

PDW90 Point to Multi-Point Wireless System

Data Sheet



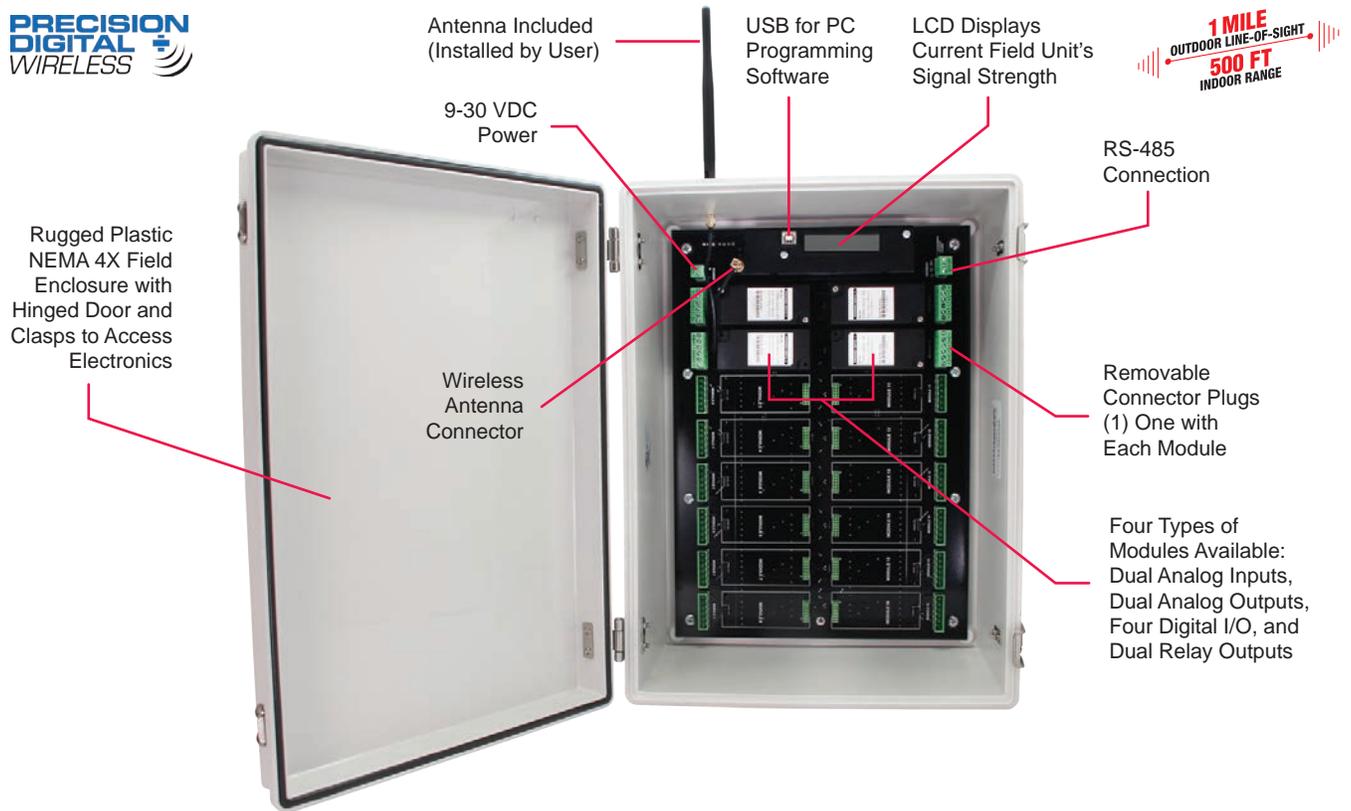
**PRECISION
DIGITAL**
WIRELESS

1 MILE
OUTDOOR LINE-OF-SIGHT
500 FT
INDOOR RANGE

- Signal Wire Replacement System Consisting of Wireless Base Station and Field Units
- Wireless Point to Multi-Point Signal Wire Replacement for up to 32 4-20 mA Signals
- Range: 1 Mile Line-of-Sight Outdoor, 500 Feet Indoor; Repeaters Available to Extend Range
- Wireless Transmission Between Base Station and any Field Unit of
 - 4-20 mA (Separate Signals Going Both Ways)
 - Discrete (4 digital I/O Signals Going Both Ways)
 - RS-485 Modbus
- Inputs: (Wired to Field Units) 4-20 mA or 0-10 V (1), Discrete/Digital (up to 4), Modbus
- Outputs: (Wired to Field Units) 4-20 mA (1), Discrete/Digital (up to 4), Relays (2, opt), Modbus
- Base Station I/O Modules for 4-20 mA Inputs, 4-20 mA Outputs, Relay Outputs, Digital I/O
- Base Stations with slots for 2, 6, or 16 Field Installable I/O Modules and Modbus
- Loss of Signal (LoS) Digital Output
- PDA10 Signal Strength Survey Tool to "Try Before You Buy"
- Simple to Configure Using PDW Manager Programming Software and On-Board USB
- Device Communication Secured by Enabling 128-bit AES Encryption
- Password Protection
- Attached or Remote, Directional and Omnidirectional Antennas Available
- Base Stations Housed in Plastic NEMA 4X Field Enclosures
- Field Units Available in IP68, NEMA 4X Aluminum & Stainless Steel Enclosures
- Field Unit Operating Temperature Range: -55 to 75°C (-67 to 167°F)
- PCBs are Conformal Coated for Dust & Humidity Protection
- Power: 9-30 VDC, Base Station & Field Units
- 3-Year Warranty

OVERVIEW

Base Station Features



Base Station with Slots for 16 Modules Shown

Field Unit Features



Aluminum Field Unit

Stainless Steel Field Unit

Signal Wire Replacement for Point to Multi-Point Industrial Wireless Applications

In its most basic form, the PDW90 consists of field units (up to 32) that accept 4-20 mA signals and transmits them wirelessly to a base station. The primary advantage of this system is how simple and economical it is to get multiple signals (not just 4-20 mA, also discrete (digital) and Modbus) from where you have them to where you need them – all without having to run wires!

The wireless communication between the field units and the base station is bi-directional. That means you can send 4-20 mA, discrete and Modbus signals from the field units to the base station and also send completely different 4-20 mA, discrete and Modbus signals from the base station to the field units. For instance, the field unit could send a 4-20 mA signal to the base station corresponding to the level in a tank and the base station could send a 4-20 mA signal to the field unit to control a valve.

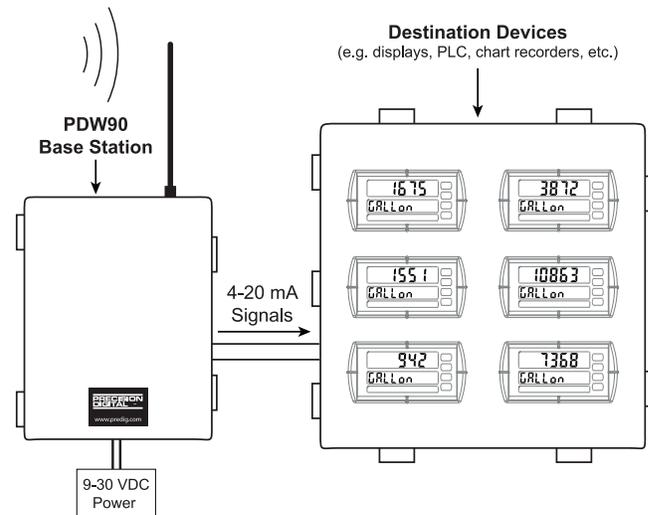
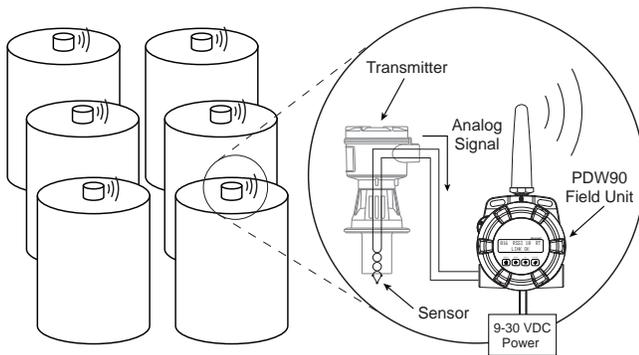
Field units are also equipped with four digital I/O that can each be independently programmed as an input or an output. A Loss of Signal warning is also available by connecting devices to the G and LS screw terminals.

To indicate alarm situations in the field, the field unit can be equipped with an optional, field installable, two relays module. These relays are rated Form A (SPST) 5A and are controlled by the digital outputs on the base station.

The base stations are available in configurations for 2, 6, or 16 I/O slots for a variety of field installable I/O modules. The available I/O modules are:

- Dual Analog Input
- Dual Analog Output
- Dual Relay Output
- Four Digital I/O

The specified range between the base station and field units is 1 mile line-of-sight outdoor and 500 feet indoor and repeaters are available to extend the range. A low-cost wireless survey tool, Model PDA10, is available to test the signal strength of your application before you buy. And if the PDW90 system does not work in your application, you can return it for full credit!



KEY FEATURES

PDW Manager PC Software

PDW Manager PC Software is required to program the PDW90 wireless base station; there are no programming buttons on the unit. PDW field units have programming buttons that can be used for basic setup, but PDW Manager software is required for advanced feature programming. Field units and base stations connect to a PC via a USB connection with the provided cable. PDW Manager is available for download at www.predig.com/pdwmanager.



Plastic NEMA 4X Base Stations Available in Three Sizes

The PDW90 base stations are available in three different sized plastic NEMA 4X enclosures based on how many inputs and outputs are needed. The cover on the two larger enclosures is hinged and secured with stainless steel clasps. The cover on the smaller enclosure is secured with screws. The largest base station can house up to 16 I/O modules. The middle size base station can hold up to 6 modules and the smallest base station can hold 2 modules.



Easy-To-Install I/O Modules

These modules designed specifically for the PDW90 base stations are easy to install and add functionality to the wireless system. The electronics in the modules are completely enclosed for protection. There are four types of modules available: dual analog inputs, dual analog outputs, four digital I/O, and dual relay outputs. Each module also comes with a removable connector plug for easy wiring.



CapTouch Through-Glass Buttons

The PDW90 field units are equipped with four capacitive sensors that operate as through-glass buttons so that they can be operated without removing the cover (and exposing the electronics) in an unclean area.

CapTouch buttons are designed to work under any lighting condition and are not affected by random changes in light or shadows. To protect against false triggering a long button press of about 2 seconds is required to wake up the buttons when they have not been in use for more than 20 seconds.



Field Units Available in Aluminum or Stainless Steel

The PDW90 field units are available in an IP68, NEMA 4X aluminum or stainless steel enclosure. The enclosures feature a built-in flange for wall or pipe mounting, built-in loop for a stainless steel tag, locking screw, and hole for a tamper-proof wire & seal. The enclosure also includes two 3/4" threaded conduit openings for wiring. The field units can operate in temperatures of -55 to 75°C (-67 to 167°F).



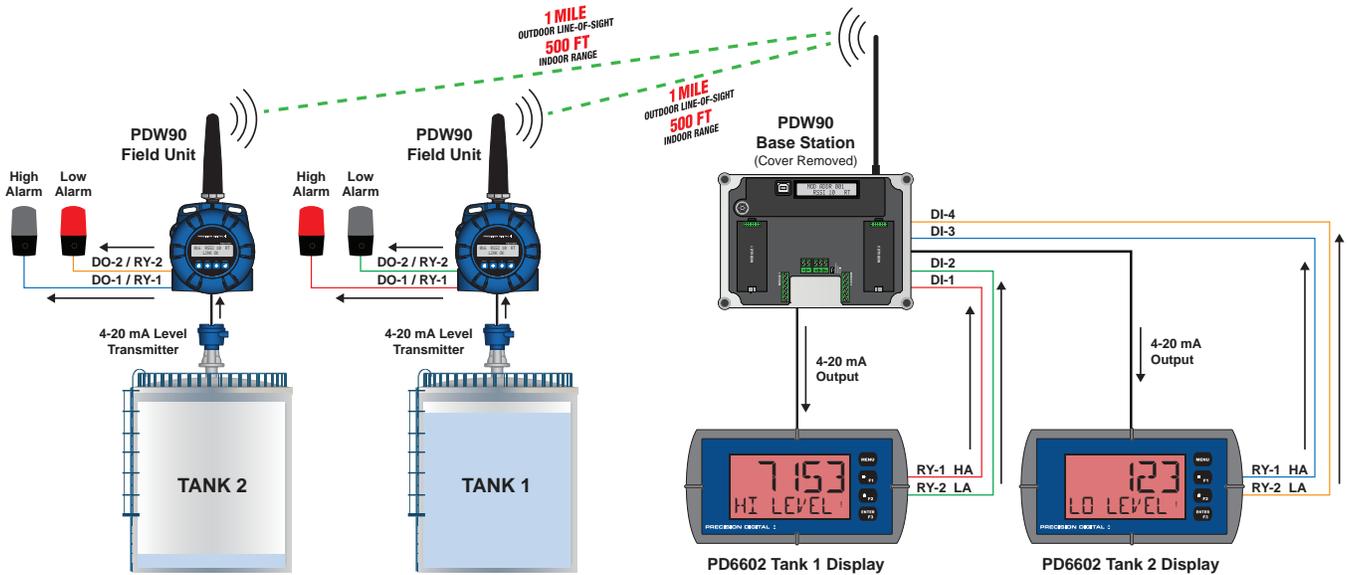
Field Unit Relays Option Module

The PDW90 field units are available with a relays option module that includes two Form A (SPST) relays. The module is easily installed by the user into the base of the enclosure with the four screws provided. The removable connector plugs make wiring easy.



APPLICATION EXAMPLES

Wireless Tank Level Monitoring of Two Tanks with Field Alarms



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- In the two tanks, the level transmitter’s 4-20 mA signal is connected to the PDW90 field unit’s analog input.
- The PDW90 field unit then wirelessly transmits the level signal to the base station located in the control room, where the base station’s 4-20 mA output duplicates the signal.
- The base station’s analog outputs are connected to two PD6602 loop-powered meters, which display the 4-20 mA signals as volume in gallons and check the level for high and low conditions.
- The low and high alarm light / horns in the field are driven as follows:
 - Relay 1 (RY-1) in the PD6602 tank 1 display is connected to digital input 1 (DI-1) on the base station. This signal is wirelessly transmitted to the field unit on tank 1. (On the field unit) digital output 1 (DO-1) controls relay 1 (RY-1), which turns on the high alarm light / horn, warning the operator.
 - Relay 2 (RY-2) in the PD6602 tank 2 display is connected to digital input 2 (DI-4) on the base station. This signal is wirelessly transmitted to the field unit on tank 2. (On the field unit) digital output 2 (DO-2) controls relay 2 (RY-2), which turns on the low alarm light / horn, warning the operator.

