

PDWR Wireless Signal Repeater

Instruction Manual

**PRECISION
DIGITAL** 
WIRELESS

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



Available in Aluminum
or Stainless Steel

- Wireless Repeater Unit Improves Signal Strength and Range for PDW Wireless Systems
- Use in PDW30 Point to Point and PDW90 Point to Multi-Point Wireless Systems
- Increase Range an Additional 1 Mile Line-of-Sight, 500 Feet Indoor
- Increases Range of the Analog, Digital I/O and Modbus Signals
- Simple to Configure Using PDW Manager Programming Software and On-Board USB
- Use CapTouch Through-Glass Buttons to Change Network ID
- Device Communication Secured by Enabling 128-bit AES Encryption
- Password Protection
- IP68, NEMA 4X Aluminum & Stainless Steel Enclosures With Plenty of Room for Field Wiring
- Operating Temperature Range: -55 to 75°C (-67 to 167°F)
- Conformal Coated PCBs for Dust & Humidity Protection
- Flange for Wall or Pipe Mounting; Loop for Stainless Steel Tag; Holes for Tamper-Proof Seal
- 9-30 VDC Power
- 3-Year Warranty

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Disclaimer

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CAUTION

- Read complete instructions prior to installation and operation of the device.

WARNINGS

- Risk of electric shock or personal injury.
- This product is not recommended for life support applications or applications where malfunctioning could result in personal injury or property loss. Anyone using this product for such applications does so at their own risk. Precision Digital Corporation shall not be held liable for damages resulting from such improper use.
- Failure to follow installation guidelines could result in death or serious injury. Make sure only qualified personnel perform the installation.

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

Limited Warranty

Precision Digital Corporation warrants this product against defects in material or workmanship for the specified period under "Specifications" from the date of shipment from the factory. Precision Digital's liability under this limited warranty shall not exceed the purchase value, repair, or replacement of the defective unit. See Warranty Information and Terms & Conditions on www.prediq.com for complete details.

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Introduction

PDWR wireless signal repeaters are used to improve the connectivity in PDW30 point to point and PDW90 point to multi-point wireless systems. They will generally increase signal range of the system by another 1 mile line-of-sight or 500 feet indoor.

The repeaters are simple to install as they only require power and a network ID. Any PDW wireless units in range of the repeater with the same network ID will retransmit through it, thus increasing signal strength.

PDWR repeaters can be used to broadcast over very long distances or around permanent obstacles.

The PDWR repeaters are available in either aluminum or stainless steel NEMA 4X, IP68 enclosures and these enclosures contain plenty of room for field wiring connections.

Key Features



PDW Manager PC Software



PDW Manager PC Software allows for programming the PDWR repeater units from a PC with a USB connection. The units connect to a PC via the USB connection on the side of the display module behind the cover of the enclosure. Use of PDW Manager is required for programming advanced settings such as wireless encryption. PDW Manager is available for download at www.prediq.com/pdwmanager.

Easy-To-Install Display Module



The display module designed specifically for the PDWR wireless units are easy to remove making it convenient for wiring the unit. The display module is completely enclosed for added protection when wiring and handling.

CapTouch Through-Glass Buttons



The PDWR repeater 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 allow the Network ID to be programmed without removing the cover.

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.

Repeater Units Available in Aluminum or Stainless Steel

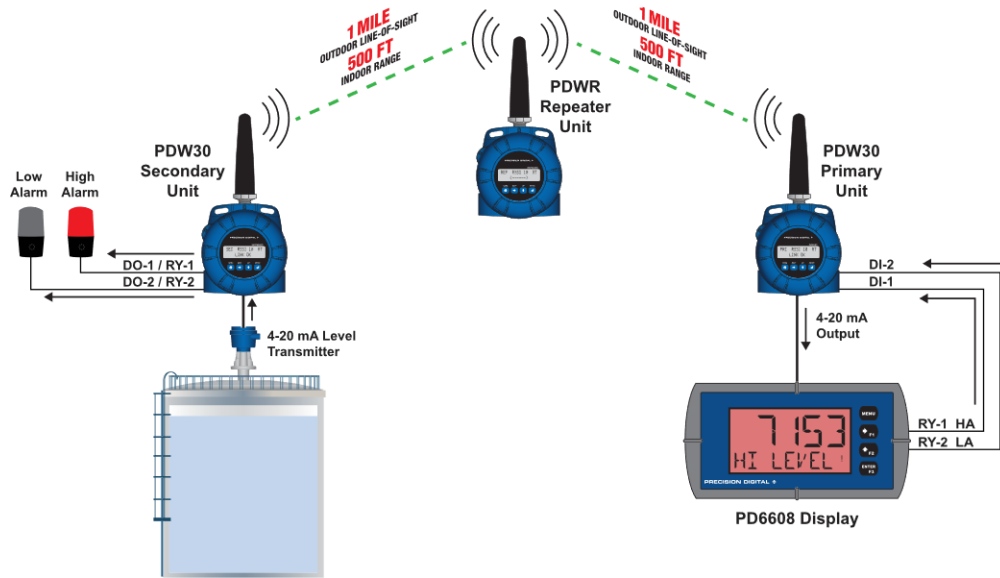


The PDWR repeater units are available in an IP68, NEMA 4X aluminum or stainless steel enclosure. The enclosures feature a built-in flange for wall or pipe mounting, built-in loop for a stainless steel tag, locking screw, and hole for a tamper-proof wire & seal. The enclosure also includes two 3/4" threaded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

