25	2		M	●	●										●	●	●	●	●			
		TFX24-MFT-S	●				4	2.5 (1)	75-300 (150)	<25	2		M	●	●										●	●	●	●	●		1	

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

FSAF*A, FSAFB, FSNF, FSLF, FSTF Fire and Smoke Fail-Safe Damper Actuator Product Range

Listed to UL 2043

		Power Supply			Power Consumption	Running Time		Control Input	Auxiliary Switches	
		24 VAC/DC	120 VAC	230 VAC	VA Rating Running	Motor Drive	Fail-Safe	On/Off	2 SPST	2 SPDT
FSAF*A Series 180 in-lbs [20 Nm] Approx. 18 sq. ft. @ 350°F	FSAF24A	●			32‡	<25	<15	●		
	FSAF24A-S	●			32‡	<25	<15	●	●	
	FSAF120A		●		38‡	<25	<15	●		
	FSAF120A-S		●		38‡	<25	<15	●	●	
	FSAF230A			●	37‡	<25	<15	●		
	FSAF230A-S			●	37‡	<25	<15	●	●	
FSAFB Series 180 in-lbs [20 Nm] Approx. 18 sq. ft. @ 250°F	FSAFB24-SR	●			9	<75	<20	2-10 VDC		
	FSAFB24-SR-S	●			9	<75	<20	2-10 VDC		●
FSNF Series 70 in-lbs [8 Nm] Approx. 12 sq. ft. @ 350°F	FSNF24 US	●			27‡	<15	<15	●		
	FSNF24-S US	●			27‡	<15	<15	●		●
	FSNF120 US		●		27‡	<15	<15	●		
	FSNF120-S US		●		27‡	<15	<15	●		●
	FSNF230 US			●	27‡	<15	<15	●		
	FSNF230-S US			●	27‡	<15	<15	●		●
FSLF Series 30 in-lbs [3.5 Nm] Approx. 4 sq. ft. @ 350°F	FSLF24 US	●			15‡	<15	<15	●		
	FSLF24-S US	●			15‡	<15	<15	●	●	
	FSLF120 US		●		17‡	<15	<15	●		
	FSLF120-S US		●		17‡	<15	<15	●	●	
	FSLF230 US			●	17‡	<15	<15	●		
	FSLF230-S US			●	17‡	<15	<15	●	●	
FSTF Series♦ 18 in-lbs [2 Nm] Approx. 1.5 sq. ft. @ 250°F	FSTF24 US	●			3	<75	<25	●		
	FSTF24-S US	●			3	<75	<25	●	●	
	FSTF120 US		●		3.5	<75	<25	●		
	FSTF120-S US		●		3.5	<75	<25	●	●	
	FSTF230 US			●	5.5	<75	<25	●		
	FSTF230-S US			●	5.5	<75	<25	●	●	

‡VA Rating Note:

The FSAF*A, FSNF, and FSLF series actuators draw more current when driving against any stops. Neither UL nor Belimo require any local fusing or breakers. If used, see individual data sheets for End Stop current draws and current limit values.

♦See retrofit installation instructions for details.

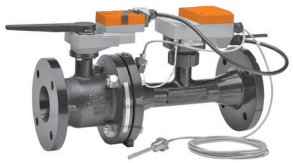
Use FSTF actuators only for dampers less than 1.5 sq.ft. at 250°F.

Use FSLF for dampers 4 sq.ft. and less at 350°F. No linkages are currently available.

Use FSNF for dampers 4-12 sq.ft. at 350°F and use FSAF*A for larger dampers and multisection applications. Linkages are available for FSAF*A & FSAFB, FSNF, and FSTF.

Control Valve Product Range

Energy Valve



5 YEAR WARRANTY 7 YEAR WARRANTY

Modbus BTL EV

		Valve Nominal Size		Type	Suitable Actuators	
	GPM Range	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	1.65 - 5.5*	½	15	EV050S-055	LRB(X)24-EV(-G)	AKRB(X)24-EV(-G)
NPT	3.1 - 10.3*	¾	20	EV075S-103	LRB(X)24-EV(-G)	AKRB(X)24-EV(-G)
NPT	5.5 - 18.2*	1	25	EV100S-182	LRB(X)24-EV(-G)	AKRB(X)24-EV(-G)
NPT	8.6 - 28.5*	1¼	32	EV125S-285	NRB(X)24-EV(-G)	AKRB(X)24-EV(-G)
NPT	11.9 - 39.6*	1½	40	EV150S-396	NRB(X)24-EV(-G)	AKRB(X)24-EV(-G)
NPT	22.8 - 76.1*	2	50	EV200S-761	ARB(X)24-EV(-G)	AKRB(X)24-EV(-G)
NPT	30-100*	2	50	EV200S-1000**	ARB(X)24-EV(-G)	AKRB(X)24-EV(-G)
Flanged ANSI 125	38 - 127*	2½	65	EV250S-127	ARB(X)24-EV(-G)	AKRB(X)24-EV(-G)
Flanged ANSI 125	54 - 180*	3	80	EV300S-180	ARB(X)24-EV(-G)	AKRB(X)24-EV(-G)
Flanged ANSI 125	95 - 317*	4	100	EV400S-317	GRB(X)24-EV(-G)	GKRB(X)24-EV(-G)
Flanged ANSI 125	149 - 495*	5	125	EV500S-495	GRB(X)24-EV(-G)	GKRB(X)24-EV(-G)
Flanged ANSI 125	214 - 713*	6	150	EV600S-713	GRB(X)24-EV(-G)	GKRB(X)24-EV(-G)
Flanged ANSI 250	38 - 127*	2½	65	EV250S-127-250	EVX24-EV-L	AVKX24-EV-L
Flanged ANSI 250	54 - 180*	3	80	EV300S-180-250	EVX24-EV-L	AVKX24-EV-L
Flanged ANSI 250	95 - 317*	4	100	EV400S-317-250	EVX24-EV-B	AVKX24-EV-B
Flanged ANSI 250	149 - 495*	5	125	EV500S-495-250	EVX24-EV-B	AVKX24-EV-B
Flanged ANSI 250	214 - 713*	6	150	EV600S-713-250	EVX24-EV-B	AVKX24-EV-B

*V'nom = Maximum flow for each valve body size.
** Media temperature range is 39°F to 250°F [4°C to 120°C]

Mode of Operation

The Energy Valve is an energy metering pressure independent control valve that optimizes, documents, and proves water coil performance.

Product Features

Measures Energy: using its built-in electronic flow sensor and supply and return temperature sensors.
Controls Power: with its Power Control logic, providing linear heat transfer regardless of temperature and pressure variations.
Manages Delta T: by solving Low Delta T Syndrome. In addition, it reduces pumping costs while increasing chiller/boiler efficiency by optimizing coil efficiency.

Actuator Specifications

Control type	modulating
Manual override	LR, NR, AR, GR, AKR, GKR, EV, AVK
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

Valve Specifications

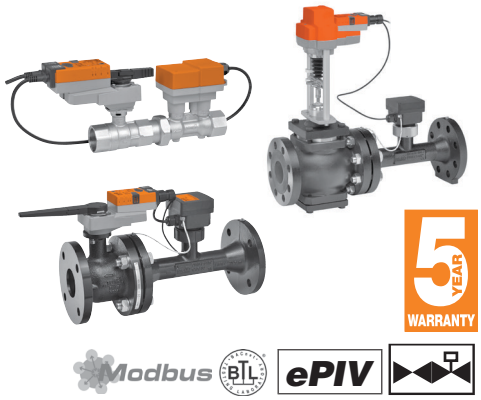
Service	chilled or hot water, 60% glycol (open loop and steam not allowed)
Flow characteristic	equal percentage/linear
Controllable flow range	75°
Action	stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female (½"- 2") consistent with ANSI 125 or 250 flange (2½"- 6")
Materials	
Body	
Valve	forged brass, nickel plated (½"- 2") cast iron - GG25 (2½"- 6")
Sensor housing	forged brass, nickel plated (½"- 2") ductile iron - GGG50 (2½"- 6")
Ball	stainless steel
Stem	stainless steel
Plug	stainless steel (-250)
Seats	Teflon® PTFE, stainless steel (-250)
Characterizing disc	Tefzel® (½"- 2") stainless steel (2½"- 6")
Stem packing	EPDM (lubricated), NLP (-250)
Media temp range	14°F to 250°F [-10°C to +120°C], 39°F to 250°F [4°C to 120°C](EV200S-1000)
Body pressure rating	360 psi (½"- 2"), ANSI 125 Class B (2½"- 6") ANSI 250 (2½"-6")
Close-off pressure	200 psi (½"- 2"), 100 psi (2½"- 6"), varies by size (-250)
Differential pressure range (ΔP)	see application pages
Leakage	0%, ANSI Class IV (-250)
Inlet length to meet specified measurement accuracy	5x nominal pipe size (NPS)
Communication	BACnet IP, BACnet MS/TP, listed by BTL, web server, Modbus RTU/IP, Belimo MP-Bus
Remote temperature sensor length	
½"- 2"	2 ft. 7.5 in. [0.8 m] short, 9.8 ft. [3 m] long
2½"- 6"	32.8 ft. [10 m]

Control Valve Product Range

Electronic Pressure Independent Control Valve (ePIV)

		Valve Nominal Size		Type	Suitable Actuators	
	GPM Range	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	1.65 - 5.5*	½	15	P2050S	LRX24-EP (-MOD)	AKRX24-EP
NPT	3.1 - 10.3*	¾	20	P2075S	LRX24-EP (-MOD)	AKRX24-EP
NPT	5.5 - 18.2*	1	25	P2100S	LRX24-EP (-MOD)	AKRX24-EP
NPT	8.6 - 28.5*	1¼	32	P2125S	NRX24-EP (-MOD)	AKRX24-EP
NPT	11.9 - 39.6*	1½	40	P2150S	NRX24-EP (-MOD)	AKRX24-EP
NPT	22.8 - 76.1*	2	50	P2200S	ARX24-EP (-MOD)	AKRX24-EP
NPT	30-100**	2	50	P2200S	ARX24-EP (-MOD)	AKRX24-EP
Flanged ANSI 125	38 - 127*	2½	65	P6250S	ARX24-PI (-MOD)	AKRX24-PI
Flanged ANSI 125	54 - 180*	3	80	P6300S	ARX24-PI (-MOD)	AKRX24-PI
Flanged ANSI 125	95 - 317*	4	100	P6400S	GRX24-PI (-MOD)	GKRX24-PI
Flanged ANSI 125	149 - 495*	5	125	P6500S	GRX24-PI (-MOD)	GKRX24-PI
Flanged ANSI 125	214 - 713*	6	150	P6600S	GRX24-PI (-MOD)	GKRX24-PI
Flanged ANSI 250	38 - 127*	2½	65	P6250S-250	EVX24-PI-L	AVKX24-PI-L
Flanged ANSI 250	54 - 180*	3	80	P6300S-250	EVX24-PI-L	AVKX24-PI-L
Flanged ANSI 250	95 - 317*	4	100	P6400S-250	EVX24-PI-B	AVKX24-PI-B
Flanged ANSI 250	149 - 495*	5	125	P6500S-250	EVX24-PI-B	AVKX24-PI-B
Flanged ANSI 250	214 - 713*	6	150	P6600S-250	EVX24-PI-B	AVKX24-PI-B

*V'nom = Maximum flow for each valve body size.
** Applies to 2" ePIV models P2200S-800 through P2200S-1000 only.
Note: For NPT, ANSI 125 and ANSI 250 versions, flows can be field set to 30% of nominal flow rate.



Mode of Operation

The Electronic Pressure Independent Control Valve (ePIV) is a two-way valve which is unaffected by pressure variations in a system.

Product Features

Provides constant flow regardless of pressure variations in the system. Simplified valve sizing and selection, no Cv calculations required.

Actuator Specifications

Control type	modulating
Manual override	LR, NR, AR, GR, AKR, GKR, EV, AVK
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting
Communication	analog, BACnet MS/TP, Modbus RTU and Belimo MP-Bus (-MOD actuators)

Valve Specifications

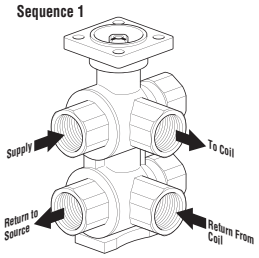
Service	chilled or hot water, 60% glycol (open loop and steam not allowed)
Flow characteristic***	equal percentage/linear
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female (½"-2") consistent with ANSI 125 or 250 flange (2½"- 6")
Materials	
Body	
Valve	brass, nickel plated (½"-2") cast iron-GG25 (2½"-6")
Sensor housing	forged brass, nickel plated (½"-2") ductile iron- GGG50 (2½"-6")
Ball	stainless steel
Plug	stainless steel (-250)
Stem	stainless steel
Seats	Teflon® PTFE, stainless steel (-250)
Characterizing disc	Tefzel® (½"- 2") stainless steel (2½"-6")
Stem packing	EPDM (lubricated), NLP (-250)
Media temp range	14°F to 250°F [-10°C to +120°C], 39°F to 250°F [4°C to 120°C] (P2200S-1000)
Body pressure rating	360 psi (½" to 2") ANSI 125 Class B (2½"-6") ANSI 250 (2½"-6") (-250)
Close-off pressure	200 psi (½"- 2") 100 psi (2½"-6") varies by size (-250)
Differential pressure range (ΔP)	see technical documentation
Leakage	0%, ANSI Class IV (-250)
Flow sensor technology	ultrasonic (½"- 2") magnetic (2½"-6")
Inlet length to meet specified measurement accuracy	5x nominal pipe size (NPS)
Conductivity of media	min. 20uS/cm (Applies to sizes 2½" [DN65] to 6" [DN150] only.)

