



Installation and Operation Instructions

WPR Series

Wet to Wet Differential Pressure

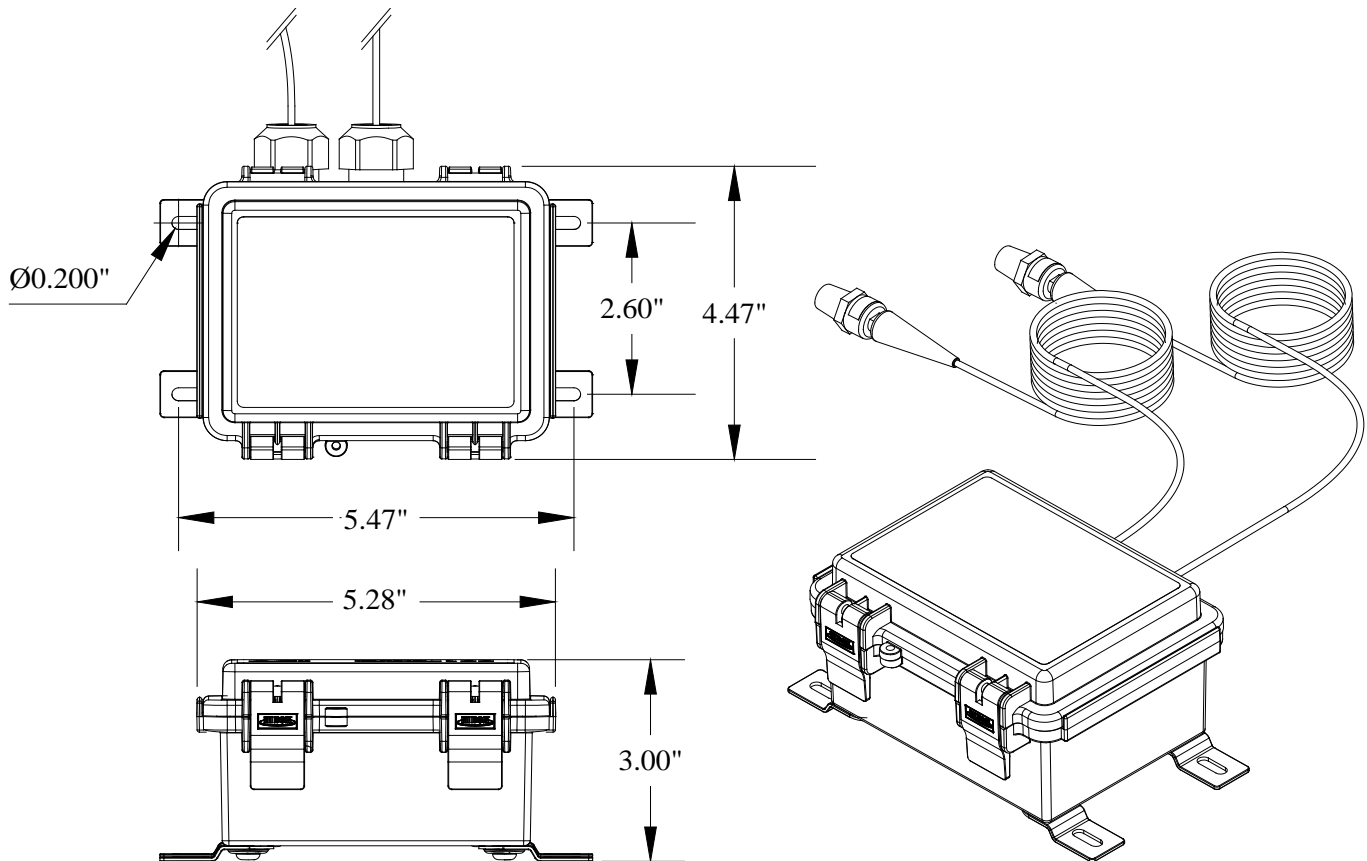


Figure 1: WPR Dimensions and Hardware

Precautions

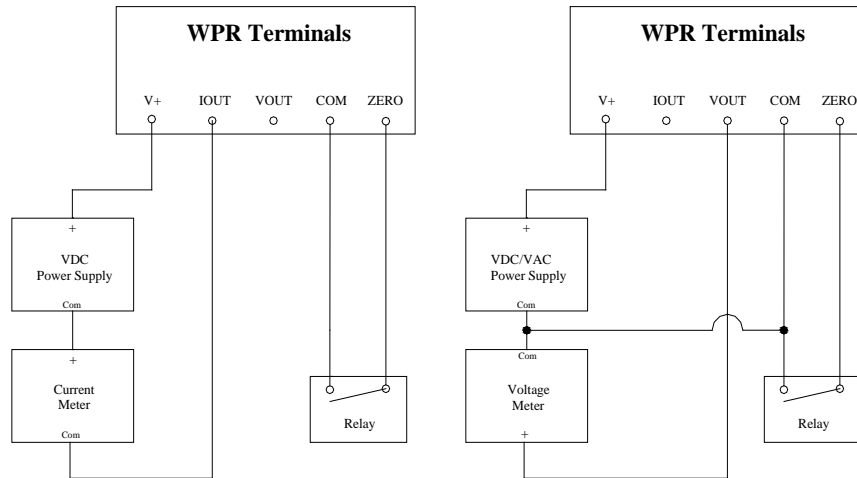
- **REMOVE POWER BEFORE WIRING. NEVER CONNECT OR DISCONNECT WIRING WITH THE POWER APPLIED. DO NOT ALLOW LIVE WIRES TO TOUCH THE CIRCUIT BOARD.**
- **AN ISOLATION TRANSFORMER IS RECOMMENDED WHEN POWERING THE DEVICE WITH 24VAC.**
- **DO NOT RUN THE WIRING IN ANY CONDUIT WITH LINE VOLTAGE.**
- **FAILURE TO WIRE DEVICES WITH THE CORRECT POLARITY WHEN USING A SHARED TRANSFORMER MAY RESULT IN DAMAGE TO ANY DEVICE POWERED BY THE SHARED TRANSFORMER.**
- **DO NOT SWITCH PRESSURE RANGE AND OUTPUT MODE WHEN POWER IS ON. MAKE SURE POWER OFF THE UNIT, MOVE JUMPERS TO THE RIGHT POSITIONS AND THEN POWER ON THE TRANSMITTER.**
- **DO NOT APPLY ANY VOLTAGE TO ZERO TERMINALS.**

Wiring

Shielded cable with 16 to 22AWG conductors is recommended. Use the Wiring Connections table below to determine the proper wiring for your application.

Output Signal	Supply Voltage	Wire Connections		
VDC	VAC/VDC	V+	COM	VOUT
mA	VDC	V+		IOUT

