Honeywell

OneWireless

XYR 6000 ISA100.11a Compliant Pressure Transmitter

User's Manual

Notices and Trademarks

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Honeywell Process Solutions

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About This Document

This document describes preparation, operation and maintenance of the XYR 6000 Wireless Pressure Transmitters. Mounting, installation and wiring are covered in other documents.

Honeywell does not recommend using devices for critical control where there is a single point of failure or where single points of failure result in unsafe conditions. OneWireless is targeted at open loop control, supervisory control, and controls that do not have environmental or safety consequences. As with any process control solution, the end-user must weigh the risks and benefits to determine if the products used are the right match for the application based on security, safety, and performance. Additionally, it is up to the end-user to ensure that the control strategy sheds to a safe operating condition if any crucial segment of the control solution fails.

Revision Information

Document Name XYR 6000 ISA100.11a Compliant Pressure Transmitter User's Manual	Document ID	Revision Number	Publication Date
New	34-XY-25-43	1	January 2011
ISA 100	34-XY-25-43	2	October 2011
Added Flange Mount and Remote Seal data, updated Approvals information	34-XY-25-43	3	March 2012

References

The following list identifies all documents that may be sources of reference for material discussed in this publication.

Document Title	
XYR 6000 Transmitters Quick Start Guide	34-XY-25-21
Getting Started with Honeywell OneWireless Solutions	OW-CDX010
OneWireless User's Guide	OW-CDX060
OneWireless Builder Parameter Reference	OW-CDX070

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Training Classes

      Honeywell Automation College:

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Symbol Definitions

The following table lists those symbols used in this document to denote certain conditions.

| Symbol	Definition
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user, often in terms of performing a task.
CAUTION	Indicates a situation which, if not avoided, may result in equipment or work (data) on the system being damaged or lost, or may result in the inability to properly operate the process.
	CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. **CAUTION** symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.
	WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in serious injury or death. **WARNING** symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.
	WARNING, Risk of electrical shock: Potential shock hazard where HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4 Vpeak, or 60 VDC may be accessible.
	ESD HAZARD: Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices.
	Protective Earth (PE) terminal: Provided for connection of the protective earth (green or green/yellow) supply system conductor.
	Functional earth terminal: Used for non-safety purposes such as noise immunity improvement. NOTE: This connection shall be bonded to Protective Earth at the source of supply in accordance with national local electrical code requirements.
	Earth Ground: **Functional earth connection.** NOTE: This connection shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.
	Chassis Ground: Identifies a connection to the chassis or frame of the equipment shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.

continued

Symbol	Description
FM APPROVED	The Factory Mutual® Approval mark means the equipment has been rigorously tested and certified to be reliable.
CSA®	The Canadian Standards mark means the equipment has been tested and meets applicable standards for safety and/or performance.
Ex	The Ex mark means the equipment complies with the requirements of the European standards that are harmonised with the 94/9/EC Directive (ATEX Directive, named after the French "ATmosphere EXplosible").
CE 0981	For radio equipment used in the European Union in accordance with the R&TTE Directive the CE Mark and the notified body (NB) identification number is used when the NB is involved in the conformity assessment procedure. The alert sign must be used when a restriction on use (output power limit by a country at certain frequencies) applies to the equipment and must follow the CE marking.
N314	The C-Tick mark is a certification trade mark registered to ACMA (Australian Communications and Media Authority) in Australia under the Trade Marks Act 1995 and to RSM in New Zealand under section 47 of the NZ Trade Marks Act. The mark is only to be used in accordance with conditions laid down by ACMA and RSM. This mark is equal to the CE Mark used in the European Union. N314 directly under the logo is Honeywell's unique supplier identification number.
ISA100 Wireless COMPLIANT	The ISA100 Wireless Compliant logo indicates the device has received ISA100.11a conformance certification and is registered with the Wireless Compliance Institute, assuring device interoperability.
CRN	Canadian Registration Number

Contents

Tables

Figures

1. Introduction

1.1 Purpose

This manual describes the Honeywell OneWireless XYR 6000 Pressure Transmitter function, operation and maintenance.

1.2 Scope

The manual includes:

- Details of topics that relate uniquely to the Honeywell XYR 6000 Pressure Transmitter,

- This manual does not cover installation, mounting, or wiring. See XYR 6000 Transmitter Quick Start Guide (document 34-XY-25-21).

1.3 OneWireless network overview

OneWireless is an all digital, serial, two-way communication mesh network that interconnects industrial field sensors to a central system.

OneWireless has defined standards to which field devices and operator stations communicate with one another. The communications protocol is built as an "open system" to allow all field devices and equipment that are built to OneWireless standard to be integrated into a system, regardless of the device manufacturer. This interoperability of devices using OneWireless technology is to become an industry standard for automation systems.

1.4 About the transmitter

The XYR 6000 Pressure Transmitter is furnished with an ISA100.11a-compliant wireless interface to operate in a compatible distributed ISA100.11a wireless system. The transmitter will interoperate with any ISA100.11a wireless network.

The transmitter includes ISA100.11a-compliant electronics for operating in a 2.4GHz wireless network. It features function block architecture and instantiable input channels.

The XYR 6000 Pressure Transmitter comes in a variety of models for measurement applications involving one of these basic types of pressure:

- Differential pressure,

- Gauge pressure,

- Absolute pressure.

The transmitter measures the process pressure and transmits the measured value as a digital output signal in user-configured engineering units. Its major components are an electronics housing and a meter body as shown in Figure 1-1 (a typical differential pressure model transmitter).

The XYR 6000 transmits its output in a digital OneWireless protocol format for direct digital communications with systems.

The Process Variable (PV) is available for monitoring and alarm purposes. Available PV update rates: 1, 5, 10, 30 seconds and are set on the OneWireless User Interface. Slower update rates extend battery life. The meter body temperature is also available as a secondary variable for monitoring. Figure 1-1 shows a block diagram of the XYR 6000 Pressure transmitter's operating functions.