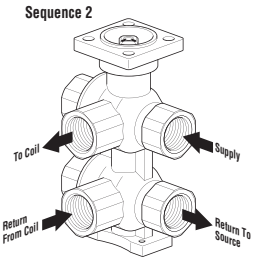
***The flow characteristic can be changed by using the Belimo PC-Tool software.

Control Valve Product Range

6-Way Electronic Pressure Independent Characterized Control Valve

Flow	Valve Nominal Size		Type	Suitable Actuators
Vnom/GPM	Inches	DN [mm]	ePI 6-way	Non Fail-Safe
5.5	½	15	P3050B6-K	LRX24-LP-EP6
10.3	¾	20	P3075B6-J	





5 YEAR WARRANTY

ePIV

Modbus BTL

Linear Characteristic

Mode of Operation

The control valve is operated by an electronic actuator that responds to a modulating 2-10 VDC control signal. The actuator will then move the ball of the valve to the position dictated by the control signal and change the flow.

Product Features

Linear characteristic, complete close-off.

Actuator Specifications

Control type	modulating
Manual override	LRX24-LP-EP6
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting
Controllable flow range	90°
Communication	BACnet MS/TP, Modbus RTU, Analog

Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Controllable flow range	
Sequence 1	(0 to 30° angle) Dead zone 30° to 60°
Sequence 2	(60° to 90° angle)
Sizes	½", ¾"
End fitting	NPT female
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat O-rings	EPDM
Characterizing disc	chrome plated steel
Stem O-rings	EPDM
Media temperature range	43°F to 180°F [6°C to 82°C]
Body pressure rating	232 psi
Close-off pressure	50 psi
Maximum differential pressure (ΔP)	15 psi
Leakage	0%
Rangeability	100:1
Flow control tolerance	±6%
Flow measurement tolerance	±2%

All flow tolerances @ 68°F to 77°F [20°C to 25°C] and 0% glycol.

Control Valve Product Range

ZoneTight Pressure Independent Zone Valve (PIQCV)

	Valve Nominal Size		Type	Suitable Actuators	
GPM	Inches	DN [mm]	2-way NPT with PT ports	Non Fail-Safe	Fail-Safe
0.9*	½	15	Z2050QPT-B	CQ Series	CQK Series
2.0*	½	15	Z2050QPT-D		
4.3*	½	15	Z2050QPT-F		
9.0*	¾	20	Z2075QPT-G		

*Maximum flow value can be field adjusted, see actuator instructions.
Order "X" model actuators for Factory Clip Setting, see instruction manual for details.

	Clip Position for Flow Adjustment (GPM)							
	1	2	3	4	5	6	N	No Clip
Z2050QPT-B (½")	N/A	N/A	N/A	N/A	0.4	N/A	0.8	0.9
Z2050QPT-D (½")	0.2	0.3	0.4	0.6	0.9	1.3	1.8	2.0
Z2050QPT-F (½")	N/A	0.6	0.8	1.3	1.9	2.8	3.6	4.3
Z2075QPT-G (¾")	N/A	1.8	2.7	3.7	4.9	6.3	7.7	9.0
Actuator Runtime	30 sec.	37 sec.	43 sec.	49 sec.	55 sec.	62 sec.	68 sec.	75 sec.

For additional intermediate settings see technical documentation or the ZoneTight flow capacity setting tool on www.belimo.us.

5 YEAR WARRANTY

PIQCV

Mode of Operation

The ZoneTight Pressure Independent Zone Valve (PIQCV) is a two-way valve which combines the functionality of a control valve and a pressure regulating valve, creating one precise product which is unaffected by pressure variations in a system.

Product Features

Provides constant flow regardless of pressure variations in the system. Simplified valve sizing and selection, no Cv calculations required.

Actuator Specifications

Control type	
-3	on/off, floating point
-SR	modulating, 0.5-10 VDC*, 2-10 VDC
Manual override	use actuator to turn valve stem
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting screw terminals
Power consumption	
CQ..	0.3 W running, 0.2 W holding
CQK..	2.5 W running, 0.5 W holding
CQ..UP	1 W running, 0.7 W holding
Power supply	24V (110-240 VAC, UP)
Transformer sizing	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA

Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾"
End fitting	NPT female
Materials	
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
O-rings	EPDM
Spring	stainless steel
Media temp. range	36°F to 212°F [2°C to 100°C]**
Media temp. limit	250°F [120°C]**
Maximum allowable operating temperature	212°F [100°C]**
PT ports	2
Body pressure rating	360 psi
Close-off pressure	200 psi
Differential pressure (ΔP) range	5 to 50 psi
Leakage	0%
Flow control tolerance	±5%

*Specify upon ordering.
**If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.

Control Valve Product Range

ZoneTight Zone Valve (QCV)

	C_V	Valve Nominal Size: Inches	Valve Nominal Size: DN [mm]	Type: 2-way	Type: 3-way	Suitable Actuators: Non Fail-Safe	Suitable Actuators: Fail-Safe
NPT	1.4*	½	15	Z2050Q-F		CQ Series	CQK Series
NPT	5.9*	½	15	Z2050Q-J		CQ Series	CQK Series
NPT	9.8*	¾	20	Z2075Q-K		CQ Series	CQK Series
NPT	1	½	15		Z3050Q-E	CQ Series	CQK Series
NPT	2.7	½	15		Z3050Q-H	CQ Series	CQK Series
NPT	4.6	¾	20		Z3075Q-J	CQ Series	CQK Series
Sweat	1.4*	½	15	Z2050QS-F		CQ Series	CQK Series
Sweat	5.9*	½	15	Z2050QS-J		CQ Series	CQK Series
Sweat	9.8*	¾	20	Z2075QS-K		CQ Series	CQK Series
Sweat	1	½	15		Z3050QS-E	CQ Series	CQK Series
Sweat	2.7	½	15		Z3050QS-H	CQ Series	CQK Series
Sweat	4.6	¾	20		Z3075QS-J	CQ Series	CQK Series

*Maximum flow. Max value can be field adjusted, see actuator instructions.
Order "X" model Actuators for Factory Clip Setting, see Instruction Manual for details.

	Clip Position for Flow Adjustment: 1	2	3-	3	4	4+	5	5+	6	N	No Clip: No end stop
Z2050Q(S)-F (½")	0.1	N/A	0.2	N/A	N/A	0.4	N/A	0.6	0.8	1.2	1.4
Z2050Q(S)-J (½")	0.5	0.7	N/A	1.2	1.7	N/A	2.4	N/A	3.4	4.8	5.9
Z2075Q(S)-K (¾")	0.5	1.0	N/A	1.5	2.3	N/A	3.3	N/A	4.6	6.6	9.8

Mode of Operation

The ZoneTight Zone Valve (QCV) is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or 3-point control system which moves the ball of the valve to the position dictated by the control system.

Product Features

The equal percentage characteristic of the flow is ensured by the design of the ball. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

Actuator Specifications

Control type	
-3	on/off, floating point
-SR	modulating, 2-10 VDC
Manual override	use actuator to turn valve stem
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting screw terminals
Power consumption	
CQ..	0.3 W running, 0.2 W holding
CQK..	2.5 W running, 0.5 W holding
CQ..UP	1.0 W running, 0.7 W holding
Power supply	24 VAC/DC (100-240 VAC, UP)
Transformer sizing	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA

Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage (2-way) linear (3-way)
Controllable flow range	75° (2-way), 90° (3-way)
Sizes	½", ¾"
End fitting	NPT or sweat female
Materials	
Body	forged brass
Ball	chrome plated brass
Stem	brass
Seats	Teflon® PTFE
O-rings	EPDM (lubricated)
Media temp. range	36°F to 212°F [2°C to 100°C]
Media temp. limit	250°F [120°C]
Maximum allowable operating temperature	212°F [100°C]
Body pressure rating	360 psi
Close-off pressure	75 psi
Maximum differential pressure (ΔP)	40 psi
Leakage	0%

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If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.

Control Valve Product Range

6-Way Characterized Control Valve

		Valve Nominal Size		Type	Suitable Actuators	
Sequence 1 C_V	Sequence 2 C_V	Inches	DN [mm]	6-way NPT	Non Fail-Safe	
0.29	0.29	½	15	B315-029-029	LRB24-SR	LRX24-MFT
0.29	0.46	½	15	B315-029-046		
0.29	0.73	½	15	B315-029-073		
0.29	1.16	½	15	B315-029-116		
0.29	1.50	½	15	B315-029-150		
0.46	0.29	½	15	B315-046-029		
0.46	0.46	½	15	B315-046-046		
0.46	0.73	½	15	B315-046-073		
0.46	1.16	½	15	B315-046-116		
0.46	1.50	½	15	B315-046-150		
0.73	0.29	½	15	B315-073-029		
0.73	0.46	½	15	B315-073-046		
0.73	0.73	½	15	B315-073-073		
0.73	1.16	½	15	B315-073-116		
0.73	1.50	½	15	B315-073-150		
1.16	0.29	½	15	B315-116-029		
1.16	0.46	½	15	B315-116-046		
1.16	0.73	½	15	B315-116-073		
1.16	1.16	½	15	B315-116-116		
1.16	1.50	½	15	B315-116-150		
1.50	0.29	½	15	B315-150-029		
1.50	0.46	½	15	B315-150-046		
1.50	0.73	½	15	B315-150-073		
1.50	1.16	½	15	B315-150-116		
1.50	1.50	½	15	B315-150-150		
1.75	2.0	½	15	B315-175-200		
2.0	1.75	½	15	B315-200-175		
2.0	2.0	½	15	B315-200-200		
0.73	0.73	¾	20	B320-073-073		
0.73	1.16	¾	20	B320-073-116		
0.73	1.86	¾	20	B320-073-186		
0.73	2.9	¾	20	B320-073-290		
1.16	0.73	¾	20	B320-116-073		
1.16	1.16	¾	20	B320-116-116		
1.16	1.86	¾	20	B320-116-186		
1.16	2.9	¾	20	B320-116-290		
1.86	0.73	¾	20	B320-186-073		
1.86	1.16	¾	20	B320-186-116		
1.86	1.86	¾	20	B320-186-186		
1.86	2.9	¾	20	B320-186-290		
2.9	0.73	¾	20	B320-290-073		
2.9	1.16	¾	20	B320-290-116		
2.9	1.86	¾	20	B320-290-186		
2.9	2.9	¾	20	B320-290-290		
2.9	4.0	¾	20	B320-290-400		
2.9	4.7	¾	20	B320-290-470		
4.0	2.9	¾	20	B320-400-290		
4.0	4.0	¾	20	B320-400-400		
4.0	4.7	¾	20	B320-400-470		
4.9	2.9	¾	20	B320-490-290		
4.9	4.0	¾	20	B320-490-400		
4.9	4.7	¾	20	B320-490-470		
7.4	7	1	25	B325-740-700	NRB24-SR	NRX24-MFT

5 YEAR WARRANTY

CCV

Linear Characteristic

Mode of Operation

The control valve is operated by an electronic actuator that responds to a modulating VDC/4…20 mA control signal. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

Product Features

Linear characteristic, complete close-off resulting in 0% leakage.

Actuator Specifications

Control type	2-10 VDC multi-function technology (MFT)
Manual override	LR... ½" and ¾" NR... 1"
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Controllable flow range Sequence 1 Sequence 2	 (0 to 30° angle) Dead zone 30° to 60° (60° to 90° angle)
Sizes	½", ¾", 1"
End fitting	NPT female
Materials Body Ball Stem Seats Seat O-rings Characterizing disc Stem O-rings	 nickel plated brass chrome plated brass nickel plated brass Teflon® PTFE EPDM chrome plated steel EPDM
Media temperature range	43°F to 180°F [6°C to 82°C]
Body pressure rating	232 psi
Close-off pressure	50 psi
Maximum differential pressure (ΔP)	15 psi
Leakage	0%

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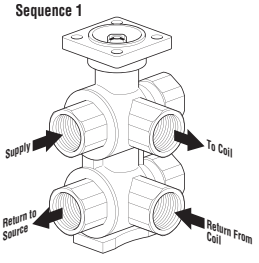
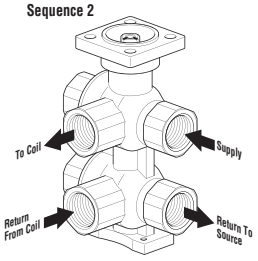
Sequence 1



Sequence 2



Control Valve Product Range

Zone Valve

	Valve Nominal Size		Type		Suitable Actuators			
C_V	Inches	DN [mm]	2-way NPT	2-way Sweat	Normally Closed		Normally Open	
1	½	15	ZONE215N-10	ZONE215S-10	Zone	Zone (with Switch)	Zone	Zone (with Switch)
2.5	½	15	ZONE215N-25	ZONE215S-25				
3.5	½	15	ZONE215N-35	ZONE215S-35				
3.5	¾	20	ZONE220N-35	ZONE220S-35				
5	¾	20	ZONE220N-50	ZONE220S-50				
8	1	25	ZONE225N-80	ZONE225S-80				

	Valve Nominal Size		Type		Suitable Actuators	
C_V	Inches	DN [mm]	3-way NPT	3-way Sweat	Normally Closed	
1	½	15	ZONE315N-10	ZONE315S-10	Zone	Zone (with Switch)
2.5	½	15	ZONE315N-25	ZONE315S-25		
3.5	½	15	ZONE315N-35	ZONE315S-35		
3.5	¾	20	ZONE320N-35	ZONE320S-35		
5	¾	20	ZONE320N-50	ZONE320S-50		
8	1	25	ZONE325N-80	ZONE325S-80		

2 YEAR WARRANTY

Mode of Operation

Zone valves provide a convenient way to create individual zones or equipment isolation in a hydronic system. Utilizing one pump along with multiple zone valves, flow can be started, stopped, or diverted through the system to provide individual room or area comfort control and energy savings.

