

PW w/ Conduit Connection Wet-Wet Pressure Transmitter Compatible with Senva PWC025, 050, 100, 250, 500psig pressure sensors



IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- De-energize power supply prior to installation or service

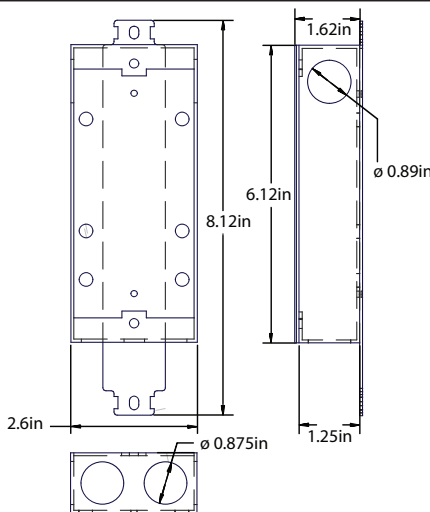
PRODUCT APPLICATION LIMITATION:

Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

IMPORTANT!

- Do NOT exceed gauge pressure rating of sensor.
- Use ONLY Senva gauge pressure sensors provided with your PW transmitter to obtain the specified transmitter accuracy.
- Follow instructions step by step to ensure proper setup.

DIMENSIONS



CONNECTION WIRING

Senva recommends 22AWG stranded, 4 conductor shielded cable to wire between the PW transmitter and PWC sensors.

Terminals are rated for 24-14AWG, 3.5 lb-in of torque.

INSTALLATION

1. Identify PWC sensors A & B and their respective PSIG rating.



If the expected system gauge pressure exceeds the PSIG rating on the PWC sensors call factory and DO NOT proceed with install.

Max PSIG Rating

Sensor PSI Rating: PWC

Maximum PSIG Rating

- 025 = 25 PSIG
- 050 = 50 PSIG
- 100 = 100 PSIG
- 250 = 250 PSIG
- 500 = 500 PSIG

2. Plumb PWC sensors to media. Sensor A is intended for supply pressure and sensor B is intended for return pressure of the system. Plumb PWC sensors to the side or top of pipe, as plumbing to the bottom will cause sediment to settle and could clog or affect sensor accuracy. **It is advisable to use a single wrap of PTFE tape on the PWC sensors threads, or other thread sealing alternative, to improve sensor accuracy.**

No bypass valve manifold is necessary. Use only Senva gauge pressure sensor elements provided with your transmitter.

Optional shutoff valves are available - Senva recommends closing service valves when flushing system to prevent contaminants and water hammer from damaging PWC sensing elements.

3. Mount the PW10 or PW20 transmitter and run conduit (if required) between the transmitter and the PWC sensors.

4. Run the appropriate length cables between the PW transmitter and PWC sensors.

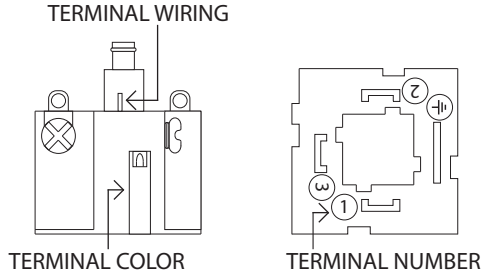
Senva recommends 22AWG stranded, 4 conductor shielded cable to wire between the PW transmitter and PWC sensors.

5. Loosen the top screw on each PWC sensor and remove the terminal block for wiring as shown below:



6. Run the cable through the conduit adapter and connect the wires to the PWC terminal block. Note that the conduit terminal block is numbered and color coded to match the terminal label colors on the PW transmitter.

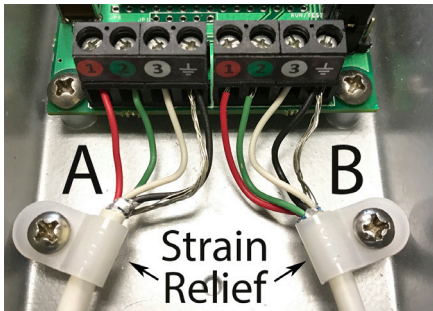
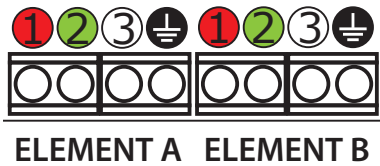
IMPORTANT: DO NOT connect the shield at the PWC sensor element end. The shielding should only be connected to the ground terminal at the PW transmitter end.