The XYR 6000 Pressure DP model type is capable of measuring mass flow and volumetric flow. When minimum and maximum flow rate values are configured as PV scale 0% and 100% values at given PV units of measure, and the respective DP values at those limits are configured as the calibration scale 0% and 100% values, the PV value becomes a flow rate in the selected units of measure. Minimum and maximum flow rate data at given DP values is either provided on or with orifice plates, or is commonly available according to orifice plate size.
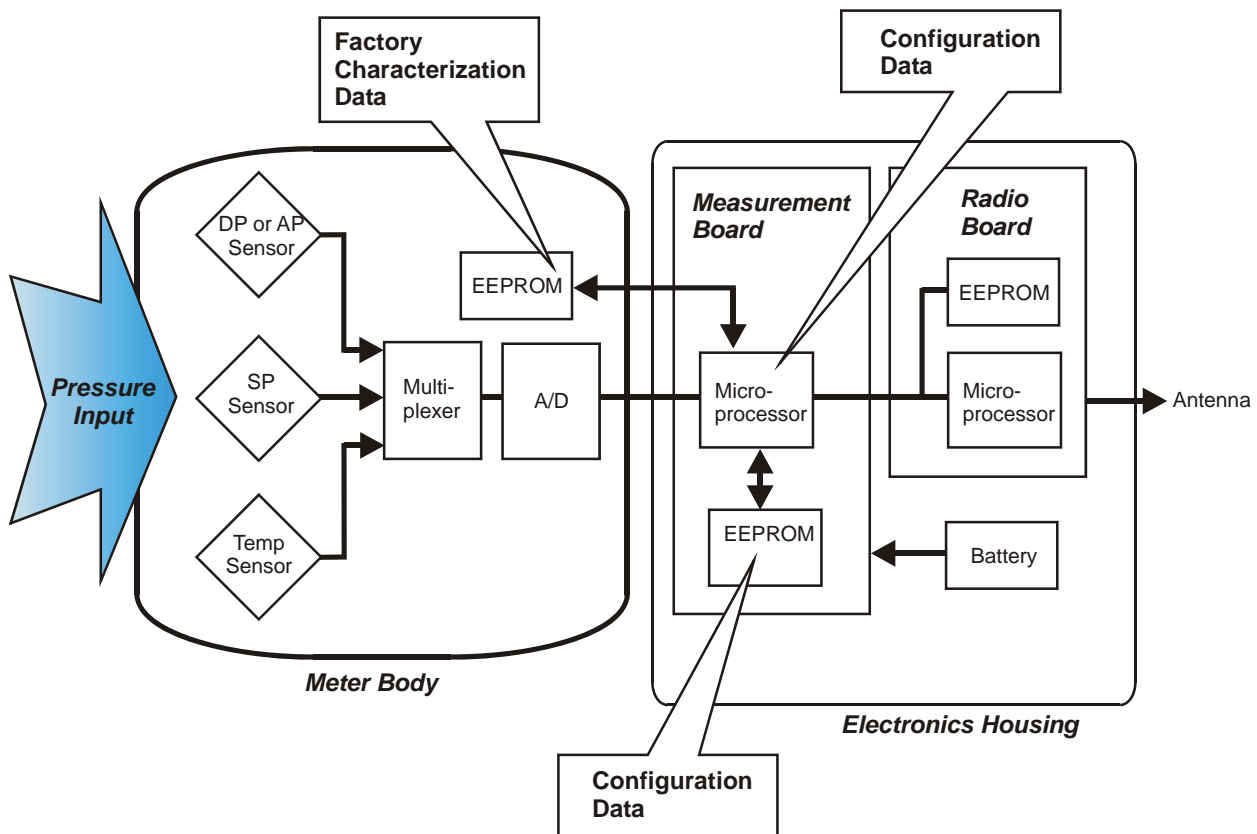
Figure 1-1 XYR 6000 Functional Diagram

2. Specifications

2.1 European Union Usage

This product may be used in any of the following European Union nations.

Table 2-1 European Union Usage

Country	ISO 3166 2 letter code	Country	ISO 3166 2 letter code
Austria	AT	Latvia	LV
Belgium	BE	Liechtenstein	LI
Bulgaria	BG	Lithuania	LT
Cyprus	CY	Malta	MT
Czech Republic	CZ	Netherlands	NL
Denmark	DK	Norway	NO
Estonia	EE	Poland	PL
Finland	FI	Portugal	PT
France	FR	Romania	RO
Germany	DE	Slovakia	SK
Greece	GR	Slovenia	SI
Hungary	HU	Spain	ES
Iceland	IS	Sweden	SE
Ireland	IE	Switzerland	CH
Italy	IT	United Kingdom	BG

2.2　Certifications and Approvals

Transmitter

Refer to product lable for applicable ratings.

Table 2-2 Certifications and Approvals

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
CSA **1903673** **(USA and** **Canada)**	**Intrinsically Safe:** Class I; Division 1; Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; T4 Class I, Zone 0 Ex ia IIC T4 Class I, Zone 0 AEx ia IIC T4	-40 ^{o} C to +85 ^{o} C : Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Nonincendive: Class I; Division 2; Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III, Division 2, T4 Class I, Zone 2 Ex nA IIC, T4 Class I, Zone 2 AEx nA IIC, T4	-40 ^{o} C to +85 ^{o} C : Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs High Level INPUT (HLAI) Universal I/O
	Explosion-Proof/ Flameproof: Class I, Division 1; Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; T4 Class I, Zone 1 Ex d IIC T4 Class I, Zone 1 AEx d IIC, T4	40 ^{o} C to +85 ^{o} C : Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: Type 4X/ IP66		
	Standards Used: CSA-C22.2 No. 30:M1986 CSA-C22.2 No. 94:M1991 CSA E60079-0: 2002 CSA E60079-15: 2002 FM 3600: 1998 FM 3615: 2006 UL 916:1998	CSA-C22.2 No. 142:M1987 CSA-C22.2 No. 157:M1992 CSA E60079-1: 2002 CSA E61241-0: 2002 FM 3610: 1999 ANSI/ ISA 12.12.02: 2003	CSA-C22.2 No. 213:M1987 CSA-C22.2 No. 60529:2005 CSA E60079-11: 2002 CSA E61241-1: 2002 FM 3611: 2004 UL 50:2003

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
FM ApprovalsTM 3032450 (USA)	**Intrinsically Safe:** Class I; Division 1; Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; T4 Class I, Zone 0 AEx ia IIC T4	-40 ^{o} C to +85 ^{o} C : Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Nonincendive: Class I; Division 2; Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III, Division 2, T4 Class I, Zone 2 AEx nA IIC, T4	-40 ^{o} C to +85 ^{o} C : Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs High Level INPUT (HLAI) Universal I/O
	Explosion-Proof/ Flameproof: Class I, Division 1; Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; T4 Class I, Zone 1 AEx d IIC, T4	-40 ^{o} C to +85 ^{o} C : Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: Type 4X/ IP66		
	Standards Used: FM 3600:1998 FM 3615:2006 ANSI/ ISA 12.02.01: 2002 ANSI/ IEC 60529: 2004	FM 3610: 2007 FM 3810: 2005 ANSI/ ISA 12.12.02: 2003 ANSI/ NEMA 250: 2003	FM 3611: 2004 ANSI/ ISA 12.00.01: 2002 ANSI/ ISA 12.22.01: 2005

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
ATEX- KEMA 08ATEX0062X	Intrinsically Safe: II 1 G Ex ia IIB T4 II 1 D Ex tD A20 IP66 T90 oC	-40 ^{o} C to +70 ^{o} C: Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Flameproof: II 2 G Ex d [ia] IIB T4 II 2 D Ex tD A21 IP66 T90 oC	-40 ^{o} C to +70 ^{o} C: Battery -40 ^{o} C to +80 ^{o} C : DC Supply	Pressure Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: IP66		
	Standards Used: EN 60079-0 : 2006 EN 60079-26 : 2007	EN 60079-1 : 2004 EN 61241-0 : 2006	EN 60079-11 : 2007 EN 61241-1 : 2004

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
ATEX-DEKRA 08ATEX0074	**Nonincendive:** II 3 G Ex nA [nL] IIC T4 II 3 D Ex tD A22 IP66 T90 oC	-40 ° C to +84 ° C	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: IP66		
	Standards Used: EN 60079-0 : 2006 EN 61241-1 : 2004	EN 60079-15 : 2005	EN 61241-0 : 2006