Product Features

Zone valve is designed to fit in compact areas where on/off control is required using 24 VAC or 120 VAC.

Actuator Specifications

Control type	on/off
Manual override	NC versions only
Electrical connection	6" [15 cm] wire lead 120V; 18" [45 cm] wire lead 24V

Valve Specifications

Service	chilled or hot water, 50% glycol
Flow characteristic	
Two-way	on/off
Three-way	on/off, diverting
Sizes	½", ¾" and 1"
End fitting	NPT or sweat female
Materials	
Body	forged brass
Stem	stainless steel
Stem seals	EPDM
Paddle	EPDM
Media temp range	32°F to 212°F [0°C to 100°C]
Body pressure rating	300 psi
Close-off pressure	20-75 psi
Leakage	ANSI Class III or 0.1%

Control Valve Product Range

Characterized Control Valve

	Valve Nominal Size		Type		Suitable Actuators						
C_V	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
0.3	½	15	B207(B)	B307(B)	TR Series	LR Series	NR Series	TFR Series	LF Series		LR...-IP
0.46	½	15	B208(B)	B308(B)							
0.8	½	15	B209(B)	B309(B)							
1.2	½	15	B210(B)	B310(B)							
1.9	½	15	B211(B)	B311(B)							
3	½	15	B212(B)	B312(B)							
4.7	½	15	B213(B)	B313(B)							
7.4	½	15	B214(B)								
10	½	15	B215(B)	B315(B)							
16	½	15	B216(B)*	B316(B)*							
4.7	¾	20	B217(B)	B317(B)							
7.4	¾	20	B218(B)	B318(B)							
10	¾	20	B219(B)								
14	¾	20	B220(B)*								
14	¾	20		B320(B)							
24	¾	20	B221(B)*	B321(B)*							
7.4	1	25	B222	B322							
10	1	25	B223	B323							
19	1	25	B224								
30	1	25	B225*	B325*							
10	1¼	32	B229								
19	1¼	32	B230*								
10	1¼	32		B329		AR Series	AR Series		AFR Series	AFR Series	AR...-IP	AKR...-IP	AFR...-IP
19	1¼	32		B330							
25	1¼	32	B231	B331							
37	1¼	32	B232*								
19	1½	40	B238	B338							
29	1½	40	B239	B339							
37	1½	40	B240*	B340							
46	1½	40		B341							
29	2	50	B248	B347							
37	2	50		B348							
46	2	50	B249	B349							
57	2	50	B250*	B350							
65	2	50	B251								
68	2	50		B351							
83	2	50		B352							
85	2	50	B252								
120	2	50	B253								
240	2	50	B254*								

NEW

* Models without characterizing discs. (B) Models with chrome plated brass ball and nickel plated brass stem

5 YEAR WARRANTY

CCV

Mode of Operation

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

Product Features

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	TR, LR, AR, NR, AFR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

Valve Specifications

Service	chilled or hot water, up to 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	forged brass, nickel plated
Ball	stainless steel or chrome plated brass
Stem	stainless steel or nickel plated brass
Seats	Teflon® PTFE
Seat O-rings	EPDM
Characterizing disc	
½"- 1 ½" (2-way)	Tefzel®
½"-1" (3-way)	Tefzel®
2" (2-way) B248-B249	Tefzel®
2" (2-way) B251-B253	stainless steel
1¼"- 2" (3-way)	stainless steel
Stem O-rings	EPDM
Media temp. range	0°F to 250°F [-18°C to +120°C]
Body pressure rating	
2-way	
All ½", ¾", and 1"	600 psi
1¼" up to B230	600 psi
1¼" from B231	400 psi
1½" - 2"	400 psi
3-way	
All ½", ¾", and 1"	600 psi
1¼"- 2"	400 psi
Close-off pressure	200 psi
Maximum differential pressure (ΔP)	50 psi
Leakage	0% for A to AB < 2.0% for B to AB
Cv rating	B port: 70% of A to AB C_V

Tefzel® and Teflon® are registered trademarks of DuPont™.

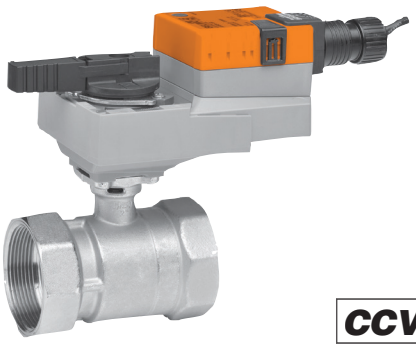
Control Valve Product Range

Characterized Control Valve

	Valve Nominal Size		Type	Suitable Actuators						
C_V	Inches	DN [mm]	2-way NPT	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
60	2½	65	B261	AR Series	AR Series	AFR Series	AFR Series	AR...-IP	AKR...-IP	AFR...-IP
75	2½	65	B262							
110	2½	65	B263							
150	2½	65	B264							
210	2½	65	B265*							
70	3	80	B277							
130	3	80	B278							
170	3	80	B280*							

NEW

* Models without characterizing disc



5 YEAR WARRANTY

CCV

Mode of Operation

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

Product Features

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

Actuator Specifications

Control type multi-function technology (MFT)	on/off, floating point, 2-10 VDC,
Manual override	AR and AFR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

Valve Specifications

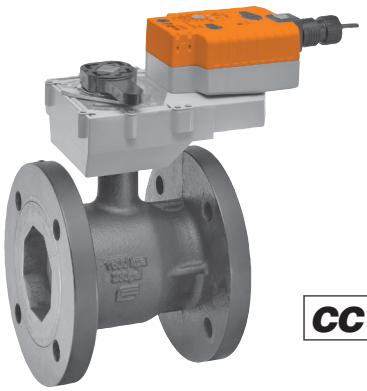
Service	chilled or hot water, up to 60% glycol
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3"
End fitting	NPT female
Materials	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	Tefzel®
Stem o-rings	EPDM
Media temp. range	0°F to 212°F [-18°C to +100°C]
Body pressure rating	400 psi
Close-off pressure	100 psi
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB

Tefzel® and Teflon® are registered trademarks of DuPont™.

Control Valve Product Range

Characterized Control Valve

	Valve Nominal Size		2-way Flanged		Suitable Actuators						
C_V	Inches	DN [mm]	ANSI 125	ANSI 250	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
70	2½	65	B6250S-070	B6250S-070-250	AR	AR	AFR	AFR	AR...-IP	AFR...-IP	AKR...-IP
110	2½	65	B6250S-110	B6250S-110-250							
110	3	80	B6300S-110	B6300S-110-250							
186	4	100	B6400S-186	B6400S-186-250	GR		GKR	GR / GKR			
290	5	125	B6500S-290	B6500S-290-250							
400	6	150	B6600S-400	B6600S-400-250							
				NEW					NEW		



5 YEAR WARRANTY

CCV

Mode of Operation

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

Product Features

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	AR, GR, AFR and GKR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

Valve Specifications

Service	chilled or hot water, up to 60% glycol max.
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI Class 125 flange, flat face* ANSI 250
Materials	
Body	cast iron GG25
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM rubber
Characterizing disc	stainless steel
Stem o-rings	EPDM
Media temp. range	0°F to 250°F [-18°C to +120°C]
Body pressure rating	ANSI 125 Class B, ANSI 250
Close-off pressure	100 psi
Maximum differential pressure (ΔP)	50 psi
Leakage	0% for A to AB

*125 psi flanges have a plain flat face and should not be bolted to a raised face flange.

Tefzel® and Teflon® are registered trademarks of DuPont™.

Control Valve Product Range

High Temperature Characterized Control Valve

	Valve Nominal Size		Type	Suitable Actuators	
C_V	Inches	DN [mm]	2-way NPT	Non Fail-Safe	Fail-Safe
0.29	½	15	B215HT029	TR Series	TFR Series
0.46	½	15	B215HT046		
0.73	½	15	B215HT073		
1.16	½	15	B215HT116		
1.86	½	15	B215HT186		
2.90	½	15	B215HT290		
4.55	½	15	B215HT455		
1.86	¾	20	B220HT186	LR Series	LF Series
2.90	¾	20	B220HT290		
4.64	¾	20	B220HT464		
7.31	¾	20	B220HT731		
9.28	¾	20	B220HT928		
13.20	¾	20	B220HT1320		
4.64	1	25	B225HT464		
7.31	1	25	B225HT731		
11.60	1	25	B225HT1160		
18.56	1	25	B225HT1856		
28.00	1	25	B225HT2800		

5 YEAR WARRANTY

HTCCV

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off, modulating or 3-point control system. The actuator will then move the ball of the valve to the position dictated by the control signal or voltage and change the flow.

Product Features
Equal-percentage flow characteristic.

Actuator Specifications	
Control type	on/off, floating point, 2-10 VDC multi-function technology (MFT)
Manual override	only TR, LR series
Electrical connection	3 ft. [1 m] cable with ½"conduit fitting or covered screw terminal strip
Valve Specifications	
Service	hot water, up to 60% glycol, steam
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
End fitting	NPT female
Materials	
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem packing	Viton®
Characterizing disc	ETFE
Seat o-rings	EPDM
Body pressure rating	600 psi
Media temperature range	
Steam	250°F [120°C]
Water	60°F to 266°F [16°C to 130°C]
Close-off pressure	200 psi
Maximum differential pressure (ΔP)	
Steam	15 psi
Water	60 psi partially open ball 116 psi full open only (Model #B215HT455)
Maximum inlet pressure	
Steam	15 psi
Leakage	0%

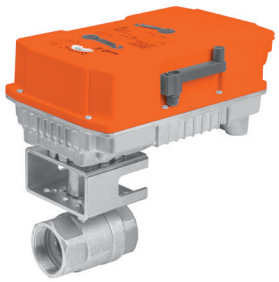
Control Valve Product Range

Industrial Ball Valve

	Valve Nominal Size		Type		Suitable Actuators			
C_V	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe			Fail-Safe
1	½	15	B2050VS-01*		LM Series	GR Series		LF Series
2	½	15	B2050VS-02*					
4	½	15	B2050VS-04*					
15	½	15	B2050VS-15*					
30	¾	20	B219VS		NM Series			NF Series
51	¾	20	B220VS					
43	1	25	B224VS		AM Series			AF Series
68	1	25	B225VS					
48	1¼	32	B232VS		GM Series		PR Series	
84	1½	40	B239VS					
177	1½	40	B240VS					
108	2	50	B249VS					
15	½	15	B2050VSS-15*		NM Series	GR Series		LF
30	¾	20	B219VSS					NF
43	1	25	B224VSS		AM			AF Series
108	2	50	B249VSS		GM		PR Series	
6.4	½	15		B315L**	LR Series			LFR Series
12.8	¾	20		B320L**				
11	1	25		B325L**				
34	1¼	32		B332L**	NR			AFR Series
57	1½	40		B340L**	AR Series			
87	2	50		B350L**				

* For hot only or cold only applications. Not for temperature changeover applications.
** Not for steam applications

NOTE: Industrial ball valves (B2..VS, B2..VSS) have serviceable components. Proper maintenance of these parts will ensure a longer in-service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has be operated, or as field condition dictates.



2 YEAR WARRANTY

Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a modulating VDC/4…20 mA, or 3-point control system. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

Product Features

Modified equal percentage of flow for B2. Modified linear flow for B3.
B3...L valves are for diverting applications and are not rated for steam.