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-02	1	PDW90 Wireless Process Signal Base Station, (2) I/O Slots
PDWM90-BASE-2AO	1	PDW90 Dual Analog Output Base Station Module
PDWM90-BASE-4DI	1	PDW90 Four Digital I/O Base Station Module

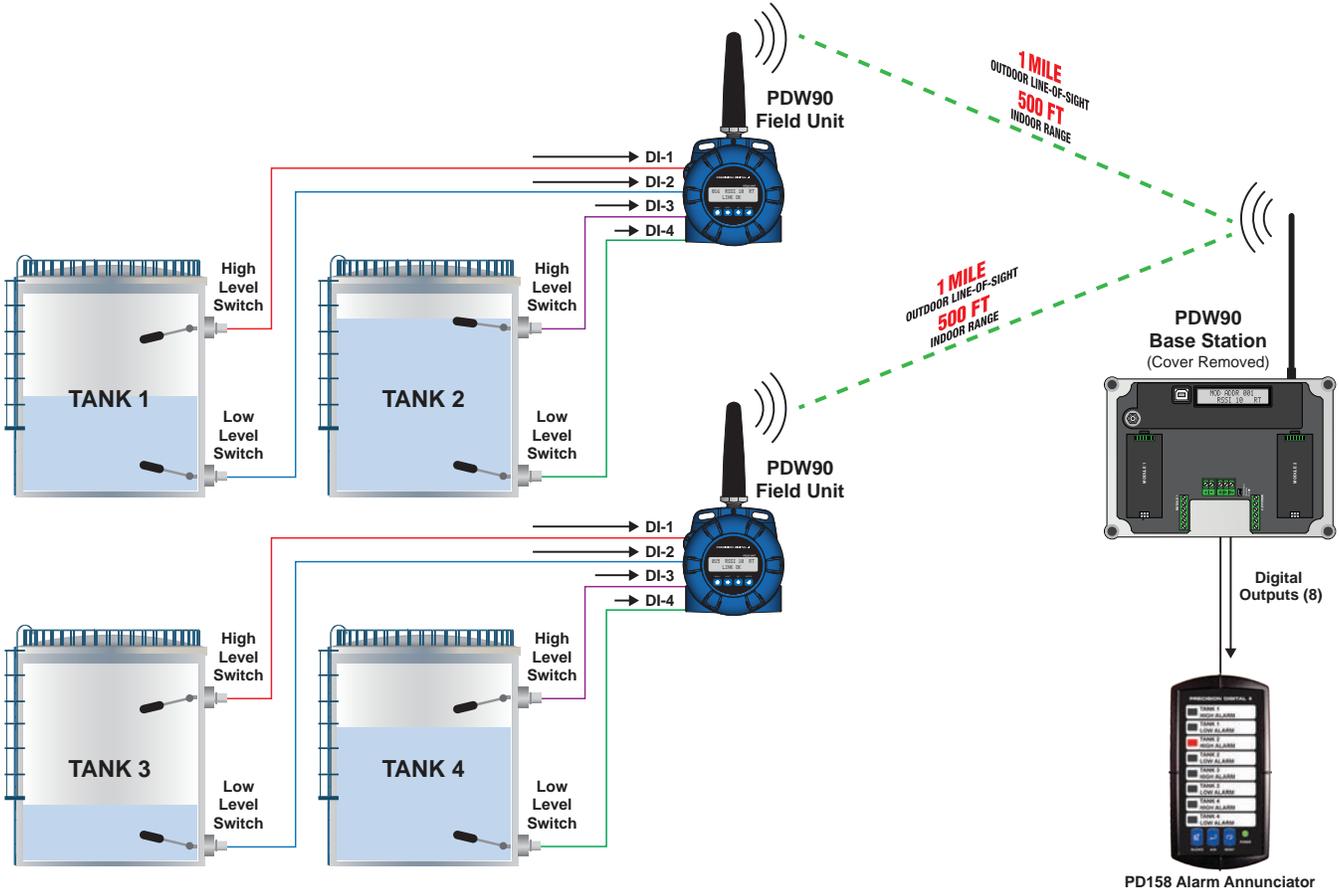
Field Units

Model Number	Qty	Description
PDW90-GP-AL-FIELD	2	PDW90 Wireless Process Signal Field Unit
PDWM-2RY	2	Relays Option Module, Two Form A (SPST)

Other Products

Model Number	Qty	Description
PDA-LHR	4	Red Light / Horn
PD6602-L2N	2	1/8 DIN Loop-Powered Digital Panel Meter with Two Relays

Wireless Tank Level Monitoring of Level Switches



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- The switch contacts from the two level switches in each tank are connected to the digital inputs on the field units.
- The states of the switch contacts are wirelessly transmitted to the base station.
- The digital outputs from the base station are connected to a PD158 Vigilante II 8-point annunciator for local indication of tank level status.

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-02	1	PDW90 Wireless Process Signal Base Station, (2) I/O Slots
PDWM90-BASE-4DI	2	PDW90 Four Digital I/O Base Station Module

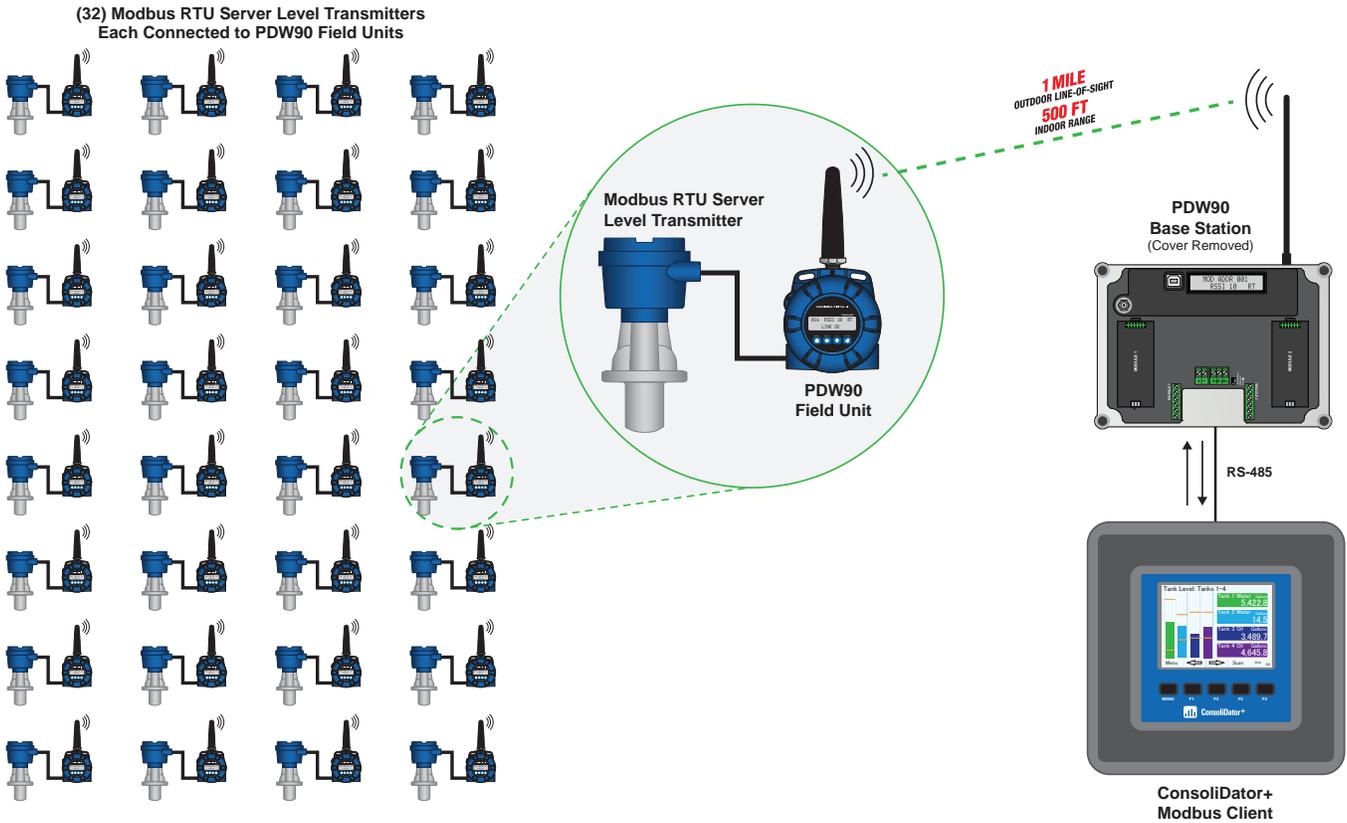
Field Units

Model Number	Qty	Description
PDW90-GP-AL-FIELD	2	PDW90 Wireless Process Signal Field Unit

Other Products

Model Number	Qty	Description
PD158-6R2-1	1	1/8 DIN 8-Input Alarm Annunciator

Wireless Tank Level Monitoring of 32 Modbus RTU Server Transmitters



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- The 32 field units are **not** wired together.
- Each field unit sends the Modbus signal wirelessly to the base station.
- The base station is connected to a ConsoliDator+ that displays the level in the tanks.
- The ConsoliDator+ acts as the client.

⚠ IMPORTANT

- The Modbus Client *must* be connected to the base station RS-485.

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-02	1	PDW90 Wireless Process Signal Base Station, (2) I/O Slots (None being used in this application)

Field Units

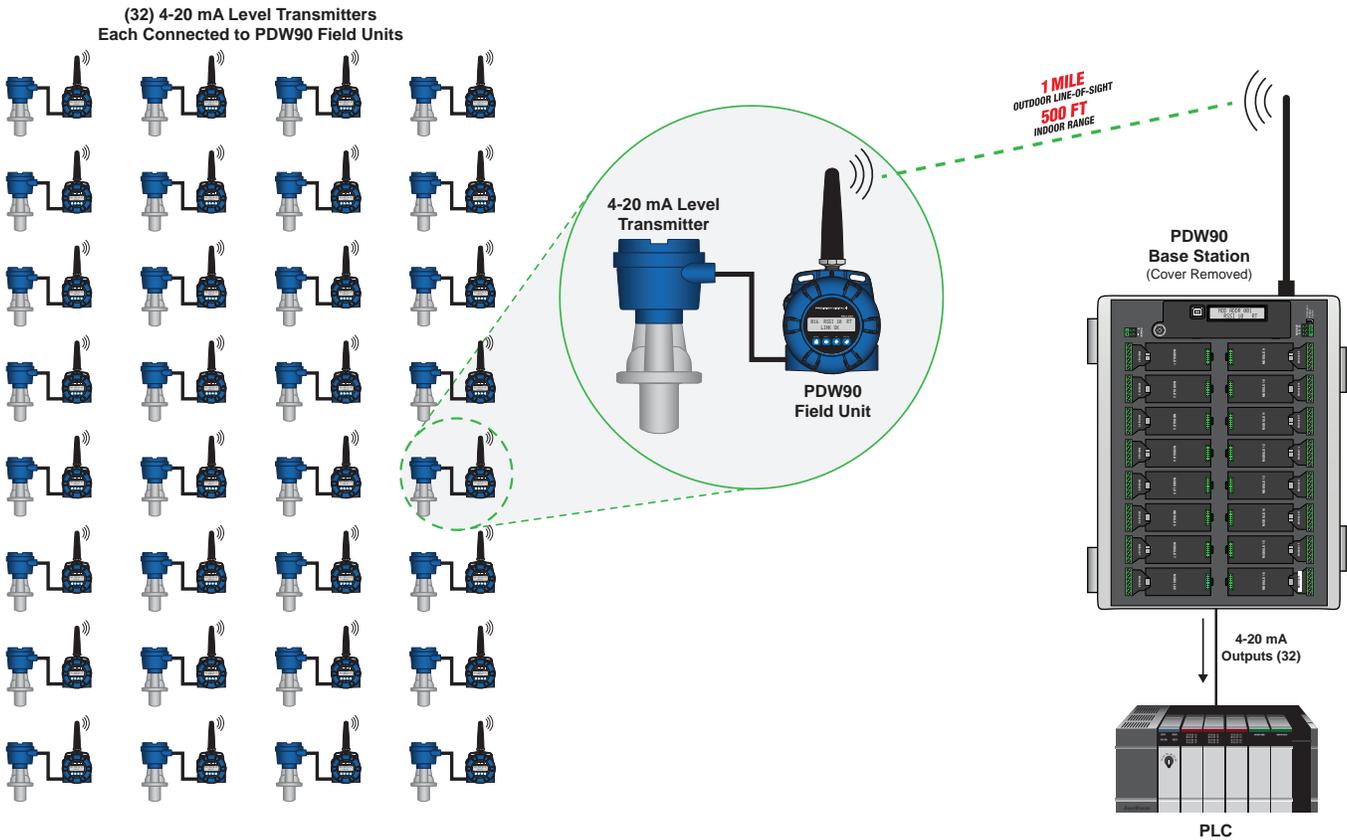
Model Number	Qty	Description
PDW90-GP-AL-FIELD	32	PDW90 Wireless Process Signal Field Unit

Other Products

Model Number	Qty	Description
PD9000-GP	1	ConsoliDator+ Multivariable Controller
PDK9000-M1	1	Add-On Feature: ConsoliDator+ Modbus Client/Snooper/Spoofers

Note: A potentially lower cost solution to this application would be to use a PDW30 point-to-point system. All the level transmitters would be wired on one RS-485 bus that would be connected to a PDW30 Primary Unit. The Primary Unit would wirelessly transmit the Modbus signal to a PDW30 Secondary Unit.

Wireless Tank Level Monitoring of 32 4-20 mA Transmitters



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- The 32 field units send the 4-20 mA signals wirelessly to the base station.
- The base station outputs (32) 4-20 mA signals that correspond to signals that are wirelessly transmitted to the base station to a PLC.

Parts Needed for This System:

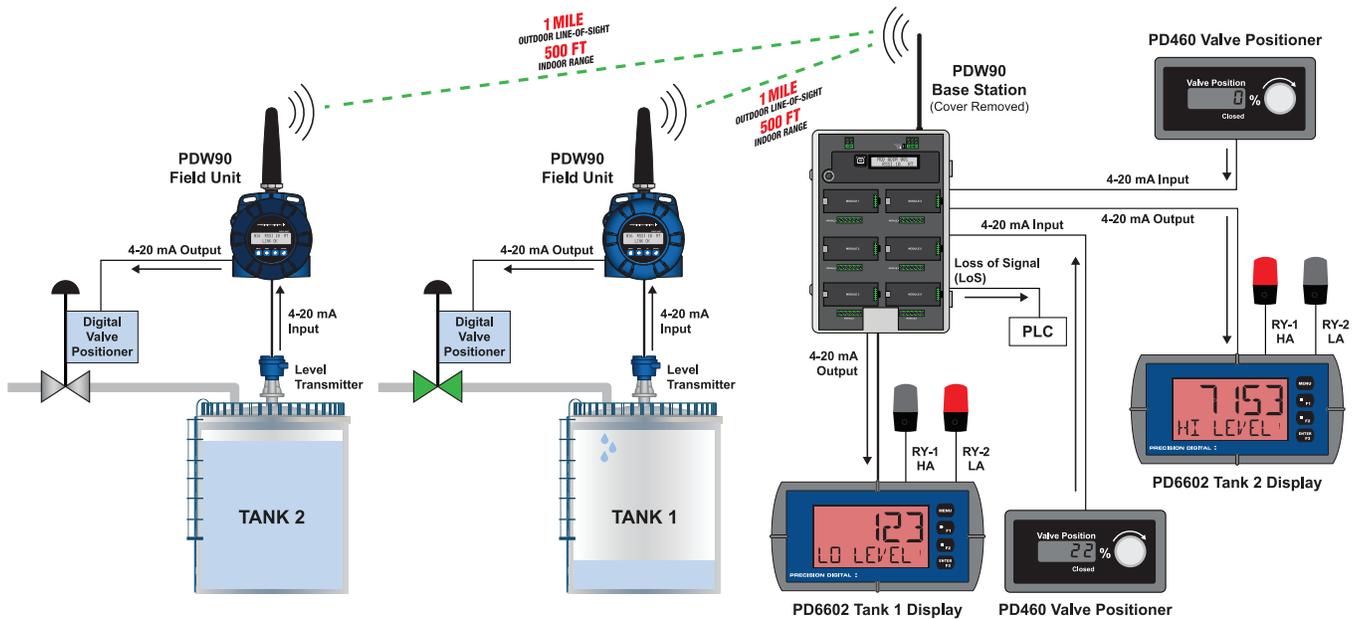
Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-16	1	PDW90 Wireless Process Signal Base Station, (16) I/O Slots
PDWM90-BASE-2AO	16	PDW90 Dual Analog Output Base Station Module

Field Units

Model Number	Qty	Description
PDW90-GP-AL-FIELD	32	PDW90 Wireless Process Signal Field Unit

Wireless Remote Valve Control on Two Tanks



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- In the two tanks, the level transmitter's 4-20 mA signal is connected to the PDW90 field unit's analog input.
- The PDW90 field unit then wirelessly transmits the level signal to the base station located in the control room, where the base station's 4-20 mA output duplicates the signal.
- The base station's analog outputs are connected to two PD6602 loop-powered meters, which display the 4-20 mA signals as volume in gallons and check the level for high and low conditions.
- The operator uses a PD460 valve positioner to send a 4-20 mA signal to the base station's analog input.
- That valve position signal is wirelessly transmitted to the field unit located in the field at the tank, where the field unit's 4-20 mA output duplicates the signal.
- The field unit's 4-20 mA output is connected to a digital valve positioner. The valve is opened, and the tank starts to fill again.
- The operator monitors the level rising or falling on the PD6602 displays and uses the PD460 valve positioner to close or open the valve when the tank reaches the desired level.
- A digital output on digital I/O module is used to generate a Loss of Signal (LoS).