6. Reassemble the PWC conduit adapter and terminal block. Place the rubber cover back on the conduit adapter and plug the adapter onto the PWC sensor. Tighten the assembly screw.

DO NOT attempt to plumb or tighten the PWC sensors while wires are attached, as you run the risk of pulling wires from cable attachments.

7. Wire PWC sensors A & B to the PW Transmitter terminals labeled A & B respectively. For strain relief, use the cable clamps as shown below:



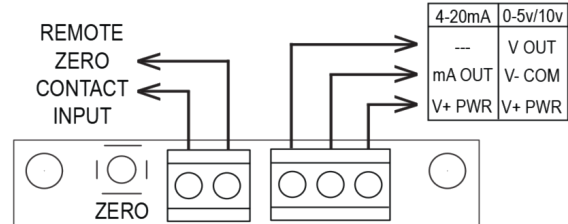
IMPORTANT: Shielding should be connected to the ground terminal at the PW transmitter end, and left unconnected at the PWC sensor element end.

8. Connect conduit fittings to the PWC sensors and PW transmitter. Use water tight fittings if required by your installation conditions.

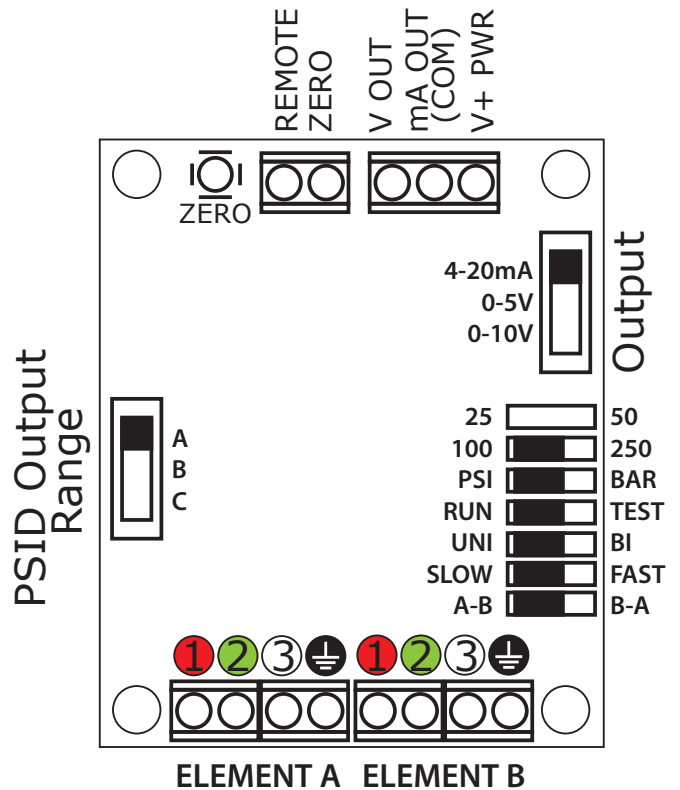
9. Wire PW transmitter for voltage or current output as shown (Remote zero wiring is optional):

4-20mA wiring:
 mA OUT = 4-20mA output return
 V+ PWR = Loop supply excitation voltage

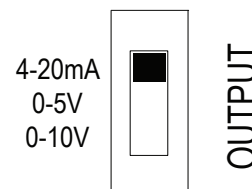
0-5v/0-10v wiring:
 V OUT = Voltage output, 0-5 or 10vdc
 V- COM = Ground/Common
 V+ PWR = Power supply excitation voltage



