



# WPR SERIES

Installation & Operation Instructions

**NEW!**

LCD option coming  
mid 2015



## *Differential Pressure Transducer w/ Remote Probes*

The A/WPR Series Remote Wet to Wet Differential Pressure Transmitter is designed to reduce installation time and provide mounting flexibility, often eliminating the need for additional plumbing. They accurately measure wet media pressures in a variety of applications. Commonly used for monitoring pumps, these devices are also ideal for measuring pressure across filters, heat exchangers and compressors. The A/WPR's enclosure opens conveniently to allow it to be reconfigured between three additional ranges (see order grid) and outputs of 4 to 20 mA (default), 0 to 5 VDC, or 0 to 10 VDC. The A/WPR Series can measure both uni or bi-directional pressure ranges as low as 15 psi and as high as 300 psi, depending on the unit. The A/WPR also features a push button auto zero function for remote calibration.

The LCD option will display pressure values for both the High and Low side pressures, a differential pressure value, "OVR" for values over the specified range, "ERROR" for differential pressures out of range, and "ZERO" when the auto-zero is in process.

The A/WPR Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, [www.workaci.com](http://www.workaci.com).

## SPECIFICATIONS

Supply Voltage	16 to 36 VDC for 2-wire 4-20 mA output 16 to 36 VDC, 24 VAC ( $\pm 20\%$ ) for 0-5 VDC; 0-10 VDC outputs
Supply Current	25 mA maximum (current output), 5.5 mA maximum (voltage outputs)
Differential Pressure Output	2 wire: Linear 4-20 mA DC Current (default), 3 wire: 0-5 VDC; 0-10 VDC <small>(field selectable)</small>
Field Selectable Range/Spans	15, 25, 50 & 100 psi (uni and bi-directional) for 100 psi sensors 45, 75, 150 & 300 psi (uni and bi-directional) for 300 psi sensors
Accuracy	$\pm 1.0\%$ FSO (includes linearity, hysteresis and repeatability)
Thermal Effects	$\pm 1.0\%$ FSO from 32 to 185°F (0-85°C)
Proof Pressure	3X F.S. (A/WPR-100 Series), 2X F.S. (A/WPR-300 Series)
Burst Pressure	1500 psi
Operating Temperature	Sensors: -40 to 230°F (-40 to 110°C), Enclosure: 5 to 176°F (-15 to 80°C)
Compensated Temperature Range	32 to 185°F (0 to 85°C)
Operating RH	10 to 95% RH non-condensing
Process Fitting	1/4"-18 NPT Male (304 stainless steel)
Enclosure Rating	NEMA 4X/IP66
Media	Any gas or liquid compatible with 304 stainless steel
Product Dimensions	Enclosure: (L) 5.10" (W) 3.93" (H) 3.00"

## RANGE AND OUTPUT CHART

Series: A/WPR-100 (Uni-directional)	Default Uni-directional Range: 0-100 psi	Selectable Uni-directional Ranges: 0-50, 25 & 15 psi
Series: A/WPR-100 (Bi-directional)	Selectable Bi-directional Range: $\pm 100$ psi	Selectable Bi-directional Ranges: $\pm 50$ , $\pm 25$ & $\pm 15$ psi
Series: A/WPR-300 (Uni-directional)	Default Uni-directional Range: 0-300 psi	Selectable Uni-directional Ranges: 0-150, 75 & 45 psi
Series: A/WPR-300 (Bi-directional)	Selectable Bi-directional Range: $\pm 300$ psi	Selectable Bi-directional Ranges: $\pm 150$ , $\pm 75$ & $\pm 45$ psi

## ORDERING

Select a Sensor Series (A) & one Wiring Harness (B).

<b>A</b> Sensor Series	<b>B</b> Wiring Harness	<b>C</b> LCD Option <small>available mid 2015</small>
<input type="checkbox"/> A/WPR-100	<input type="checkbox"/> 10'	<input type="checkbox"/> ---- (No LCD)
<input type="checkbox"/> A/WPR-300	<input type="checkbox"/> 20'	<input type="checkbox"/> LCD