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-06	1	PDW90 Wireless Process Signal Base Station, (6) I/O Slots
PDWM90-BASE-2AI	1	PDW90 Dual Analog Input Base Station Module
PDWM90-BASE-2AO	1	PDW90 Dual Analog Output Base Station Module
PDWM90-BASE-4DI	1	PDW90 Four Digital I/O Base Station Module (used for Loss of Signal; LoS)

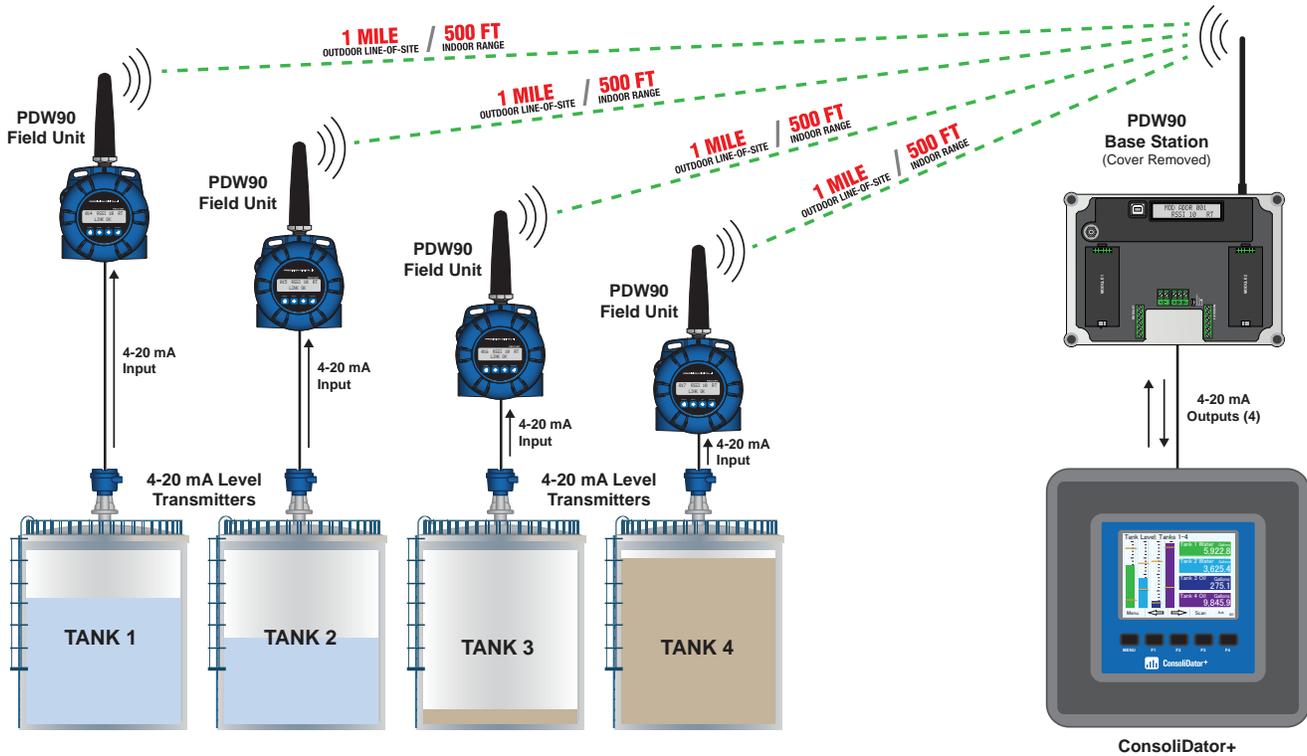
Field Units

Model Number	Qty	Description
PDW90-GP-AL-FIELD	2	PDW90 Wireless Process Signal Field Unit

Other Products

Model Number	Qty	Description
PDA-LHR	4	Red Light / Horn
PD6602-L2N	2	1/8 DIN Loop-Powered Digital Panel Meter with Two Relays
PD460	2	Panel Mount 4-20 mA Valve Positioner

Wireless Tank Level Monitoring on Four Tanks



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- The level in each tank is measured by a 4-20 mA level transmitter that is connected to a PDW90 field unit.
- Each PDW90 field unit wirelessly transmits the 4-20 mA signal back to the base station.
- The base station is equipped with two dual analog output modules that send the 4-20 mA signals to the ConsoliDator+.

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-02	1	PDW90 Wireless Process Signal Base Station, (2) I/O Slots
PDWM90-BASE-2AO	2	PDW90 Dual Analog Output Base Station Module

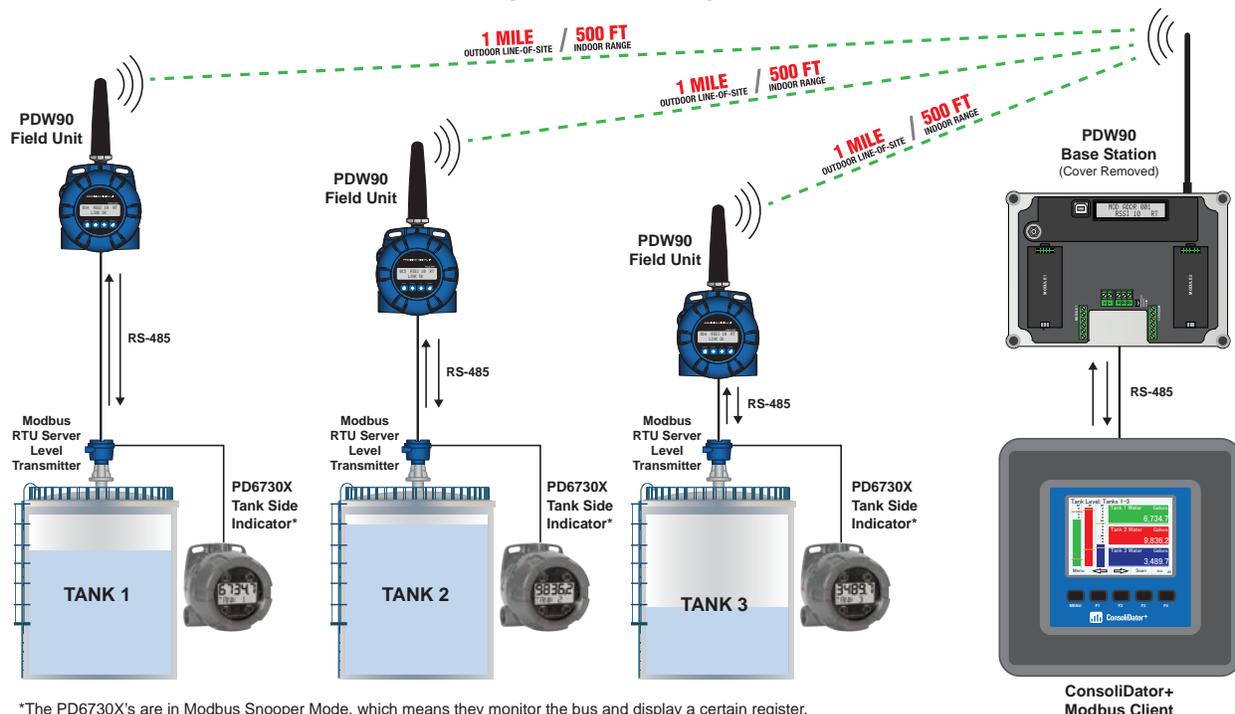
Field Units:

Model Number	Qty	Description
PDW90-GP-AL-FIELD	4	PDW90 Wireless Process Signal Field Unit

Other Products:

Model Number	Qty	Description
PD9000-GP-4AI	1	ConsoliDator+ Multivariable Controller with Four 4-20 mA inputs

Wireless Transmission of Modbus Inputs and Outputs



*The PD6730X's are in Modbus Snooper Mode, which means they monitor the bus and display a certain register.

Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- The ConsoliDator+ Modbus client is connected to the base station and sends wireless requests to the level transmitters via the PDW90 field units.
- The ConsoliDator+ Modbus client processes the data received from the field units (via the base station) and displays it in engineering units.
- The PD6730X Modbus scanner can provide tank side indication of level, temperature, interface and other Modbus variables.

▲ IMPORTANT

- The Modbus Client *must* be connected to the base station RS-485.

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-02	1	PDW90 Wireless Process Signal Base Station, (2) I/O Slots

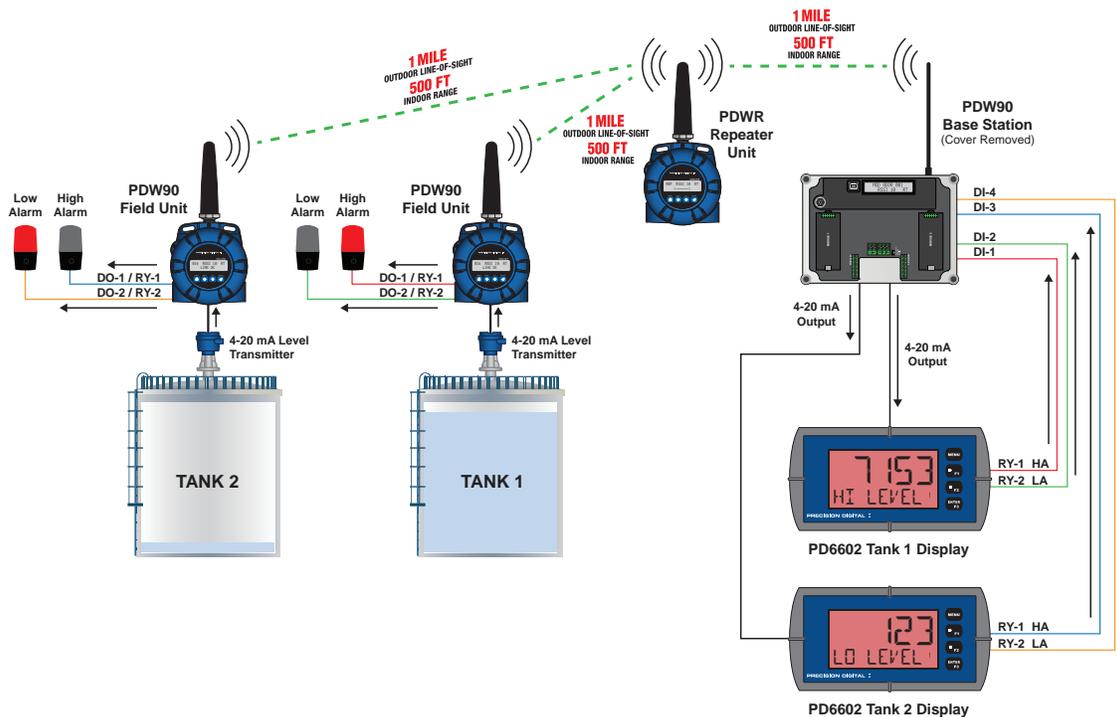
Field Units:

Model Number	Qty	Description
PDW90-GP-AL-FIELD	3	PDW90 Wireless Process Signal Field Unit

Other Products:

Model Number	Qty	Description
PD9000-GP	1	ConsoliDator+ Multivariable Controller
PD9000-M1	1	Add-On Feature: ConsoliDator+ Modbus Client/Snooper/Spoof
PD6730-AX0-I-2	3	General Purpose Modbus Scanner for Tank Side Level Indication

Extending Signal Range with PDWR Repeaters



Note: Power requirements / connections not shown in diagram. Consult manuals for details. Cover of PDW90 removed to show I/O modules.

- The PDW30 field units are too far away from the base station, so a PDW30 repeater unit is installed in the application to extend the wireless signal range.
- The mA signals are transmitted wirelessly to the PDW90 base station through the PDW30 repeater unit.
- The base station's analog outputs are connected to PD6602 loop-powered meters, which display the 4-20 mA signals as volume in gallons.
- The low and high alarm light / horns in the field are driven as follows:
 - Relay 1 (RY-1) in the PD6602 tank 1 display is connected to digital input 1 (DI-1) on the base station. This signal is wirelessly transmitted to the field unit via the PDW30 repeater unit. (On the field unit) digital output 1 (DO-1) controls relay 1 (RY-1), which turns on the high alarm light / horn, warning the operator.
 - Relay 2 (RY-2) in the PD6602 tank 2 display is connected to digital input 2 (DI-4) on the base station. This signal is wirelessly transmitted to the field unit via the PDW30 repeater unit. (On the field unit) digital output 2 (DO-2) controls relay 2 (RY-2), which turns on the low alarm light / horn warning the operator.

Parts Needed for This System:

Base Station

Model Number	Qty	Description
PDW90-GP-PL-BASE-02	1	PDW90 Wireless Process Signal Base Station, (2) I/O Slots
PDWM90-BASE-2AO	1	PDW90 Dual Analog Output Base Station Module
PDWM90-BASE-4DI	1	PDW90 Four Digital I/O Base Station Module

Field Units:

Model Number	Qty	Description
PDW90-GP-AL-FIELD	2	PDW90 Wireless Process Signal Field Unit
PDWM-2RY	2	Relays Option Module, Two Form A (SPST)
PDW30-GP-AL-REP	1	PDW90 Wireless Process Signal Repeater Unit

Other Products:

Model Number	Qty	Description
PDA-LHR	4	Red Light / Horn
PD6602-L2N	2	1/8 DIN Loop-Powered Digital Panel Meter with Two Relays

PDW MANAGER PC PROGRAMMING SOFTWARE

PDW Manager PC Software allows for programming the PDW90 wireless base station and field units from a PC with a USB connection. Field units connect to a PC via the USB connection on the electronic board behind the enclosure door. Use of PDW Manager is required for programming advanced settings such as wireless encryption and analog signal calibration. PDW Manager is available for download at www.predig.com/pdwmanager.