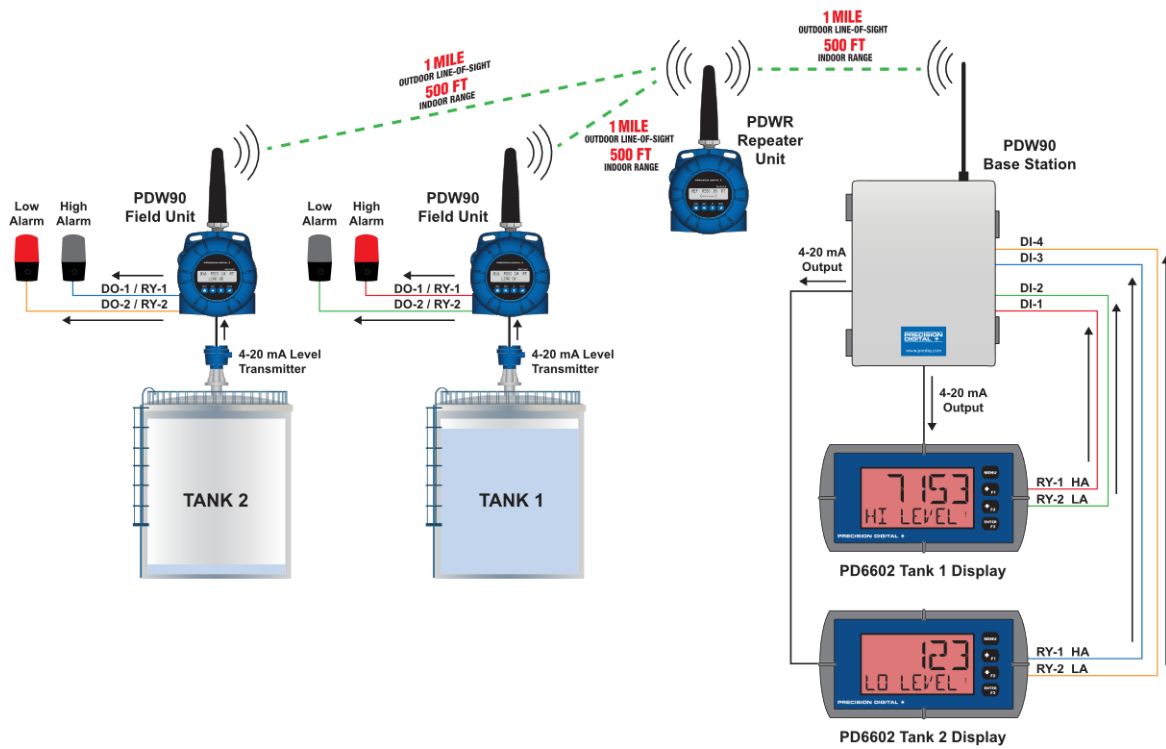
Application Example

Extending Signal Range with PDWR Repeaters

The PDWR repeaters are used to retransmit wireless signals when connectivity between the PDW30 primary and secondary units or the PDW90 base station and field units are out of range or are obstructed by other objects or structures.



PDW30 Point-to-Point Wireless Bridge Using a Repeater to Extend the Signal Range



PDW90 Point to Multi-Point Wireless System Using a Repeater to Extend the Signal Range

Ordering Information

Model	Description
PDWR-GP-AL-REP	PDW30/PDW90 Repeater to Extend Wireless Distance, Aluminum Enclosure ¹
PDWR-GP-SS-REP	PDW30/PDW90 Repeater to Extend Wireless Distance, Stainless Steel Enclosure ¹

Accessories

Model	Description
PDA10	PDW Wireless Signal Strength Survey Tool
PDWA3120-S	20' RP-SMA M/F Extension Cable for Omnidirectional Antenna ²
PDWA3140-S	40' RP-SMA M/F Extension Cable for Omnidirectional Antenna ²
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 ³
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 Reducer with Approvals
PDA-MICROUSB	Micro-USB PC Programming Cable for Field Unit (supplied)
PDA-SSTAG	Custom Stainless Steel Tag (See website for convenient ordering form)

Notes:

1. The PDWR repeater units 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. PDWR-GP-AL-REP-22)
2. 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
3. (2) Two PDWA6963-SS mounting kits are required for mounting a PDW unit on a horizontal pipe.

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

Specifications

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

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 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 programmed settings.
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 <i>Dimensions</i> on page 10 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 year parts and labor. See Warranty Information and Terms & Conditions on www.prediq.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 ¾" NPT threaded conduit openings; One used for mounting the antenna (factory installed), the other two available for field wiring. M20 conduits are available. See <i>Ordering Information</i> on page 7 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.