Table 1: Wiring Connections

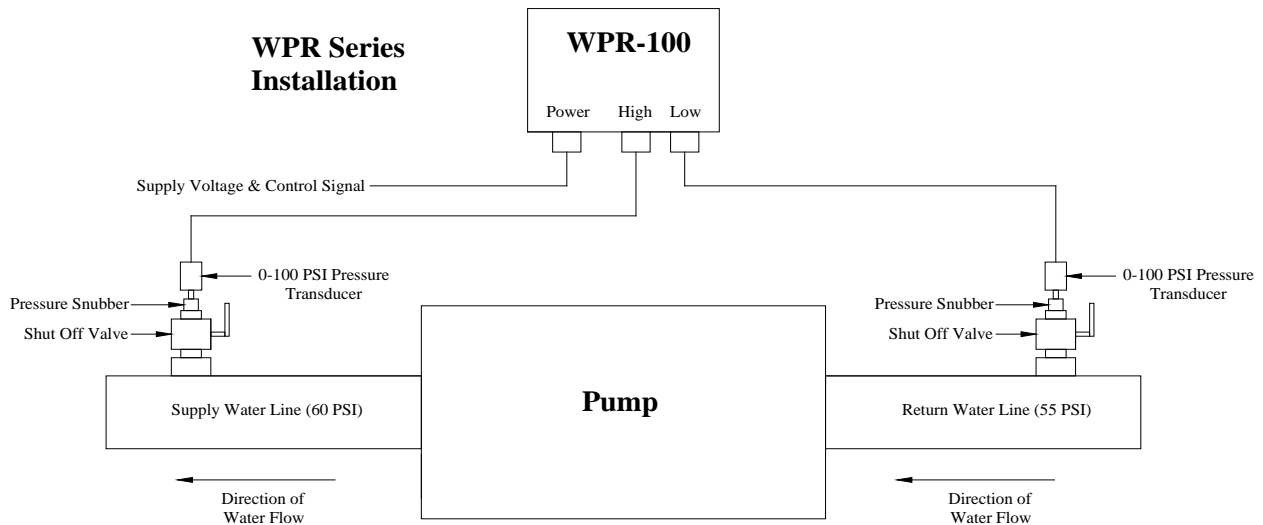


Pressure Connections

The WPR Series have 1/4"-18NPT male fittings. The sensors are labeled "SENSOR HIGH" and "SENSOR LOW"; **MAKE SURE THE SENSORS ARE WIRED TO THE CORRECT CORRESPONDING TERMINAL BLOCK INSIDE THE HOUSING.** Otherwise ACI will not guarantee the accuracy specifications.

All WPR units can handle a maximum pressure of 2 times the sensor range for both HIGH and LOW pressure sensors. If after connecting the pipe, the unit outputs out-of-range diagnostic signal, turn off the unit, disconnect the pipe or shut down the valves immediately and check the pressure input with a gauge or other test instrument.

The use of a Pressure Snubber (ACI Part #: A/SS-4-SA-EW) or a pigtail siphon should be used to dampen line pressure fluctuations or to lower the actual media temperature to a range that will not damage the pressure transducers.



INPUT RANGE ADJUSTMENT

- **DO NOT SWITCH PRESSURE RANGE AND OUTPUT MODE WHEN POWER IS ON.**
 - **MAKE SURE POWER TO THE UNIT IS OFF,**
- **CHOOSE RANGE BASED ON THE MAXIMUM LINE PRESSURE APPLIED.**
 - **THE RANGE IS BASED ON MAXIMUM INPUT PRESSURE, NOT THE DIFFERENTIAL OUTPUT RANGE**
 - **MOVE JUMPERS TO THE CORRECT POSITIONS AND THEN POWER ON THE TRANSMITTER.**

The WPR can operate in either unidirectional mode (0 – X PSI) or bidirectional mode (\pm X PSI).

Unidirectional Mode

- Jumper J4 set at **UNI** side.
- Jumpers J2 and J3 are for Range Selection

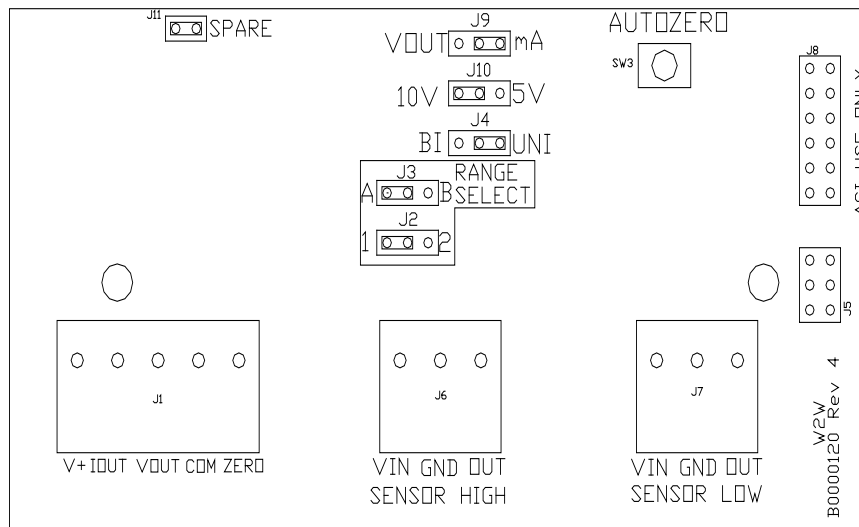
ACI/Part No.	Jumper J3: A		Jumper J3: B	
	Jumper J2: 1	Jumper J2: 2	Jumper J2: 1	Jumper J2: 2
A/WPR-100	0-100PSI	0-25PSI	0-50PSI	0-15PSI
A/WPR-300	0-300PSI	0-75PSI	0-150PSI	0-45PSI

Bidirectional Mode

- Jumper J4 set at **BI** side.
- Jumpers J2 and J3 are for Range Selection

Note: In Bidirectional mode, a value of 0 PSID will have an output equal to 50% of the output range.