For more information visit
www.predig.com/pdwmanager



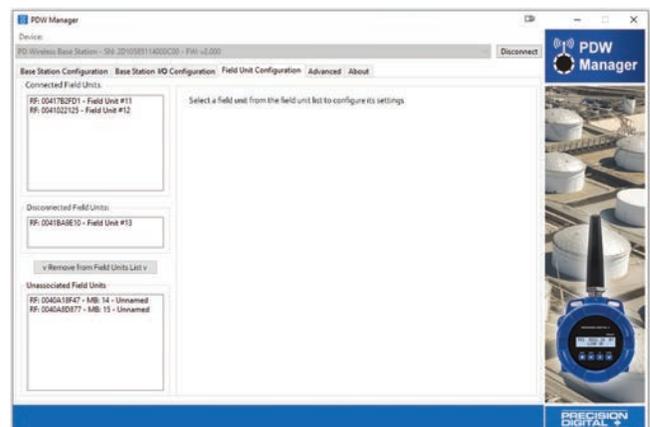
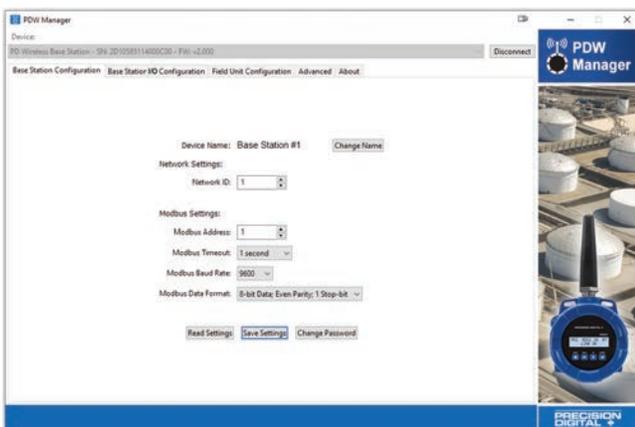
For more details on programming the PDW90 base station and field units, see the PDW90 manual.

Base Station Configuration

The *Base Station Configuration* tab is where the base station name, network ID, password, and Modbus settings may be modified. The setting can also be saved by clicking the *Save Settings* button or loaded from another device by clicking the *Read Settings* button.

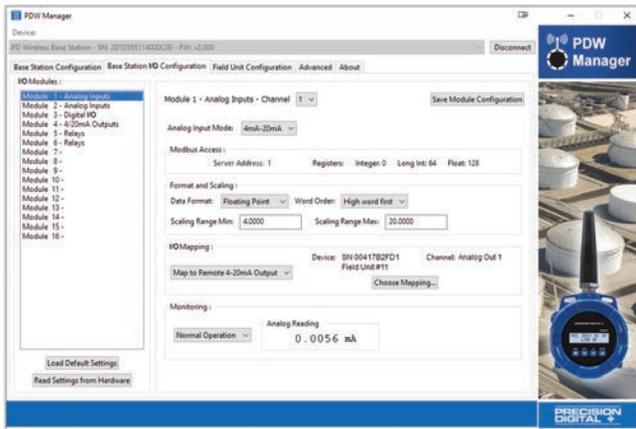
Connecting Field Units to the Base Station

Adding field units to the base station is done under the *Field Unit Calibration* tab. Once the field units are separately programmed with the same network ID as the base station and have a unique Modbus address, they can be added to the base station by selecting them from the *Unassociated Field Units* list and added to the *Connected Field Units* list.



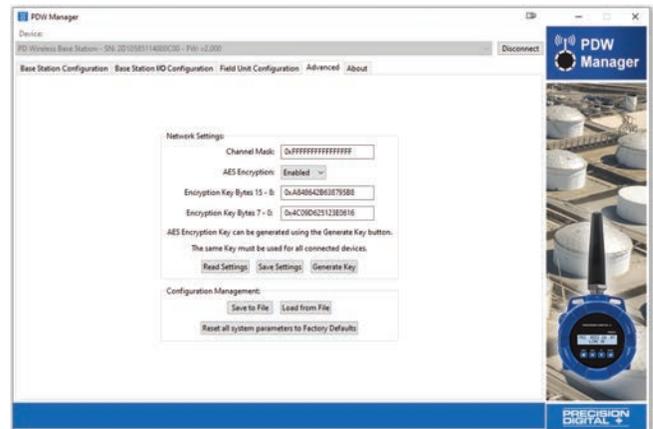
Input / Output Base Station Module Configuration

The *Base Station IO Configuration* tab is where individual I/O modules connected to the base station are programmed. Each Dual Analog Input module has two input channels. Each channel may be independently programmed to accept either a 4-20 mA, 0-10 V, 0-5 V, or 1-5 V analog input. These channels may also be mapped to remote analog outputs or Modbus registers.



Advanced Configuration for Base Station

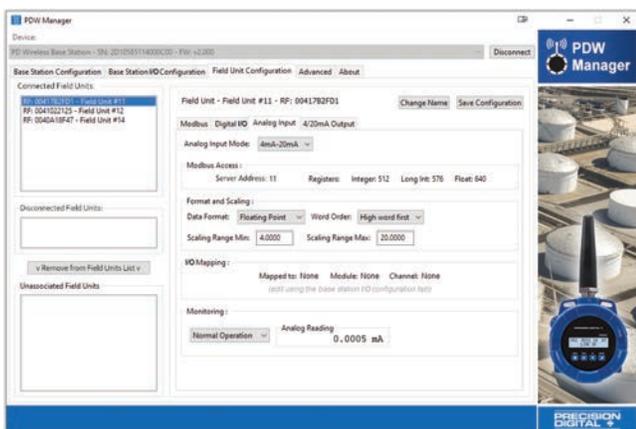
Device communication can be secured by enabling 128-bit AES encryption. A channel mask can be set for interference immunity. This is done by entering an encryption key and channel mask under the *Advanced* tab. The base station can also be reset to factory defaults under the *Advanced* tab.



For more details on programming the PDW90 base station and field units, see the PDW90 manual.

Field Unit Configuration

The *Field Unit Configuration* tab is where connected field units are programmed to communicate with the base station. Each field unit's analog input is programmed to accept a 4-20 mA, 0-10 V, 0-5 V, or 1-5 V signal. The Modbus, Digital I/O, Analog Input, and 4-20 mA Output can be programmed under their respective tabs.



ACCESSORIES

Field Installable Base Station Modules



I/O modules designed specifically for the PDW90 base stations are easy to install and add functionality to the wireless system. There are four types of modules available: dual analog inputs, dual analog outputs, four digital I/O, and dual relay outputs.

Model Number	Description
PDM90-BASE-2AI	PDW90 Dual Analog Input Base Station Module
PDM90-BASE-2AO	PDW90 Dual Analog Output Base Station Module
PDM90-BASE-2RY	PDW90 Dual Relay Output Base Station Module
PDM90-BASE-4DI	PDW90 Four Digital I/O Base Station Module

PDWR Wireless Signal Repeaters



PDWR wireless signal repeaters are used to retransmit wireless signals when connectivity is an issue. They are incredibly simple to install as they only require power and a network ID. Any units in range of the repeater with the same network ID will retransmit through it, thus increasing signal strength. Use repeaters to broadcast over very long distances or around permanent obstacles.

Model Number	Description
PDWR-GP-AL-REP	PDWR Repeater to Extend Wireless Distance, Aluminum Enclosure
PDWR-GP-SS-REP	PDWR Repeater to Extend Wireless Distance, Stainless Steel Enclosure

PDWA6963-SS Pipe Mounting Kit



The PDWA6963-SS provides a convenient way to mount one PDW30 primary/secondary, PDWR repeater, or PDW90 field unit to a horizontal or vertical 1.5" or 2" pipe such that the antenna is not right on top of the metal pipe.

Model Number	Description
PDWA6963-SS	Stainless Steel Pipe Mount Kit for One PDW30 Primary/Secondary Unit, PDW90 Field Unit or PDWR Repeater Unit

Note: (2) Two PDWA6963-SS mounting kits are required for mounting a PDW unit on a horizontal pipe.

PDA10 Wireless Surveying Tool Kit



The handheld and target units are used to survey wireless signal strength throughout nonhazardous areas of a facility prior to PDW30 or PDW90 equipment installation. The target unit is set in a desired installation location and the handheld is brought to another installation location. The handheld unit will provide an indication of signal strength between the two units.

Model Number	Description
PDA10	PDW Wireless Signal Strength Survey Tool Kit

Yagi High Gain Directional Antennas



The PDWA3900 Yagi antennas are made to work with point-to-point and point to multi-point applications. These high gain antennas are ideal to use with Precision Digital's PDW wireless series because they give you the flexibility of installing the antenna exactly where you need to bridge your point-to-point wireless process signals while keeping the PDW unit in a convenient location for monitoring.

Each Yagi is factory tuned on a network analyzer for best power match and lowest VSWR, offering the best possible performance. The PDWA3900 also comes complete with a mounting kit with stainless steel hardware.

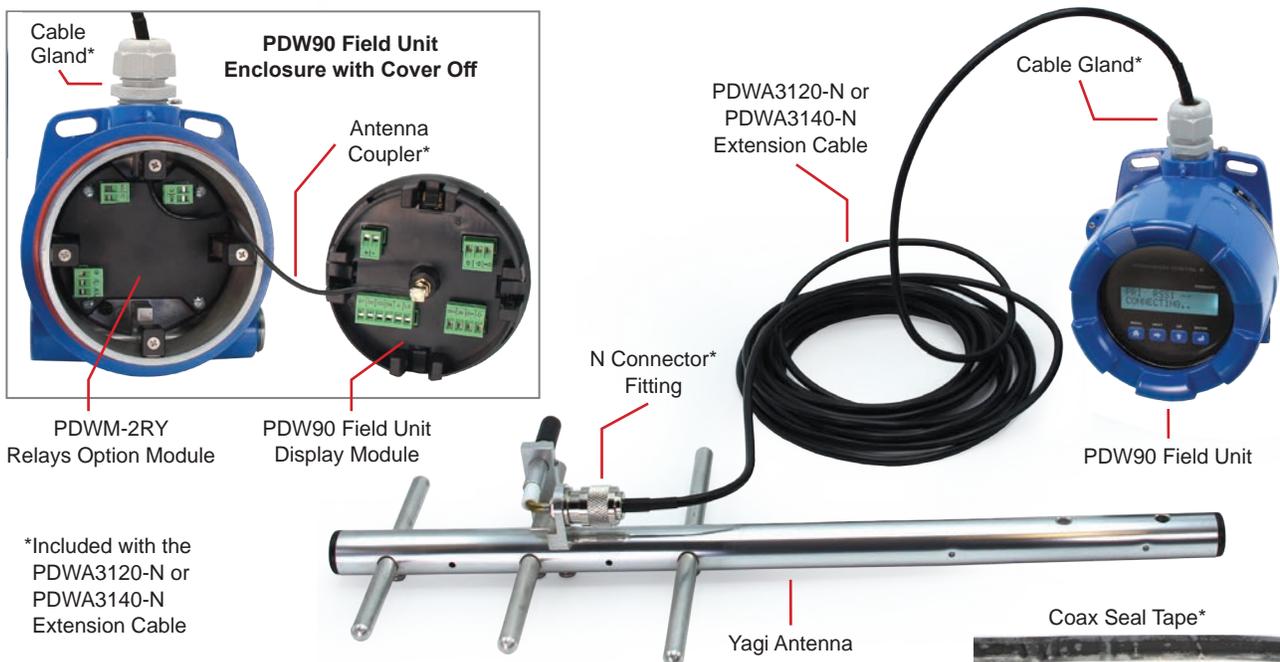
Extension cable accessories are available to extend the distance between the Yagi antenna and the PDW30 or PDW90 wireless units.

Model Number	Description
PDWA3900-6Y-N	Remote 6 dB Yagi High-Gain Directional Antenna
PDWA3900-9Y-N	Remote 9 dB Yagi High-Gain Directional Antenna

Specifications

Frequency	900 MHz
Gain	PDWA3900-6Y-N: 6 dBd; PDWA3900-9Y-N: 9 dBd
Termination	N-Female connector
Mounting Kit	Included for 1 1/4" pipe
Dimensions	PDWA3900-6Y-N: 17.125" x 6.875" (435 mm x 75 mm) PDWA3900-9Y-N: 28" x 6.875" (711 mm x 175 mm)
Weight	PDWA3900-6Y-N: 11.2 oz (318 g) PDWA3900-9Y-N: 16.8 oz (476 g)

Connecting the Yagi Antenna to the PDW90 Field Unit

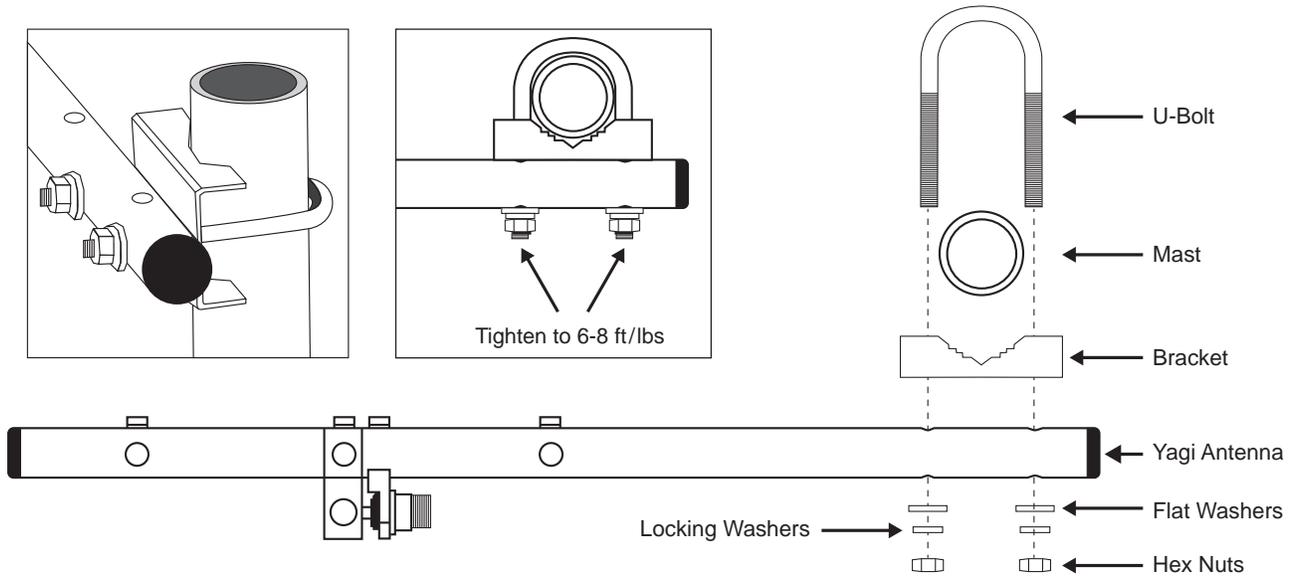


*Included with the PDWA3120-N or PDWA3140-N Extension Cable

CAUTION

- Do not use excessive force when attaching coupler to PDW90 field unit display module.

Mounting the Yagi Antenna



PDWA3100 Antenna Extension Cables



The PDWA3120-N and PDWA3140-N are 20-foot and 40-foot extension cables used to extend the distance between the Yagi Antenna and the PDW30 or PDW90 wireless units. The extension cables also come with an antenna coupler to connect the PDW wireless device to the antenna extension cable, coax seal tape, and a 3/4" NPT cable gland.