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
IECEx- CSA 09.0001X	**Intrinsically Safe:** Ex ia IIB T4 Ex tD A20 IP66 T90 oC	-40 ° C to +70 °C: Battery -40 ° C to +80 ° C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Flameproof: Ex d [ia] IIB T4 Ex tD A21 IP66 T90 oC	-40 ° C to +70 ° C: Battery -40 ° C to +80 ° C : DC Supply	Pressure Corrosion High Level INPUT (HLAI) Universal I/O
	Nonincendive: Ex nA [nL] IIC T4 Ex tD A22 IP66 T90 oC	-40 ° C to +84 ° C: Battery -40 ° C to +80 ° C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: IP66		
	Standards Used: IEC 60079-0 : 2004 IEC 60079-26 : 2007 IEC 60079-15 : 2001	IEC 60079-1 : 2003 IEC 61241-0 : 1999	IEC 60079-11 : 1999 IEC 61241-1 : 1999

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
SAEx S/09-036X (South Africa)	**Intrinsically Safe:** Ex ia IIB T4 Ex tD A20 IP66 T90 oC	-40 oC to +70 oC: Battery -40 oC to +80 oC : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Flameproof: Ex d [ia] IIB T4 Ex tD A21 IP66 T90 oC	-40 oC to +70 oC: Battery -40 oC to +80 oC : DC Supply	Pressure Corrosion High Level INPUT (HLAI) Universal I/O
	Nonincendive: Ex nA [nL] IIC T4 Ex tD A22 IP66 T90 oC	-40 ° C to +84 ° C: Battery -40 ° C to +80 ° C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: IP66		
	Standards Used: SANS (IEC) 60079-0 : 2005 IEC 60079-1 : 2003 IEC 61241-0 : 1999	SANS (IEC) 60079-15 : 2006 IEC 60079-11 : 1999 IEC 61241-1 : 1999	ARP 0108 (Edition 1.1) IEC 60079-26 : 2007

AGENCY	TYPE OF PROTECTION	Ambient Temperature	Product Applicability*
INMETRO ** **NCC 11.0331 X (BRAZIL)**	**Intrinsically Safe:** Ex ia IIB T4 Ga	-40 ^{o}C to +70 ^{o}C: Battery -40 ^{o}C to +80 ^{o}C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Flameproof: Ex d [ia] IIB T4 Ex tb IIIC T90 oC IP66	-40 ^{o}C to +70 ^{o}C: Battery -40 ^{o}C to +80 ^{o}C : DC Supply	Pressure Corrosion High Level INPUT (HLAI) Universal I/O
	Nonincendive: Ex nA [ic] IIC T4 Ex tc IIIC T90 oC IP66	-40 ^{o}C to +84 ^{o}C: Battery -40 ^{o}C to +80 ^{o}C : DC Supply	Pressure Temperature/ Discrete Inputs Corrosion High Level INPUT (HLAI) Universal I/O
	Enclosure: IP66		
	Standards Used: ABNT NBR IEC 60079-0:2008 IEC 60079-15:2010 ABNT NBR IEC 60529:2009	ABNT NBR IEC 60079-1:2009 ABNT NBR IEC 60079-26:2008 IEC 61241-0 : 1999	ABNT NBR IEC 60079-11:2009 IEC 60079-31:2008 IEC 61241-1 : 1999

*See individual Product manuals as defined in [References](#) for exact Models

** At time of Printing Certification was pending.

Electrical Data:

Battery

Two in series connected (D size) Lithium batteries, type 5930 manufactured by Tadiran, type XL-205F manufactured by Zeno Energy or type PT-2300H manufactured by Eagle Picher.

Additionally for ATEX and IECEx certifications, Lithium Battery SL-2780, manufactured by Tadiran, GmbH may be used.

DC Supply

For Ordinary Locations, Explosion-proof and Non Incendive:

16.0 V min to 28.0 V max, Current = 100 mA

For Intrinsically Safe:

A Barrier, MTL 728P+ or MTL 7728P+ mounted in a suitable enclosure, or in a non-hazardous location is needed, see Agency Certification drawings in Section 6.

For Output parameters associated with Temperature/ Discrete Inputs, Corrosion, High Level INPUT (HLAI) or Universal I/O, see Agency Certification drawings in Section 6.

2.3   Conditions of Certification

IECEx Conditions of Certification

Parts of the antenna are non-conducting and the area of the non-conducting part exceeds the maximum permissible areas for Category ll 1 G (Zone 0) according to IEC 60079-0. Therefore when the antenna is used within a potentially explosive atmosphere, appropriate measures must be taken to prevent electrostatic discharge.

Impact and friction hazards need to be considered according to IEC 600079-0 when the transmitter that is exposed to the exterior atmosphere is made of light metal alloys, and used in Category ll 1 G (Zone 0).

ATEX Conditions for Safe Use

Because the enclosure of the XYR 6000 Wireless Transmitter is made from aluminum, if it is mounted in

an area where the use of category 1G apparatus is required, it must be installed such that even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

Special precautions shall be taken to prevent the surface of the antenna of the XYR 6000 Wireless Transmitter from being electrostatically charged.

2.4   Maximum Working Pressure:

See individual Product manuals as defined in <u>References</u>.

For detailed transmitter specifications see the following Specification and Model Selection Guides.

- Differential Pressure - S900, document number 34-XY-03-22

- Absolute Pressure - S900, document number 34-XY-03-23

- Gauge Pressure - S90, document number 0 34-XY-03-24

- Flange Mount Spec - S900, document number 34-XY-03-27

- Remote Seal Spec -S900, document number 34-XY-03-28

- Differential Pressure - S100, document number 34-XY-03-44

- Absolute Pressure - S100, document number 34-XY-03-45

- Gauge Pressure - S100, document number 34-XY-03-46

- Flange Mount Spec - S100, document number 34-XY-03-47

- Remote Seal Spec - S100, document number 34-XY-03-48

Provisioning Device

Install the Provisioning Device application on any PDA having

- Windows Mobile version 4.2+

- Infrared port.

2.5   Agency compliance information

This section contains the Federal Communications Commission (FCC), Industry Canada (IC) and Radio Frequency compliance statements for the OneWireless XYR 6000 Wireless Transmitters device.

> **ATTENTION**
>
> XYR 6000 units must be professionally installed in accordance with the requirements specified in the *OneWireless XYR 6000 Agency Compliance Professional Installation Guide*.

FCC compliance statements

- This device complies with Part 15 of FCC Rules and Regulations. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class A 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 radiofrequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at own expense.

- Intentional or unintentional changes or modifications must not be made to the XYR 6000 Wireless Transmitters unless under the express consent of the party responsible for compliance. Any such modifications could void the user's authority to operate the equipment and will void the manufacturer's warranty.

IC compliance statements

- To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropic radiated power (EIRP) is not more than that permitted for successful communication.

- Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

- This Class A digital apparatus complies with Canadian ICES-003.

- French: Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Radio Frequency (RF) statement

To comply with FCC's and Industry Canada's RF exposure requirements, the following antenna installation and device operating configurations must be satisfied.

- Remote Point-to-Multi-Point antenna(s) for this unit must be fixed and mounted on outdoor permanent structures with a separation distance between the antenna(s) of greater than 20cm and a separation distance of at least 20cm from all persons.

- Remote Fixed Point–to-Point antenna(s) for this unit must be fixed and mounted on outdoor permanent structures with a separation distance between the antenna(s) of greater than 20cm and a separation distance of at least 100cm from all persons.

- Furthermore, when using integral antenna(s) the XYR 6000 Wireless Transmitter unit must not be co-located with any other antenna or transmitter device and have a separation distance of at least 20cm from all persons.

European Union restriction

France restricts outdoor use to 10mW (10dBm) EIRP in the frequency range of 2,454-2,483.5 MHz. Installations in France must limit EIRP to 10dBm, for operating modes utilizing frequencies in the range of 2,454 – 2,483.5MHz.