Actuator Specifications

Control type	on/off, floating point, modulating, 2-10 VDC multi-function technology (MFT)
Manual override	all models except LF
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, (60% glycol), steam (2-way)
Flow characteristic	modified equal percentage (B2), modified linear (B3...L)
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	bronze (B2..VS) stainless steel (B2..VSS) nickel plated brass (B3..L)
Ball	stainless steel, bronze (B2050VSS-15) chrome plated brass (B3..L)
Stem	stainless steel nickel plated brass (B3..L)
Seats	
2-way	MPTFE, RPTFE (B2050)
3-way	Teflon PTFE
Stem packing	
2-way NPT	MPTFE
O-rings	NPT EPDM (B3..L)
Media temp range	
B2..VS	-22°F to +280°F [-30°C to +138°C]
B2..VSS	-22°F to +298°F [-30°C to +148°C]
B3...L	0°F to 250°F [-18°C to +120°C]
Body pressure rating	
3-way	600 psi DN 15-25 (B3..L ½"-1") 400 psi DN 32-50 (B3..L 1¼" - 2")
Maximum inlet pressure	
Steam	35 psi B2..VS 50 psi B2..VSS
Leakage	ANSI Class VI (B2..VS, VSS) 0% (B3..L)

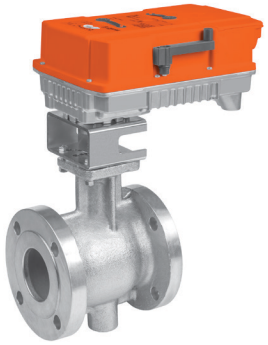
Control Valve Product Range

V Ball Control Valve

	Valve Nominal Size		Type					
C_V	Inches	DN [mm]	2-way NPT	2-way Flanged	Non Fail-Safe	Fail-Safe		
						Spring Return	Electronic	
024	1	25	B2100VB-024		AM Series	NF Series		
055	1½	40	B2150VB-055					
077	2	50	B2200VB-077				AF	
207	3	80		B6300VB-207				GK Series
350	4	100		B6400VB-350	GM	EF		
507	6	150		B6600VB-507				

PR Series

NOTE: Industrial ball valves have serviceable components. Proper maintenance of these parts will ensure a longer in-service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has be operated, or as field condition dictates.



2 YEAR WARRANTY

Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a modulating VDC/4…20 mA, or 3-point control system. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

Product Features

Equal percentage of flow

300:1 rangeability

ANSI Class IV Leakage Rating

Actuator Specifications

Control type	on/off, floating point, modulating, 2-10 VDC, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting, terminal block

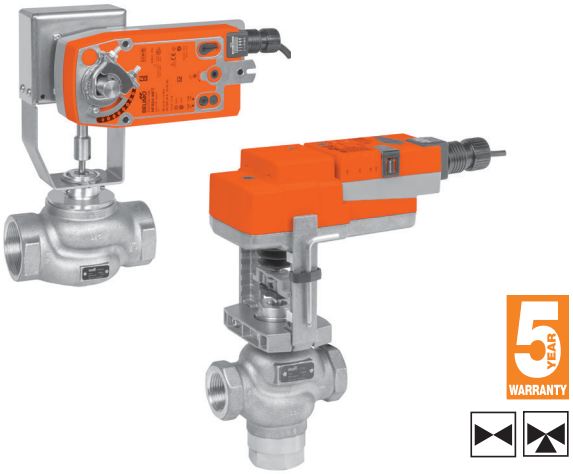
Valve Specifications

Service (60% glycol), steam	chilled or hot water,
Flow characteristic	equal percentage
Sizes	1", 1½", 2", 3", 4", 6"
End fitting	NPT female (1" to 2") ANSI flanged (3" to 6")
Materials	
Body	carbon steel
Characterizing ball	hardened chrome plated stainless steel
Stem	stainless steel
Seats	Teflon®
O-rings	ALFAS
Stem packing	spring loaded Teflon® V-ring
Bushings	Stanyl PA46
Media temp. range	380°F max.
Body pressure rating	NPT ANSI 300 (1" to 2") flanged ANSI 150 (3" to 6")
Maximum ΔP steam	100 psi
Maximum ΔP water	100 psi
Close-off pressure	
Water	150 psi
Steam	200 psi
Maximum inlet pressure	
Steam	200 psi
Leakage	ANSI Class IV

Control Valve Product Range

Globe Valve

	Valve Nominal Size		Type		Suitable Actuators		
						Fail-Safe	
C_V	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	Spring Return	Electronic
0.4	½	15	G215B-C		LV Series	LF Series	LVK Series
0.4	½	15	G215S-C				
1.3	½	15	G215B-F				
1.3	½	15	G215S-F				
2.2	½	15	G215B-G				
2.2	½	15	G215S-G				
4.4	½	15	G215B-J				
4.4	½	15	G215S-J				
5.5	¾	20	G220B-J				
5.5	¾	20	G220S-J				
7.5	¾	20	G220B-K				
7.5	¾	20	G220S-K				
10	1	25	G225B-K				
10	1	25	G225S-K				
14	1	25	G225B-L				
14	1	25	G225S-L				
20	1¼	32	G232B-M				
20	1¼	32	G232S-M				
28	1½	40	G240B-N			NF Series	
28	1½	40	G240S-N				
40	2	50	G250B-N				
40	2	50	G250S-N				
2.2	½	15		G315B-G	SV Series		SVK Series
4.4	½	15		G315B-J			
6.75	¾	20		G320B-K			
14	1	25		G325B-L			
20	1¼	32		G332B-M			
28	1½	40		G340B-N		AF Series	
40	2	50		G350B-N			



Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a modulating 2-10 VDC/ 4-20 mA, 3-point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus changing the flow.

Product Features

New G2 and G3 globe valves offer a modified equal percentage flow characteristic for a wide variety of HVAC applications. Capable of being used for heating, cooling, and steam service. Repack kits are available to extend the life of the valve without full replacement.

Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	all models except LF
Electrical connection	3 ft [1 m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	modified equal percentage G3: linear flow from B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	bronze
Stem	stainless steel
Plug	G2B, G3B: brass G2S: stainless steel
Seat	G2B, G3B: bronze G2S: stainless steel
Stem packing	EPDM O-ring
Media temp. range	G2B, G3B: 20°F to 280°F [-7°C to +138°C] G2S: 20°F to 338°F [-7°C to +170°C]
Body pressure rating	ANSI Class 250
Maximum inlet pressure	
Steam	G2B: 35 psi [241 kPa] G2S: 100 psi [690 kPa]
Maximum differential pressure (ΔP)	G2B: 35 psi [241 kPa] G2S: 50 psi [345 kPa]
Leakage	ANSI Class VI
Rangeability	100:1

Control Valve Product Range

Globe Valve

	Valve Nominal Size		Type	Suitable Actuators		
					Fail-Safe	
C_V	Inches	DN [mm]	2-way Flanged	Non Fail-Safe	Spring Return	Electronic
65	2½	65	G665C	EV Series	AFX Series	AVK Series
65	2½	65	G665CS			
65	2½	65	G665C-250			
65	2½	65	G665CS-250			
65	2½	65	G665LCS			
85	3	80	G680C			
85	3	80	G680CS			
85	3	80	G680C-250			
85	3	80	G680CS-250			
85	3	80	G680LCS			
170	4	100	G6100C			
170	4	100	G6100CS			
170	4	100	G6100C-250			
170	4	100	G6100CS-250			
170	4	100	G6100LCS			
263	5	125	G6125C			
263	5	125	G6125CS			
263	5	125	G6125C-250			
263	5	125	G6125CS-250			
263	5	125	G6125LCS			
344	6	150	G6150C			
344	6	150	G6150CS			
344	6	150	G6150C-250			
344	6	150	G6150CS-250			
344	6	150	G6150LCS			

The G...(C)(CS)(LCS) Series valve is a pressure compensated valve that allows high close-off ratings while utilizing standard actuation.

Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, a modulating 2-10 VDC/4-20 mA, or 3-point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus changing the flow.

Product Features

Equal percentage (G6) and linear (G7) flow curve options available for a wide variety of HVAC applications. Capable of being used for heating, cooling, and steam service. Repack and rebuild kits are available to extend the life of the valve without full replacement.

Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft [1 m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	
G6	A-port equal percentage
G6LCS	linear
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI 125 or 250 flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	bronze
Seat	
G6	stainless steel
G6...S	stainless steel
Stem packing	
G6	bronze trimmed: NLP (EPDM)
G6S	stainless trimmed: NLP (EPDM)
Media temp. range	refer to valve specification pages in the Product Guide and Price List
Body pressure rating	
G6	ANSI 125
G6-250	ANSI 250
Maximum inlet pressure	
Water	150 psi [1034 kPa] G6C, G6CS 250 psi [1724 kPa] G6C...250, G6CS...250
Steam	35 psi [241 kPa] G6C, G6C...250 100 psi [690 kPa] G6CS, G6CS...250
Maximum differential pressure (ΔP)	
Water	25 psi [172 kPa] G6C, G6C...250 50 psi [345 kPa] G6CS, G6CS...250
Steam	15 psi [103 kPa] G6C, G6C...250
Rangeability	85:1 (G665..), 91:1 (G680..) 98:1 (G6100..), 100:1 (G6125..) 98:1 (G6150..)

Control Valve Product Range

Globe Valve

	Valve Nominal Size			Suitable Actuators		
				Non Fail-Safe	Fail-Safe	
C_V	Inches	DN [mm]	3-Way Flanged		Spring Return	Electronic
68	2½	65	G765	EV / RV Series	AFX Series	AVK Series
68	2½	65	G765S			
68	2½	65	G765-250			
68	2½	65	G765S-250			
85	3	80	G780			
85	3	80	G780S			
85	3	80	G780-250			
85	3	80	G780S-250			
190	4	100	G7100			GK Series
190	4	100	G7100S			
190	4	100	G7100-250			
190	4	100	G7100S-250			
280	5	125	G7125	RV Series		
280	5	125	G7125S			
280	5	125	G7125-250			
280	5	125	G7125S-250			
340	6	150	G7150			
340	6	150	G7150S			
340	6	150	G7150-250			
340	6	150	G7150S-250			
68	2½	65	G765D	EV Series	AFX Series	AVK Series
68	2½	65	G765DS			
68	2½	65	G765DS-250			
85	3	80	G780D			
85	3	80	G780DS			
85	3	80	G780DS-250			
154	4	100	G7100D			
154	4	100	G7100DS			
154	4	100	G7100DS-250			
195	5	125	G7125D			
195	5	125	G7125DS			
195	5	125	G7125DS-250			
248	6	150	G7150D			
248	6	150	G7150DS			
248	6	150	G7150DS-250			

Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, a modulating 2-10 VDC/4-20 mA, or 3-point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus changing the flow.

Product Features

Equal percentage (G6) and linear (G7) flow curve options available for a wide variety of HVAC applications. Capable of being used for heating, cooling, and steam service. Repack and rebuild kits are available to extend the life of the valve without full replacement.

Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft [1 m] cable with ½" conduit fitting

Valve Specifications

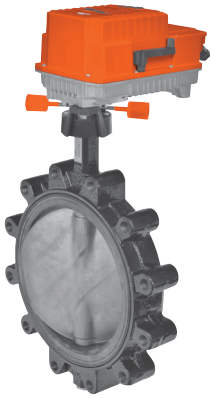
Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI 125 or 250 flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	bronze
Seat	
G7	stainless steel
G7...S	stainless steel
Stem packing	
G7	bronze trimmed: NLP (EPDM)
G7...S	stainless trimmed: NLP (EPDM)
Media temp. range	refer to valve specification pages in the Product Guide and Price List
Body pressure rating	
G7	ANSI 125
G7-250	ANSI 250
Maximum inlet pressure	
Water	150 psi [1034 kPa] G7, G7S 250 psi [1724 kPa] G7...250, G7S...250
Maximum differential pressure (ΔP)	
Water	25 psi [172 kPa] G7, G7...250 50 psi [345 kPa] G7S,G7S...250
Rangeability	50:1

Control Valve Product Range

Resilient Seat Butterfly Valve

		2-way			Suitable Actuators						
		Valve Nominal Size		Type	Non Fail-Safe			Fail-Safe			
								Spring Return	Electronic		
C_V 90°	C_V 60°	IN	DN [mm]	2-way	HDU LU	L	HD	HD	L	HD	
115	44	2	50	F650			AR	AF Series			
196	75	2½	65	F665			GR Series				
302	116	3	80	F680	AR GR					GKR	
600	230	4	100	F6100	GR		DR			DKR	PKR Series
1022	392	5	125	F6125				PR Series			
1579	605	6	150	F6150	DR						
3136	1202	8	200	F6200L	PR	PR			PKR		
5340	2047	10	250	F6250L							
8250	3162	12	300	F6300L							
11917	4568	14	350	F6350				SY Series (2 Year Warranty)			
16388	6282	16	400	F6400							
21705	8320	18	450	F6450							
27908	10698	20	500	F6500							
43116	16528	24	600	F6600							

		3-way			Suitable Actuators					
		Valve Nominal Size		Type	Non Fail-Safe			Fail-Safe		
								Spring Return	Electronic	
C_V 90°	C_V 60°	IN	DN [mm]	3-way	HDU	L	HD	HD	L	HD
115	44	2	50	F750			AM	AF		
196	75	2½	65	F765			GM Series			
302	116	3	80	F780	GM					GK
600	230	4	100	F7100	2*GM Series		PR Series			PKR Series
1022	392	5	125	F7125						
1579	605	6	150	F7150						
3136	1202	8	200	F7200L		PR			PKR	
5340	2047	10	250	F7250L						
8250	3162	12	300	F7300L						
11917	4568	14	350	F7350			SY Series (2 Year Warranty)			
16388	6282	16	400	F7400						
21705	8320	18	450	F7450						



5 YEAR WARRANTY

Mode of Operation

Butterfly valves are capable of handling higher flow rates with relatively low pressure loss. These valves may be used for isolation (shut-off) service or throttling service within a range of 0-60 degrees for two-way valves. Butterfly valves are controlled with a maintenance-free electronic actuator or manually with an ergonomic handle or gear operator.