Model Number	Description
PDWA3120-N	20-Foot RP-SMA F to N Male Extension Cable for Yagi Antenna
PDWA3140-N	40-Foot RP-SMA F to N Male Extension Cable for Yagi Antenna

BASE STATION CONNECTIONS

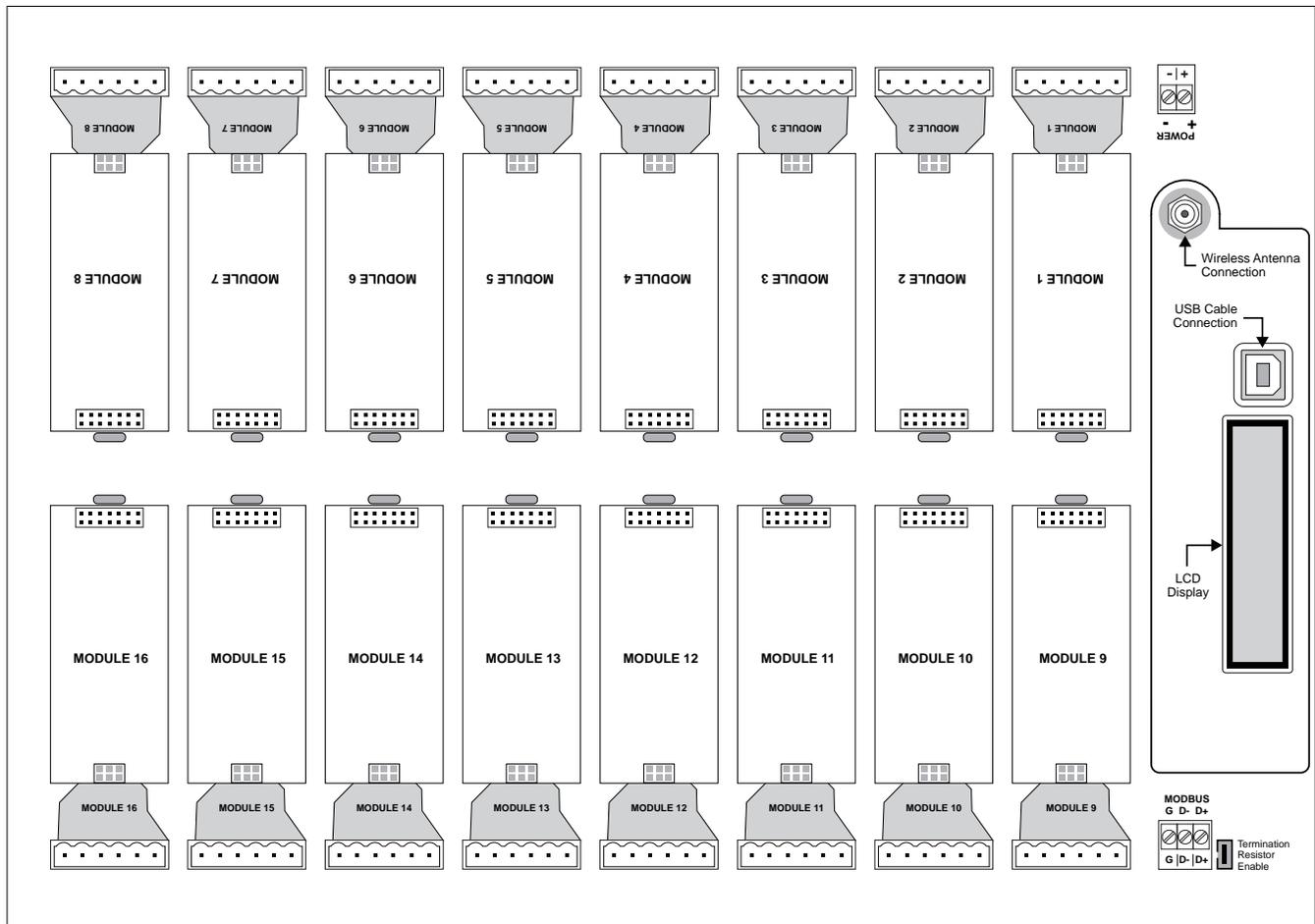
The connectors for the base station are accessed by opening the enclosure door. Power, signal, I/O, and Modbus RS-485 connections are made to removable screw terminal connectors.

⚠ WARNINGS

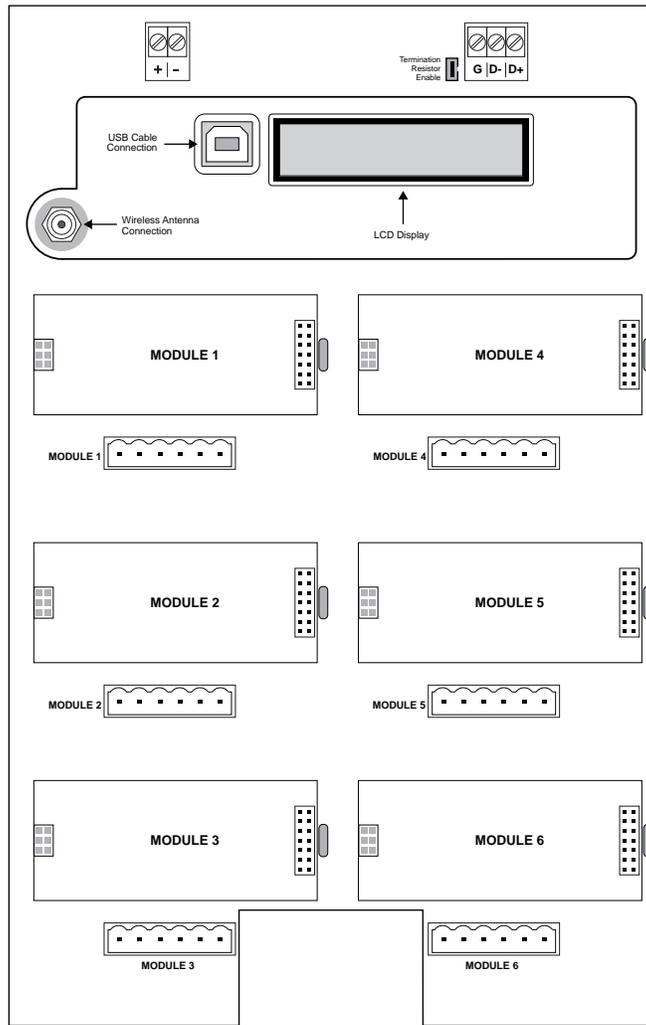
- The PDW90 base station must be powered down completely prior to installing or removing any modules. Failure to do so could result in damage to the electronics.
- Static electricity can damage sensitive components.
- Observe safe handling precautions for static-sensitive components.
- Use proper grounding procedures/codes.
- Observe all safety regulations. Electrical wiring should be performed in accordance with all agency requirements and applicable national, state, and local codes to prevent damage to the device and ensure personnel safety.

Base Station Sub Panel (Connector Boards)

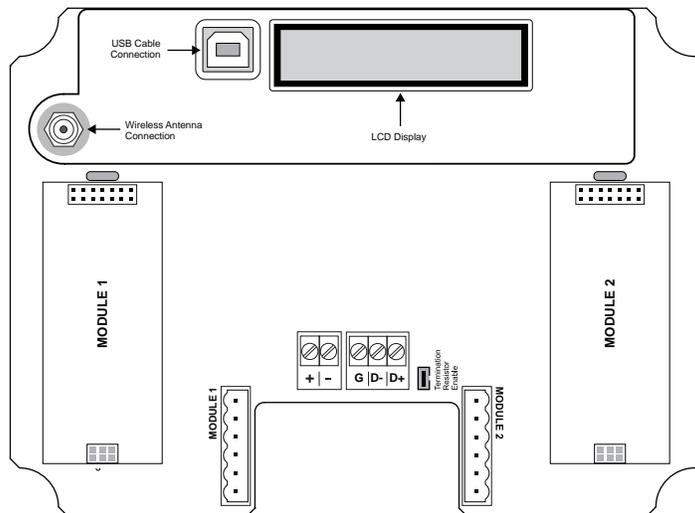
The following diagrams show the locations of the field installable I/O module slots and screw terminal headers on the PDW90 base stations for 16, 6, and 2-module configurations. Also shown is the wireless antenna connection, USB cable port for PDW Manager programming software, Modbus and power terminals, and LCD display.



16-Module Base Station Sub Panel (Connector Board)



6-Module Base Station Sub Panel (Connector Board)



2-Module Base Station Sub Panel (Connector Board)

Installing Base Station I/O Modules

The input/output modules easily snap into place on the connector board of the base station ensuring a secure and perfect fit every time. Each module also comes with connector plugs for easy wiring. There are four types of modules available: Dual Analog Inputs, Dual Analog Outputs, Four Digital I/O, and Dual Relay Outputs.



The modules are completely enclosed to protect the electronics.



The back of the module contains the connector pins that plug into the connector board.



Insert the tab on the module into the slot on the connector board to line up and easily snap it into place.



Press the module firmly into place to secure.



Connector plugs easily snap into the connector board.



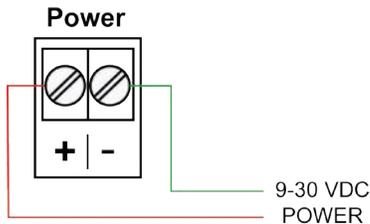
Press the connector plug firmly into place to secure.

BASE STATION WIRING DIAGRAMS

Power Connections

Power connections are made to a two-terminal connector labeled POWER.

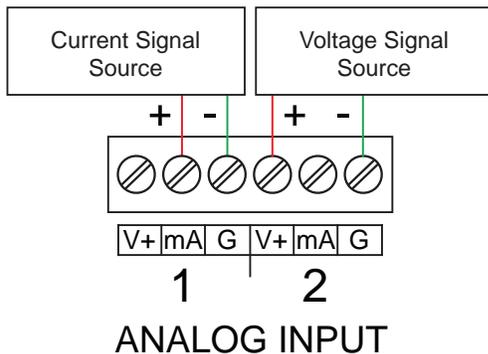
Make sure that the power supply can provide between 9 and 30 VDC to the wireless device.



Dual Analog Input Connections

The analog input module can accept either 4-20 mA, 0-10 V, 0-5 V, or 1-5 V. The appropriate input type must be independently programmed for each input channel.

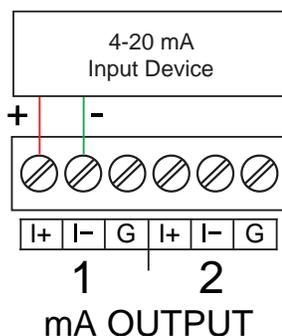
The analog input will not interfere with any existing HART signal on a 4-20 mA current loop. However, the HART signal will not be transmitted wirelessly.



Dual Analog Output Connections

The mA output module can be programmed to output a 4-20mA analog signal associated with a remote field unit's analog input or Modbus register.

The signal can be transmitted to any device scaled to read a 4-20 mA signal as shown below. The analog output is internally powered; no external power supply is required.

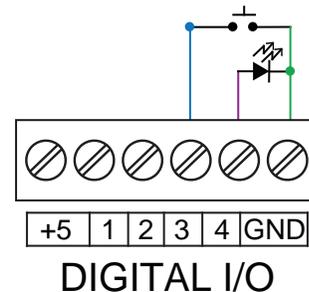


Four Digital I/O Connections

The digital I/O module includes four independently programmable I/O channels. All digital connections are referenced to ground; digital input connections have an internal pull-up resistor.

Note: Each connection may be set as either an input or an output. A digital output can be used to indicate loss of wireless signal.

In the diagram below, D3 is a digital input and D4 is a digital output.

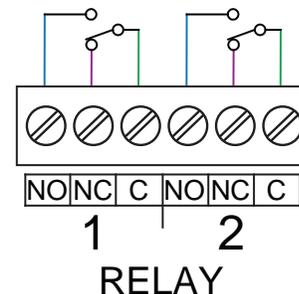


Dual Relays Output Connections

The relays module includes two mechanical relays. Relay connections are made to the six-terminal connector shown below.

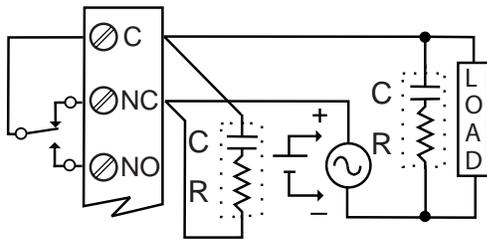
Each relay's C terminal is common only to the normally open (NO) and normally closed (NC) contacts of the corresponding relay.

If a field unit's digital input channel is mapped to a relay module channel on the base station, the effect may be opposite of what is expected. An open connection at the digital input will result in the relay going into an active state. This is because the digital input channels are active low. This can be changed by swapping the NO and NC connections to the relay channel.



Switching Inductive Loads

The use of suppressors (snubbers) is strongly recommended when switching inductive loads to prevent disrupting the microprocessor's operation. The suppressors also prolong the life of the relay contacts. Suppression can be obtained with resistor-capacitor (RC) networks assembled by the user or purchased as complete assemblies. Refer to the following circuits for RC network assembly and installation:



AC and DC Loads Protection

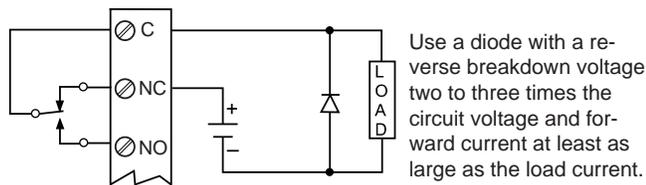
Choose R and C as follows:

R: 0.5 to 1 Ω for each volt across the contacts

C: 0.5 to 1 μF for each amp through closed contacts

Notes:

1. Use capacitors rated for 250 VAC.
2. RC networks may affect load release time of solenoid loads. Check to confirm proper operation.
3. Install the RC network at the device's relay screw terminals. An RC network may also be installed across the load. Experiment for best results.



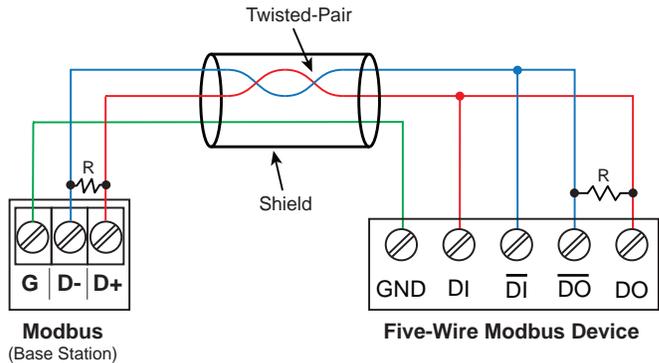
Low Voltage DC Loads Protection

Use a diode with a reverse breakdown voltage two to three times the circuit voltage and forward current at least as large as the load current.

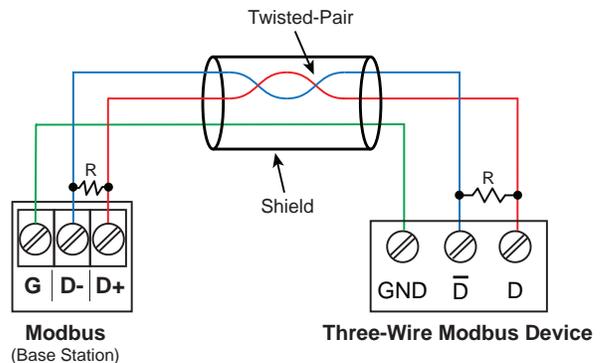
Modbus RTU Serial Communications

The PDW90 base station acts as a simple pass-through for Modbus communications. As such, multiple Modbus enabled devices may transmit and receive wirelessly using the base station.