Restriction

France restricts outdoor use to 10mW (10dBm) EIRP in the frequency range of 2,454-2,483.5 MHz. Installations in France must limit EIRP to 10dBm, for operating modes utilizing frequencies in the range of 2,454 – 2,483.5MHz.

Japanese Restrictions

For locations in Japan the transmitter power is restricted to 12.14dBm/Mhz {(32mW (15.4 dBm)] maximum EIRP including the antenna.

3.   Preparation

3.1   Installation

Refer to the XYR 6000 Transmitter Quick Start Guide (document 34-XY-25-21) for installation, mounting and wiring of your XYR 6000 transmitter.

3.2   Configuration

The XYR 6000 Transmitter contains the electronics interface compatible for connecting to the OneWireless network. An operator uses the OneWireless User Interface to configure blocks, to change operating parameters, and to create linkages between blocks that make up the transmitter's configuration. These changes are written to the transmitter when it is authenticated by a security key.

3.3   Connecting to network

3.4   Calibrating the transmitter

Overview

For all calibration methods, OneWireless User Interface must be used to unlock and take the channel out of service. You can set the zero offset at the transmitter by use of the infrared port. Additional calibration commands such as upper and lower trim are available in OneWireless User Inteface.

Calibrate zero

Calibrates the sensor to correct the input measurement due to fill fluid and transmitter position effects once the transmitter is installed and operating under process conditions.

> **ATTENTION**
>
> Setting user trim points will effectively override the calibration zero. Normally the calibration zero is only required if you do not intend to provide process-specific trim points.

Table 3-1 Calibrate zero

Step	Action
1	Apply zero input pressure for your transmitter's pressure type as follows.
	Differential: With process pressure applied, connect HP and LP inputs together using the crossover valve on the 3-valve manifold or other equivalent method.
	Gauge: Isolate the input pressure from the process and vent to the atmosphere.
	Absolute: Due to the difficulty of applying absolute 0 psi, zero calibration of the AP transmitter is not recommended.
2	In OneWireless User Inteface, set the transmitter's Software Write Protect option to Disable.
3	In OneWireless User Inteface, set the transmitter's channel to Out of Service.
4	At the transmitter, verify the PV value is followed by an out of service (OUT SVC) message.
	Use Provisioning Device's Device Local Configuration buttons to navigate to the transmitter's CAL menu.
	If the transmitter is write protected a LOCKED message will be displayed. Go to step 2.
	If the channel is not out of service a WRONG MODE message will be displayed. Go to step 3.
5	Select CAL ZERO. With CAL ZERO displayed, press Enter to set the current applied pressure to zero. If successful the display will briefly show "ZERO SET". If unsuccessful the display will briefly show "ERROR".
6	Exit the menu.
7	Reverse step 1.
8	When ready, in OneWireless User Inteface return the transmitter's channel to service Automatic and set Software Write Protect to Enable.

Procedure for field calibration of Honeywell compound characterized XYR6000 pressure transmitters

This procedure applies to the following Honeywell XYR6000 pressure transmitters

- 0-25 to 0-400 inH20/0-62.2 to 0-1000 mbar Compound Characterized

- 0-5 to 0-100 psi/0-0.34 to 0-7 bar Compound Characterized

Honeywell XYR6000 pressure transmitters are fully characterized at the factory and have an applied factory calibration over the range of the transmitter (URL). Field calibration is provided to allow up to 5% adjustment over a reduced operating range providing accuracy within .075% of the reduce range or $\pm0.025 + 0.05$ 20 psi span psi or $\pm0.025 + 0.05$ (1.4 bar)span bar in % span . Compound characterized pressure transmitters allow calibration at both positive and negative relative pressure calibration points within the characterized range of the transmitters meter body.

XYR 6000 Model	Description	Range Limits	Span Limits	Min Lower Range
STFW128	Flange Mounted Liquid Level Transmitter	0 to 4.0 inH$_2$O	0 to 400 inH$_2$O	-400 inH$_2$O
STFW132	Flange Mounted Liquid Level Transmitter	0 to 1.0 psi	0 to 100 psig	-100 psi
STFW924	Flange Mounted Liquid Level Transmitter	0 to 10 inH$_2$O	0 to 400 inH$_2$O	-400 inH$_2$O
STFW932	Flange Mounted Liquid Level Transmitter	0 to 5 psi	0 to 100 psig	-100 psi
STRW12D	Remote Diaphragm Seal Pressure Transmitter	0 to 4.0 inH$_2$O	0 to 400 inH$_2$O	-400 inH$_2$O
STRW13D	Remote Diaphragm Seal Pressure Transmitter	0 to 1.0 psi	0 to 100 psi	-100 psi
STRW93D	Remote Diaphragm Seal Pressure Transmitter	0 to 5.0 psi	0 to 100 psig	-100 psi

Upper and Lower Calibration:

The XYR6000 pressure transmitters provide calibration for upper and lower calibration points as well as the option for calibration of zero. The zero calibration is independent of the upper and lower calibration and is applied as a bias whereas upper and lower calibration adjusts the gain and offset of the characterization. Zero calibration is available from the local interface at the transmitter and is done with the device mounted in its operating orientation and applied "zero" offset head pressure.

Upper and lower calibration are only available when connected to the network where access to the upper and lower calibration points as well as access to the calibration command is available. Upper and lower calibration requires the values for the upper and lower calibration points to be entered and the status of the calibration operation to be verified.

Definitions:

For compound characterized meter bodies the following definition is used:

Positive applied pressure value: A positive applied pressure is an applied pressure where the pressure at the high side of the meter body is greater than the applied pressure at the low side of the meter body thus asserting a "positive" relative pressure between the high and low side of the meter body.

Negative applied pressure value: A negative applied pressure is an applied pressure where the pressure at the high side of the meter body is lower than the applied pressure at the low side of the meter body thus asserting a "negative" relative pressure between the high and low sides of the meter body.

One side calibration: Often only a positive calibration pressure source is available and compound calibration is done by applying regulated pressure relative to ambient air to only one side of the meter body with the other side of the meter body vented to ambient air. In this way a positive calibration pressure applied to the low side of the meter body can be used to apply "negative" relative pressure value during calibration of the lower calibration point. Both the upper and lower calibration points can be either positive or negative values as long as the upper calibration point is greater than the lower calibration point.

Compound Calibration Procedure:

Select the upper and lower calibration points where the transmitter is to be calibrated:

1. Select a the Cal Clear command to remove any zero bias from the transmitter and return the calibration to a gain of 1 and calibration offset zero in respect to the factory characterization. The calibration status should return SUCCESS and the Calibration Source will be set to NONE. This operation will set the device to a known good state. If the calibration status does not return SUCCESS stop and call Honeywell customer support for further assistance. Cal Clear will clear any previous user calibration including and zero bias established using a CAL ZERO command. Factory calibration is preserved but it is not applied.

Note: Make sure the transmitter is in the OOS (Out of Service) state prior to beginning calibration.

2. Select the upper and lower calibration points where the transmitter is to be calibrated. The upper and lower calibration points can be either positive or negative values as long as the upper calibration point is greater than the lower calibration point.

3. Set the lower calibration point to the pressure value to be applied for lower calibration. This calibration point can be either a positive or negative value as long as it is less than the upper calibration point.