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

PDW Manager Software

System Requirements	Microsoft® Windows® XP/Vista/7/8/10
Communications	USB 2.0; Micro-USB Type B
Configuration	Configure devices one at a time
Compatibility	The PDW Manager v2.00 is compatible with firmware version 1.10; there is a possibility of issues in the GUI (Graphical User Interface), but it should not be a problem configuring the supported features.
Availability	Download from prediq.com/pdwmanager

Safety Information

⚠ CAUTION

- Read complete instructions prior to installation and operation of the device.

⚠ WARNINGS

- Read all product labels completely and follow all instructions and requirements listed on the labels for installation or service.
- Installation and service should be performed only by trained service personnel. Service requiring replacement of internal components must be performed at the factory.

Unpacking

Remove unit from box. Inspect the packaging and contents for damage. Report damages, if any, to the carrier. If any part is missing or the units malfunction, please contact your supplier or the factory for assistance.

Installation

To access the connectors, remove the enclosure cover and unclip the display module by pulling it from the enclosure. The display module may be disconnected from the option module (if installed) to facilitate wiring to the relay option module.

Mounting Instructions

There are three ways to mount the PDWR repeater:

1. To a wall with the built-in flange
2. To a 1.5" or 2" pipe using the PDWA6963-SS stainless steel pipe mounting kit as shown on page 11.
3. Supported by the conduit using the conduit holes provided.

The factory installed antenna is threaded into one of the three conduit holes and may be moved as appropriate for the installation.

Cover Jam Screw

The cover jam screw should be properly installed once the wireless units have been wired and tested in a safe environment. The cover jam screw is intended to prevent the removal of the units' cover while in operation without the use of tools. Using a M2 hex wrench, turn the screw clockwise until the screw contacts the unit. Turn the screw an additional 1/4 to 1/2 turn to secure the cover.

⚠ CAUTION

- Excess torque may damage the threads and/or wrench.

FCC Notice

Contains FCC ID: MCQ-XB900HP

The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii.) this device must accept any interference received, including interference that may cause undesired operation.

⚠ IMPORTANT

- The RF module has been certified for remote and base radio applications. If the module will be used for portable applications, the device must undergo SAR testing. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
- If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Re-orient or relocate the receiving antenna, increase the separation between the equipment and receiver. Connect equipment and receiver to outlets on different circuits or consult the dealer or an experienced radio/TV technician for help.

Canada (IC) Notice

Contains Model: XB900HP, IC: 1846A-XB900HP

Integrator is responsible for its product to comply with IC ICES-003 & FCC Part 15, Sub. B - Unintentional Radiators. ICES-003 is the same as FCC Part 15 Sub. B and Industry Canada accepts FCC test report or CISPR 22 test report for compliance with ICES-003.

Dimensions

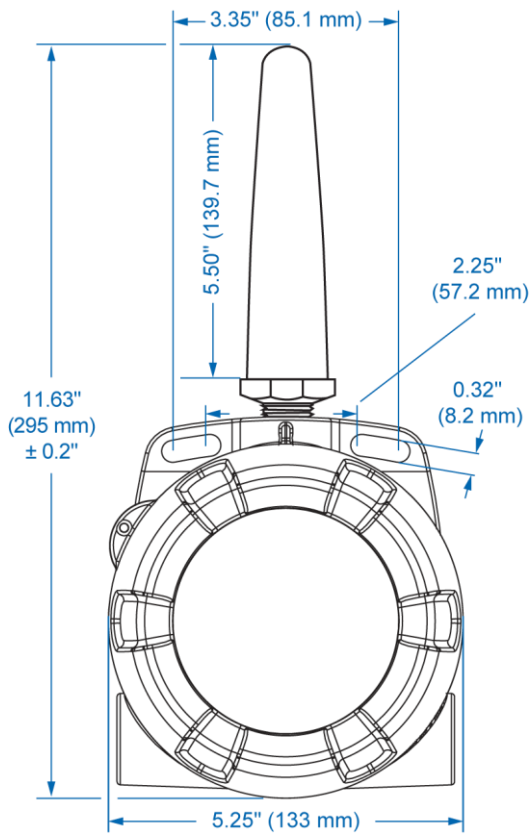


Figure 1. Enclosure & Antenna Dimensions – Front View

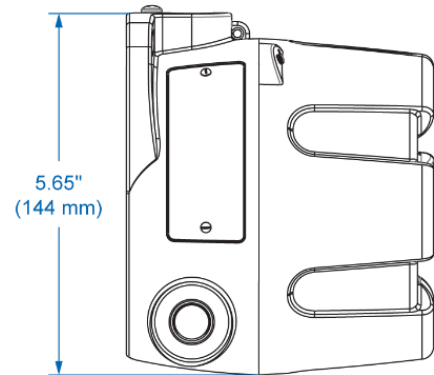


Figure 2. Enclosure Dimensions – Side View

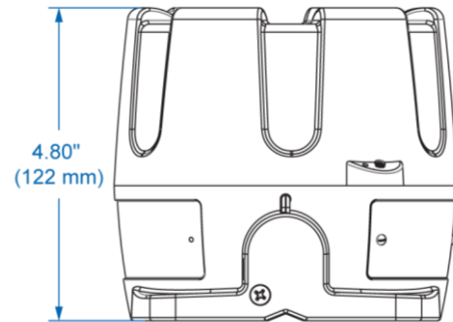


Figure 3. Enclosure Dimensions – Top View

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.