Product Features

The unique disc and seat design ensures positive valve seating while maintaining low seating torque.

Actuator Specifications

Control type	on/off, floating point, modulating, 2-10 VDC, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, listed by BTL, Modbus

Valve Specifications

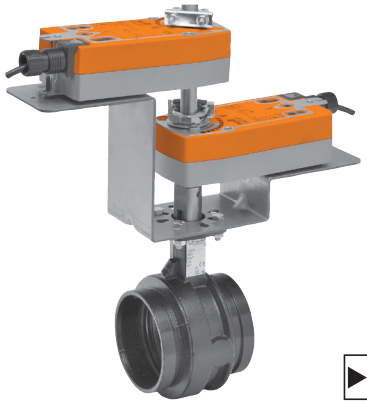
Service	chilled, hot water, 60% glycol
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2” to 24”
End fitting	consistent with ANSI 125 flanged
Materials	
Body	ductile iron ASTM A536
Body finish	polyester powder coat
Disc	304 stainless steel
Shaft	HD Series: 416 stainless steel L Series: 420 stainless steel
Seat	EPDM
O-rings	EPDM
Bushings	HD Series: RPTFE L Series: bronze, steel, PTFE
Media (water) temp. range	-22°F to +250°F [-30°C to +120°C]
Body pressure rating	232 psi cold working pressure (CWP)
Close-off pressure	HDU, LU: 50 psi, 3” to 10” HD: 200 psi, 2” to 6” HD: 150 psi, 14” to 24” L Series: 200 psi 8” to 12”
Rangeability	10:1
Maximum velocity	12 FPS
Leakage	0%

Control Valve Product Range

Grooved Butterfly Valve

		2-way			Suitable Actuators					
		Valve Nominal Size		Type	Non Fail-Safe				Fail-Safe	
C_V 90°	C_V 60°	IN	DN [mm]	2-way					Spring Return	Electronic
115	36	2	50	F650VIC	AM Series			PR / PKR Series	AF Series	
260	80	2½	65	F665VIC		GM/GR Series				
440	140	3	80	F680VIC						
820	250	4	100	F6100VIC			DR Series			GK
1200	370	5	125	F6125VIC						PKR Series
1800	560	6	150	F6150VIC						
3400	1050	8	200	F6200VIC				SY (2 Year Warranty)		
5800	1800	10	250	F6250VIC						
9000	2790	12	300	F6300VIC						

		3-way			Suitable Actuators				
		Valve Nominal Size		Type	Non Fail-Safe			Fail-Safe	
C_V 90°	C_V 60°	IN	DN [mm]	3-way				Spring Return	Electronic
115	36	2	50	F750VIC	AM		PR / PKR Series	AF	PKR Series
260	80	2½	65	F765VIC		GM Series			
440	140	3	80	F780VIC					
820	250	4	100	F7100VIC					
1200	370	5	125	F7125VIC					
1800	560	6	150	F7150VIC			SY Series (2 Year Warranty)		
3400	1050	8	200	F7200VIC					
5800	1800	10	250	F7250VIC					
9000	2790	12	300	F7300VIC					



Mode of Operation

Grooved butterfly valves are designed for body pressures ranging from full vacuum to 300 psi and for bi-directional, dead end services to full body pressure. The valve patented seat design ensures full 360° sealing. The pressure-enhanced seat compresses to form a larger seating area as the pressure increases. Valve construction and performance meet and exceed MSS-SP-67 requirements.

Product Features

The unique single offset disc and seat design ensures positive valve seating while maintaining low seating torque.

Actuator Specifications

Control type	on/off, floating point, modulating, 2-10 VDC, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, listed by BTL, Modbus

Valve Specifications

Service	chilled, hot water, 60% glycol
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2" to 12"
End fitting	ANSI/AWWA (C606) grooved
Materials*	
Body	ductile iron ASTM A536, grade 65-45-12
Body finish	black alkyd enamel
Disc	electrolysis nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Bearings	fiberglass with TFE lining
Media temp. range	-22°F to +250°F [-30°C to +120°C]
Body pressure rating	300 psi
Close-off pressure	200 psi (for most combinations)
Rangeability	100:1
Maximum velocity	20 FPS
Leakage	0%

*VIC® 300 Masterseal™ is manufactured by Victaulic Company

Control Valve Product Range

High Performance Butterfly Valve

		2-way Valves			Suitable Actuators							
		Valve Nominal Size	Type		Non Fail-Safe				Fail-Safe			
									Spring Return		Electronic	
C_V 90°	C_V 60°	Inches	ANSI 150 2-way	ANSI 300 2-way	150		300		150	300	150	300
102	56	2	F650-150SHP	F650-300SHP	GM Series	PR Series	GM Series	PR Series	AF Series	AF Series	GK Series	GK Series
146	80	2½	F665-150SHP	F665-300SHP								
228	125	3	F680-150SHP	F680-300SHP								
451	248	4	F6100-150SHP	F6100-300SHP								
714	392	5	F6125-150SHP	F6125-300SHP							PKR	PKR
1103	607	6	F6150-150SHP	F6150-300SHP								
2064	1135	8	F6200-150SHP	F6200-300SHP		SY Series (2 Year Warranty)		SY (2 Year Warranty)				
3517	1934	10	F6250-150SHP	F6250-300SHP								
4837	2660	12	F6300-150SHP	F6300-300SHP								
6857	3592	14*	F6350-150SHP	F6350-300SHP								
9287	4865	16*	F6400-150SHP	F6400-300SHP								
11400	6270	18*	F6450-150SHP	F6450-300SHP								
14420	7590	20*	F6500-150SHP	F6500-300SHP								
22050	11550	24*	F6600-150SHP									

Note: C_V values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C_V values and configurations.
*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

		3-way Valves			Suitable Actuators					
		Valve Nominal Size	Type		Non Fail-Safe				Electronic Fail-Safe	
C_V 90°	C_V 60°	Inches	ANSI 150 3-way	ANSI 300 3-way	150		300		150	300
102	56	2	F750-150SHP	F750-300SHP	GM Series	PR Series	GM Series	PR Series	GK Series	GK Series
146	80	2½	F765-150SHP	F765-300SHP						
228	125	3	F780-150SHP	F780-300SHP						
451	248	4	F7100-150SHP	F7100-300SHP						PKR
714	392	5	F7125-150SHP	F7125-300SHP						
1103	607	6	F7150-150SHP	F7150-300SHP						
2064	1135	8	F7200-150SHP	F7200-300SHP		SY Series (2 Year Warranty)		SY Series (2 Year Warranty)		
3517	1934	10	F7250-150SHP	F7250-300SHP						
4837	2660	12	F7300-150SHP	F7300-300SHP						
6857	3592	14*	F7350-150SHP	F7350-300SHP						
9287	4865	16*	F7400-150SHP	F7400-300SHP						

Note: C_V values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C_V values and configurations.
*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

Mode of Operation

High performance butterfly valves are designed for modulating and isolation service and feature a machined seat design and blow out proof solid shaft, providing better torque consistency, which offers longer actuator life and reduced risk of leakage. Available for a variety of high temperature and pressure ratings i.e., ASME/ANSI Class 300 or 150. Valve sizes range from 2 to 24 inches, with rangeabilities of 100:1, 0% leakage ratings, and a maximum valve velocity of 32 FPS.

Product Features

Unique body seat and double offset disc design ensures positive valve sealing to help assure leak free performance in water applications while maintaining low seating torque.

Actuator Specifications

Control type	on/off, floating point, modulating, 2-10 VDC, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, listed by BTL, Modbus

Valve Specifications

Service	chilled or hot water, 60% glycol, steam to 50 psi
Flow characteristic	F6 modified equal percentage, unidirectional F7 modified linear, unidirectional
Sizes	2" to 24"
End fitting	ASME/ANSI Class 150 or 300
Materials	
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless
Seat	RTFE
Gland seal	TFE
Bearings	glass backed PTFE
Media temp. range	-22°F to +400°F [-30°C to +204°C]
Body pressure rating	150 SHP: ASME/ANSI Class 150 300 SHP: ASME/ANSI Class 300
Close-off pressure	150: 285 psi, 300: 600 psi
Rangeability	100:1
Maximum velocity	32 FPS
Leakage	0%

Double Dead End Service: Utilizes larger retainer ring set screws to allow the valve to be placed at the end of the line without a down stream flange in either flow direction while still holding full pressure.

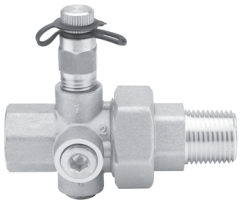
Pipe Package Product Range

		Valve Nominal Size		Hoses	Union	Isolation Valve	Manual Balancing Valve	Strainer
	Valve Series	Inches	DN [mm]	Lengths	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End
NEW	PIQCV 2-Way	½	15	12", 18", 24"	F-NPT, Sweat, Press Fit/ M-NPT	F-NPT, Sweat, Press Fit/ M-NPT		F-NPT, Sweat, Press Fit/F-NPT, M-NPT
		¾	20	12", 18", 24"				
NEW	ePIV / EV 2-Way	½	15	12", 18", 24"				
		¾	20	12", 18", 24"				
		1	25	12", 18", 24"				
		1¼	32	18", 24", 36"				
		1½	40	18", 24", 36"				
		2	50	24", 36"				
	CCV 2-Way	½	15	12", 18", 24"			F-NPT, Sweat, Press Fit/M-NPT	
		¾	20	12", 18", 24"				
		1	25	12", 18", 24"				
		1¼	32	18", 24", 36"				
		1½	40	18", 24", 36"				
		2	50	24", 36"				
	CCV 3-Way	½	15	12", 18", 24"		F-NPT, Sweat, Press Fit/ M-NPT		
		¾	20	12", 18", 24"				
		1	25	12", 18", 24"				
		1¼	32	18", 24", 36"				
		1½	40	18", 24", 36"				
		2	50	24", 36"				
NEW	QCV 2-Way	½	15	12", 18", 24"				
		¾	20	12", 18", 24"				
	Zone Valves 2-Way	½	15	12", 18", 24"				
		¾	20	12", 18", 24"				
		1	25	12", 18", 24"				

Hose Technical Specifications

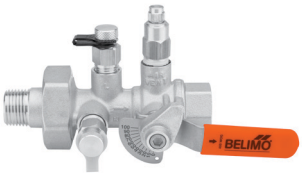
Operating & burst pressure rating	
½"	375 psi operating 1500 psi burst pressure
¾"	300 psi operating 1200 psi burst pressure
1"	225 psi operating 900 psi burst pressure
1¼"	200 psi operating 800 psi burst pressure
1½"	175 psi operating 600 psi burst pressure
2"	150 psi operating 500 burst pressure
Component temperature	-5°F to +230°F [-20°C to +110°C] less than 41°F with use of glycol additive.

Note: Media temperature may be limited by the hose rating



Union Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Pressure/temperature ratings	
½" to 2"	600 psi
Component temperature	250°F maximum
Media temperature range	36°F to 212°F [2°C to 100°C]

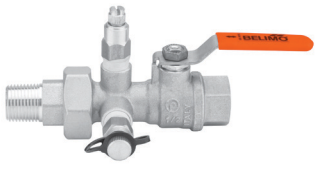


Manual Balance Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Pressure/temperature ratings	
½" to 2"	400 psi
Component temperature	300°F maximum
Media temperature range	36°F to 212°F [2°C to 100°C]
Leakage	0%

Strainer Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Pressure/temperature ratings	
½" to 2"	600 psi
Component temperature	325°F maximum
Media temperature range	36°F to 212°F [2°C to 100°C]
Leakage	0%



Isolation Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Pressure/temperature ratings	
½" to ¾"	600 psi
1" to 2"	500 psi
Component temperature	300°F maximum
Media temperature range	36°F to 212°F [2°C to 100°C]
Leakage	0%