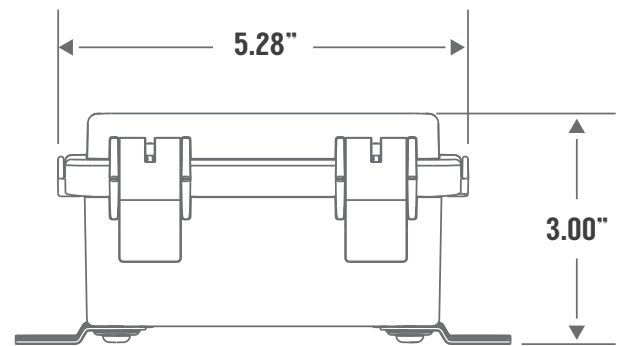
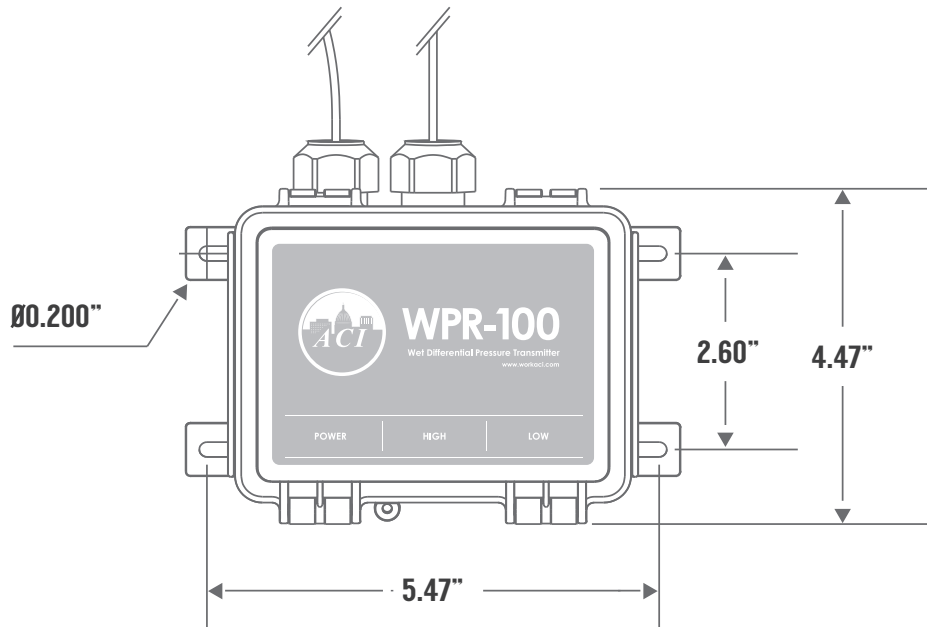
## BUILD YOUR PART NUMBER

After completing (A), (B) & (C) from the above table, fill in the Part Number Table below. An example part number is offered.

A	B	C
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EXAMPLE: A/WPR-100 - 10' - LCD