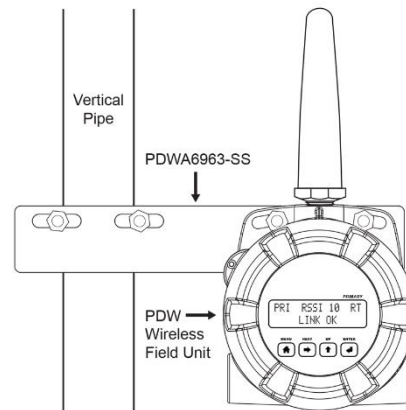


Figure 4. PDW Unit Mounted to Vertical Pipe with One PDWA6963-SS Kit

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

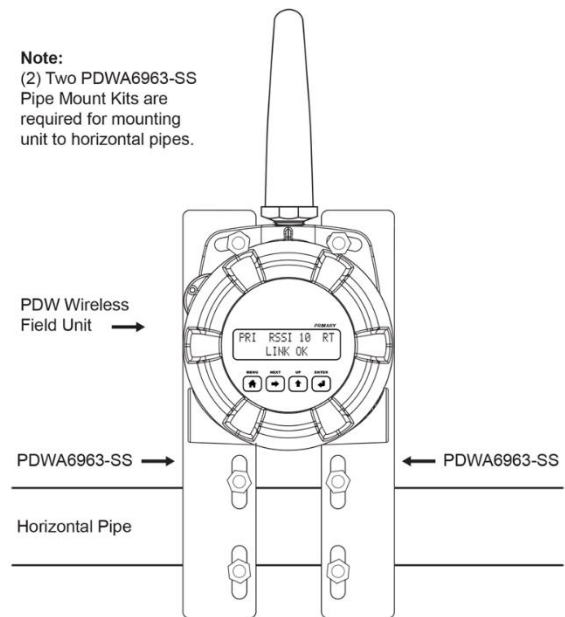


Figure 5. PDW Unit Mounted to Horizontal Pipe with Two PDWA6963-SS Kits

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. The power connection is made to a two terminal removable connector on the back of the assembly. Grounding connections are made to the two ground screws provided on the base – one internal 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.

Connector Labeling / Location

The only connections made to the PDWR repeater is power which is made to a two-position screw terminal connector as shown in the following diagram. The connector is located on the rear of display module. The three empty headers also on the rear of the display module are not used on the repeater.

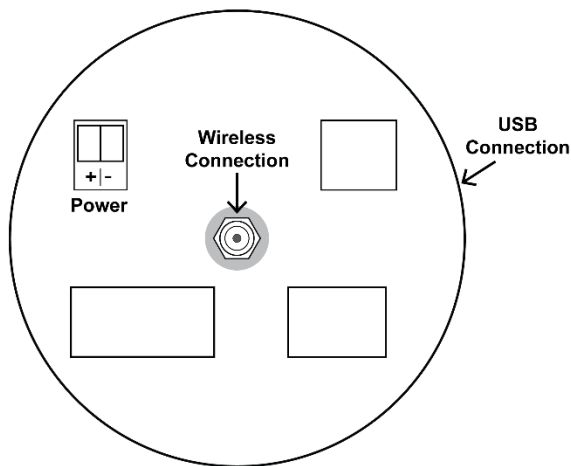


Figure 6. PDWR Repeater Display Module Connectors

⚠ IMPORTANT

- Use a flat screwdriver to loosen up the removable terminal blocks.

Wiring Diagram

Power Connections

Power connections are made to a two-terminal connector labeled POWER in Figure 6.

The PDWR repeater 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.

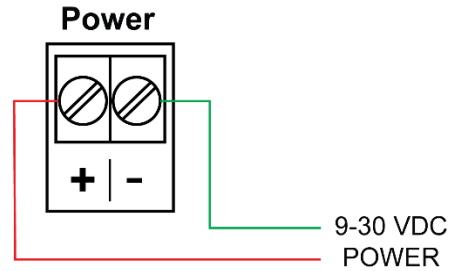


Figure 7. Power Connections

Setup and Programming

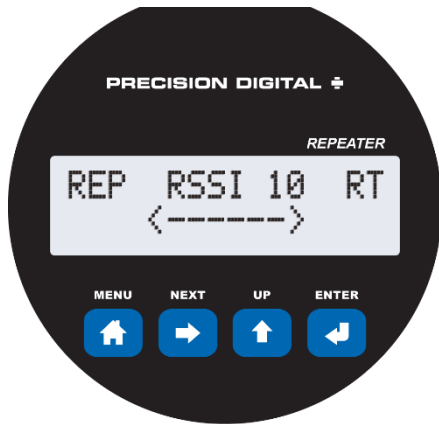
Overview

There are only three items to program on the PDWR repeater: network ID, password, and encryption.

All programming can be done using PDW Manager software. In addition, the network ID can be programmed using the CapTouch through-glass buttons.

After power and input signal connections have been completed and verified, apply power to the device.