Duct / Immersion Sensor Product Range

Temperature

Measuring Values				
Temperature		Output Signal Temperature	Probe Length [mm]	Cable Length [m]
01DT-5AH	Passive	PT100	2" [50]	
01DT-5AL		PT100	4" [100]	
01DT-5AN		PT100	6" [150]	
01DT-5AP		PT100	8" [200]	
01DT-5AR		PT100	12" [300]	
01DT-5AT		PT100	18" [450]	
01DT-5BH		PT1000	2" [50]	
01DT-5BL		PT1000	4" [100]	
01DT-5BN		PT1000	6" [150]	
01DT-5BP		PT1000	8" [200]	
01DT-5BR		PT1000	12" [300]	
01DT-5BT		PT1000	18" [450]	
01DT-5EH		Ni1000	2" [50]	
01DT-5EL		Ni1000	4" [100]	
01DT-5EN		Ni1000	6" [150]	
01DT-5EP		Ni1000	8" [200]	
01DT-5ER		Ni1000	12" [300]	
01DT-5ET		Ni1000	18" [450]	
01DT-5LH		NTC10k2	2" [50]	
01DT-5LL		NTC10k2	4" [100]	
01DT-5LN		NTC10k2	6" [150]	
01DT-5LP		NTC10k2	8" [200]	
01DT-5LR		NTC10k2	12" [300]	
01DT-5LT		NTC10k2	18" [450]	
01DT-5MH		NTC10K3	2" [50]	
01DT-5ML		NTC10K3	4" [100]	
01DT-5MN		NTC10K3	6" [150]	
01DT-5MP		NTC10K3	8" [200]	
01DT-5MR		NTC10K3	12" [300]	
01DT-5MT		NTC10K3	18" [450]	
01DT-5QH		NTC20K	2" [50]	
01DT-5QL		NTC20K	4" [100]	
01DT-5QN		NTC20K	6" [150]	
01DT-5QP		NTC20K	8" [200]	
01DT-5QR		NTC20K	12" [300]	
01DT-5QT		NTC20K	18" [450]	
Cable Flange				
01CT-5BL	Passive	PT1000	4" [100]	6.5 ft. [2]
01CT-5BP		PT1000	8" [200]	6.5 ft. [2]
01CT-5LL		NTC10k2	4" [100]	6.5 ft. [2]
01CT-5LP		NTC10k2	8" [200]	6.5 ft. [2]
01CT-5ML		NTC10K3	4" [100]	6.5 ft. [2]
01CT-5MP		NTC10K3	8" [200]	6.5 ft. [2]
01CT-5QL		NTC20K	4" [100]	6.5 ft. [2]
01CT-5QP		NTC20K	8" [200]	6.5 ft. [2]

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

01DT

01CT

Includes Adjustable Mounting Flange

01DT Optional Accessory A-22D-A03 Adjustable Duct Mounting Flange

Includes Duct Mounting Kit

½" Thermowell adaptor available for retrofit applications. See accessories section of the Product Guide and Price List.

c UL us

5 YEAR WARRANTY

Duct and immersion temperature sensors for duct and pipe applications provides air or water temperature (with A-22P-A series Thermowell) readings to air handling equipment, unitary HVAC equipment, and central plants. Duct flange mount sensors with adjustable mounting flange are ideal for HVAC equipment that do not require electrical conduit for example AHU, FCU and VAV applications.

Accuracy	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	
01DT	-30°F to 120°F [-35°C to 50°C]
01CT	-30°F to 210°F [-35°C to 100°C]
Operating Temperature	
01DT	NTC..= -60°F to 300°F [-50°C to 150°C] PT., Ni.. = -60°F to 320°F [-50°C to 160°C]
01CT	-30°F to 210°F [-35°C to 100°C]
Degree of Protection	
01DT	NEMA 4X, IP65
01CT	NEMA 4X, IP67
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Duct / Immersion Sensor Product Range

Temperature

Measuring Values			Measuring Ranges								Additional Features
			Temperature								
Duct / Immersion Temperature	Output Signals (default)	Multirange	-30°F to +130°F [-50°C to +50°C]	0°F to 150°F [0°C to 160°C]	0°F to 100°F [-15°C to +35°C]	0°F to 250°F [-10°C to +120°C]	30°F to 480°F [0°C to 250°C]	40°F to 90°F [-20°C to +80°C]	40°F to 140°F [0°C to 50°C]	40°F to 240°F [0°C to 100°C]	Probe Length [mm]
22DT-52H	Active DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	2" [50]
22DT-52L	Active DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	4" [100]
22DT-52N	Active DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	6" [150]
22DT-52P	Active DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	8" [200]
22DT-52R	Active DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	12" [300]
22DT-52T	Active DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	18" [450]
22DT-54H	Active 4-20 mA	8	●	●	●	●	●	●	●	●	2" [50]
22DT-54L	Active 4-20 mA	8	●	●	●	●	●	●	●	●	4" [100]
22DT-54N	Active 4-20 mA	8	●	●	●	●	●	●	●	●	6" [150]
22DT-54P	Active 4-20 mA	8	●	●	●	●	●	●	●	●	8" [200]
22DT-54R	Active 4-20 mA	8	●	●	●	●	●	●	●	●	12" [300]
22DT-54T	Active 4-20 mA	8	●	●	●	●	●	●	●	●	18" [450]

22DT

22DT Optional Accessory
A-22D-A03 Adjustable Duct Mounting Flange

Includes Duct Mounting Kit

½" Thermowell adaptor available for retrofit applications. See accessories section of the Product Guide and Price List.

Duct and immersion temperature sensor for duct and pipe applications provides air or water temperature readings to air handling equipment, unitary HVAC equipment, and central plants.

Accuracy	±1% of upper selected measuring range
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4-20 mA)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	-60°F to 320°F [-50°C to 160°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Duct Averaging Sensor Product Range

Temperature

Measuring Values			Measuring Ranges									Additional Features
				Temperature								
Duct Averaging Temperature		Output Signals (default)	Multirange	-30°F to +130°F [-50°C to +50°C]	0°F to 150°F [0°C to 160°C]	0°F to 100°F [-15°C to +35°C]	0°F to 250°F [-10°C to +120°C]	30°F to 480°F [0°C to 250°C]	40°F to 90°F [-20°C to +80°C]	40°F to 140°F [0°C to 50°C]	40°F to 240°F [0°C to 100°C]	Probe Length [m]
01MT-5B4	Passive	PT1000										10 ft [3]
01MT-5B5		PT1000										20 ft [6]
01MT-5E4		Ni1000										10 ft [3]
01MT-5E5		Ni1000										20 ft [6]
01MT-5L4		NTC10k2										10 ft [3]
01MT-5L5		NTC10k2										20 ft [6]
01MT-5M4		NTC10K3										10 ft [3]
01MT-5M5		NTC10K3										20 ft [6]
01MT-5Q4		NTC20K										10 ft [3]
01MT-5Q5		NTC20K										20 ft [6]
22MT-524	Active	DC 0-5V (DC 0-10V)	8	●	●	●	●	●	•	●	●	10 ft [3]
22MT-525		DC 0-5V (DC 0-10V)	8	●	●	●	●	●	•	●	●	20 ft [6]
22MT-544		4-20 mA	8	●	●	●	●	●	•	●	●	10 ft [3]
22MT-545		4-20 mA	8	●	●	●	●	●	•	●	●	20 ft [6]

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

22MT and 01MT

Includes Mounting Brackets

Duct averaging sensors with 10 or 20 foot [3 or 6 meter] probes are for applications where stratified layers of hot and cold air can occur when outside air and return air are mixed. PT1000 version is true averaging and one continuous RTD across entire length of the probe to combat against air stratification problems.

Accuracy	
22MT	±1% of upper selected measuring range
01MT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	
Passive	-30°F to 120°F [-35°C to 50°C]
Active	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	
Passive	
PT, Ni	-30°F to 160°F [-35°C to 70°C]
NTC	32°F to 120°F [0°C to 50°C]
Active	-30°F to 160°F [-35°C to 70°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

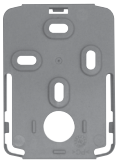
Cable Sensor Product Range

Temperature

Measuring Values			Measuring Ranges									Additional Features	
			Temperature										
Cable Temperature		Output Signals (default)	Multirange	-30°F to 130°F [-50°C to 50°C]	0°F to 100°F [-15°C to 35°C]	0°F to 150°F [0°C to 160°C]	0°F to 250°F [-10°C to 120°C]	30°F to 480°F [0°C to 250°C]	40°F to 90°F [-20°C to 80°C]	40°F to 140°F [0°C to 50°C]	40°F to 240°F [0°C to 100°C]	Probe Length [mm]	Cable Length [m]
22CT-52H	Active	DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	2" [50]	6.5 ft [2]
22CT-54H		4-20 mA	8	●	●	●	●	●	●	●	●	2" [50]	6.5 ft [2]
01CT-5AH	Passive	PT100										2" [50]	6.5 ft [2]
01CT-5BH		PT1000										2" [50]	6.5 ft [2]
01CT-5EH		Ni1000										2" [50]	6.5 ft [2]
01CT-5LH		NTC10k2										2" [50]	6.5 ft [2]
01CT-5MH		NTC10K3										2" [50]	6.5 ft [2]
01CT-5QH		NTC20K										2" [50]	6.5 ft [2]

22CT
Includes Mounting Plate

01CT



A-22D-A09
Mounting Plate

Cable temperature sensors with two-inch stainless steel probe are designed to measures air or water temperature for duct and pipe applications.

Accuracy	
22CT	±1% of upper selected measuring range
01CT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Power Supply	
22CT	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4-20 mA)
Cable Entry	
22CT	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	
Passive	-30°F to 210°F [-35°C to 100°C]
Active	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	
Passive	-30°F to 210°F [-35°C to 100°C]
Active	-60°F to 250°F [-50°C to 120°C]
Degree of Protection	
22CT	NEMA 4X, IP65
01CT	NEMA 4X, IP67
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Low Limit Detection Sensor Product Range
Temperature

		Measuring Values				Additional Features
		Output Signal	Reset		Setpoint Range	
Low Limit Detection Temperature (Frost Protection)		SPDT	Auto	Manual	14°F to 54°F [-10°C to 12°C]	Probe Length [m]
01DTS-504	Switch	●	●		●	10 ft [3]
01DTS-504X		●		●	●	10 ft [3]
01DTS-505		●	●		●	20 ft [6]
01DTS-505X		●		●	●	20 ft [6]

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

01DTS

Includes Mounting Clips

5 YEAR WARRANTY

Duct mounted low-temperature detection sensors with vapor filled copper capillary tube are used to protect water coils from freezing within the air handling equipment. Any section of the capillary tube that is below the setpoint will cause the vapor to condense to a liquid and trip the SPDT contact. Reset option is manual or automatic.

Accuracy	±0.9°F [±0.5°C]
Cable Entry	cable gland cap nut with strain relief Ø6 to 8 mm
Ambient Temperature	-30°F to 160°F [-35°C to 70°C]
Operating Temperature	-30°F to 160°F [-35°C to 70°C]
Degree of Protection	NEMA 4, IP65

Duct Sensor Product Range

Temperature / Humidity

Measuring Values				Measuring Ranges										Additional Features	
				Temperature					Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy			
Humidity / Temperature	Temperature	Output Signal Temperature (default)	Output Signal Humidity (default)	Multirange	40°F to 140°F [0°C to 50°C]	-40°F to 160°F [-40°C to 60°C]	0°F to 100°F [-15°C to 35°C]	0°F to 200°F [-20°C to 80°C]	0 to 100% RH non-condensing	0 to 50 g/m³ (default) 0 to 80 g/m³	0°F to 200°F [-20°C to +80°C] 40°F to 140°F [0°C to 50°C] (default)	0 to 85 kJ/kg	Communication	Probe Length [mm]
22DTH-51M	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)	4	●	●	●	•	•	●	●	●		5.5" [140]
22DTH-53M	Active	4-20 mA	4-20 mA	4	●	●	●	•	•	●	●	●		5.5" [140]
22DTH-51MB	Passive	PT1000	DC 0-5V (DC 0-10V)						•	●	●	●		5.5" [140]
22DTH-51ME	Passive	Ni1000	DC 0-5V (DC 0-10V)						•	●	●	●		5.5" [140]
22DTH-51ML	Passive	NTC10k2	DC 0-5V (DC 0-10V)						•	●	●	●		5.5" [140]
22DTH-51MM	Passive	NTC10k3	DC 0-5V (DC 0-10V)						•	●	●	●		5.5" [140]
22DTH-51MQ	Passive	NTC20k	DC 0-5V (DC 0-10V)						•	●	●	●		5.5" [140]
22DTH-53MB	Passive	PT1000	4-20 mA						•	●	●	●		5.5" [140]
22DTH-53ME	Passive	Ni1000	4-20 mA						•	●	●	●		5.5" [140]
22DTH-53ML	Passive	NTC10k2	4-20 mA						•	●	●	●		5.5" [140]
22DTH-53MM	Passive	NTC10k3	4-20 mA						•	●	●	●		5.5" [140]
22DTH-53MQ	Passive	NTC20k	4-20 mA						•	●	●	●		5.5" [140]
22DTH-55M	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)						•	●	●	●	Modbus RTU	5.5" [140]
22DTH-56M	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)						•	●	●	●	BACnet MS/TP	5.5" [140]

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

22DTH

Includes Adjustable Mounting Flange

Duct mounted combination temperature and humidity sensors are factory set to relative humidity to manage occupant comfort settings. Field selectable with absolute humidity output which determines the moisture content, dew point output manages space moisture, enthalpy output defines the amount of outside air for free cooling by the air handling equipment with integrated economizer sequence. Available with active or passive temperature outputs.