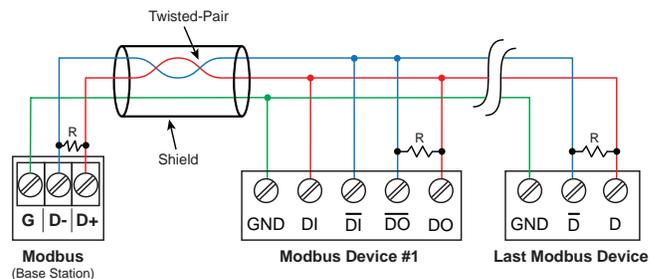
Note: Modbus Client must be connected to Base Station.



Base Station Five-Wire RS-485 Modbus Connections



Base Station Three-Wire RS-485 Modbus Connections



Base Station Multiple Device RS-485 Modbus Connections

Notes:

1. Termination resistors are optional, and values depend on the cable length and characteristic impedance. Consult the cable manufacturer for recommendations.
2. Use shielded cable, twisted-pairs plus ground. Connect ground shield only at one location.

FIELD UNIT CONNECTIONS

To access the connectors, remove the enclosure cover and unclip the display module by pulling it from the enclosure. Signal and power connections are made to removable connectors on the back of the display module. Relay output connections (if installed) are made to removable connectors on the relays option module mounted in the base of the enclosure. The display module may be disconnected from the relays option module to facilitate field wiring. Grounding connections are made to the two ground screws provided on the base of the enclosure, one in-ternal and one external.

⚠ WARNINGS

- Static electricity can damage sensitive components.
- Observe safe handling precautions for static-sensitive components.
- Use proper grounding procedures/codes
- Observe all safety regulations. Electrical wiring should be performed in accordance with all agency requirements and applicable national, state, and local codes to prevent damage to the device and ensure personnel safety.

Display & Relays Option Modules Installation

The display module snaps into built-in rails on the enclosure ensuring a secure and perfect fit every time. No tools are needed to install or remove it. The relays option module is screwed into the base of the enclosure with the four screws provided. Both modules are completely enclosed to protect the printed circuit boards.



Display Module (Left) and Relays Option Module (Right)



Display Module Connected to Antenna
(Connect the antenna to the display module using the included antenna coupler)



Relays Option Module Mounted on the Bottom of Enclosure
(Install the module using the four screws provided)

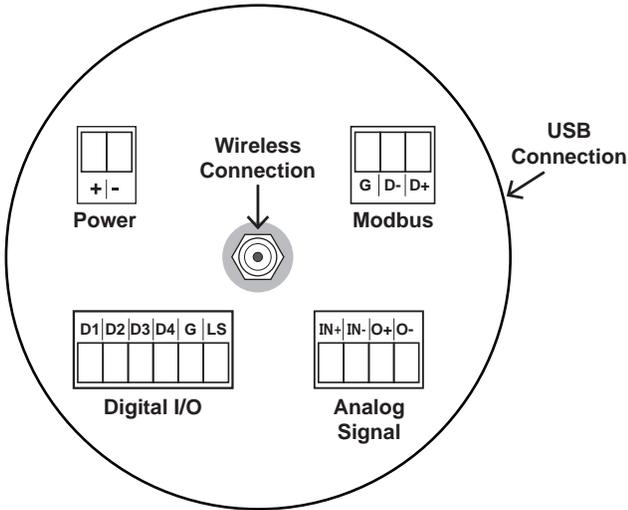


Display Module Mounted on Built-In Rails
(Snap the module into place lining it up with the rail caps)

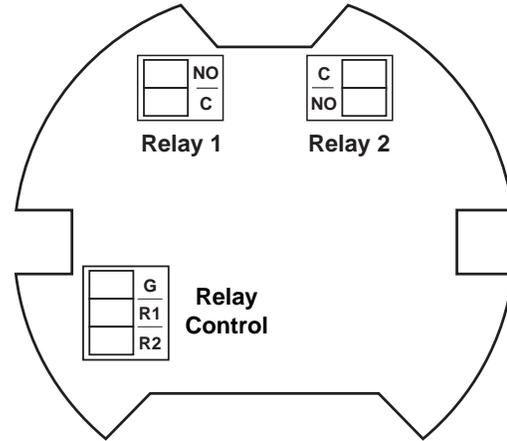
Connectors Labeling

The following diagrams show the locations of the connectors on the back of the display module and the relays option module on the base of the enclosure.

Display Module



Relays Option Module

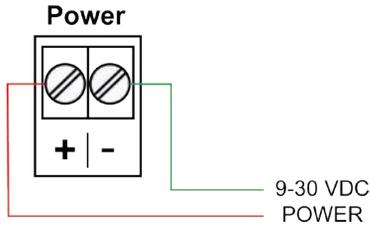


FIELD UNIT WIRING DIAGRAMS

Power Connections

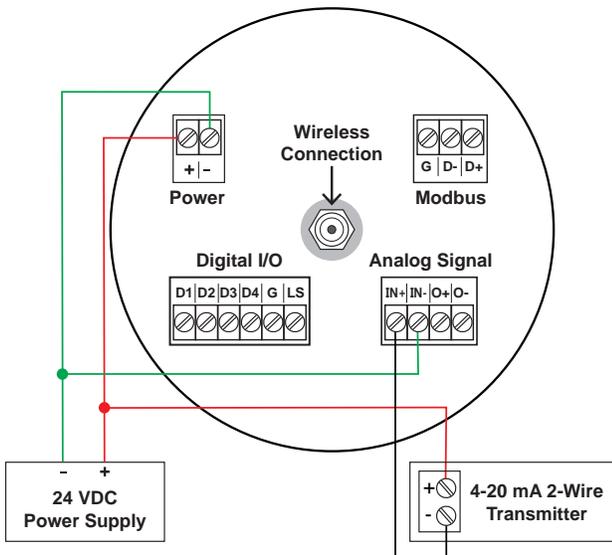
Power connections are made to a two-terminal connector labeled POWER. The field unit is reverse polarity protected; it will not be damaged if wired backward.

Make sure that the power supply can provide between 9 and 30 VDC to the wireless device.



Power Field Unit and 2-Wire Transmitter from Same Power Supply

The Field Unit may be powered from the same power supply that powers the 2-wire (loop-powered) transmitter, assuming that the supply provides enough voltage and current for both units. To power both devices from the same supply, wire the devices to the supply as shown below.

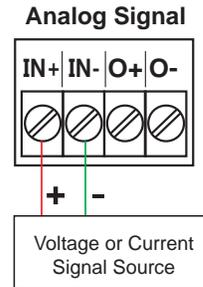


Input Signal Connections

The analog input may be either 4-20 mA, 0-10 V, 0-5 V, or 1-5 V. The appropriate input type must be programmed for each unit.

Once the appropriate input type has been programmed, wire the analog signal source to the device as shown in the diagram below.

The analog input will not interfere with any existing HART signal on a 4-20 mA current loop. However, the HART signal will not be transmitted wirelessly.



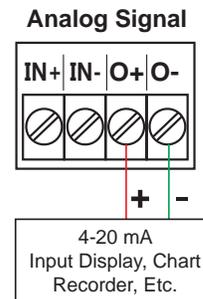
4-20 mA Output Connections

The 4-20 mA output corresponds with the analog input signal on the paired wireless device. The analog output signal is always 4-20 mA, regardless of the input type on the other wireless module.

For instance, if the analog input type on the first device was 0-10 V and the input value was 5 V, the second device would output 12 mA.

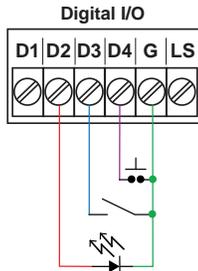
Connect the mA OUT terminals to a device scaled to read a 4-20 mA signal.

The analog output is internally powered; no external power supply is required.



Digital I/O Connections

All digital connections are referenced to ground. The base station I/O settings determine the I/O settings of the field units (e.g. if D1 of the base station is an input then it can only be mapped to a digital output of a field unit).

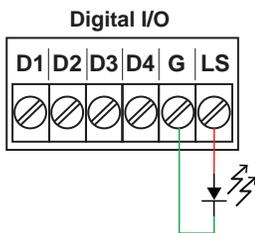


Note: Each connection may be set independently in the device settings as either an input or an output. In the diagram above, D4 & D3 are digital inputs and D2 is a digital output.

Loss of RF Signal Connections

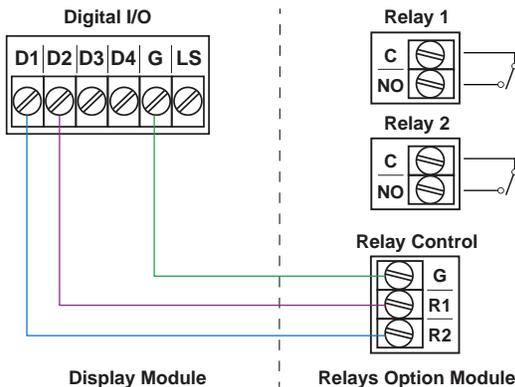
The Loss of Signal terminal (LS) can be used to alert another device, such as a PLC, that the wireless signal has been lost. After approximately 15 seconds of trying to reconnect, the Loss of Signal function will occur and result in the Loss of Signal digital output going to the Link Lost Output state selected via the PDW Manager software.

Active: Logic high (5 V)
 Inactive: Logic low (0 V)
 Stay as Is: State does not change.



Relays Option Connections

The relays are controlled by the digital outputs on the display module so it is necessary to connect R1 and R2 terminals on the relays option module to digital outputs on the display module.

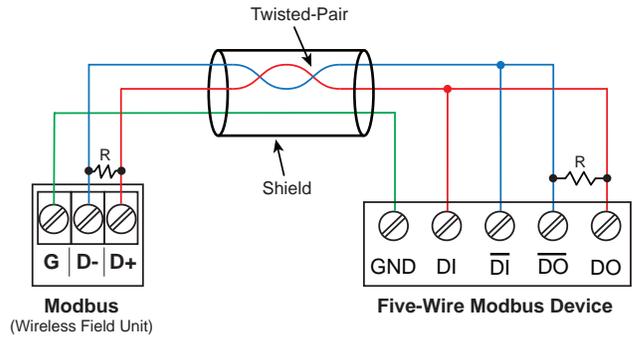


Note: Connections between relay control connection and relays are with traces on PCB.

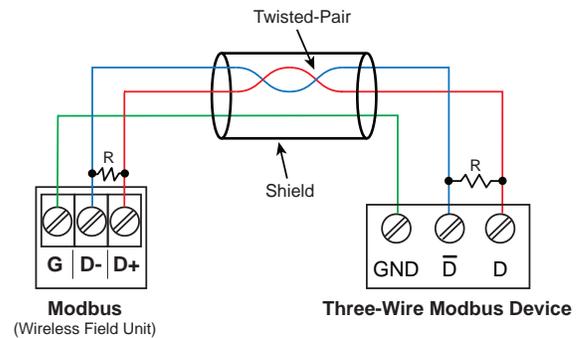
Modbus RTU Serial Communications

The PDW90 base station acts as a simple pass-through for Modbus communications. As such, multiple Modbus enabled devices may transmit and re-ceive wirelessly using the base station.

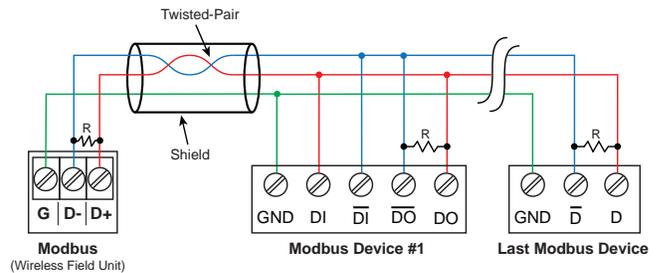
Note: Modbus Client must be connected to Base Station.



Field Unit Five-Wire RS-485 Modbus Connections



Field Unit Three-Wire RS-485 Modbus Connections



Field Unit Multiple Device RS-485 Modbus Connections

Notes:

1. Termination resistors are optional, and values depend on the cable length and characteristic impedance. Consult the cable manufacturer for recommendations.
2. Use shielded cable, twisted-pairs plus ground. Connect ground shield only at one location.

SPECIFICATIONS

Except where noted all specifications apply to operation at +25°C.

PDW90 Base Station

General

Maximum Connected Field Units	32 field units per base station
Network ID	Field selectable: 0 - 99
Peak Antenna Gain	2.15 dBi ± 1.0
Display	32-character dual-line alphanumeric dot matrix LCD display with backlight Visual Area: 2.54" x 0.63" (64.6 x 16.0 mm) Character Height: 0.2" (5.5 mm) Display used for displaying communications link status and signal strength.
Programming Methods	Via PC with PDW Manager software. Configuration files can be saved for later use.
Input Power	9-30 VDC, 40 W maximum. Minimum power: 2.0 W (Modbus only). Power consumption is dependent on type and number of modules installed, refer to each individual module's power specification to calculate the total power needed.
Non-Volatile Memory	All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.
Isolation	500 V
Environmental	Operating temp. range: -40 to 65°C (display inoperable < -20 °C) Storage temp. range: -40 to 85°C Relative humidity: 0 to 90% non-condensing Printed circuit boards are conformally coated
Connections	Removable screw terminal blocks accept 12 to 22 AWG wire.
Connectors Tightening Torque	4.5 lb-in (0.5 Nm)
Enclosure	NEMA 4X; Thermoplastic Polyester; Color: Gray
Dimensions	2-Module Base Station: 7.9" x 5.9" x 6.4" (200 mm x 150 mm x 163 mm) (W x H X D) 6-Module Base Station: 7.9" x 11.8" x 7.0" (201 mm x 300 mm x 178 mm) (W x H X D) 16-Module Base Station: 11.81" x 15.75" x 7.08" (300 mm x 400 mm x 180 mm) (W x H X D) Antenna Height: 6.73" (171 mm) Note: Antenna is installed by the user.
Weight	2-Module Base Station: 2.1 lbs (0.6 kg) 6-Module Base Station: 3.3 lbs (1.5 kg) 16-Module Base Station: 5.5 lbs (2.5 kg)
Warranty	3 years parts and labor. See Warranty Information and Terms & Conditions on www.predig.com for complete details.

Dual Analog Input Module

Inputs	Two (2) Field selectable: 4-20 mA, 0-10 V, 0-5 V, 1-5 V
Accuracy	±0.03% of calibrated span ±1 count
Isolation	1500 VRMS
Recalibration	All ranges are calibrated at the factory. Recalibration is recommended at least every 12 months.
Temperature Drift	0.005% of calibrated span/°C max from 0 to 65°C ambient, 0.01% of calibrated span/°C max from -40 to 0°C ambient
Power Consumption	0.84 W max @ 24 V Add to base station minimum power.
Input Impedance	Voltage ranges: greater than 110 kΩ Current ranges: less than 220 Ω
HART Transparency	Analog input will not interfere with existing HART communications on the wired 4-20 mA signal.