Buttons & Display



Display for PDWR Repeater Unit

Programming Buttons

The units can be programmed using the buttons located behind the enclosure cover. Use the MENU button to enter or exit *programming mode*, the NEXT button to cycle forward through menu options, the UP button to cycle backward through menu options, and the ENTER button to select the menu item or option you want.

During number entry, use the NEXT button to select a digit and the UP button to increment the selected digit.

Button/Symbol	Description
	MENU Enter or exit the device menu
	ENTER Select a menu item or option
	UP Cycle backward through menus or increment digit
	NEXT Cycle forward through menus or select next digit

Display	Status
RSSI	Received Signal Strength Indicator Indicates the wireless signal strength between wireless devices on a scale of 1 to 10. If the repeater is used in a PDW90 installation, this value represents the signal strength between the base station and the repeater. If the repeater is used in a PDW30 installation, this value represents the signal strength between the primary unit and the repeater.
RT	Receiving/Transmitting Flashes while the devices are sending and/or receiving data
REP	Repeater Indicates that the device is a repeater unit. This distinction is fixed and cannot be changed.

CapTouch Buttons

The PDWR repeater is equipped with four capacitive sensors that operate as through-window buttons. Their only function is to change the network ID; which due to through-window buttons, can be changed without removing the cover (and exposing the electronics) in a harsh operating area.



The first time the CapTouch buttons are used, or after 20 seconds of inactivity, a long finger press for about two seconds directly over the marked button area of any button is required to wake up the buttons. After that, a brief press directly over the marked button area is all that is required to actuate a button.

When the cover is removed or re-installed, the CapTouch buttons can be used only after the meter completes a self-calibrating routine (which can take up to 20 seconds). Additionally, the sensors are disabled when more than one button is pressed, and they will automatically re-enable after a few seconds.

CapTouch Button Tips

The CapTouch buttons are designed to work under any lighting condition and to protect against false triggering.

- Keep the window clean.
- Tighten the cover securely.
- Use a password to prevent tampering.

IMPORTANT

- The first time the CapTouch buttons are used, or after 20 seconds of inactivity, a long finger press directly over the marked button area of any button of about two seconds is required to wake up the buttons.
- When the cover is removed or re-installed, the CapTouch buttons can be used only after the meter completes a self-calibrating routine (which can take up to 20 seconds).
- CapTouch buttons will not work if two or more buttons are detected as being pressed simultaneously. Be careful to avoid triggering multiple buttons or reaching across one button location to press another.

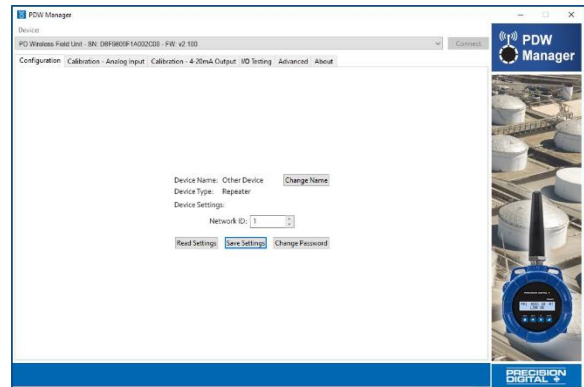
PDW Manager Software

The units can also be programmed using the PC based PDW Manager. Units connect to a PC via the micro USB connection on the left side of the display module, underneath the enclosure cover.

Use of PDW Manager is required for programming advanced settings, such as wireless encryption.

IMPORTANT

- Units must be powered externally prior to programming via USB.

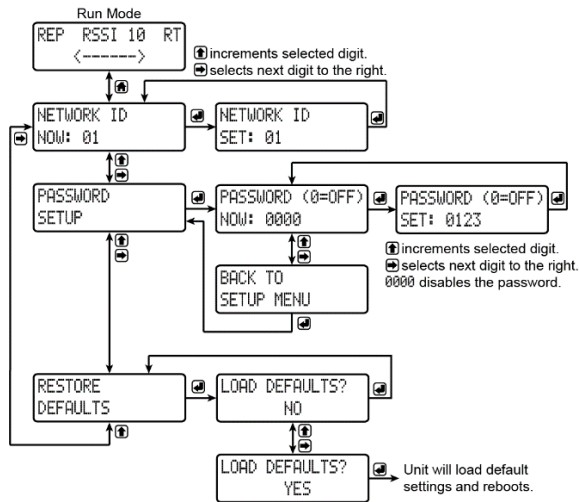


PDW Manager is available for download at www.predig.com/pdwmanager.

Instructions on the use of PDW Manager to program the PDWR repeater wireless units can be found under *Programming with PDW Manager* on page 16.

Setup Menu

The setup menu consists of network ID, password, and factory defaults restoration.

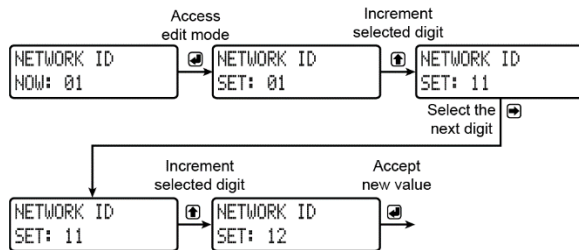


Entering Numeric Values

Numeric values are set using the NEXT and UP buttons. Press NEXT to select next digit and UP to increment digit value.