10. Use the following diagram for the remaining configuration of your PW system.

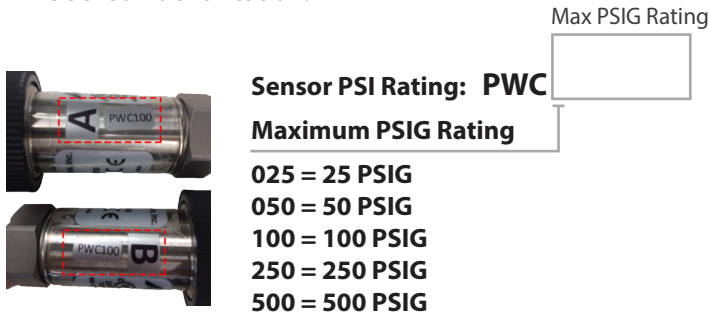


11. Select 20mA, 5V or 10V output using OUTPUT switch based on wiring configuration.

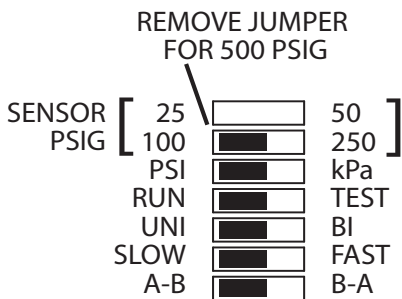


12. Verify the PSIG jumper matches the PSIG rating on the PWC sensors.

PWC Sensor Identification:

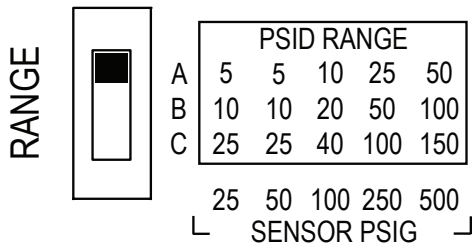


PW Transmitter Jumper Configuration:

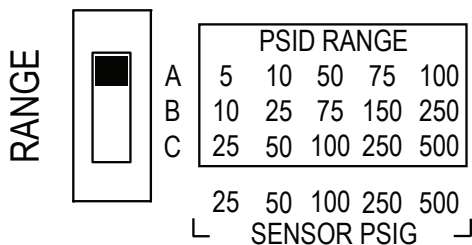


13. Select differential pressure range using RANGE switch. Identify if your PW transmitter is labeled a PW10 or PW20 model. Each Transmitter provides three PSID ranges based on the PSIG rating on PWC sensors A and B. Use the appropriate PSID range selection chart below based on the transmitter label. Selected range will scale the PW transmitter output.

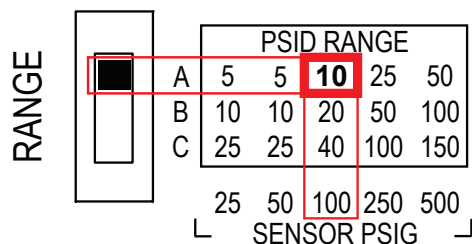
PW10 Transmitter PSID Range Selection:



PW20 Transmitter PSID Range Selection:



Example of PW10 Transmitter with PWC100 Sensors:

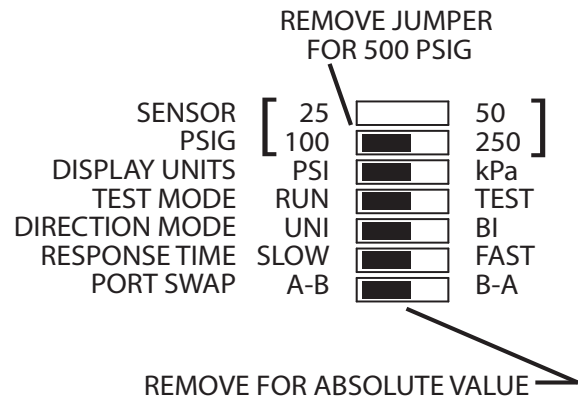


14. Inspect LCD for readings. LCD toggles between sensor A reading, sensor B reading, and PSID reading.

Sensor A reading is indicated by a tick mark on the top left of LCD. Sensor B reading is indicated by a tick mark at the bottom left of LCD. PSID reading is displayed without any mark at the left of the LCD.

O/R symbol will flash in bottom center of LCD if differential pressure reading is over range. If this occurs, select larger PSID range to avoid clipping of readings.

15. Check remaining jumper configurations for additional setup options:



Display Units: LCD will display readings in PSI or kPa. LCD will indicate PSI or kPa at top of screen.

Test Mode: In 'Test Mode' sensor forces outputs to full-scale for testing wiring and panel set up.

Direction Mode: PW transmitter can be setup in Uni or Bi directional mode.

Bi-Directional Mode Example range set at 100 PSID:

A	B	DP	OUTPUT
100	0	+100	20mA/10V/5V
100	50	+50	16mA/7.5V/3.75V
50	50	0	12mA/5V/2.5V
50	100	-50	8mA/2.5V/1.25V
0	100	-100	4mA/0V/0V

Response Time: In 'Slow Mode' the output returns a reading averaged over 64 samples. In 'Fast Mode' the output returns the most recently calculated reading for PSI.