Accuracy	
Temperature	Active = ±0.9°F @ 70°F [±0.5°C @ 21°C] PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Humidity	±2% between 10 to 90% RH @ 70°F [21°C]
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4-20 mA)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	-40°F to 175°F [-40°C to 80°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9/-2-13, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Duct Sensor Product Range
Air Quality

Measuring Values			Measuring Ranges						Additional Features		
			Temperature		Relative Humidity	CO_2		VOC			
CO_2		Output Signals	40°F to 140°F	0°C to 50°C	0 to 100% RH non-condensing	0 to 2000 ppm	0 to 5000 ppm	0 to 100%	Communication	Probe Length [mm]	Display
22DC-51	Active	DC 0-5V, DC 0-10V				●				7" [180]	
22DC-53	Active	4-20 mA				●				7" [180]	
CO_2 / Temperature											
22DTC-51	Active	DC 0-5 V, DC 0-10 V	●			●				7" [180]	
22DTC-11*	Active	DC 0-5 V, DC 0-10 V		●		●				7" [180]	
22DTC-53	Active	4-20 mA	●			●				7" [180]	
22DTC-13*	Active	4-20 mA		●		●				7" [180]	
22DTC-5105	Active	DC 0-5 V, DC 0-10 V	●				●			7" [180]	
22DTC-1105*	Active	DC 0-5 V, DC 0-10 V		●			●			7" [180]	
CO_2 / Humidity / Temperature											
22DTM-51	Active	DC 0-10 V	●		●	●				7" [180]	
22DTM-11*	Active	DC 0-10 V		●	●	●				7" [180]	
22DTM-5106	Active	DC 0-10 V	●		●	●				7" [180]	LCD
22DTM-1106*	Active	DC 0-10 V		●	●	●				7" [180]	LCD
22DTM-56	Active	DC 0-5/ 10 V	●		●	●			BACnet MS/TP	7" [180]	
CO_2 / VOC											
22DCV-51	Active	DC 0-5 V, DC 0-10 V				●		●		7" [180]	
CO_2 / VOC / Mix CO_2 + VOC / Temperature											
22DCK-51	Active	DC 0-5 V, DC 0-10 V	●			●		●		7" [180]	
22DCK-11*	Active	DC 0-5 V, DC 0-10 V		●		●		●		7" [180]	
CO_2 / VOC / Temperature											
22DCM-51	Active	DC 0-5 V, DC 0-10 V	●			●		●		7" [180]	
22DCM-11*	Active	DC 0-5 V, DC 0-10 V		●		●		●		7" [180]	

*Temperature range configured for degrees Celsius.

22DTM

Includes Adjustable Mounting Flange

Combined duct mounted air quality sensors for detection of CO_2, VOC, temperature, and humidity. The dual channel CO_2 sensor monitors building occupancy levels and is used to control the amount of outside air supplied by the air handling equipment to ensure air quality and maximize energy savings over the life-cycle of the building.

Accuracy	
Temperature	±0.9 °F @ 70 °F [±0.5 °C @ 21 °C]
Humidity	±2% between 10 to 90% RH @ 70°F [21°C]
CO_2	±50 ppm and 3% of reading
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	32°F to 120°F [0°C to 50°C]
Operating Temperature	32°F to 120°F [0°C to 50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Duct Switch Product Range

Pressure

Measuring Values			Measuring Ranges				Units
			Pressure				
Differential Pressure Switch		Output Signals (default)	0.08 to 1.20 inch WC [20..300 Pa]	0.20 to 2.00 inch WC [50..500 Pa]	0.80 to 4.00 inch WC [200...1000 Pa]	2.00 to 10.00 inch WC [500...2500 Pa]	package of 45
01APS-501	Switch	SPDT			●		
01APS-501.1		SPDT			●		●
01APS-504		SPDT				●	
01APS-504.1		SPDT				●	●
01APS-50R		SPDT	●				
01APS-50R.1		SPDT	●				●
01APS-50U		SPDT		●			
01APS-50U.1		SPDT		●			●

01APS

Includes 6.5 ft. [2 m] tubing and two 4" [100 mm] plastic probes

Duct mounted pressure switches monitor overpressure, vacuum and differential pressure of air or other noncombustible, non-aggressive gases. The differential pressure switches with automatic reset and field adjustable differential setpoint are used in air handling applications to monitor air filter cleanliness and fan status.

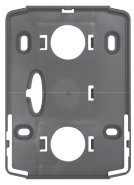
Accuracy	See data sheet for Accuracy and Repeatability
Cable Entry	cable gland M20 x 1.5 mm with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	-5°F to 185°F [-20°C to 85°C]
Operating Temperature	-5°F to 185°F [-20°C to 85°C]
Degree of Protection	NEMA 13, IP54
Agency Listing	ETL listed

Duct Sensor Product Range
Pressure

Measuring Values			Measuring Ranges																					Additional Features		
				Pressure																						
Differential Pressure Sensor		Output Signals (default)	Multirange	-0.1 to 0.1 inch WC [-25 to 25 Pa]	-0.2 to 0.2 inch WC [-50 to 50 Pa]	-0.4 to 0.4 inch WC [-100 to 100 Pa]	-0.6 to 0.6 inch WC [-150 to 150 Pa]	0 to 0.1 inch WC [0 to 25 Pa]	0 to 0.2 inch WC [0 to 50 Pa]	0 to 0.4 inch WC [0 to 100 Pa]	0 to 1 inch WC [0 to 250 Pa]	0 to 2 inch WC [0 to 500 Pa]	0 to 4 inch WC [0 to 1000 Pa]	0 to 6 inch WC [0 to 1500 Pa]	0 to 8 inch WC [0 to 2000 Pa]	0 to 10 inch WC [0 to 2500 Pa]	0 to 12 inch WC [0 to 3000 Pa]	0 to 16 inch WC [0 to 4000 Pa]	0 to 20 inch WC [0 to 5000 Pa]	0 to 28 inch WC [0 to 7000 Pa]	Auto Zero - Calibration	Communication	Display
22ADP-58Q	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8	●	●	●	●	●	●	●	●														
22ADP-58QA	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8	●	●	●	●	●	●	●	●												●		
22ADP-58QB	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8	●	●	●	●	●	●	●	●												●		LCD
22ADP-58QL	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8	●	●	●	●	●	●	●	●														LCD
22ADP-55Q	Active	DC 0-5 V (DC 0-10 V)	8	●	●	●	●	●	●	●	●													Modbus RTU	
22ADP-55QA	Active	DC 0-5 V (DC 0-10 V)	8	●	●	●	●	●	●	●	●												●	Modbus RTU	
22ADP-55QB	Active	DC 0-5 V (DC 0-10 V)	8	●	●	●	●	●	●	●	●												●	Modbus RTU	LCD
22ADP-55QL	Active	DC 0-5 V (DC 0-10 V)	8	●	●	●	●	●	●	●	●													Modbus RTU	LCD
22ADP-584	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8			●				●	●	●	●	●	●	●									
22ADP-584L	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8			●				●	●	●	●	●	●	●									LCD
22ADP-554	Active	DC 0-5 V (DC 0-10 V)	8			●				●	●	●	●	●	●	●								Modbus RTU	
22ADP-554L	Active	DC 0-5 V (DC 0-10 V)	8			●				●	●	●	●	●	●	●								Modbus RTU	LCD
22ADP-556	Active	DC 0-5 V (DC 0-10 V)	8										●	●	●	●	●	●	●	●	●			Modbus RTU	
22ADP-556L	Active	DC 0-5 V (DC 0-10 V)	8										●	●	●	●	●	●	●	●	●			Modbus RTU	LCD
22ADP-586	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8										●	●	●	●	●	●	●	●	●				
22ADP-586L	Active	DC 0-5 V (DC 0-10 V, 4-20 mA)	8										●	●	●	●	●	●	●	●	●				LCD

22ADP

Includes 6.5 ft. [2 m] tubing and two 4" [100 mm] plastic probes



A-22D-A10 Mounting Plate

Modbus

cULus

5 YEAR WARRANTY

Duct mounted pressure sensors monitor overpressure, vacuum and differential pressure of air or other noncombustible, non-aggressive gases. The differential pressure sensors with optional LCD, Modbus communications, true auto-zero or manual calibration are used to control air handler supply and return fan speed, maintain a differential pressure between spaces such as hospital isolation rooms or building entrances.

Accuracy	Refer to datasheet for accuracy on all field selectable pressure ranges
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	-15°F to 120°F [-10°C to 50°C]
Operating Temperature	-15°F to 120°F [-10°C to 50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Pipe Sensor Product Range

Temperature / Condensation

Measuring Values			Measuring Ranges									Additional Features
				Temperature								
Temperature		Output Signals (default)	Multirange	-30°F to +130°F [-50°C to 50°C]	0°F to 250°F [-10°C to +120°C]	0°F to 100°F [-15°C to 35°C]	40°F to 90°F [-20°C to 80°C]	40°F to 140°F [0°C to 50°C]	0°F to 150°F [0°C to 160°C]	40°F to 240°F [0°C to 100°C]	30°F to 480°F [0°C to 250°C]	Cable Length [m]
01ST-5A3	Passive	PT100										6.5 ft. [2]
01ST-5B3		PT1000										6.5 ft. [2]
01ST-5E3		Ni1000										6.5 ft. [2]
01ST-5L3		NTC10k2										6.5 ft. [2]
01ST-5M3		NTC10K3										6.5 ft. [2]
01ST-5Q3		NTC20K										6.5 ft. [2]
01HT-5A	Passive	PT100										
01HT-5B		PT1000										
01HT-5E		Ni1000										
01HT-5L		NTC10k2										
01HT-5M		NTC10K3										
01HT-5Q		NTC20K										
22HT-52	Active	DC 0-5V (DC 0-10V)	8	•	•	•	•	•	•	•	•	
22HT-54		4-20 mA	8	•	•	•	•	•	•	•	•	

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

01HT & 22HT

01ST

Includes pipe clamp (≤ ø 4.33" [110 mm])

See accessories for larger pipe clamp:
A-22P-A42 (≤ ø 9.84" [250 mm])

c UL us

5 YEAR WARRANTY

01HT and 22HT are surface mounted strap-on temperature sensors that incorporates a spring loaded brass contact to ensure fast response and accurate hydronic temperature readings. 01ST range offers a 2" brass probe arched surface for fast response and has a plenum rated cable. Both models include adjustable pipe clamp.

Accuracy	
01ST, 01HT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
22HT	±1% of upper selected measuring range
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4-20 mA)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	
Passive	-30°F to 210°F [-35°C to 100°C]
Active	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	
Passive (01HT/01ST)	-30°F to 210°F [-35°C to 90°C]
Active (22HT)	-30°F to 160°F [-35°C to 70°C]
Degree of Protection	
01ST	NEMA 4, IP65
01HT	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Pipe Sensor Product Range
Condensation

Measuring Values			Additional Features	
Condensation		Output Signals (default)	Cable Length [m]	Remote Probe
22HH-50	Switch	SPDT		
22HH-500X		SPDT	6.5 ft. [2]	●

22HH

22HH-500X

Includes Mounting Ties

Condensation sensor with LED indication has a SPDT switched contact to prevent condensation on chilled beams or other cold surfaces. Also available with 6.5' [2m] cable.

Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	-5°F to 120°F [-20°C to 50°C]
Operating Temperature	-5°F to 140°F [-20°C to 60°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Pipe Sensor Product Range

Pressure

Measuring Values			Measuring Range			
			Pressure			
Gauge Pressure		Output Signals	0 to 15 psi	0 to 50 psi	0 to 100 psi	0 to 200 psi
22WP-511	Active	DC 0-10V	●			
22WP-514		DC 0-10V		●		
22WP-516		DC 0-10V			●	
22WP-517		DC 0-10V				●
22WP-531		4-20 mA	●			
22WP-534		4-20 mA		●		
22WP-536		4-20 mA			●	
22WP-537		4-20 mA				●

22WP

A-22WP-A01 Adaptor
¼" NPT to ½" NPT

5 YEAR WARRANTY

Pressure sensors incorporate stainless steel strain gauge technology to measure liquids and provide gauge pressure readings for a wide variety of applications in industrial process and HVAC controls.

Accuracy	±0.5% Full Scale @ 77°F [25°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	mvs plug according to DIN EN175301-803 / type A
Thread/Port Connection	¼" NPT (external)
Ambient Temperature	-40°F to 220°F [-40°C to 105°C]
Operating Temperature	-40°F to 255°F [-40°C to 125°C]
Degree of Protection	NEMA 4, IP65

Pipe Sensor Product Range

Differential Pressure

Measuring Values			Measuring Range			
			Pressure			
Differential Pressure		Output Signals	0 to 15 psi	0 to 30 psi	0 to 50 psi	0 to 100 psi
22WDP-511	Active	DC 0-10V	●			
22WDP-512		DC 0-10V		●		
22WDP-514		DC 0-10V			●	
22WDP-515		DC 0-10V				●
22WDP-531		4-20 mA	●			
22WDP-532		4-20 mA		●		
22WDP-534		4-20 mA			●	
22WDP-535		4-20 mA				●

22WDP

See Accessories for ¼" NPT brass and stainless steel pipe adaptors

5 YEAR WARRANTY

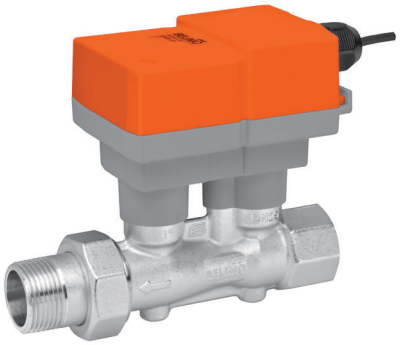
Differential pressure sensors measure water and or non-aggressive gases are used with the building management system (BMS) to maintain adequate air or water pressure to critical zones.

