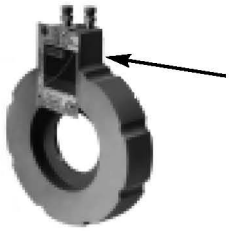
Bell & Gossett
a xylem brand

INSTRUCTION MANUAL
G95620D

B&G Circuit Sensor® Flow Meter-Type A



Warning label V56871 installed in this location. If missing, it must be replaced.

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.

SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.

DESCRIPTION

Circuit Sensor Flow Meters are precision machined calibrated wafer-type orifice plates that provide accurate flow measurement. Each Circuit Sensor Flow Meter is equipped with two B&G RV-125A Readout Valves featuring an integral check valve to minimize system fluid loss during the monitoring process. Circuit Sensor Flow Meters can be installed in horizontal or vertical pipe lines between two standard 125, 150, 250 or 300# ANSI flanges.

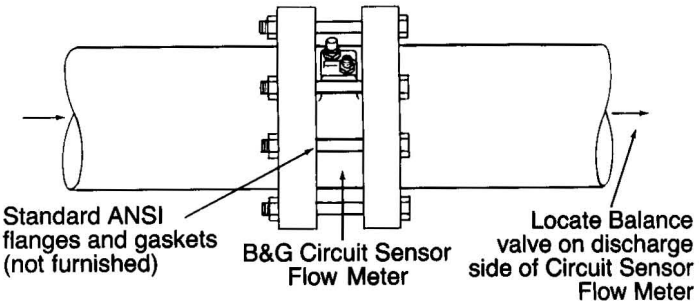
INSTALLATION INSTRUCTIONS:

1. Install the Circuit Sensor Flow Meter between standard 125, 150, 250 and 300 psi ANSI Flanges as illustrated above. Readout valve ports should not point downward.

   There are notches on the outside diameter of the Circuit Sensor which must line up with the bolts used to secure the Circuit Sensor between two flanges. The notches prevent rotation of the Circuit Sensor and make installation of the Flow Meter easier. Use gaskets and bolting compatible with the pressure rating of the flanges used.

> **WARNING:** Improper gaskets and/or flanges can release hot or high pressure system fluid. Use proper temperature and pressure rated gaskets and flanges only. Failure to follow these instructions could result in serious personal injury or death and property damage.

2. Insert the NPT end of one of the brass readout valves supplied with the Circuit Sensor thru the hole in the nameplate so that the performance curve will face outwardly.
3. Install the brass readout valves per Instruction Manual G97035 packed with the readout valves.
4. The nameplate may be bent at the base of the tab at the top to conform to the diameter of the Circuit Sensor body. This will facilitate easier reading of the calibrated flow scale.



OPERATING INSTRUCTIONS:

1. Refer to Instruction Manual G97035 for operating instructions for Bell & Gossett Readout Valves and Readout Probes.

> **WARNING:** Potential escape of hot high pressure system fluid. When monitoring system flow, care must be exercised to avoid skin or eye contact with liquids that may escape. Failure to follow these instructions could result in serious personal injury or death and property damage.

2. Read differential pressure across the readout valves.
3. Refer to the calibrated flow scale on the Circuit Sensor nameplate and read flow rate corresponding to the differential pressure reading.

   Flow correction factors may be required when handling fluids with a specific gravity and viscosity higher or lower than those values for water. If required, please contact your local Bell & Gossett representative for this information.

   Note: Refer to the chart in this instruction manual for the appropriate unrestricted straight length of piping recommended by the ASME Power Test Code for Flow Measurement required to maintain calibrated accuracy of Circuit Sensor Flow Meters.

SERVICE INSTRUCTIONS:

Refer to Instruction Manual G97035 for additional service instructions on Readout Valves.

> **WARNING:** Leakage, corrosion or indication of damage are signs of an impending serious failure of the Circuit Sensor. Periodically inspect all parts for leakage, corrosion or damage. Replace any damaged parts. Failure to follow these instructions could result in serious personal injury or death and property damage.

Unrestricted lengths of straight piping required to maintain calibrated accuracy of Circuit Sensor Flow Meter①

Model No.	Feet of Pipe②③											
	Upstream						Downstream					
	A	B	C	D	E	F	A	B	C	D	E	F
OP-2½A	1¾	2¼	4	8	2¼	2¾	½	½	½	1	½	½
OP-3A	3	3½	5	10	2¾	3½	1	1	1	2	1	1
OP-4A	3¼	5	7	14	4	4¾	1¼	1¼	1¼	2½	1¼	1¼
OP-5A	5½	7½	10	20	5	6¾	1¾	1¾	1¾	3½	1¾	1¾
OP-6A	8	10½	14	28	7	9	2	2	2	4	2	2
OP-8A	10¾	14	18½	37	9¼	12	2¾	2¾	2¾	5½	2¾	2¾
OP-10A	13¼	17½	23½	47	11¾	15	3¼	3¼	3¼	6½	3¼	3¼
OP-12A	16	21	28	56	14	24	4	4	4	8	4	4

① Based on schedule 40 welded and seamless steel pipe.

② Circuit Sensor preceded by:
- A. One elbow
- B. Two elbows in one plane.
- C. Two elbows in different planes and pump discharge applications.
- D. Two elbows in different planes preceded by a third elbow which is not in the same plane as the one immediately following.
- E. A change in pipe size.
- F. A throttled valve.

③ Per the 1959 ASME Power Test Code for Flow Measurement.

Recommended bolt sizes for installation of B&G Circuit Sensor Flow Meters

Model No.	Dimensions in inches								
	Pipe Size	125 & 150# ANSI Flanges				250 & 300# ANSI Flanges			
		Bolt Circle Diameter	Flange Bolts			Bolt Circle Diameter	Flange Bolts		
			Quantity	Size	Length		Quantity	Size	Length
OP-2½A	2½	5½	4	⅝	4½	5⅞	8	¾	4¾
OP-3A	3	6				6⅝			5
OP-4A	4	7½	8	¾	4¾	7⅞			5¼
OP-5A	5	8½				9¼			5½
OP-6A	6	9½				10⅝	12	⅞	5¾
OP-8A	8	11¾			5	13			6¼
OP-10A	10	14¼	12	⅞	5¼	15¼	16	1	6¾
OP-12A	12	17			5½	17¾		1⅛	7¼

Model No.	Cv	
	Differential Pressure	Friction Head Loss
OP-2½A	40.5	54.2
OP-3A	71	98.0
OP-4A	142	202.0
OP-5A	258	379
OP-6A	430	670
OP-8A	760	1157
OP-10A	1241	1882
OP-12A	1686	2445

Note: Use of a Circuit Sensor in the 1 to 3 ft. range is not recommended unless the differential pressure readout kit is sensitive enough to read between 0 and 3 ft. of water (preferably the readout kit should be calibrated in inches of water).

Contact your local Bell & Gossett Representative for availability of differential pressure readout kits with various scale ranges.

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Let's Solve Water

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