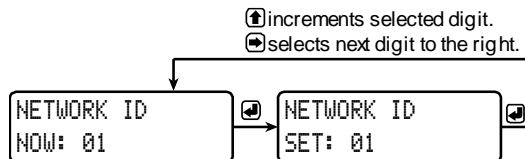
The selected digit will flash.

Press the ENTER button, at any time, to accept the value or the MENU button to exit without saving.



Network ID

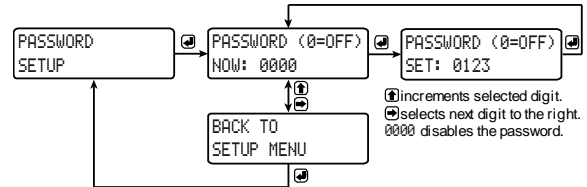
The network ID determines with which wireless devices the repeater will connect. The repeater unit must share the same network ID as the other wireless devices in order to communicate with them.



Password Setup

The wireless repeater may be protected with a four-digit numeric password in order to prevent unauthorized tampering. When a password has been set, you will be prompted to enter that password in order to access the device menu.

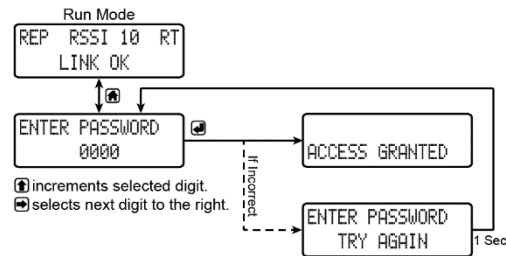
To disable password protection, simply enter 0000 as the password.



Note: See Entering Numeric Values on page 15 for instructions on how to enter numbers

Making Changes to a Password Protected Repeater

Once a password has been set on the device, you will be required to enter that password before being allowed to access the device menu.



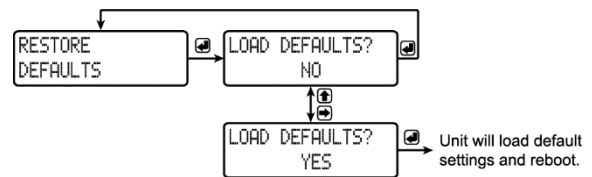
Note: Setting a password will require you to enter the password to access the device settings via the PC software as well.

Did you forget the password?

The password may be disabled by entering a master password. If you are authorized to make changes, enter the master password 7300 to unlock the device.

Restore Defaults

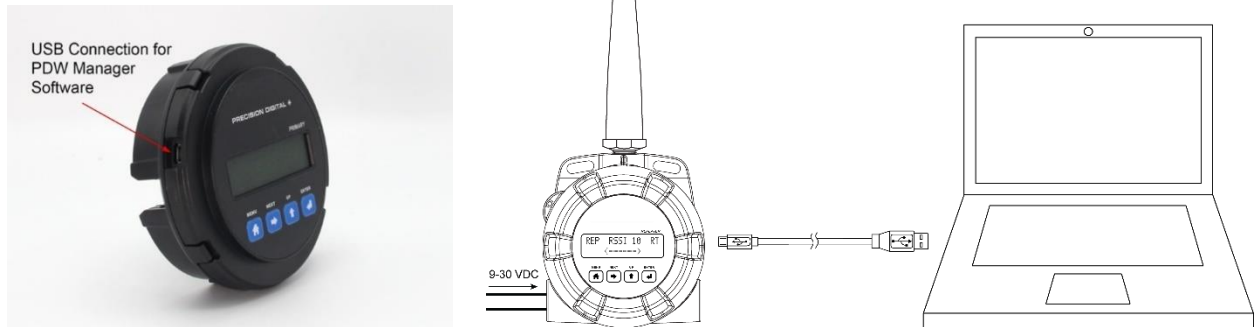
If a mistake has been made while programming the wireless repeater device, and it is unclear where the error occurred, the best option may be to perform a factory reset of the device and begin again.



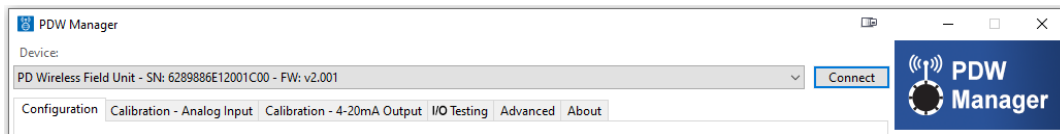
Programming with PDW Manager

PDW Manager allows programming of the PDWR wireless repeater unit from a PC with a USB connection. The unit connects to a PC via the micro-USB connection on the side of the electronics module, underneath the enclosure cover. Use of PDW Manager is required for programming advanced settings such as wireless encryption.

PDW Manager is available for download at www.predig.com/pdwmanager. Once the software is running, power the unit using a 9-30 VDC power supply and connect the device to the PC using the provided USB cable.



The PC will automatically install the appropriate device drivers. Once this has completed, the device will appear in the *Device* list at the top of the PDW Manager window. Click *Connect*.



