

QVE1900U

Flow Switch



Description	The QVE1900U Flow Switch is used in HVAC installations to monitor the flow of fluids in hydronic heating and cooling systems.
Product Number	QVE1900U
Operation	<p>There are three terminals inside the enclosure:</p> <ul style="list-style-type: none">• Red = Common• Blue = Normally Closed (NC)• White = Normally Open (NO) <p>When there is no flow, or when the flow rate is insufficient to activate the switch, the circuit between the red and blue terminals is closed, and the circuit between the red and white terminals is open. When the flow rate increases to a level sufficient to activate the switch mechanism, the circuit between the red and blue terminals will open, and the circuit between the red and white terminals will close.</p> <p>The switch activation points can be adjusted via the + / - screw inside the enclosure.</p>
Mechanical Design	<p>The unit consists of a base, paddle, and body with a 1" MNPT system connection.</p> <p>The base houses the microswitch, electrical terminals, and adjusting screw (for switch-on/switch-off point), a paddle holder, and an opening for the cable entry. Four paddles are included that can be trimmed to accommodate different pipe diameters.</p> <p>The cover is secured to the base with two screws.</p>

Mechanical Design, Continued

Setting Element and Connection Terminals

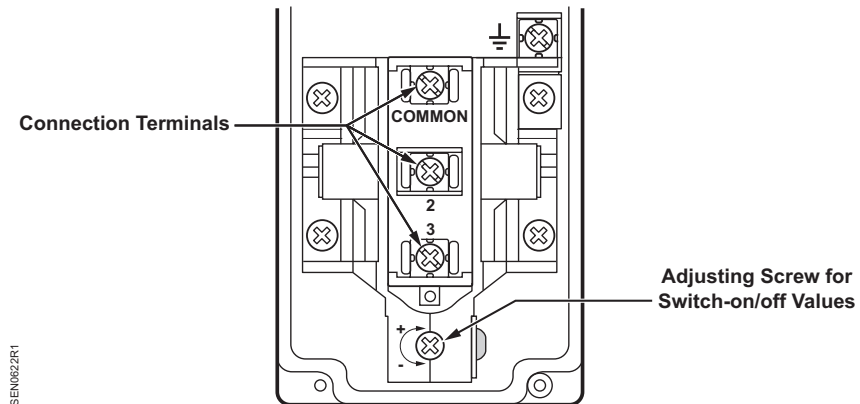


Figure 1.

Notes

- The unit is supplied with the switch point values set to the minimum (See Notes).

Engineering

- Unit must be installed in a 1-inch tee with FNPT threads. The recommended length is one inch.
- All data provided in the table of switching values are based on water at 68°F (20°C), and the use of T-junctions and **horizontal** piping.
- The flow sensor must be placed 10 straight pipe diameters from a previous transition (elbow or tee) and have 5 straight pipe diameters before the next transition.

Fitting

- Install the tee into the piping prior to mounting the device. Then, make the electrical connections.
- Mount switch in the direction of flow (an arrow is stamped on the screw-in body 1" NPT).
- Use shorter paddles in conjunction with longer paddles for maximum rigidity and increased accuracy.

Installation

Observe all applicable codes and regulations.

Commissioning

- A higher switch-off value can be set by turning the adjusting screw clockwise.
- When mounting the flow switch in vertical piping, you must compensate for the weight of the paddles on the adjusting screw for the switch-on/off values.

Commissioning, Continued

Line Size Inches (mm)	Q _{max} gpm (m ³ /h)				
1.25 (32)	25.9 (5.9)	≤ 5.2 (1.2)	≤ 21.5 (4.9)	≥ 9.2 (2.1)	≥ 22.4 (5.1)
1.50 (40)	44.0 (10.0)	≤ 4.8 (1.1)	≤ 34.0 (7.8)	≥ 14.5 (3.3)	≥ 36.0 (8.3)
2.00 (50)	38.4 (8.7)	≤ 4.4 (1.0)	≤ 30.0 (6.8)	≥ 11.2 (2.6)	≥ 31.0 (7.1)
2.56 (65)	60.8 (13.8)	≤ 4.8 (1.1)	≤ 47.0 (10.6)	≥ 16.7 (3.8)	≥ 50.0 (11.4)
3.00 (80)	58.9 (13.4)	≤ 7.9 (1.8)	≤ 46.0 (10.5)	≥ 21.1 (4.8)	≥ 49.0 (11.2)
4.00 (100)	112.4 (25.5)	≤ 19.4 (4.4)	≤ 88.0 (20.0)	≥ 34.0 (7.8)	≥ 92.0 (21.0)
5.00 (125)	136.7 (31.0)	≤ 38.0 (8.7)	≤ 107.0 (24.3)	≥ 56.0 (12.8)	≥ 111.0 (25.3)
6.00 (150)	196.0 (44.5)	≤ 44.0 (10.0)	≤ 153.0 (34.7)	≥ 69.0 (15.7)	≥ 160.0 (36.3)
8.00 (200)	394.3 (89.5)	≤ 104.0 (23.7)	≤ 317.0 (72.0)	≥ 141.0 (32.0)	≥ 325.0 (73.7)

