Pressure

BYPASS VALVE ASSEMBLY
BVA-5-VER

DESCRIPTION

Differential pressure transmitters are often installed in systems with pressures much higher than the differential pressure being monitored. During installation, start-up, or shutdown, the pressure differential may exceed the transmitter differential pressure rating, resulting in severe damage to the transmitter. A **Kele Model BVA-5 Bypass Valve Assembly** will minimize this possibility. When it is purchased with a transmitter, the transmitter is assembled in a NEMA 1 or NEMA 3R enclosure with two isolation valves, an equalizing valve, and two vent valves mounted and piped. Optional pressure snubbers are also available mounted on the **Model BVA-5**. The **Model BVA-5** is designed for use on systems with maximum pressures less than 150 psig (1034.3kPa) at 150 Deg. F (65 Deg. C).

BVA-5-VER Unassembled

SPECIFICATIONS

Power	24VDC for the transmitter only
Maximum pressure	150 psi (1035 kPa)
Dimensions	
BVA-5-(W30,DPW)	18"H x 10"W x 4"D (45.7 x 25.4 x 10.2 cm)
All others	12"H x 10"W x 4"D (30.5 x 25.4 x 10.2 cm)
Weight	
BVA-5-(W30, DPW)	15.5 lbs (7.0 kg)
All others	10.5 lbs (4.8 kg)
Enclosure	NEMA 1,
Opt.	NEMA 3R

Controls	5, ½ turn, 2-way nylon valves
V1, V2	Main pressure disconnect valves
V3	By-pass valve
V3, V4	Bleed vent valves
Ambient T.	150°F (66°C)
Ambient RH.	0-95% Non-Condensing
Warranty	1 year

CAUTION: A BVA-5 bypass valve assembly is for Use on systems with a maximum pressure of 150 psig (1034.3 kpa) and at 150°F (55°C)

OPERATING CONTROLS

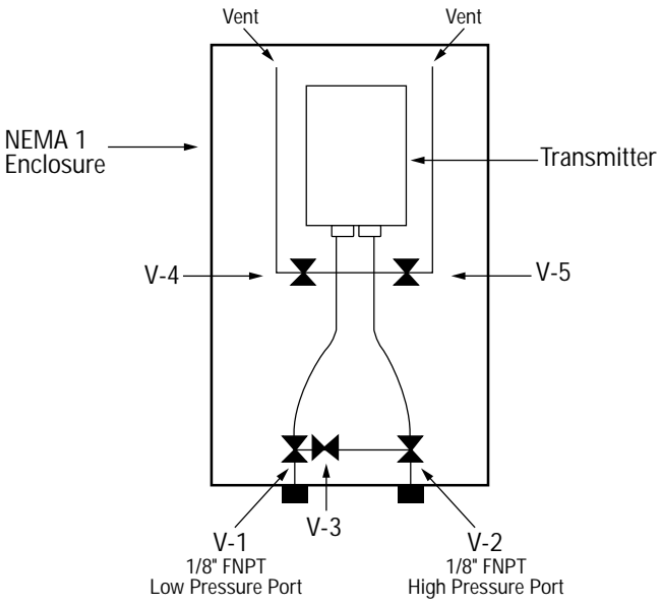
Valve Operation to Place Transmitter in Service:

1. Open V-3.
   This equalize the pressure at the transmitter.
2. Open V-4 and V-5.
   This allows trapped air to be bled off.
3. Slowly open V-1 and V-2 one at a time until only water is draining. This bleeds the air from the lines.
4. Close V-4 and V-5 after the air bleed is completed.
5. Open V-1 and V-2 fully.
   This prepares the transmitter for service
6. Close V-3 to read Δ pressure at the transmitter.
   This puts the transmitter in service.

Valve Operation to Take Transmitter Out of Service:

1. Open V-3.
   This equalize the pressure at the transmitter.
2. Close V-1 and V-2.
   This Isolates the transmitter from the system
3. Open V-4 and V-5
   This releases the pressure to the transmitter.

CONTROLS DIAGRAM



ASSEMBLY IF REQUIRED

Parts:
Enclosure w/main pressure valves V1 and V2 and by-pass crossover valve V3 always come pre-assembled.
If ordered without transmitters then a bag of piping parts for field assembly is included.

QTY	Description for Lower Cross-Over	Used for
1	18X12X4 SCREW COVER W/STANDOFF	Enclosure
1	PERF PANEL 14X11 FLAT	Back panel
2	BULKHEAD FITTING	Bottom enclosure entrance
4	5/8" FLAT WASHER ZINC PLATED	Bottom enclosure entrance
2	ORANGE PLASTIC PLUG	Bottom entrance protection plug
2	PLUG VALVE MALE-MALE 1/8IN	2-Entrance VLVs
1	PLUG VALVE FEMALE-MALE 1/8IN	Crossover VLV
1	4" CLOSE NIPPLE	M to M Brass pipe 4" cross over
2	1/8" FPT PIPE TEE	3 way Tees to cross over
2	PUSH IN MALE CONNECTOR	Teflon tube connector to cross over Hi/Lo

QTY	Description for Upper Transmitter Mounting	Used for
2	PUSH IN MALE CONNECTOR	Teflon tube connector to Transmitter Hi/Lo
2	PLUG VALVE FEMALE-MALE 1/8IN	2-Bleed VLVs
2	1/8" FPT PIPE TEE	3 way Tees to transmitter
2	2-1/2IN CLOSE NIPPLE	M to M Brass pipe 2.5"
2	1/4 X 1/8 PIPE ELBOW	Entrance into 360C
2	1/4 X 1/8 MPT 90 DEG ELL	Bleed elbow
11"	Clear High Pressure tubing from a 1K' roll	Two 5.5" pieces w/W68 connector at each end
11"	Clear Blue High tubing from a 1K' roll	Bleed pressure pigtails

TRANSMITTER INSIDE ENCLOSURE ASSEMBLY

Step 1 Select the general location of where the transmitter will be mounted.
(See photo above. Do not mount yet)

Step 2 Cut the clear white tubing into 2 pieces and install 1 on each hi and lo riser.

Step 3 Build the upper transmitter assembly as shown in the photo above.
The blue tubing is used to vent the bleed port into a customer provided container to catch the water spillage.

Step 4 Cut the clear tubing to the correct height and install to the transmitter assembly.

Step 5 Mount the transmitter to the back plate.

Step 6 Field connections use 1/8” FNPT pressure connections at the bottom of the enclosure to the high and Low ports as noted.

ENCLOSURE INSTALLTION

Panel Mounting: NEMA 1 enclosures have four internal mounting holes.
NEMA 3R enclosures have four external tabs for mounting
Use appropriate field supplied hardware for mounting to a wall or stanchion as close to the pressure pipe to be measured as practical. The distance to the water pipe under measurement can be many hundreds of feet from the BVA. The only consequence with long runs is the response time may be slower, however after pressure stabilization the accuracy is unaffected.

Piping Connections: Pipe connections are at the bottom of the enclosure via 1/8” FNPT. The high and low pipe differential connection is indicated on the bottom of the enclosure. Always double check the transmitter Hi/Lo connection inside the enclosure matches the outside nomenclature. Any size pipe may be used.

WIRING

Wire according to the transmitter detail on the transmitter installation sheet.

ACCESSORIES

47B-1 Brass piston snubber
47S-1 Stainless Steel piston snubber
PT ¼” Steel pigtail with fittings