Accuracy	<±1% of measuring range @ 23°F to 167 °F [-5°C to 75°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	angle plug according to DIN 43650, construction A
Ambient Temperature	15°F to 120°F [-10°C to 50°C]
Operating Temperature	15°F to 175°F [-10°C to 80°C]
Thread/Port Connection	¼" NPT (internal)
Degree of Protection	NEMA 4, IP65

Pipe Sensor Product Range

Flow

Measuring Values				Flow (GPM)						Valve Size
	Flow Meters		Output Signals	0.07 - 6.6	0.13 - 12.4	0.22 - 21.8	0.35 - 34.2	0.48 - 47.5	0.92 - 91.2	Inches [mm]
NPT	FM050	Active	DC 0-10V	●						½" [15]
	FM075		DC 0-10V		●					¾" [20]
	FM100		DC 0-10V			●				1" [25]
	FM125		DC 0-10V				●			1¼" [32]
	FM150		DC 0-10V					●		1½" [40]
	FM200		DC 0-10V						●	2" [50]



FM
Flow Meter

Flow meters utilizes ultrasonic technology with glycol and temperature compensation to accurately measure water flow for HVAC plant applications and sub-metering of hot or chilled water flow.

Power Supply	24 VAC/DC
Cable Connection	cable connection with 3ft. [1 m], 18 GA appliance cable
Degree of Protection	NEMA 2, IP54
Service	chilled or hot water, up to 60% glycol max, condenser water (open loop/steam not allowed)
End Fitting	NPT female inlet, NPT male outlet
Sensor Housing	forged brass, nickel plated
Sensor Housing Pressure Ratng	360 psi
Media Temp. Range	-4°F to +250°F [-20°C to +120°C]
Ambient Temp. Range	-22°F to +122°F [-30°C to +50°C]
Inlet Length to Meet Specified Measurement Accuracy	inlet: 5x nominal pipe size (NPS) outlet: no requirement
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Output Signal	analog (0 to 10 VDC)
0V	sensor has no supply voltage
0.3V	sensor has supply voltage but is in error state
0.5V	0% of V'nom*
10V	100% of V'nom*
Flow Measurement Tolerance	±2%**
Flow Measurement Repeatability	±0.5%
Agency Listing	cULus: UL 94 D5 E108966, UL Enclosure Type 2

*V'nom is the maximum/nominal flow rate for each size
**See data sheet for Accuracy information

Outdoor Air Sensor Product Range
Temperature

Measuring Values			Measuring Ranges									Additional Features
				Measuring Range Temperature								
Outdoor Air		Output Signal Temperature (default)	Multirange	30°F to 130°F [-50°C to +50°C]	-30°F to +130°F [-50°C to +50°C]	0°F to 100°F [-15°C to +35°C]	0°F to 150°F [0°C to 160°C]	0°F to 250°F [-10°C to +120°C]	30°F to 480°F [0°C to 250°C]	40°F to 90°F [-20°C to +80°C]	40°F to 240°F [0°C to 100°C]	Probe Length [mm]
01UT-5A	Passive	PT100										
01UT-5B		PT1000										
01UT-5E		Ni1000										
01UT-5L		NTC10k2										
01UT-5M		NTC10K3										
01UT-5Q		NTC20K										
22UT-52	Active	DC 0-5V (DC 0-10V)	8	●	●	●	●	●	●	●	●	1" [25]
22UT-54		4-20 mA	8	●	●	●	●	●	●	●	●	1" [25]

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

01UT
Includes Mounting Plate

22UT
Includes Mounting Plate

Outdoor air mounted temperature sensors designed to measure the outside temperature for efficient heating/cooling automation. Equipped with a NEMA 4X / IP65 rated enclosure, snap cover and mounting plate for ease of installation. Available with passive or with an external probe version for active outputs and compatible to major building automation systems.

Accuracy Temperature	
01UT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
22UT	±1% of upper selected measuring range
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%) DC 15...24 V (±10%), (4...20 mA)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	
Passive(01UT)	-30°F to 120°F [-35°C to 50°C]
Active (22UT)	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	
Passive(01UT)	-30°F to 120°F [-35°C to 50°C]
Active (22UT)	-30°F to 120°F [-35°C to 50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Outdoor Air Sensor Product Range

Temperature / Humidity

Measuring Values				Measuring Ranges									Additional Features	
					Measuring Range Temperature				Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy		
Outdoor Air	Temperature	Output Signal Temperature (default)	Output Signal Humidity (default)	Multirange	-40°F to +160°F [-40°C to +60°C]	0°F to 200°F [-20°C to +80°C]	40°F to 140°F [0°C to 50°C]	0°F to 100°F [-15°C to +35°C]	0 to 100% RH (non condensing)	0 to 50 g/m³ (default) 0 to 80 g/m³	0°F to 200°F [-20°C to +80°C] 40°F to 140°F [0°C to 50°C] (default)	0 to 85 kJ/kg	Communication	Weather Shield
22UTH-51	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)	4	●	•	●	●	•	●	●	●		
22UTH-53	Active	4-20 mA	4-20 mA	4	●	•	●	●	•	●	●	●		
22UTH-510B	Passive	PT1000	DC 0-5V (DC 0-10V)						•	●	●	●		
22UTH-510E	Passive	Ni1000	DC 0-5V (DC 0-10V)						•	●	●	●		
22UTH-510L	Passive	NTC10k2	DC 0-5V (DC 0-10V)						•	●	●	●		
22UTH-510M	Passive	NTC10K3	DC 0-5V (DC 0-10V)						•	●	●	●		
22UTH-510Q	Passive	NTC20K	DC 0-5V (DC 0-10V)						•	●	●	●		
22UTH-530B	Passive	PT1000	4-20 mA						•	●	●	●		
22UTH-530E	Passive	Ni1000	4-20 mA						•	●	●	●		
22UTH-530L	Passive	NTC10k2	4-20 mA						•	●	●	●		
22UTH-530M	Passive	NTC10K3	4-20 mA						•	●	●	●		
22UTH-530Q	Passive	NTC20K	4-20 mA						•	●	●	●		
22UTH-510X	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)	4	●	•	●	●	•	●	●	●		●
22UTH-530X	Active	4-20 mA	4-20 mA	4	●	•	●	●	•	●	●	●		●
22UTH-550X	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)						•	●	●	●	Modbus RTU	●
22UTH-560X	Active	DC 0-5V (DC 0-10V)	DC 0-5V (DC 0-10V)						•	●	●	●	BACnet MS/TP	●

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

22UTH
with weather shield

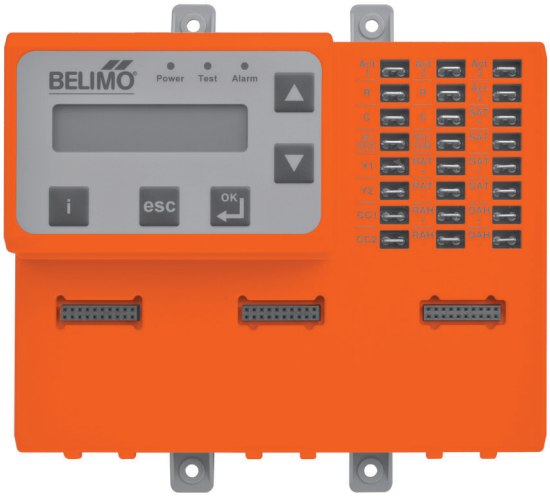
22UTH

Includes Rain Protector and Mounting Plate

Outside air mounted combined humidity and temperature sensors with selectable relative humidity, absolute humidity, dewpoint and enthalpy outputs. Optional BACnet and Modbus communications and optional weather/sun shield.

Accuracy	
Temperature	
Active	±0.9°F @ 70°F [±0.5°C @ 21°C]
Passive, PT	±0.5°F @ 32°F [±0.3°C @ 0°C]
Passive, Ni	±0.7°F @ 32°F [±0.4°C @ 0°C]
Passive, NTC	±0.3°F @ 77°F [±0.2°C @ 25°C]
Humidity	±2% between 10 to 90% RH @ 70°F [21°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%) DC 15...24 V (±10%), (4...20 mA)
Cable Entry	cable gland with strain relief Ø6 to 8 mm, ½" conduit adapter included
Ambient Temperature	-30°F to 120°F [-35°C to 50°C]
Operating Temperature	-30°F to 120°F [-35°C to 50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9/-2-13, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

Zip Economizer Product Range



5 YEAR WARRANTY

MODEL
ECON-ZIP-BASE

Specifications	
Power Supply	24 VAC ±20%, 50/60 Hz, class 2 power
Power Consumption*	4 VA base control (ECON-ZIP-BASE) 5.5 VA base control with Energy Module (ECON-ZIP-BASE + ECON-ZIP-EM) 5 VA base control with Communication Module (ECON-ZIP-BASE + ECON-ZIP-COM) 6.5 VA base control with Energy Module and Communication Module.
Supported Temperature Sensor	NTC 10K-2 Thermistor sensor auto-detection
Supported Humidity Sensor	0-10 VDC; sensor auto-detection
Supported CO_2 Sensor	0-10 VDC; sensor auto-detection
Environmental	RoHS, conformally coated
Ambient Temperature	-40°F to +158°F [-40°C to +70°C]
Storage Temperature	-40°F to +176°F [-40°C to +80°C]
Humidity	5 to 95% R.H. (non-condensing)
Wiring	¼" male spade connectors
Housing Material	UL94-5VA
Housing	NEMA 1
Display	2x16 character LCD display; LED backlight
Display Operating Temperature**	-22°F to +176°F [-30°C to +80°C]
Agency Listings	EMC according to UL60730-1, cULus according to UL873, CAN/CSA C22.2, No. 24-93, IECC
Energy Code Compliant	ASHRAE 90.1, CA Title 24, NECB

*The power consumption is for the control only and does not include connected loads such as actuator, compressors, fans, and sensors.
**At low temperatures the display has decreased response time. Below -22°F [-30°C] it will not function.

FAIL-SAFE ACTUATORS***

Model #	Torque	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating
					Ⓜ		
AFB24-SR	180 in-lbs [20 Nm]	2-10 VDC	2-10 VDC	24 VAC/DC	95 seconds	<20 seconds	8.5
NFB24-SR	90 in-lbs [10 Nm]	2-10 VDC	2-10 VDC	24 VAC/DC	95 seconds	<20 seconds	6
LF24-SR US	35 in-lbs [4 Nm]	2-10 VDC	2-10 VDC	24 VAC/DC	150 seconds	<25 seconds	5
TFB24-SR	22 in-lbs [2.5 Nm]	2-10 VDC	2-10 VDC	24 VAC/DC	95 seconds	<25 seconds	4

*** Up to three actuators can be used. Visit www.belimo.us for details.
Belimo fail-safe actuators must be used to facilitate faster commissioning procedures (-SR acceptable).

SENSORS

	**Temperature**	ECON-ZIP-10K	The ECON-ZIP-10K allows for reliable air temperature readings. The sensor may be used for outdoor air (OAT), return air (RAT), or supply air (SAT) temperature measurements and control, with no configuration required. A minimum of one SAT and one OAT sensor is required for the ZIP Economizer to function. An RAT sensor can be added for differential temperature change over strategy. For best control results, sensors should be placed in the air stream. The T-Bracket mounting is universal and can be inserted through the ductwork, fan housing or surface mounted.
	**Carbon Dioxide (CO2)Sensor**	22DC-51	The 22DC-51 Carbon Dioxide (CO_2) air quality sensor may be incorporated to further increase energy savings and occupant comfort through Demand Control Ventilation (DCV). By directly measuring CO_2 concentration levels in the served space the outside air damper position will modulate to accommodate for changes in space occupancy (CO_2). ECON-ZIP-EM required for Demand Control Ventilation functionality.
	**Temperature/ Humidity**	ECON-ZIP-TH	The ECON-ZIP-TH Sensor may be used to measure temperature and humidity in the outdoor or return air stream. The temperature and humidity output is via 2 discrete analog channels that can be independently measured with a multimeter. One sensor is used in the outdoor air intake for single enthalpy changeover strategy. An additional sensor can be added in the return air stream for differential enthalpy changeover strategy. Note: When using the ECON-ZIP-TH it is not necessary to use a separate temperature sensor ECON-ZIP-10K for outdoor air (OAT), return air (RAT).

MODULES

	**Energy**	ECON-ZIP-EM	The ZIP Economizer Energy Module provides additional I/Os to offer higher control functionalities that will save even more energy. The Energy Module is needed for demand control ventilation, indoor fan- 2 speed control or remote diagnostic alarm notification, power exhaust fan, remote override for damper positioning, and preoccupancy purge. The auto-detection and plug and play capability offers quick set up.
	**Communication**	ECON-ZIP-COM	The ZIP Economizer Communication Module provides remote diagnostic alarm indication with future capabilities such as data trending and building automation integration. Required for BACnet MS/TP communication.

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Columbus Temperature Control
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Columbus, OH 43201
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