4. Set the upper calibration point to the pressure value to be applied for upper calibration. This calibration point can be either a positive or negative value as long as it is greater than the lower calibration point.

5. Apply the lower pressure to the meter body. When applying a negative pressure the high side of the meter body will be at a lower pressure than the low side.

6. Select the Cal Lower command and wait for the calibration status value to change from NONE to SUCCESS, SUCCESS with EXCESS, of FAILURE. If the status returns FAILURE stop and check that the value of the lower calibration point is within the range of the meter body.

7. Apply the upper pressure to the meter body. As with the lower pressure value, when applying a negative pressure the high side of the meter body will be at a lower pressure than the low side.

8. Select the Cal Upper command and wait for the calibration status value to change from NONE to SUCCESS, SUCCESS with EXCESS, of FAILURE. If the status returns FAILURE stop and check that the value of the upper calibration point is within the range of the meter body. If the status returns SUCCESS with EXCESS the calibration was applied but the adjusted characterization value is outside it's allowed adjustment range and the accuracy of the process value over the calibrated range is not guaranteed to be within the specified tolerance.

Note: When applying pressure, insure the pressure is stable in order to get a valid setting. Some pressure sources can vary in pressure (bounce especially dead weight testers) and this will give false reading.

Notes on Calibration Status:

SUCCESS: If the calibration status return SUCCESS it is indicating that the transmitter successfully applied a gain and offset that provides a process value that is within the specified accuracy over the calibrated range of .075% of the reduce range or $\pm0.025 + 0.05$ 20 psi span psi or $\pm0.025 + 0.05$ (1.4 bar)span bar in % span.

FAILURE: If the calibration status returns FAILURE it is indicating that the transmitter could not be calibrated either due to the calibration points being beyond the range of the meter body or the calibration span (difference between the upper and lower calibration points) is too small.

SUCCESSS with EXCESS: If the calibration status returns SUCCESS with EXCESS it is indicating that the calibration was successful but the applied gain or offset resulting from the calibration is deviates by more than 5% of the characterized range. This could happen if the applied calibration pressure for either the upper or lower calibration point deviates from the selected calibration point in a manner that will cause the adjusted gain or zero correction be greater than 5% of the URL.

4. Function blocks

4.1 Introduction

This section explains the construction and contents of the XYR 6000 Pressure Transmitter Function Blocks.

4.2 Block description

Block types

Blocks are the key elements that make up the transmitter's configuration. The blocks contain data (block objects and parameters) which define the application, such as the inputs and outputs, signal processing and connections to other applications. The XYR 6000 Transmitter contains the following block types.

Table 4-1 Blocks

Block Type	Function
Device	Contains parameters related to the overall field device rather than a specific input or output channel within it. A field device has exactly one device block.
AITB	Contains parameters related to a specific process input or output channel in a measurement or actuation device. An AITB defines a measurement sensor channel for an analog process variable represented by a floating-point value. There is one AITB per sensor.
Radio	Contains parameters related to radio communication between the transmitter and the multimode(s).

Block diagram

Figure 4-1 shows the blocks of the XYR 6000 Transmitter.
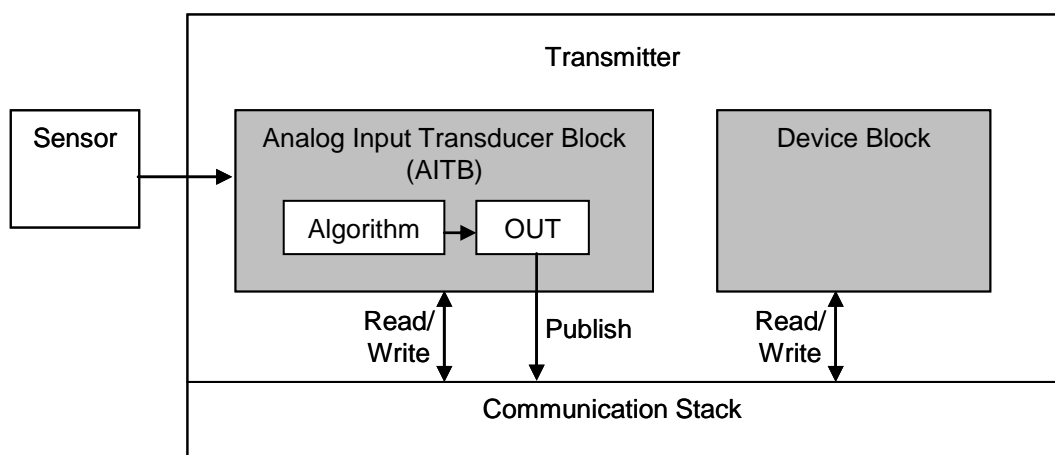
Figure 4-1 Block Diagram

Each of these blocks contains parameters that are standard WNSIA-transmitter defined parameters. The AITB and device blocks contain standard parameters common to all ISA100.11a-compliant transmitters as well as model-specific parameters. The radio block contains parameters for communication with the wireless network.

4.3 Parameter details

The transmitter itself displays a few basic parameters, such as tag, serial number, device revision, build, device address and WFN ID by accessing the quick view mode using the Provisioning Device navigation keys.

For more information on parameters, refer to the following documents.

- OneWireless User's Guide

- OneWireless Parameter Reference

5. Operation

5.1 Overview

Display modes

The transmitter has the following display modes.

- Test. Appears briefly after power-up to self-test the display.

- Connection status. Appears when transmitter is not fully connected to the OneWireless network. See section 5.2.

- PV display. Default mode of the transmitter displays the PV and any status messages. See section 5.3 on page 19.

- Quick view of transmitter identification parameters. Displays read-only parameters then returns to PV display. See section 5.4 on page 25.

- Menu. See section 5.5 on page 26.

Provisioning Device

To navigate the transmitter displays and menus, hold the Provisioning Device no more than 6" from the transmitter and aim the infrared beam at the transmitter display while tapping the Device Local Configuration buttons (Table 5-9).

Provisioning Device menus are described in section 5.6 starting on page 27.

5.2   Transmitter connection status

Table 5-1 Transmitter connection status

Displayed status	Definition	What to do
NO KEY	Transmitter needs a key from the Provisioning Device and is not transmitting.	Transmit a key to the transmitter. See page 28.
NOT JOIN	Transmitter has backed off and is in between discovery attempts.	If Transmitter does not join the network within five minutes, do the following: • Check that Key is correct for the network you are trying to join. • Check that FDAP(s) in the local area are turned on and are already a secure part of the network. • Check if KeyServer is active. • Check the KeyServer Event Log to see if the Transmitter is actively trying to join. Errors in the Event Log show that the Transmitter is trying to join but that there are problems. Consult the OneWireless User Inteface documentation for troubleshooting errors.
DISCOVER	Transmitter has not made a connection to a FDAP and is in discovery (searching for a connection to a FDAP). Transmitter will automatically enter a power saving mode if it cannot make a connection and will retry later.	Wait for connection. If Transmitter does not make a connection within five minutes, see NOT JOIN in this table.
SECURING	Transmitter has connected with the network and is validating its key.	Wait for connection. If Transmitter does not make a connection within five minutes, see NOT JOIN in this table.
JOINING	Transmitter has validated its key and is now negotiating the parameters of the wireless connection.	Wait for transmitter to move to JOINED state. If this does not occur within five minutes, then it may mean that the wireless network does not have enough resources to allow the transmitter to join. Consult OneWireless UI documentation for troubleshooting.
JOINED	Transmitter has validated the key and has made a secure connection with at least two Multinodes. Transmitter should appear in OneWireless User Inteface as an uncommissioned device.	No action required.