Call ACI 1-888-967-5224



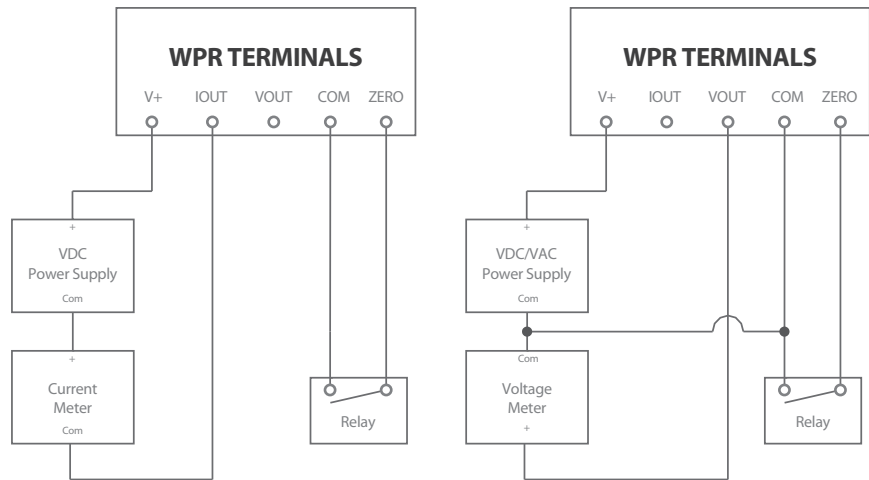
## PRECAUTIONS

- 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

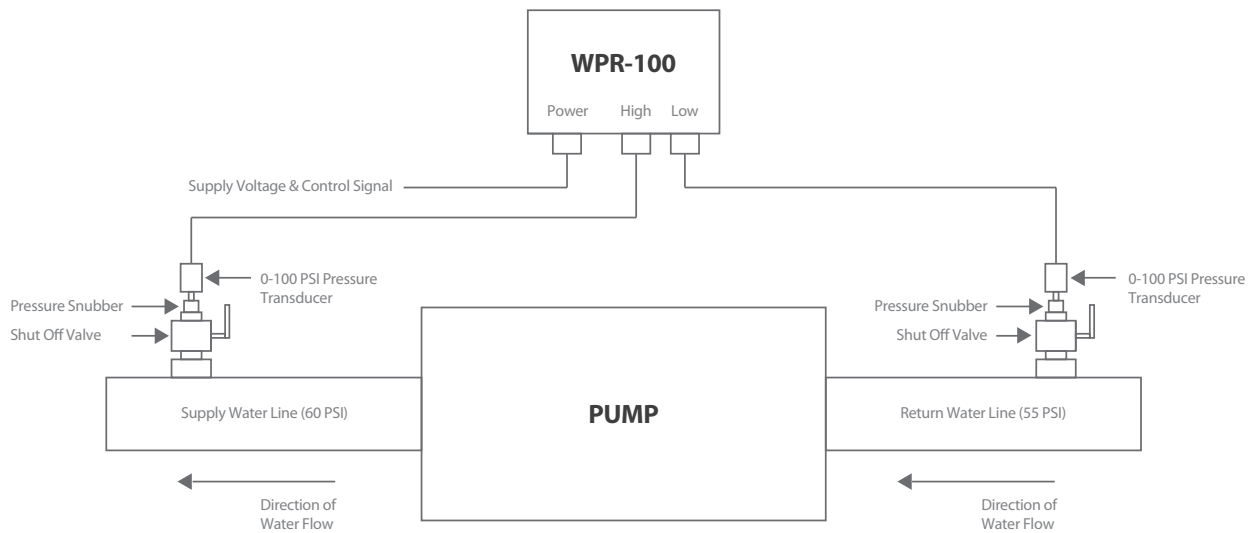
Shielded cable with 16 to 22AWG conductors is recommended. Use the Wiring Connections table below to determine the proper wiring for your application.

OUTPUT SIGNAL	SUPPLY VOLTAGE	WIRE CONNECTIONS		
VDC	VAC/VDC	V+	COM	VOUT
mA	VDC	V+		IOUT



# PRESSURE CONNECTIONS

The WPR Series have 1/4"-18 NPT male fittings. These 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.

Each WPR unit has the capability of being switched to four spans and two directions. The switch is achieved by changing the position of jumpers found inside the enclosure.

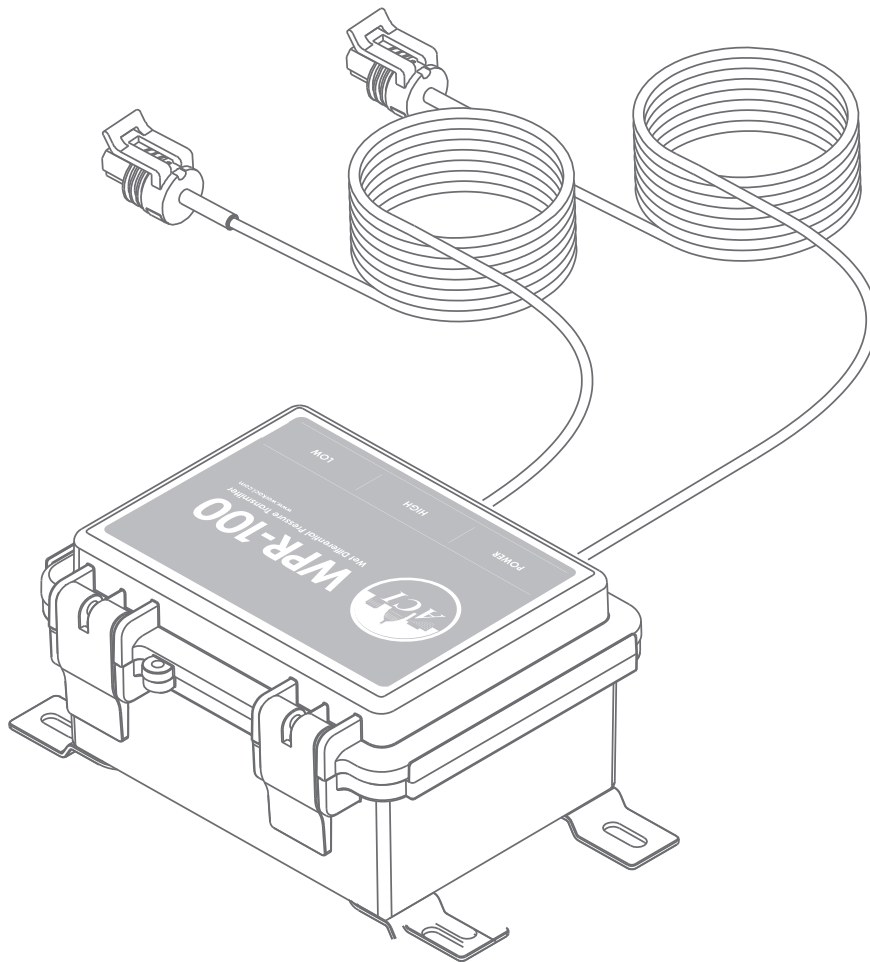
Jumpers J2 and J3 are for Range Selection  
J4 is for Direction Selection.

### Jumper J4 set at BI side

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

### Jumper J4 set at BI side

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

## 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 22 mA for 4-20 mA 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.



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