Port Swap: If PWC sensor A was plumbed to the return (low) side and PWC sensor B was plumbed to the supply (high) side instead of re-plumbing the sensors, the Port Swap can be utilized without a physical reconfiguration. If this jumper is removed, transmitter is in Absolute Mode, where values will always be reported positive.

15. To custom zero the device (optional), hold down the zero button for 5 seconds (until the LCD blinks once). Hold down for 10 seconds (until LCD blinks twice) to reset/clear the zero value.

16. Seal remaining conduit knockouts on PW transmitter.

CALIBRATION

Senva PWC sensors are factory calibrated as a set to each PW transmitter.

SPECIFICATIONS

Power supply	Voltage output mode (0-5v)	12-30VDC/24VAC ⁽¹⁾ , 20mA max.		
	Voltage output mode (0-10v)	15-30VDC/24VAC required for 10V f.s. output		
	Current (4-20mA) output mode	12-30VDC, 20mA max.		
Outputs	Switch selectable	2-wire 4-20mA, 3-wire 0-5V/10V		
PW10 Pressure ranges (Switch selectable)	25psig sensor (PWC025)	5/10/25psid		
	50psig sensor (PWC050)	5/10/25psid		
	100psig sensor (PWC100)	10/20/40psid		
	250psig sensor (PWC250)	25/50/100psid		
	500psig sensor (PWC500)	50/100/150psid		
PW20 Pressure ranges (Switch selectable)	25psig sensor (PWC025)	5/10/25psid		
	50psig sensor (PWC050)	10/25/50psid		
	100psig sensor (PWC100)	50/75/100psid		
	250psig sensor (PWC250)	75/150/250psid		
	500psig sensor (PWC500)	100/250/500psid		
Operating Temperature	Transmitter	32 to 140°F (0-60°C)		
Media Compatibility	Type Temperature	Water, other 17-4 SS compatible media 32 to 250°F (0-125°C)		
Zero adjustment	Automatic	Pushbutton, terminal block switch input Press button for 5 seconds to re-zero Hold for 10 seconds to restore factory settings		
Sensor Type		Micro-machined silicon strain gauge		
PW10 Transmitter Performance	Accuracy ⁽²⁾	Range	A	B/C
		25 PSI Element	+/-2% FS	+/-1% FS
		50-500 PSI Elements	+/-4% FS	+/-2% FS
PW20 Transmitter Performance	Accuracy ⁽²⁾	Range	A	B/C
		All PSIG Elements	+/-2% FS	+/-1% FS
Sensor (PWC[xxx]) Performance	Accuracy	< +/-0.5% BFSL		
	Zero Offset	< +/-2% FS		
	Span Tolerance	< +/-2% FS		
	Stability (1 year)	+/-0.25% FS, typ		
	Over-range protection	2x rated pressure		
	Burst pressure	5x or 20,000psi (whichever is less)		
	Pressure Cycles	> 100 Million		
	Compensated Range	30 to 130°F (0-55°C)		
	Temperature Compensation	Zero, <+/-1.5% of FS Span, <+/-1.5% of FS		
	Shock	100G, 11 msec, 1/2 sine		
	Vibration	10G peak, 20 to 2000 Hz.		
	EMI/RFI Protection	Yes		
	Enclosure, PW10 & PW20 Transmitter	Construction	Powder coated steel	
Sealing		IP65 (Installed with water-tight fittings.)		
Enclosure, PWC[xxx] Sensor	Construction	Stainless Steel, 17-4, 1/4" MNPT, 1/2" Conduit Fitting		

(1) One side of transformer secondary is connected to signal common. Dedicated transformer is recommended.

(2) For PW Transmitter performance accuracy, FS is defined as the full scale of the selected range in bi-directional mode.

TROUBLESHOOTING

Symptom	Solution
No output	Check wiring. Ensure power supply meets requirements
Pressure reading error	Verify control panel software is configured for correct output scaling
	Verify switch and jumper settings
Device will not zero	Hold ZERO button for full 5-seconds until LCD blinks once
	Continue holding ZERO button for 10-15 seconds, until LCD blinks twice, to restore factory settings