5.3 Transmitter PV display

In PV display, the following information is displayed in sequence.

Table 5-2 Transmitter PV display

Item displayed	Example	Details
PV value	+14.7	Latest PV value.
Discrete PV value	ON	Discrete input on
	OFF	Discrete input off
PV engineering units	PSI	See Table 5-3.
PV status	BAD	See Table 5-5. If PV status is not displayed then the PV value is good.
Device status	LOW BAT	See Table 5-6. If multiple device status messages are in effect, they are displayed one message per channel until all messages have been displayed.
		If no device status is displayed then the device status is normal.

Table 5-3 XYR 6000 DP units

Pressure	Description
PA	Pascal
GPA	gigapascal
MPA	megapascal
KPA	kilopascal
mPA	millipascal
uPA	micropascal
hPA	hectopascal
BAR	Bar
mBAR	millibar
TORR	Torr
ATM	Atmosphere
PSI	Pounds per square inch
PSIA	Pounds per square inch absolute
PSIG	Pounds per square inch gage
GCM2	grams per centimeter square
KGCM2	Kilograms per centimeter square

Pressure	Description
INH20	Inches H2O
INH20_4C	Inches H2O referenced to 4˚C
INH20_68f	Inches H2O referenced to 68˚F
MMH20	millimeters H2O
MMH20_4C	millimeters H2O referenced to 4˚C
MMH20_68F	millimeters H2O referenced to 68˚F
FTH20	Feet H2O
FTH20_4C	Feet H2O referenced to 4˚C
FTH20_68F	Feet H2O referenced to 68˚F
INHG	Inches mercury
INHG_0C	Inches mercury referenced to 0˚C
MMGH	millimeters mercury
MMGH_0C	millimeters mercury referenced to 0˚C

For Pressure

The upper and lower calibration points indicate the upper and lower pressure value that will correspond the upper and lower scale value respectively.

Flow = (scale EU100 – scale EU0) * sqroot((DP – Cal Lower) / (Cal Upper – Cal Lower)) – scale EU0 for DP > cal Lower

Flow = (scale EU100 – scale EU0) * sqroot((Cal Lower - DP) / (Cal Upper – Cal Lower)) – scale EU0 for DP < -cal Lower

Flow = 0 for DP < abs (cal lower)

Where scale EU100 and scale EU0 are in flow units and Cal Upper and Cal Lower are in pressure units.

The square root function is automatically employed for conversion from pressure to flow scale units. Calibration units are always in pressure units.

Table 5-4 XYR 6000 Flow units

FLOW	Description
CMPS	cubic meters per second
CMPM	cubic meters per minute
CMPH	cubic meters per hour
CMPD	cubic meters per day
LPS	liters per second
LPM	liters per minute

FLOW	Description
LPH	liters per hour
LPD	liters per day
MLPD	million liters per day
CFPS	cubic feet per second
CFPM	cubic feet per minute
CFPH	cubic feet per hour
CFPD	cubic feet per day
SCFPM	standard cubic meters per second
SCFPH	standard cubic meters per minute
USGPS	US gallons per second
USGPM	US gallons per minute
USGPH	US gallons per hour
USGPD	US gallons per day
MUSGPD	million US gallons per day
IGPS	Imperial gallons per second
IGPM	Imperial gallons per minute
IGPH	Imperial gallons per hour
IGPD	Imperial gallons per day

For Flow:

1. Select the upper and lower scale values in flow units.

2. Set the upper cal value to the pressure that will be asserted when the flow is to be the upper scale value.

3. Set the lower cal value to the pressure that will be asserted when the flow is to be the lower scale value.

4. Perform Cal Low and Cal high in pressure units only if required.

Calibration is optional and is done only if the factory or default calibration is not sufficient.

Table 5-5 PV status

PV status	Cause - Action
(blank)	• PV is normal – no action required
BAD	• Possible calibration error – Clear calibration
	• AITB can not execute due to internal firmware state – Attempt cold restart of device.
	• AITB can not execute due to hardware fault – Replace sensor board
	• Sensor failure – Check Connection between Sensor board and Meter Body.
	• Meter Body Characterization Data is Bad – Replace Meter Body
	• Meter Body A/D Failure – Replace Meter Body
	• Meter Body Sensor Fail – Replace Meter Body
	• Configuration is bad – Check possible units and range settings for input type and correct AITB configuration.
	• Hardware fault detected - Replace sensor board
UNC	• Warning: Calibration (zero or trim) is causing excessive adjustment to characterization value.
	• Warning: Input inaccurate due to uncertain input data integrity.
	• Warning: Input inaccurate due to input conversion limitations or resolution.
	• Warning: Input outside of characterized range. Value is estimated.

Table 5-6 Device status

Transmitter display	OneWireless User Inteface display	Definition	What to do
OUT SVC	OOS	All channels are out of service.	Restore mode to Auto in OneWireless User Inteface.
SENS ERR	Sensor Error	Sensor can not access meter body A/D converter.	Check connection between sensor module and meter body. If still doesn't work, replace sensor. See page 38.
CHAR ERR	Characterization Error	Sensor can not access meter body characterization or the characterization is invalid.	Check connection between sensor module and meter body. If still doesn't work, replace sensor. See page 38.
OVR TEMP	Over Temperature	The meter body has exceeded the maximum temperature as defined by the meter body characterization data.	Determine cause excessive temperature.

Transmitter display	OneWireless User Inteface display	Definition	What to do
OVR LOAD	Over Load	The applied pressure has exceeded the limit defined by the meter body characterization data.	Determine cause of over pressure.
CAL ERR	Calibration Error	Calibration Data Invalid or could not be read.	Use Cal Clear, Restore, or User Calibrate.
LOW BAT	Low Battery	Battery Voltage Critically Low	Replace batteries as soon as possible. See page 40.
LOW PWR	Low Power	External Power Critically Low	Check external 24V power supply
NO RADIO	Radio Interprocessor Comm Error	Radio Board is not accessible.	Restart both the radio and sensor. If condition persists, replace sensor module. See page 38.
The following status messages have multiple meanings. Refer to OneWireless UI Device Status for exact cause.			
INP FAIL	Input Failure	Input Error	Possible meter body sensor failure.
INP FAIL	A/D Failure	Diagnostics detected defect with Analog to Digital Converter.	Replace sensor module. See page 38.
E FAIL	A/D Failure	Diagnostics detected defect with Analog to Digital Converter.	Replace sensor module. See page 38.
E FAIL	Electronics Failure	Electronic Failure detected on Sensor Board. **Could be caused by one of the status items marked by *.**	Restart both the radio and sensor. If condition persists, replace sensor module. See page 38.
E FAIL*	NVM Fault*	Startup diagnostics detected defect in Sensor Non-Volatile Memory	Replace sensor module. See page 38.
E FAIL*	Program Memory Fault*	Startup diagnostics detected defect in Sensor Read Only Memory	Replace sensor module. See page 38.
E FAIL*	RAM Fault*	Startup diagnostics detected defect in Processor Random Access Memory	Replace sensor module. See page 38.
The following statuses are displayed only in OneWireless UI Device Status.			