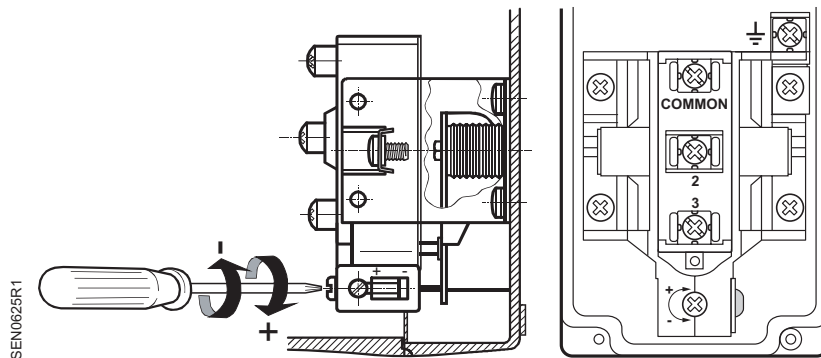


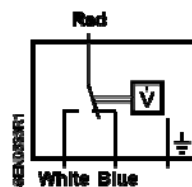
Figure 2. Switching Point Setting Ranges.

Specifications	Field of use	All liquids (not suitable for ammonia)	
	Suitable media		
Functional data	Piping diameter	1.25 inches (32 mm) to 8.00 inches (200 mm)	
	Type of switch	Microswitch with single-pole changeover, potential-free	
	Contact rating	AC	DC
	5V	0.07A	0.05A
	10V	0.1A	0.05A
	12V	0.15A	0.07A
	24V	15A (8A inductive)	2A
	Adjustment of switching point	manual, supplied with minimum switch-on/off values	
	Setting range	See <i>Switching Value Table</i>	
	Permissible medium temperature	-4°F to 248°F (-20°C to 120°C) (medium must be anti-freeze)	
	Permissible operating pressure	Maximum 160 psi	

Specifications, Continued

Protective data	Degree of protection	IP 65 per EN 60 529 (≅ NEMA 4)
Environmental conditions	General environmental conditions Operation and storage	-4°F to 185°F (-20°C to 85°C)
Norms and standards	CE conformity to Low-voltage directive Product standard	2006/95/EEC DIN EN 60335-1:2010/VDE0700-1
Materials and colors	Housing base Cover Screw-in body 1" NPT Paddle Flow switch, overall	Bayblend T85 ABS Brass High-grade steel (V2A) Silicone-free
Weight	QVE1900U and packaging QVE1900U without packaging	26.46 ounces (0.750 kg) 23.99 ounces (0.680 kg)

Wiring Diagram

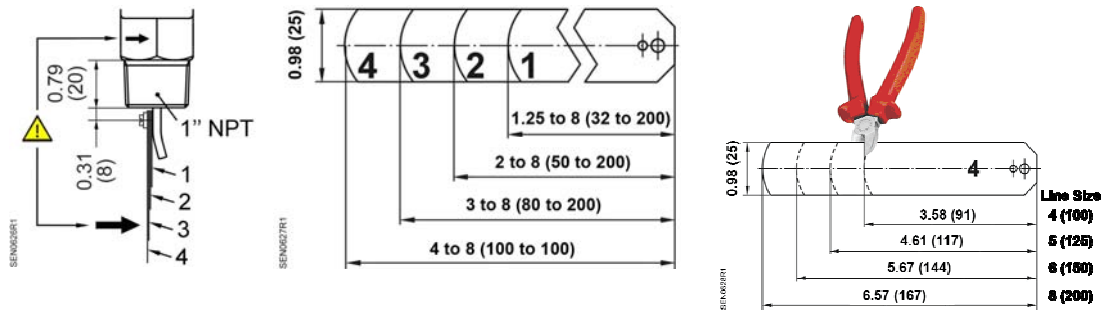


Red = Common
 Blue = Normally Closed (NC)
 White = Normally Open (NO)

Figure 3.