Dual 4-20 mA Output Module

Outputs	(2) Two						
Output Source	Analog input from connected wireless unit						
Calibration	Factory calibrated: 4.000 to 20.000 = 4-20 mA output						
Accuracy	± 0.1% of span ± 0.004 mA						
Isolation	500 V						
Temperature Drift	0.4 µA/°C max from 0 to 65°C ambient, 0.8 µA/°C max from -40 to 0°C ambient						
Power Consumption	2.42 W max @ 24 V Add to base station minimum power.						
Loop Power Supply	Internally powered; no external supply needed						
Output Loop External Resistance	<table border="1"> <thead> <tr> <th>Power Supply</th> <th>Minimum</th> <th>Maximum</th> </tr> </thead> <tbody> <tr> <td>24 VDC</td> <td>10 Ω</td> <td>900 Ω</td> </tr> </tbody> </table>	Power Supply	Minimum	Maximum	24 VDC	10 Ω	900 Ω
Power Supply	Minimum	Maximum					
24 VDC	10 Ω	900 Ω					
Loss of Signal (RF)	After approximately 15 seconds of trying to reconnect, the mA output will go to the Link Lost Output value selected via the PDW Manager software (i.e. 3.2, 3.5, 3.8, 20.5, 20.8, 23.0 mA, or Stay as Is).						

Digital Inputs / Outputs Module

Channels	(4) Four digital I/O connections, independently field selectable as either inputs or outputs. A digital output can be used to indicate loss of wireless signal as described below.
Active Low or Active High	DI/DO logic can be selected via the PDW Manager software.
DI Logic High	3 to 5 VDC
DI Logic Low	0 to 1.1 VDC
DI Contact	Dry contact to ground can be used to activate the input
DO Logic High	3.0 to 5.0 VDC
DO Logic Low	0 to 0.5 VDC
Power Consumption	0.50 W max @ 24 V Add to base station minimum power.
Source Current	20 mA maximum output current
Sink Current	0.5 mA minimum input current
Loss of Signal	Digital output goes to the Link Lost Output state selected via the PDW Manager software. Active: Logic high (5 V) Inactive: Logic low (0 V) Stay as Is: State does not change

Dual Relays Module

Number of Relays	Two (2)
Rating	SPDT (Form C); rated 3 A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP (\approx 50 W) @ 125/250 VAC for inductive loads
Noise Suppression	Noise suppression is recommended for each relay contact switching inductive loads; see page 23 for details.
Initialization	After power failure, relays will initialize to default state before reconnecting to wireless units.
Power Consumption	2.56 W max @ 24 V Add to base station minimum power.
Fail-Safe Operation	Programmable and independent for each relay. Note: Relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.
Loss of Signal (RF)	If mapped to digital input channel, the relay goes to the state selected via the PDW Manager software. Active: Relay energizes Inactive: Relay de-energizes Stay as Is: State does not change

System Power Consumption Examples

Base Station	Analog Input*	Analog Output*	Digital I/O**	Relays*	Power (W)
2 Slots	0	2	0	0	4.9
2 Slots	1	1	0	0	6.8
6 Slots	2	2	1	1	10.9
6 Slots	0	4	0	2	16.8
16 Slots	5	5	2	4	27.8
16 Slots	0	8	4	4	33.6

*Modules with (2) I/O or (2) relays

**Modules with (4) digital I/O

PDW90 Field Unit

General

Display	32-character dual-line alphanumeric dot matrix LCD display with backlight Visual Area: 2.54" x 0.63" (64.6 x 16.0 mm) Character Height: 0.2" (5.5 mm) Display is used for programming assistance and displaying communications link status, signal strength, values for the analog inputs and outputs, and status of digital inputs and outputs.
Network ID	Field selectable: 0 - 99
Peak Antenna Gain	1.8 dBi +/- 1.0
Programming Methods	Programming (complete): PC with PDW Manager software. Programming (all but advanced): Four CapTouch through-glass buttons.
Recalibration	All inputs and outputs are calibrated at the factory. Recalibration is recommended at least every 12 months.
Process/Digital I/O Display	Press the Next button once to display the present analog input and output. Press the Next button again to display digital I/O states.
Password	A programmable password restricts modification of program settings.
Power	9-30 VDC, 2.5 W max Note: If analog and digital outputs are off: 1.0 W min
Non-Volatile Memory	All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.
Isolation	500 V
Environmental	Operating temp. range: -55 to 75°C (display inoperable < -20 °C) Storage temp. range: -55 to 85°C Relative humidity: 0 to 90% non-condensing Printed circuit boards are conformally coated
Connections	Removable screw terminal blocks accept 12 to 26 AWG wire.
Connectors Tightening Torque	4.5 lb-in (0.5 Nm)
Mounting	May be mounted directly to conduit. Built-in flange for 1.5" to 2" pipe or wall mounting. See Dimensions on page 30 for mounting space requirements.
Overall Dimensions	5.25" x 11.63" x 4.80" (133 x 295 x 122 mm) (W x H x D)
Weight	Aluminum: 5.6 lbs (2.5 kg) Stainless Steel: 9.8 lbs (4.4 kg)
Warranty	3 years parts and labor. See Warranty Information and Terms & Conditions on www.predig.com for complete details.

Enclosure

Material	-AL Models: ASTM A413 LM6 die-cast aluminum, copper-free, enamel coated. -SS Models: ASTM A743 CF8M investment-cast 316 stainless steel
Gasket	Fluoroelastomer
Rating	NEMA 4X, IP68
Color	-AL: Blue; -SS: Silver
Window	Borosilicate glass
Conduits	Three 3/4" NPT threaded conduit openings; One used for mounting the antenna (factory installed), the other two available for field wiring. See Ordering Information on page 36 for details.
Flange	Built-in flange for wall and pipe mounting.
Tamper-Proof Seal	Enclosure lid may be secured with tamper-proof seal.
Instrument Tag Loop	Built-in loop for securing stainless steel tag.

Analog Input

Field Selectable Input	4-20 mA, 0-10 V, 0-5 V, 1-5 V
Accuracy	±0.03% of calibrated span ±1 count
Temperature Drift	0.005% of calibrated span/°C max from 0 to 65°C ambient, 0.01% of calibrated span/°C max from -40 to 0°C ambient
Input Impedance	Voltage ranges: greater than 110 kΩ; Current ranges: less than 220 Ω
HART Transparency	HART signals will not transmit wirelessly. The 4-20 mA signal value will transmit normally (without any HART information) even if a HART signal is present. The analog input will not interfere with HART communications within the wired 4-20 mA loop.

Isolated 4-20 mA Transmitter Output

Output Source	Analog input from connected wireless unit	
Calibration	Factory calibrated: 4.000 to 20.000 = 4-20 mA output	
Accuracy	± 0.1% of span ± 0.004 mA	
Loop Power Supply	Internally powered by 24 VDC; no external supply needed	
Temperature Drift	0.4 µA/°C max from 0 to 65°C ambient, 0.8 µA/°C max from -40 to 0°C ambient	
Loss of Signal (RF)	After approximately 15 seconds of trying to reconnect, the mA output will go to the Link Lost Output value selected via the PDW Manager software (i.e. 3.2, 3.5, 3.8, 20.5, 20.8, 23.0 mA, or Stay as Is).	
External Output Loop Resistance	Power supply	Minimum
	24 VDC	10-ohms

Digital Inputs / Outputs

Channels	(4) Four (discrete) digital I/O connections, independently field selectable as either inputs or outputs. A digital output can be used to indicate loss of wireless signal as described below.
DI Logic High	3 to 24 VDC (30 V tolerant)
DI Logic Low	0 to 1.1 VDC
DI Contact	Dry contact to ground can be used to activate the input (Active Low)
DO Logic High	3.0 to 5.0 VDC
DO Logic Low	0 to 0.5 VDC
Output Source Current	20 mA maximum output current
Input Sink Current	0.5 mA minimum input current

IMPORTANT

I/O Operation Configured with PDW Manager

- Active Low Digital Input: A closed dry contact from a digital input terminal to GND will result in a digital output high on the corresponding output pin of the other unit.
- Active High Digital Input: To reverse the output logic, deselect the corresponding digital input box in the PDW Manager software. An open circuit or a logic high at the input will result in a digital output high on the corresponding output pin of the other unit.

Loss of Signal (RF)

Connections Function	Terminals G and LS on the Digital I/O connector After approximately 15 seconds of trying to reconnect, the Loss of Signal function will occur and result in the Digital output going to the Link Lost Output state selected via the PDW Manager software. Active: Logic high (5 V) Inactive: Logic low (0 V) Stay as Is: State does not change
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Optional Relays

Number of Relays	Two (2) SPDT (Form C)
Rating	250 VAC @ 5 A resistive load 30 VDC @ 5 A resistive load 250 VAC @ 2 A inductive load 30 VDC @ 2 A inductive load
Relay Isolation (Dielectric Strength)	3,000 VAC, 50/60 Hz for 1 min
Noise Suppression	Metal oxide varistors across contacts
Relay Control	Relay coils are controlled by the digital outputs (e.g. DO-1 & DO-2)

IMPORTANT

- The relays option module is sold separately, and it is installed on the base of the enclosure by the user.

PDWR Wireless Repeater

General

Display	32-character dual-line alphanumeric dot matrix LCD display with backlight Visual Area: 2.54" x 0.63" (64.6 x 16.0 mm) Character Height: 0.2" (5.5 mm) Display is used for programming assistance and displaying communications link status and signal strength.
Number of Repeaters	Up to 3 repeaters per system
Network ID	Field selectable: 0 - 99
Peak Antenna Gain	1.8 dBi +/- 1.0
Programming Methods	Change network ID and factory defaults only. Four CapTouch through-glass buttons or PC with PDW Manager software.
Password	A programmable password restricts modification of program settings.
Input Power	9-30 VDC, 1.0 W max
Non-Volatile Memory	All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.
Isolation	500 V
Environmental	Operating temp. range: -55 to 75°C (display inoperable < -20 °C) Storage temp. range: -55 to 85°C Relative humidity: 0 to 90% non-condensing Printed circuit boards are conformally coated
Connections	Removable screw terminal blocks accept 12 to 26 AWG wire.
Connectors Tightening Torque	4.5 lb-in (0.5 Nm)
Mounting	May be mounted directly to conduit. Built-in flange for 1.5" to 2" pipe or wall mounting. See Field Unit Dimensions on page 35 for mounting space requirements.
Overall Dimensions	5.25" x 11.63" x 4.80" (133 x 295 x 122 mm) (W x H x D)
Weight	Aluminum: 5.6 lbs (2.5 kg) Stainless Steel: 9.8 lbs (4.4 kg)
Warranty	3 years parts and labor. See Warranty Information and Terms & Conditions on www.predig.com for complete details.

See the [PDWR Wireless Repeater Manual](#) for more information on how to extend the range of wireless signals.

Enclosure

Material	-AL Models: ASTM A413 LM6 die-cast aluminum, copper-free, enamel coated. -SS Models: ASTM A743 CF8M investment-cast 316 stainless steel
Gasket	Fluoroelastomer
Rating	NEMA 4X, IP68
Color	-AL: Blue; -SS: Silver
Window	Borosilicate glass
Conduits	Three ¾" NPT threaded conduit openings; One used for mounting the antenna (factory installed), the other two available for field wiring. See Ordering Information on page 36 for details.
Flange	Built-in flange for wall and pipe mounting.
Tamper-Proof Seal	Enclosure lid may be secured with tamper-proof seal.
Instrument Tag Loop	Built-in loop for securing stainless steel tag.

Base Station, Field Unit, Repeater

Wireless Radio

Frequency	900 MHz
Range	500 ft (152.4 m) indoor, 1 mi (1.61 km) outdoor (line-of-sight)
Encryption	AES 128-bit encryption available using PDW Manager software
Interference Reduction	Frequency Hopping Spread Spectrum (FHSS)
Power Output	24 dBm (250 mW)
Sensitivity	-101 dBm

RS-485 Modbus® RTU Serial Communications

IMPORTANT

- Modbus Client *must* be connected to base station.

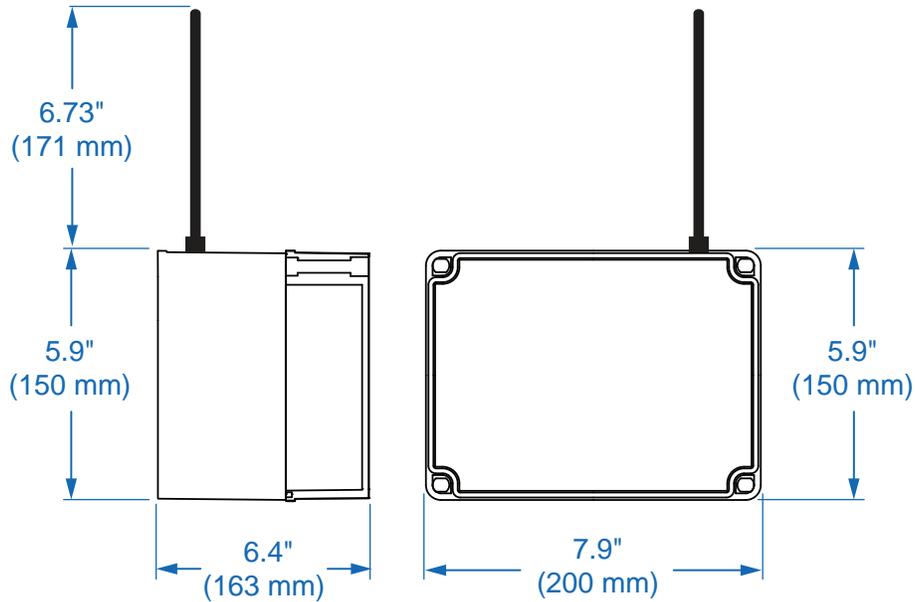
Compatibility	EIA-485
Connectors	Removable screw terminal connector
Max Distance	3,937' (1,200 m) max
Baud Rate	1200 – 57,600 bps
Data	8 bit (1 start bit, 2 stop bits)
Parity	Even, Odd, or None with 1 or 2 stop bits
Modbus Timeout	0.5, 1, 2, 3, 4, 5 seconds; user selectable
Isolation	1500 VRMS

PDW Manager Software

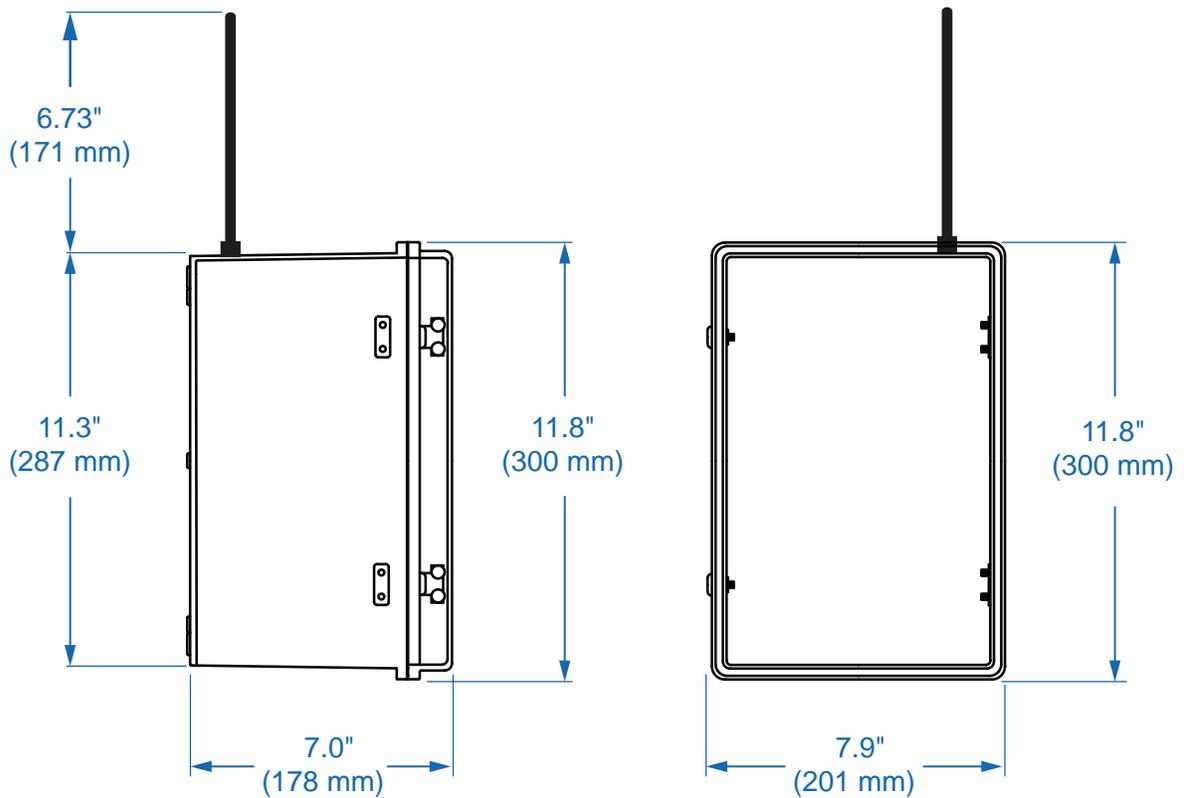
System Requirements	Microsoft® Windows® 10/11
Communications	USB 2.0 Base Station: Standard USB A to USB Type B Field Unit: Standard USB A to micro-USB Type B
Configuration	Configure the base station and the field units via the base station's USB. Inputs on the base station are mapped to outputs on the selected field unit.
Compatibility	The PDW Manager v2.0.0 is compatible with previous firmware version 1.10; but there is a possibility of issues in the GUI (Graphical User Interface), but it should not be a problem configuring the supported features.
Utility	Use to program all settings on base station and field units. Save configuration files for later use with similar systems, base station only.
Availability	Download from predig.com/pdwmanager