Transmitter display	OneWireless User Inteface display	Definition	What to do
blank	Excess Zero Calibration	The selected zero offset or the lower calibration trim point is beyond 5% of the lower end of the characterized range of the device.	Clear Calibration
blank	Excess Span Calibration	The calibrated upper and lower trim has produced a span that is greater than 5% of the characterized span of the transmitter.	Clear Calibration Or Set Factory Calibration Or Check the applied trim points and re-attempt lower and upper (trim) calibration.
blank	Excess Calibrated Range	The selected calibration points used for upper and lower trim are outside the characterized range of the transmitter.	Check that the upper and lower trim points are both within the characterized range of the transmitter and re-attempt upper and lower (trim) calibration.
blank	Calibration Cleared	Indicates that both the upper and lower trim points as well as the zero offset has been cleared. The calibration source is none.	Select Factory Calibration Or Calibration the zero offset Or Calibrate using the lower and upper trim points.
blank*	Device/Firmware Mismatch*	Sensor Board Firmware Error. The software did not pass verification tests.	Replace sensor module. See page 38.
blank*	Heap Memory Not Available*	Heap Allocation Failure. Software detected heap shortage and some communication packets may have been dropped.	Clear by warm restart of device. If condition persists contact Honeywell service.
blank*	Watchdog Timer Error*	Sensor Watchdog Timeout. The processor was restarted due to unexpected operation.	Clear by warm restart of device. If condition persists contact Honeywell service.

5.4 Transmitter quick view of parameters

If the Up or Down key is pressed using the Provisioning Device while in PV display mode, the display will enter parameter quick view mode. Successive presses of the Up key will increment to the next parameter in the following table, or exit to PV mode if at the last parameter. The Down key will decrement to the previous parameter or exit if at the first parameter. The Enter key will exit to PV display mode at any time.

Table 5-7 Transmitter quick view of parameters

Position	Parameter	Description
1	Vendor Name	HONEYWELL
2	Model Name	XYR 6000 PRESSURE
3	Tag Name	HON_XYR6000_PRES_1234567890
4	SDREV	Sensor device revision
5	SBLD	Sensor build number
6	Radio Type	DSSS
7	RBLD	Radio build number
8	WFN	Wireless field network identifier
9	NET	Network device address
10	MODE/CHANNEL	Frequency hopping mode & channel

5.5   Transmitter menu

Menu tree

At the PV display, press Enter to access the menus. To interact with the menus use the Device Local Configuration onscreen buttons (page 30) or the buttons on your PDA.

Table 5-8 Menu tree

Menu item	Description
CAL	Calibration menu. May be password-protected. See Table 5-9 on page 30 for password number entry.
CAL ZERO	Calibrate zero. See page 11.
RADIO	Radio menu
PRI RSSI	Primary receive signal strength. Read only. Signal strength 00 is too weak to connect to the network. Displayed Value Value dBm Rx Margin dB 00 < -86 < 10 01 -86 to -81 10 to 15 02 -80 to -75 16 to 21 03 -74 to -69 22 to 27 04 -68 to -63 28 to 33 05 -62 to -57 34 to 39 06 -56 to -51 40 to 45 07 -50 to -45 46 to 51 08 -44 to -11 52 to 85 09 ≥ -10 Saturation
SEC RSSI	Secondary receive signal strength. Same as PRI RSSI. Read only.
WFN ID	Wireless Field Network ID. Read only.
DEV ADD	Device address. Read only.
TX POWER	Radio transmit power. Read only.

5.6   Provisioning Device menus

Overview

Hold the Provisioning Device no more than 6" (15 cm) from the transmitter and aim the infrared beam at the transmitter display while tapping on the screen command or button.

Main menu

The main menu is shown below. Details start on the next page.

Figure 5-1 Main menu

Security and Node Deployment

Use this to:

- receive new security keys,

- transmit security keys for connecting the transmitter (or other nodes) to the OneWireless network,

- clear all security keys from the Provisioning Device,

- clear the transmitter's key and reset its configuration to factory defaults (such as for deprovisioning).
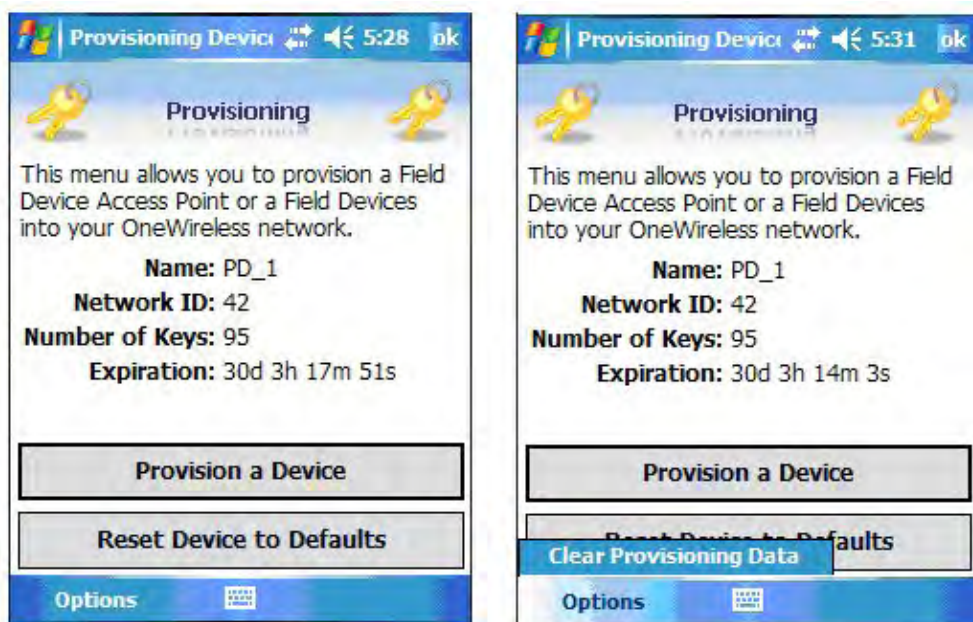
Figure 5-2 Security and Node Deployment

To connect your transmitter to the OneWireless network perform the following steps.

Step	Action
1	If the Provisioning Device contains no keys, obtain new security keys from the Wireless System Gateway user interface.
2	When the Provisioning Device has valid unexpired keys, aim it at the transmitter and transmit a key to the transmitter. The transmitter will validate the key and then use it to make a connection to the OneWireless network. The Transmitter may continue to show the diagnostic message "NO KEY" for a brief time while it validates the key before showing the "DISCOVER" message. To verify your transmitter has been provisioned, see the Connection prompt on the Read Device Information screen (page 31).

To deprovision your transmitter from the OneWireless network, select **Reset Device to Defaults**. This clears the transmitter's key, network and security configurations, and resets the transmitter to its factory default settings. perform the following steps.

Select **Provisioning Data** (under Advanced Options) when:

- The Provisioning Device has keys from one system, but you are using provision device on another system, or

- you want to clear all keys so that you cannot deploy any more keys without going to the Wireless System Gateway user interface and getting more.

For more details on keys, refer to Getting Started with Honeywell OneWireless Solutions.

Device Local Configuration

Use Device Local Configuration buttons (Table 5-9) to navigate the transmitter menus (Table 5-8) and to make selections and changes. You can also use the PDA buttons.

