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 ENGINEER:
 CONTRACTOR:

 ORDER NUMBER:
 SUBMITTED BY:
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Ultra Setter™ Compact

Pressure Independent Control Valve

1/2" - 1 1/4"

DESCRIPTION

The Bell & Gossett Ultra Setter™ Compact is a pressure independent electrically actuated combination temperature control, balance, and commissioning valve for use in HVAC systems. It features an externally adjustable GPM dial allowing you to easily set the maximum flow rate. Once the maximum has been set, the flow rate is controlled through use of an external control actuator, and the valve's internal differential pressure regulator maintains the desired flow rate as system pressures fluctuate. The result is more accurate flow control, reduced system energy use, more efficient system operation, and reduced installation and commissioning time.

The Ultra Setter™ Compact is available in two models, the Model PVC and Model AX. All Models are equipped with two capped 1/4" readout valves and threaded female NPT end connections. They offer a choice of 0-10V Analog Modulating and 3-Position Tri-State actuators from Siemens and Honeywell, as well as an additional On-Off actuator from Siemens.

The Model AX has an attached isolation valve which can be fitted with an optional extended handle and hanging ID tag for commissioning.

CONSTRUCTION

Valve Housing: Brass
Flow Setting: Brass
ΔP Controller: PPS 40% Glass
Stem: Stainless Steel
Spring: Stainless Steel
Diaphragm: HNBR
O-Rings: EPDM
Ball (Model AX Only): Chrome Plated Brass

MAXIMUM WORKING PRESSURE

360 psig (2,500 kPa)

TEMPERATURE RANGE

Fluid: 32°F (0°C) to 248°F (120°C)
 Ambient: 34°F (1°C) to 122°F (50°C)

CONTROL RANGE

Min: See Page 6
 Max: 60 PSID

Accuracy

+/- 5%

LEAKAGE RATE

ANSI Class IV (ANSI/FCI 70-2) to 60 PSID

CLOSE OFF PRESSURE

Up To 140 PSID (no actuator only)

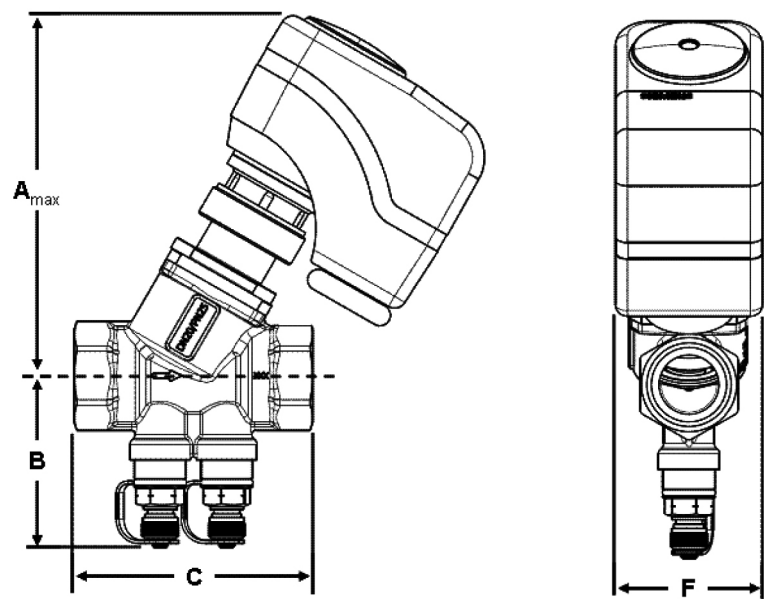
For additional actuator information, including construction specifications and operating limits, please refer to the manufacturer product literature listed on Page 6.