ACI/Part No.	Jumper J3: A		Jumper J3: B	
	Jumper J2: 1	Jumper J2: 2	Jumper J2: 1	Jumper J2: 2
A/WPR-100	\pm 100PSI	\pm 25PSI	\pm 50PSI	\pm 15PSI
A/WPR-300	\pm 300PSI	\pm 75PSI	\pm 150PSI	\pm 45PSI



OUTPUT MODE ADJUSTMENT

Each WPR unit can be configured to three output modes: 4-20mA, 0-5V and 0-10V. The unit will set at 0-10V mode after factory calibration.

Switch jumpers J9 and J10 to change output mode.

Advanced Features

DIAGNOSTIC OUTPUT

Each WPR unit has the feature to check the pressure on each sensor. When either sensor's input pressure is out of range, WPR will output 5.25V for 0-5V mode; 10.5V for 0-10V mode and 22mA for 4-20mA mode.

If WPR unit is outputting out-of-range diagnostic signal, please turn off the unit, disconnect the pipe or shut down the valves immediately and check the pressure input with a gauge or other test instrument.

Once the pressure has been verified, set the jumper to the proper position based upon your maximum line pressure.

AUTO ZERO

Auto zero button and remote zero are both used to cancel out the offsets caused by installation and sensor drifting.

The Auto Zero adjustment should only be performed with identical pressure applied to both sensors.

- Remove the sensors from the system to remove pressure from each sensor to achieve equal pressure.
- Shut off your main pressure valve and open a shutoff valve with hose drain to equalize the pressure in the line to your atmosphere.
- Push "zero" button for more than 3 seconds or short zero pin to com pin after installation and when it is necessary.

Product Specifications

Supply Voltage	4-20mA: 16-36 VDC 0-5 VDC: 16-36 VDC / 24VAC (+/-20%) 0-10 VDC: 16-36 VDC / 24VAC (+/-20%)
Supply Current	24mA minimum
Output	2-wire, 4 to 20mA DC Current or 3-wire, 0-5 or 0-10VDC
External Load	4-20mA Output Mode: 0-250 Ohms 0-5 / 0-10VDC Output Mode: Minimum 5K Ohms
Sensor Accuracy ¹	+/- 1% FSO
Update Rate	1 Second
Operating Temperature Range	Sensor: -40 to 230°F (-40 to 110°C) Enclosure: 5 to 176°F(-15 to 80°C)
Compensated Temperature Range	32 to 140°F (0 to 60°C)
Humidity	10 to 90% RH, non-condensing
Thermal Effects ²	+/-2%FSO (0 to 60°C)
Proof Pressure	3 x F.S. for WPR-100 series; 2x F.S. for WPR-300 series
Burst Pressure	1500 PSI
Media	Gases, refrigerants, ammonia and water-based fluids *
Features	Depluggable terminal blocks Push button/Remote Auto Zero Jumper switch selectable ranges and output modes Out-Of-Range Diagnostic Output
Enclosure	IP66 Rated (Mounting Flanges & Screws Included)
Sensor Cable	10' Plenum Rated (Standard); optional 20' lengths available. Temp. Rating: 0 to +75°C (32 to 167°F)
Approvals	RoHS
Note 1: Accuracy includes linearity, hysteresis and repeatability.	
Note 2: Shift is relative to 77°F (25°C).	

***Please contact ACI for petrol chemical compatible versions.**

Table 2: Product Specifications

Warranty Specification

The ACI WPR Series is covered by ACI's Five (5) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's web site: www.workaci.com.