The image below shows the available options on the *Configuration* tab while the repeater unit is connected.

Device Name
Click Change Name to enter a new human readable name for the wireless device.

Network ID
Enter the same Network ID as the PDW30 or PDW90 system the repeater will operate with.

Read Settings
Click this button to load settings from the wireless hardware and display them here. This will overwrite any changes made in the software.

Save Settings
Click this button to write all of the changes made in the above fields to the wireless hardware.

Change Password
Click this button to change the password needed to change device settings. Enter 0000 to disable.

Disconnect
Click this button to disconnect from the wireless unit and prepare it to be unplugged from the computer.

Note: The two calibration tabs and the I/O Testing tab are not applicable to the repeater unit.

Networking Settings and Security

Device communication can be secured by enabling 128-bit AES encryption. A channel mask may also be set for interference immunity. The encryption key and channel mask may be entered on the *Advanced* tab.

Once you have entered the encryption information, click *Save Settings*. The wireless devices must share identical encryption keys in order to communicate, so be sure to enter the same information for the second unit.

Channel Mask
Set a channel mask for interference immunity.

AES Encryption
Devices can be programmed to communicate securely using 128-bit AES encryption. Enable encryption using the drop-down at the top and enter an encryption key. The two key fields must start with "0x" followed by 16 hexadecimal characters (for example: 0x46D34C5666542D06).

Read Settings
Click this button to load settings from the wireless hardware and display them here. This will overwrite any changes made in the software.

Reset to Factory Defaults
Click this button to permanently reset all settings on the device to factory defaults. This will overwrite all changes made to the device.

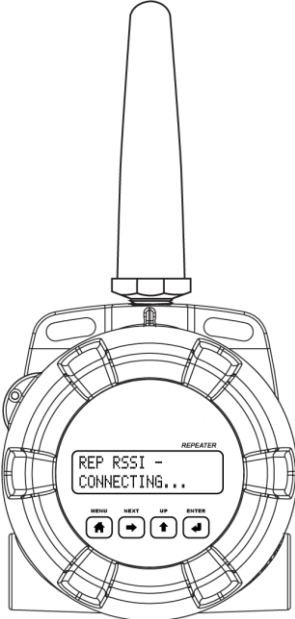
Save Settings
Click this button to write all of the changes made in the above fields to the wireless hardware.

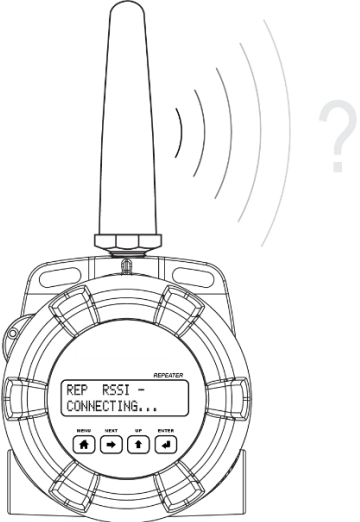
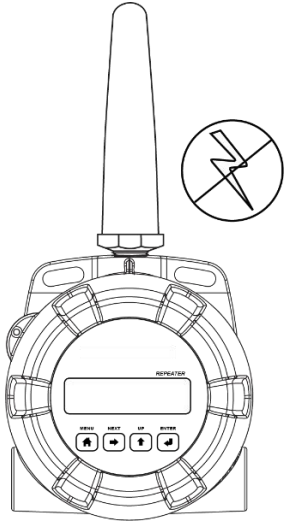
Generate Key
Click this button to generate an AES encryption key.

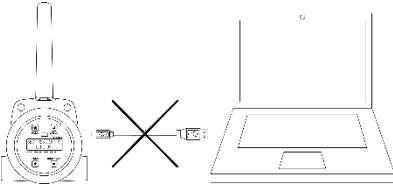
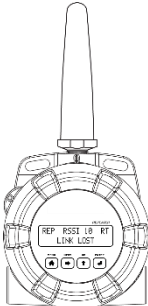
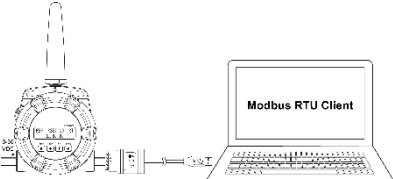
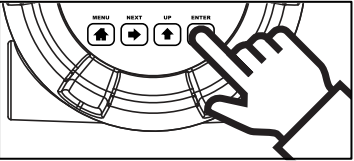
The screenshot shows the PDW Manager interface with the following settings visible:
 - Device: PD Wireless Field Unit - SN: 2A10585115001800 - FW: v2.001
 - Network Settings: Channel Mask: 0xFFFFFFFFFFFFFFF
 - AES Encryption: Enabled
 - Encryption Key Bytes 15 - 8: 0x1EE1BD7CDC6B1265
 - Encryption Key Bytes 7 - 0: 0xF3014D09C1BE3C4D
 - Buttons: Read Settings, Save Settings, Generate Key, Reset all device parameters to Factory Defaults

Troubleshooting

If you are experiencing difficulties with your wireless installation, consult the troubleshooting steps listed below. For best results, identify the symptoms of the problem you are having and attempt all the corrective actions listed for the particular symptom.