SCHEDULE: MODEL PVC ULTRA SETTER™ COMPACT

Part Number	Model Number	Flow Range (GPM)	Tagging Information	Quantity
117520	PVC-1/2UL	0.13 - 0.88		
117521	PVC-1/2L	0.29 - 1.59		
117522	PVC-1/2H	0.44 - 2.53		
117523	PVC-1/2UH	0.97 - 5.85		
117524	PVC-3/4L	0.44 - 2.53		
117525	PVC-3/4H	0.97 - 5.85		
117526	PVC-1	2.64 - 15.89		
117527	PVC-1-1/4	2.42 - 17.62		

SCHEDULE: MODEL AX ULTRA SETTER™ COMPACT

Valve Size Fixed End	Model Number	Flow Range (GPM)	Tagging Information	Quantity
1/2" UL Sweat Female	AX-1/2UL	0.13 - 0.88		
1/2" UL NPT Female	AX-1/2UL	0.13 - 0.88		
1/2" L Sweat Female	AX-1/2L	0.29 - 1.59		
1/2" L NPT Female	AX-1/2L	0.29 - 1.59		
1/2" H Sweat Female	AX-1/2H	0.44 - 2.53		
1/2" H NPT Female	AX-1/2H	0.44 - 2.53		
1/2" UH Sweat Female	AX-1/2UH	0.97 - 5.85		
1/2" UH NPT Female	AX-1/2UH	0.97 - 5.85		
3/4" L Sweat Female	AX-3/4L	0.44 - 2.53		
3/4" L NPT Female	AX-3/4L	0.44 - 2.53		
3/4" H Sweat Female	AX-3/4H	0.97 - 5.85		
3/4" H NPT Female	AX-3/4H	0.97 - 5.85		
1" Sweat Female	AX-1	2.64 - 15.89		
1" NPT Female	AX-1	2.64 - 15.89		
1-1/4" Sweat Female	AX-1-1/4	2.42 - 17.62		
1-1/4" NPT Female	AX-1-1/4	2.42 - 17.62		

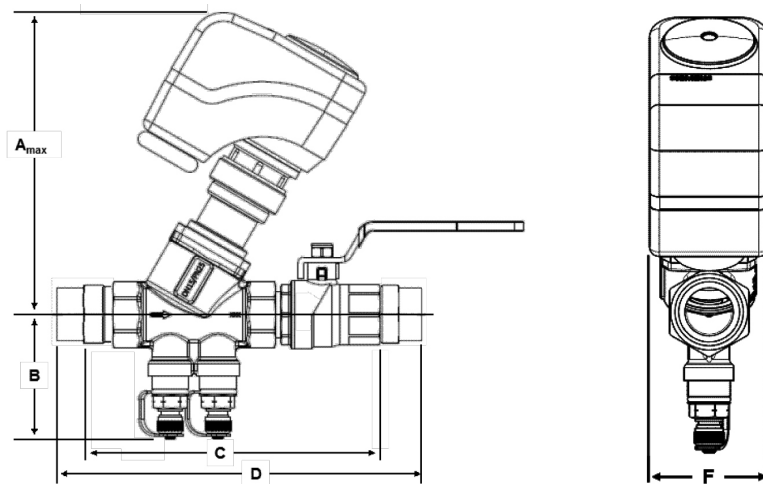


Model PVC

DIMENSIONS AND WEIGHTS

Model Number	Size	Connection Type	DIMENSIONS* IN INCHES (mm)				Flow Capacity in GPM (L/hr)		Approx. Weight Lbs. (kg.)
			Amax	B	C	F	Min.	Max.	
PVC-1/2UL	1/2"	NPT Female	5.08 (129)	0.92 (23)	2.95 (75)	1.97 (50)	0.13 (30)	0.88 (200)	1.15 (0.52)
PVC-1/2L	1/2"	NPT Female	5.08 (129)	0.92 (23)	2.95 (75)	1.97 (50)	0.29 (66)	1.59 (361)	1.15 (0.52)
PVC-1/2H	1/2"	NPT Female	5.08 (129)	0.92 (23)	2.95 (75)	1.97 (50)	0.44 (100)	2.53 (575)	1.15 (0.52)
PVC-1/2UH	1/2"	NPT Female	5.08 (129)	0.92 (23)	2.95 (75)	1.97 (50)	0.97 (220)	5.85 (1,329)	1.15 (0.52)
PVC-3/4L	3/4"	NPT Female	5.08 (129)	2.12 (54)	3.11 (79)	1.97 (50)	0.44 (100)	2.53 (575)	1.19 (0.54)
PVC-3/4H	3/4"	NPT Female	5.08 (129)	2.12 (54)	3.11 (79)	1.97 (50)	0.9 (220)	5.85 (1,329)	1.19 (0.54)
PVC-1	1"	NPT Female	5.67 (144)	2.48 (63)	3.94 (100)	2.52 (64)	2.64 (600)	15.89 (3,609)	2.5 (1.14)
PVC-1-1/4	1-1/4"	NPT Female	5.67 (144)	2.68 (68)	4.09 (104)	2.52 (64)	2.42 (550)	17.62 (4,000)	2.8 (1.27)

*All dimensions +/- 0.125 (3.2 mm) tolerance. Dimensions are subject to change. Not to be used for construction purposes unless certified.