Dimensions

Cutting the Paddles



NOTE: Cut Paddle No. 4 as required (see below)

Line Size Inches (mm)	Inches (Millimeters)	Paddle No.	Paddle No. 4 Length
1.25 (32)	1-1/8 × 1-5/16 ± 1/16 (29 × 34 ± 1)	1	N/A
1.50 (40)	1-1/8 × 1-5/16 ± 1/16 (29 × 34 ± 1)	1	
2.00 (50)	1-1/8 × 2-3/8 ± 1/16 (29 × 60 ± 1)	1 + 2	
2.56 (65)	1-1/8 × 2-3/8 ± 1/16 (29 × 60 ± 1)	1 + 2	
3.00 (80)	1-1/8 × 3-1/2 ± 1/16 (29 × 89 ± 1)	1 + 2 + 3	
4.00 (100)	1-1/8 × 3-9/16 ± 1/16 (29 × 91 ± 1)	1 + 2 + 3 + 4	3.58 (91 mm)
5.00 (125)	1-1/8 × 4-5/8 ± 1/16 (25 × 117 ± 1)	1 + 2 + 3 + 4	4.61 (117 mm)
6.00 (150)	1-1/8 × 5-5/8 ± 1/16 (25 × 144 ± 1)	1 + 2 + 3 + 4	5.67 (144 mm)
8.00 (200)	1-1/8 × 6-9/16 ± 1/16 (25 × 167 ± 1)	1 + 2 + 3 + 4	6.57 (167 mm)

**Dimensions,
Continued**

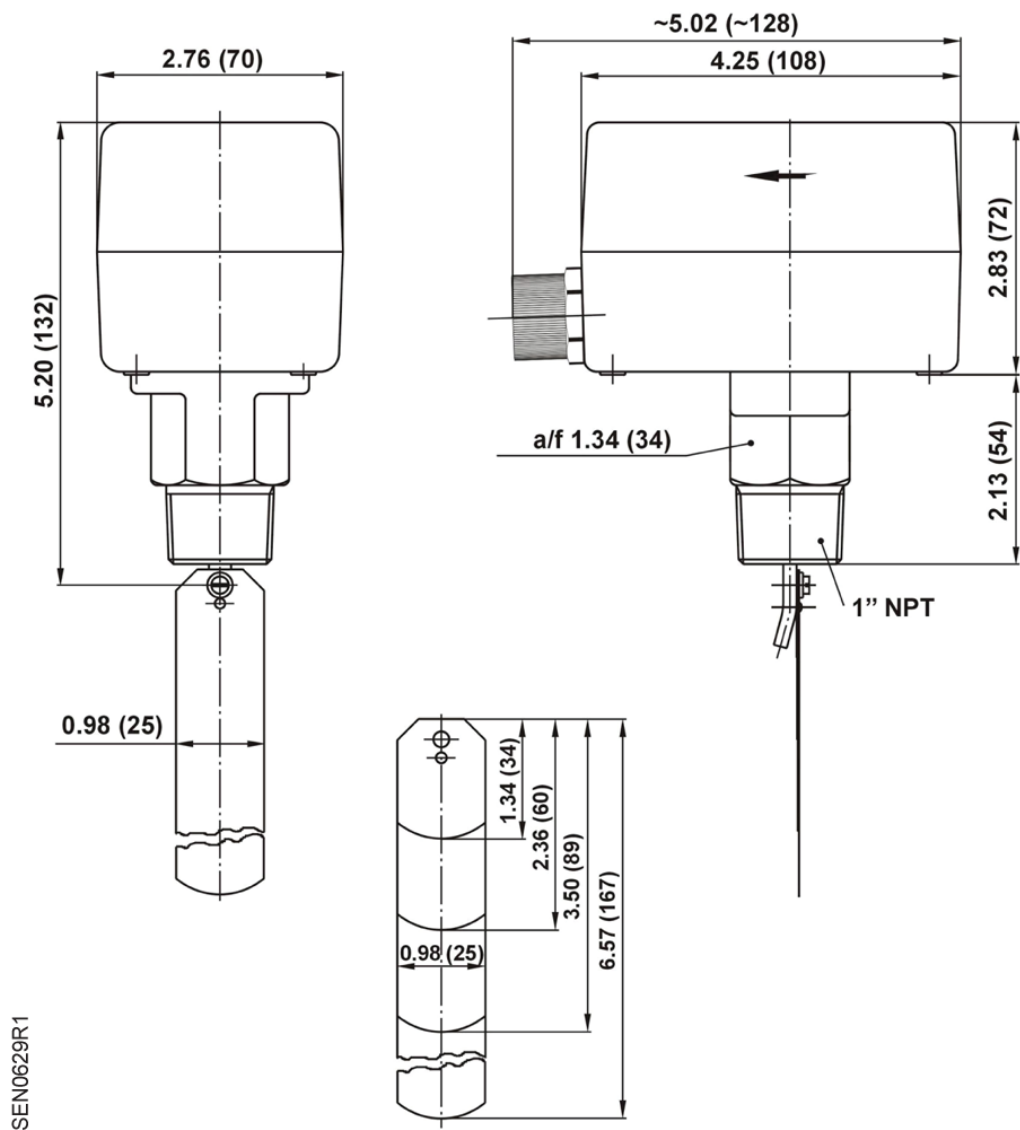


Figure 4. Dimensions in Inches (Millimeters).

Information in this publication is based on current specifications. The company reserves the right to make changes in specifications and models as design improvements are introduced. Product or company names mentioned herein may be the trademarks of their respective owners.
© 2013 Siemens Industry, Inc.