DIMENSIONS

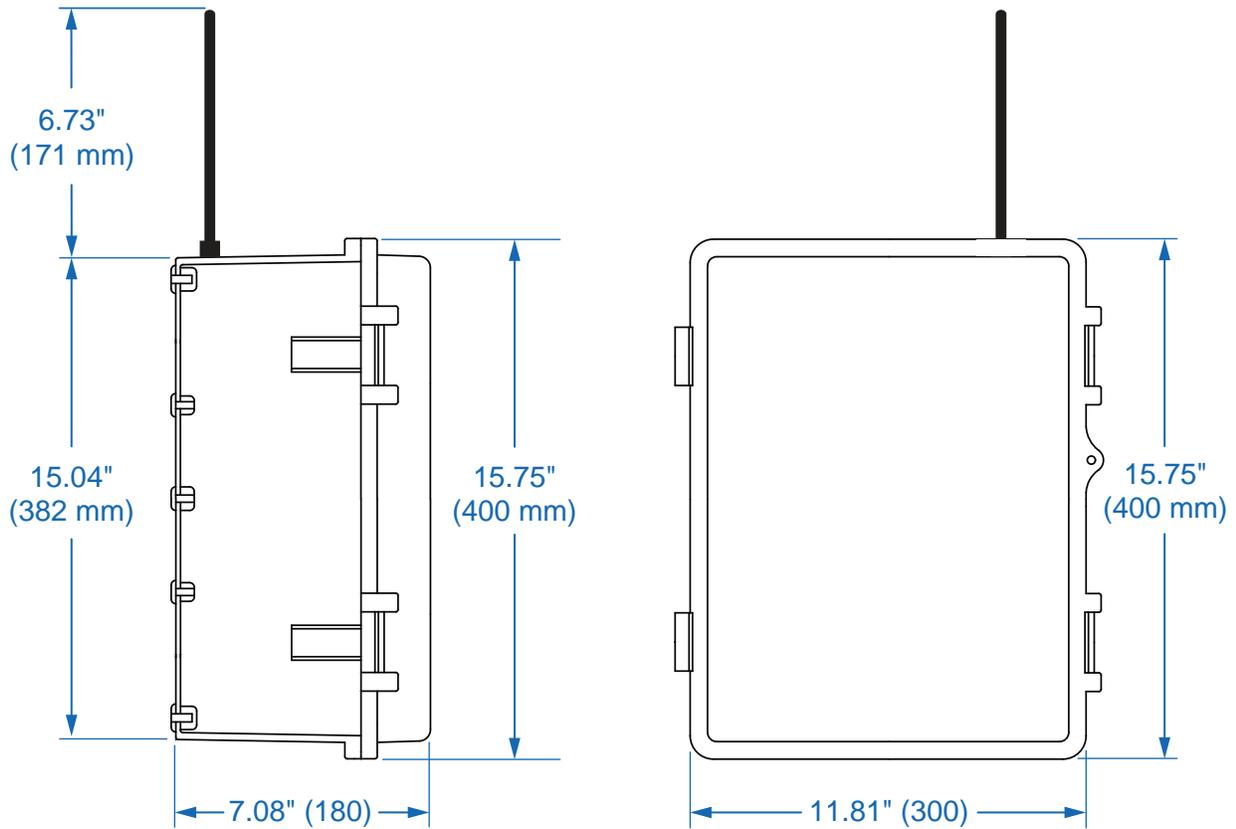
Base Station Dimensions



2-Module Base Station Dimensions

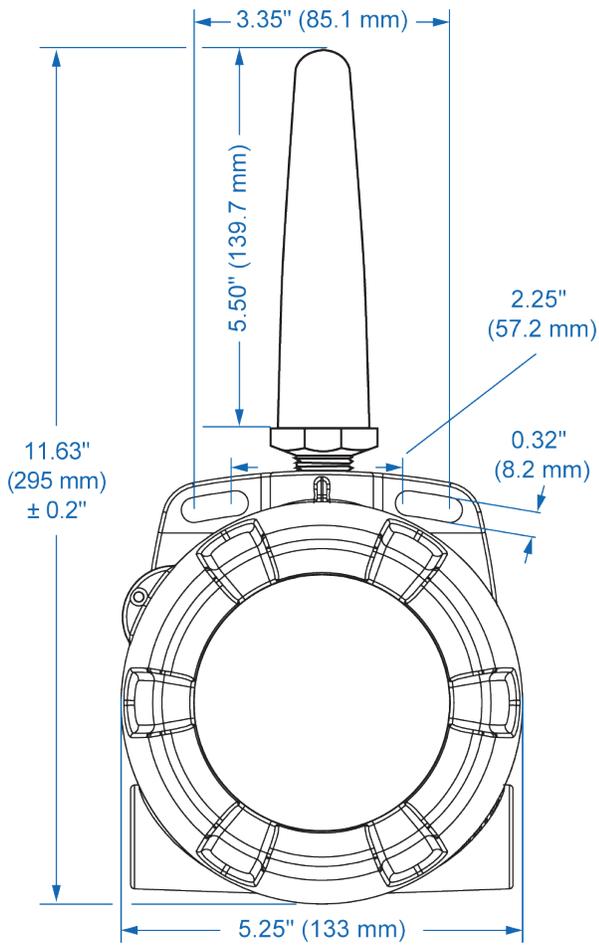


6-Module Base Station Dimensions

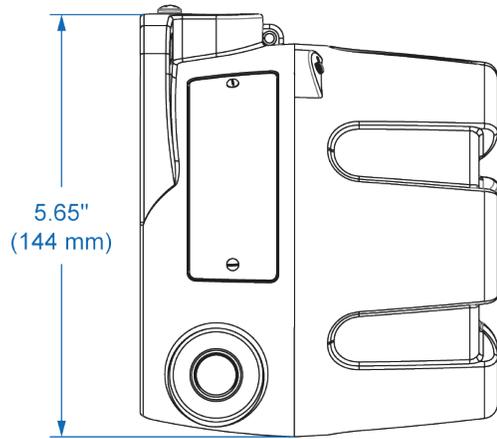


16-Module Base Station Dimensions

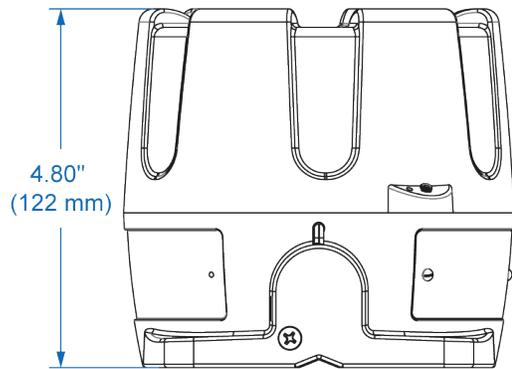
Field Unit Dimensions



Enclosure & Antenna Dimensions - Front View



Enclosure Dimensions - Side View



Enclosure Dimensions - Top View

PDWA6963-SS STAINLESS STEEL PIPE MOUNTING KIT



The PDWA6963-SS provides a convenient way to mount PDW30, PDWR, and PDW90 wireless field units to horizontal or vertical 1.5" or 2" pipes such that the antenna is not right on top of the metal pipe.

The components in the mounting kit are made from 316 stainless steel and all necessary hardware is provided to mount one unit on a vertical pipe. To mount a unit to a horizontal pipe, two kits are required.



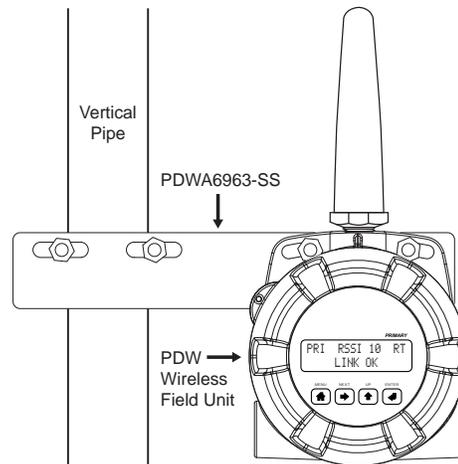
Vertical Pipe Mounting



Horizontal Pipe Mounting

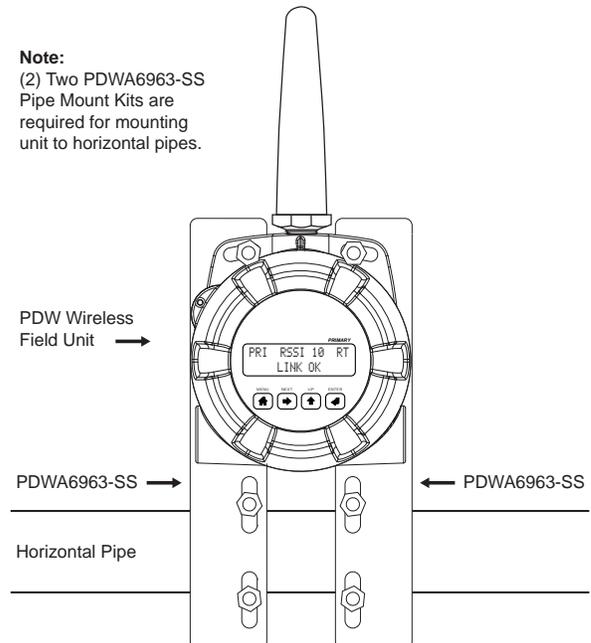
Mounting Instructions

1. Attach the mounting plate to the PDW wireless unit with the provided hardware using the round holes on the plate.
2. Mount the plate to the pipe with the provided U-bolt / hardware using the slotted holes on the mounting plate.
3. For best results, mount unit so antenna is as far away from metal devices as possible.
4. Two PDWA6963-SS mounting kits are required for mounting a PDW unit on a horizontal pipe.



PDW Unit Mounted to Vertical Pipe with One PDWA6963-SS Kit

Note:
(2) Two PDWA6963-SS Pipe Mount Kits are required for mounting unit to horizontal pipes.



PDW Unit Mounted to Horizontal Pipe with Two PDWA6963-SS Kits

ORDERING INFORMATION

PDW90 Wireless Components

Base Stations	
Model	Description
PDW90-GP-PL-BASE-02	PDW90 Point-to-Multipoint Wireless Process Signal Base Station, (2) I/O Slots ¹
PDW90-GP-PL-BASE-06	PDW90 Point-to-Multipoint Wireless Process Signal Base Station, (6) I/O Slots ¹
PDW90-GP-PL-BASE-16	PDW90 Point-to-Multipoint Wireless Process Signal Base Station, (16) I/O Slots ¹

Field Installable Base Station Modules	
Model	Description
PDWM90-BASE-2AI	PDW90 Dual Analog Input Base Station Module ²
PDWM90-BASE-2AO	PDW90 Dual Analog Output Base Station Module ²
PDWM90-BASE-2RY	PDW90 Dual Relay Output Base Station Module ²
PDWM90-BASE-4DI	PDW90 Four Digital I/O Base Station Module ²

Field Units	
Model	Description
PDW90-GP-AL-FIELD	PDW90 Point-to-Multipoint Wireless Process Signal Field Unit, Aluminum Enclosure ³
PDWR-GP-AL-REP	PDWR Repeater to Extend Wireless Distance, Aluminum Enclosure ³
PDW90-GP-SS-FIELD	PDW90 Point-to-Multipoint Wireless Process Signal Field Unit, Stainless Steel Enclosure ³
PDWR-GP-SS-REP	PDWR Repeater to Extend Wireless Distance, Aluminum Enclosure ³

Field Unit Module	
Model	Description
PDWM-2RY	Relays Option Module, Two Form A (SPST) ⁴

System Components Examples

See Application Examples starting on page 6 for ordering information of typical applications.

Accessories	
Model	Description
PDA10	PDW Wireless Signal Strength Survey Tool
PDWA3120-N	20' RP-SMA F to N Male Antenna Extension Cable ⁵
PDWA3140-N	40' RP-SMA F to N Male Antenna Extension Cable ⁵
PDWA3120-S	20' RP-SMA M/F Antenna Extension Cable ⁵
PDWA3140-S	40' RP-SMA M/F Antenna Extension Cable ⁵
PDWA3900-6Y-N	Yagi Antenna 6dB
PDWA3900-9Y-N	Yagi Antenna 9dB
PDWA3900-20-N	PDW 900 MHz Omnidirectional Antenna, M20
PDWA3900-34-N	PDW 900 MHz Omnidirectional Antenna, 3/4" NPT
PDWA6963-SS	Stainless Steel Pipe Mount Kit for One PDW30 Primary/Secondary Unit, PDW90 Field Unit or PDWR Repeater Unit ⁶
PDAPLUG75	3/4" Metal Conduit/Stopping Plug
PDAREDUCER-75M-50F	M-3/4" NPT to F-1/2" NPT Reducer with Approvals
PDAREDUCER-75M-M20F	M-3/4" NPT to F-M20 NPT Reducer with Approvals
PDA-MICROUSB	Micro-USB PC Programming Cable for Field Unit
PDA-USB	Standard USB PC Programming Cable for Base Station
PDA-SSTAG	Custom Stainless Steel Tag

Notes:

1. Antenna included with the base station is installed by the user.
2. Base station modules are ordered separately and installed in base station by customer.
3. PDW90 field units and PDWR repeaters come standard with two 3/4" NPT conduit holes. To order models with M20 conduit holes instead, add -22 at the end of the part number (e.g. PDW90-GP-AL-FIELD-22).
4. The PDWM-2RY Relays Option Module is installed by the customer using the four screws provided.
5. Antenna extension cables include the following parts:
(1) Extension Cable, (1) Antenna Coupler, (1) 8" Length of Coax Seal Tape, (1) 3/4" NPT Cable Gland
6. (2) Two PDWA6963-SS mounting kits are required for mounting a PDW unit on a horizontal pipe.

WARNING

Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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