Model AX

DIMENSIONS AND WEIGHTS

Model Number	Size	Connection Type	DIMENSIONS* IN INCHES (mm)					Flow Capacity in GPM (L/hr)		Approx. Weight Lbs. (kg.)
			Amax	B	C	D	F	Min.	Max.	
AX-1/2UL	1/2"	NPT Female	5.08 (129)	0.92 (23)	4.65 (118)	N/A	1.97 (50)	0.13 (30)	0.88 (200)	1.15 (0.52)
		Sweat Female	5.08 (129)	0.92 (23)	4.65 (118)	5.85 (149)	1.97 (50)			
AX-1/2L	1/2"	NPT Female	5.08 (129)	0.92 (23)	4.65 (118)	N/A	1.97 (50)	0.29 (66)	1.59 (361)	1.15 (0.52)
		Sweat Female	5.08 (129)	0.92 (23)	4.65 (118)	5.85 (149)	1.97 (50)			
AX-1/2H	1/2"	NPT Female	5.08 (129)	0.92 (23)	4.65 (118)	N/A	1.97 (50)	0.44 (100)	2.53 (575)	1.15 (0.52)
		Sweat Female	5.08 (129)	0.92 (23)	4.65 (118)	5.85 (149)	1.97 (50)			
AX-1/2UH	1/2"	NPT Female	5.08 (129)	0.92 (23)	4.65 (118)	N/A	1.97 (50)	0.9 (220)	5.85 (1,329)	1.15 (0.52)
		Sweat Female	5.08 (129)	0.92 (23)	4.65 (118)	5.85 (149)	1.97 (50)			
AX-3/4L	3/4"	NPT Female	5.08 (129)	2.12 (54)	5.21 (132)	N/A	1.97 (50)	0.44 (100)	2.53 (575)	1.19 (0.54)
		Sweat Female	5.08 (129)	2.12 (54)	5.21 (132)	7.31 (186)	1.97 (50)			
AX-3/4H	3/4"	NPT Female	5.08 (129)	2.12 (54)	5.21 (132)	N/A	1.97 (50)	0.9 (220)	5.85 (1,329)	1.19 (0.54)
		Sweat Female	5.08 (129)	2.12 (54)	5.21 (132)	7.31 (186)	1.97 (50)			
AX-1	1"	NPT Female	5.67 (144)	2.48 (63)	6.44 (164)	N/A	2.52 (64)	2.64 (600)	15.89 (3,609)	2.5 (1.14)
		Sweat Female	5.67 (144)	2.48 (63)	6.44 (164)	8.74 (222)	2.52 (64)			
AX-1-1/4	1-1/4"	NPT Female	5.67 (144)	2.68 (68)	7.19 (183)	N/A	2.52 (64)	2.42 (550)	17.62 (4,001)	2.8 (1.27)
		Sweat Female	5.67 (144)	2.68 (68)	7.19 (183)	9.69 (246)	2.52 (64)			

*All dimensions +/- 0.125 (3.2 mm) tolerance. Dimensions are subject to change. Not to be used for construction purposes unless certified.

**Flow ranges are with supplied ball valve 100% open. Ball valve is not intended to be used to limit flow, but rather as an isolation valve only.