Symptom	Possible Cause	Corrective Action
<p>Devices will not connect.</p> 	Devices have mismatched network IDs.	<ul style="list-style-type: none"> • Devices will not connect if they do not have the same network ID. Verify that all devices share the same network ID.
	Devices are out of range or there are obstacles blocking the wireless path.	<ul style="list-style-type: none"> • Bring devices closer together to see if it alleviates the issue. Units will display LINK OK if they are connected. If devices connect, consider placing closer together permanently, removing any obstacles, or mounting higher. • Ensure antennas are on parallel plane. Devices that are vertically separated will not have as strong of a connection. • If communicating over distance of miles, consider installing additional PDWR repeaters or a high gain directional antenna.
	Multiple wireless devices in the area with the same Modbus ID.	<ul style="list-style-type: none"> • If there are multiple PDW30 wireless bridges, verify that each pair has its own unique Modbus ID.
	Encryption keys do not match	<ul style="list-style-type: none"> • If using encryption, ensure that the encryption keys on all devices match exactly. •
	Configuration is not correct.	<ul style="list-style-type: none"> • Devices must be configured as secondary or primary units to communicate with each other. Make sure the display shows PRI on one unit and SEC on the other unit. The repeater simply extends the communications distance.

Symptom	Possible Cause	Corrective Action
<p>Intermittent signal issues.</p> 	<p>Signal is too low.</p>	<ul style="list-style-type: none"> • Check RSSI. If signal is too low, consider moving devices closer together, clearing obstacles in wireless path, or mounting devices higher. • Ensure devices are on parallel plane. • If communicating over distance of miles, consider installing high gain directional antenna.
	<p>Temporary obstacles are blocking the wireless path.</p>	<ul style="list-style-type: none"> • Temporary obstacles, such as large trucks or heavy equipment, can interfere with wireless path. Consider moving wireless units higher or to an area with less traffic.
	<p>Devices are improperly wired.</p>	<ul style="list-style-type: none"> • Check to make sure all digital inputs and outputs are properly wired to all devices. • Check <i>Wiring Diagram</i> starting on page 12.
<p>Device will not power on.</p> 	<p>Not enough voltage is coming from the power supply.</p>	<ul style="list-style-type: none"> • Devices require at least 9 VDC each in order to power on. Check that the power supply is providing enough voltage to the device and that there are not too many devices drawing power from the supply.
	<p>Devices are improperly wired.</p>	<ul style="list-style-type: none"> • Check to make sure all power connections are properly wired to all devices. • Check <i>Wiring Diagram</i> starting on page 12.

Symptom	Possible Cause	Corrective Action
<p>Device will not connect to PC via USB.</p> 	<p>Wireless device is not powered.</p> <p>Software version is outdated</p> <p>USB cable is faulty</p>	<ul style="list-style-type: none"> The device must be powered by a 9-30 VDC power supply in order for the PC to recognize it. Power the wireless device and try again. Check that you are running the latest software version. The latest version of PDW Manager can be downloaded at www.predig.com/pdwmanager. Try connecting the wireless device using a known good micro USB cable. There are some micro USB cables that are used for power only and do not support transferring data.
<p>Device shows “LINK OK”, but its corresponding pair shows “LINK LOST”.</p> 	<p>A nearby wireless device has the same network ID</p>	<ul style="list-style-type: none"> The repeater and the primary/secondary pair must share a unique network ID not being used by other wireless devices nearby.
<p>Modbus client gets timeout errors.</p> 	<p>The Modbus client gets timeout errors trying to read a Modbus server connected to the secondary.</p>	<ul style="list-style-type: none"> There are no Modbus settings to be changed in the repeater. Modbus client (master) must be connected to the primary unit. Check all the Modbus settings and make sure they match the corresponding network. Increase the Modbus timeout on the secondary and the primary, if necessary.
<p>CapTouch buttons not working.</p> 	<p>Device has just been powered on</p> <p>Lid was removed or put back on</p> <p>CapTouch buttons have timed out and are inoperable</p>	<ul style="list-style-type: none"> When first powered on, the CapTouch buttons require a long press to initialize. After the first long press, you can use them normally. After removing or putting the lid back on, the CapTouch buttons are re-calibrating and will be inoperable for 20 seconds. After the calibration period has passed, long press any of the buttons to start using them again. After a 20 second period of inactivity, the CapTouch buttons will go back to their sleep state. Another long press is required to wake them up.

Symptom	Possible Cause	Corrective Action
<p style="text-align: center;">Other symptoms not described above.</p> <p style="text-align: center; font-size: 48px;">?</p>	<p>If you are experiencing a symptom not listed here, or the suggested troubleshooting steps do not alleviate your problem, please attempt to restore the wireless devices to system defaults by following the instructions on page 15. If you require technical support, please contact us at:</p> <p style="text-align: center;">Phone: (800) 610-5239 or (508) 655-7300 Email: support@predig.com Web: www.predig.com</p>	

Contact Precision Digital

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Email: support@predig.com

Sales Support

Call: (800) 343-1001 or (508) 655-7300

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Place Orders

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For the latest version of this manual please visit

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