Cv RATINGS AND MINIMUM REQUIRED DIFFERENTIAL PRESSURE

Flow Setting (GPM)	Valve Size 1/2"UL					
	Min (0.13)	0.2	0.4	0.6	0.8	Max (0.88)
Cv*	0.06	0.09	0.20	0.39	0.53	0.58
Required Min. ΔP	2.07	2.10	2.15	2.21	2.27	2.29

Flow Setting (GPM)	Valve Size 1/2"UL				
	Min (0.29)	0.5	1	1.5	Max (1.59)
Cv*	0.21	0.38	0.64	0.96	1.04
Required Min. ΔP	2.12	2.18	2.32	2.46	2.49

Flow Setting (GPM)	Valve Size 1/2"H				
	Min (0.44)	1	1.5	2	Max (2.88)
Cv*	0.28	0.64	0.92	1.19	1.51
Required Min. ΔP	2.16	2.33	2.45	2.56	2.68

Flow Setting (GPM)	Valve Size 1/2"UH					
	Min (0.97)	2	3	4	5	Max (5.85)
Cv*	0.56	1.17	1.74	2.20	2.71	3.13
Required Min. ΔP	2.32	2.52	2.78	2.94	3.06	3.13

Flow Setting (GPM)	Valve Size 3/4"L				
	Min (0.44)	1	1.5	2	Max (2.53)
Cv*	0.28	0.64	0.92	1.19	1.51
Required Min. ΔP	2.16	2.33	2.45	2.56	2.68

Flow Setting (GPM)	Valve Size 3/4"H					
	Min (0.97)	2	3	4	5	Max (5.85)
Cv*	0.56	1.17	1.74	2.20	2.71	3.13
Required Min. ΔP	2.32	2.52	2.78	2.94	3.06	3.13

Flow Setting (GPM)	Valve Size 1"			
	Min (2.64)	5	10	Max (15.89)
Cv*	1.67	3.14	6.07	8.70
Required Min. ΔP	2.51	2.54	2.71	3.34

Flow Setting (GPM)	Valve Size 1-1/4"				
	Min (2.42)	5	10	15	Max (17.62)
Cv*	1.60	3.18	5.88	8.44	8.82
Required Min. ΔP	2.60	2.65	2.85	3.54	4.06

*Cv is applicable only when the differential pressure across the valve is below the given minimum requirement. When differential pressure is below the minimum requirement, flow can be calculated using the equation $q = Cv \cdot \sqrt{\Delta P}$, where q is the flow in GPM and ΔP is the differential pressure in PSI.

ACTUATOR SPECIFICATIONS

B&G Part Number	Manufacturer	Manufacturer Model Number	Fail Position	Control Signal	Valves Actuator Can Be Used With	Manufacturer Data Sheet
V1000645	Siemens	SSA61U	Fail Last Position	0-10 Vdc Modulating	All 1/2" thru 1-1/4"	155-710
V1000646	Siemens	SSA81U	Fail Last Position	3 Position Floating	All 1/2" thru 1-1/4"	155-710
V59062	Siemens	SSD61U	Fail Last Position	0-10 Vdc Modulating	All 1/2" thru 1-1/4"	155-773
V59061	Siemens	SSD81U	Fail Last Position	3 Position Floating	All 1/2" thru 1-1/4"	155-773
V1001958	Siemens	SSD61.5U	Spring Return Fail Open	0-10 Vdc Modulating	All 1/2" thru 1-1/4"	155-773
V1001959	Siemens	SSD81.5U	Spring Return Fail Open	3 Position Floating	All 1/2" thru 1-1/4"	155-773
V1000647	Siemens	SFP71U	Spring Return Fail Open	On/Off	1/2"UL, 1/2"H, and 3/4"L Only	155-321P25
V1001952	Siemens	SFA71U	Spring Return Fail Closed	On/Off	1/2"UL, 1/2"H, and 3/4"L Only	155-321P25
V1000648	Honeywell	M7410F1000	Fail Last Position	0-10 Vdc/2-10 Vdc Modulating	All 1/2" thru 1-1/4"	62-0100
V1000649	Honeywell	M6410A1029	Fail Last Position	3 Position Floating	All 1/2" thru 1-1/4"	62-0100
V1000735	Honeywell	M7435F3007	Spring Return Fail Open	0-10 Vdc/2-10 Vdc Modulating	All 1/2" thru 1-1/4"	62-0100
V1000736	Honeywell	M6435A3000	Spring Return Fail Open	3 Position Floating	All 1/2" thru 1-1/4"	62-0100