Figure 5-3 Device Local Configuration screen

Table 5-9 Buttons for Device Local Configuration

Button	Function
Enter	• Enter the Menu Tree. • Enter submenu of the menu that is appearing on the screen. • Execute action. • Submit the entered number while doing number entry. • Read value of certain displayed parameters.
Up	• Go to the next menu in the same level. • View quick view parameters in Normal Display Sequence (PV Display). • During number entry, increment the digit or change +/- sign.
Down	• Go to the previous menu in the same level. • View quick view parameters in Normal Display Sequence (PV Display). • During number entry, decrement the digit or change +/- sign.
Back	• Go to the upper menu level. • When changing a number value, move cursor to the left/more significant digit, then wrap around to the least significant digit.

Read Device Information

Use this to read the transmitter's information shown in Figure 5-4. Similar to quick view parameters on the transmitter display. (See page 25.)

Figure 5-4 Read Device Information

Table 5-10 Read Device Information

Item	Description
Tag Name:	The name given to this transmitter
Vendor:	Manufacturer of device
Model:	Description of device
Revision:	Software revision of sensor firmware
Radio Version:	Software revision of radio firmware
Serial Number:	Transmitter serial number. This is the WBSN on the transmitter's nameplate. Do not confuse this with the other nameplate item marked "Serial."
Network ID	Network Address of the device in hexadecimal.
IP Address:	IP Address of radio

Item	Description
Device Role:	Function of the device in the wireless network. No Routing – Device functions only as a transmitter I/O Router – Device functions both as a transmitter and as a field router
Join Status:	The first line displays one of the following connection states. **No Security Key** – No security key has been deployed to the device or multinode. The user must give a security key to the device or multinode before it will join the wireless sensor network. **Not Joined** – A security key exists in the device or multinode, but no connection has been formed. The device or multinode is waiting to form a connection and will automatically retry shortly. Users may transmit a new security key in order to force the device or multinode to immediately retry to form a connection. **Discover** – The device is attempting to form a connection to the wireless sensor network. The device is discovering multinodes and, if a multinode is found, will transition to the securing state. **Securing** – The device is attempting to form a connection to the wireless sensor network. The device has discovered one or two multinodes and is attempting to form a secure session. If successful, the device will transition to the connected state. **Joining** – The device is negotiating the parameters of the wireless connection. **Joined** – A secure connection is formed with the network. The second line contains detailed state information useful for problem reporting.

Advanced Options

Advanced options are non-typical configuration commands.
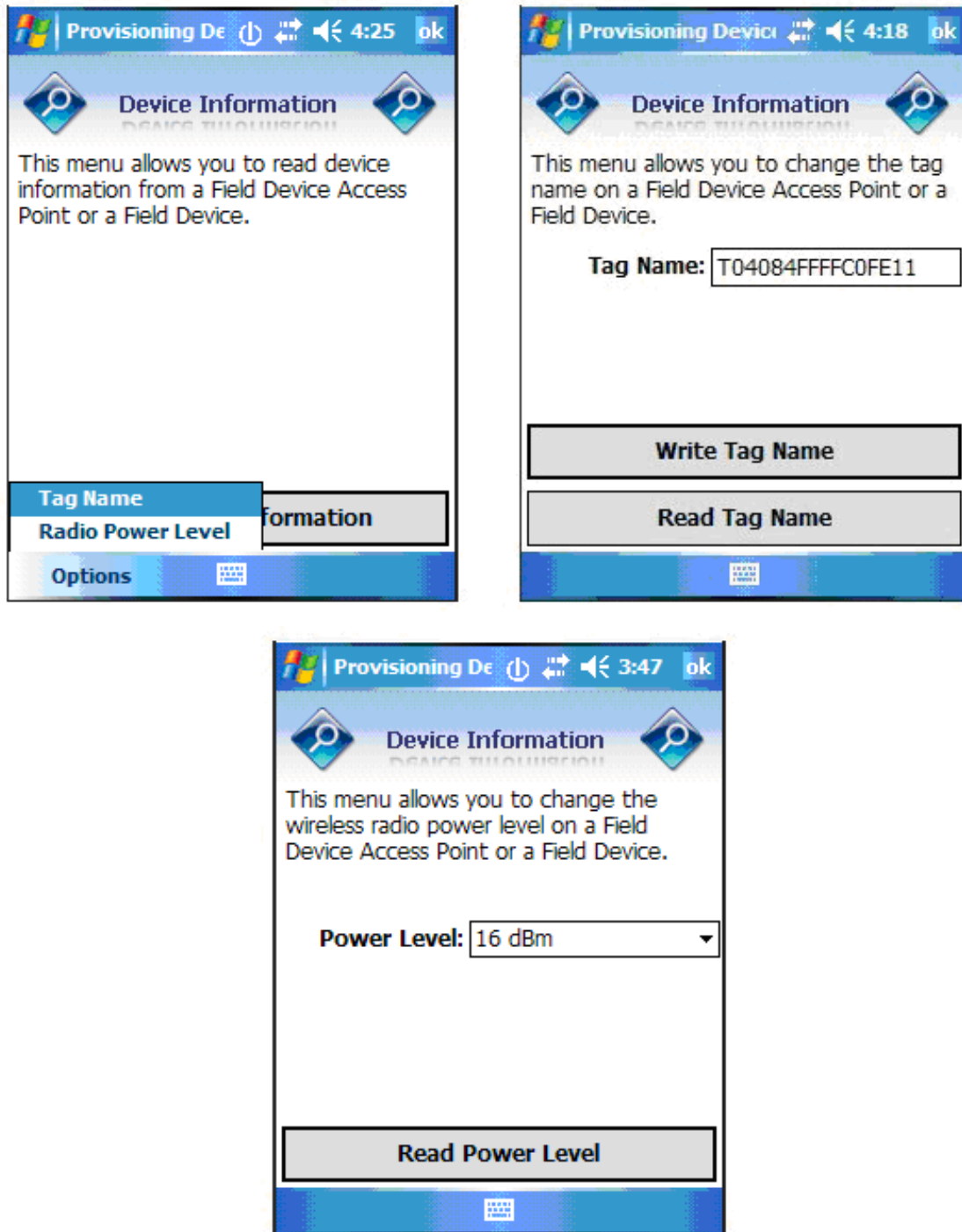
Figure 5-5 Advanced Options

Table 5-11 Advanced Options

Item	Description
Read Power Level	Reads the transmission power level of the transmitter radio.
Read Tag Name	Reads the transmitter's tag name
Write Tag Name	Write the transmitter's tag name with the entered text, maximum 16 characters

6. Maintenance/Repair

6.1 Introduction

This section provides information about preventive maintenance routines and replacing damaged parts. The topics covered in this section are:

Preventive maintenance of the meter body barrier diaphragms and process piping to the transmitter.

Replacement of damaged parts such as the transmitter display/sensor and batteries.

6.2 Preventive maintenance

The XYR 6000 transmitter itself does not require any specific maintenance routine at regularly scheduled intervals. However, you should consider carrying out these typical inspection and maintenance routines on a schedule that is dictated by the characteristics of the process medium being measured and whether blow-down facilities or purge systems are being used.

Check piping for leaks.

Clear the piping of sediment or other foreign matter.

Clean the transmitter's pressure chambers including the barrier diaphragms.

6.3 Inspecting and cleaning barrier diaphragms

Depending on the characteristics of the process medium being measured, sediment or other foreign particles may collect in the process head cavity/chamber and cause faulty measurement. In addition, the barrier diaphragm or diaphragms in the transmitter's meter body may become coated with a residue from the process medium. The latter is also true for external diaphragms on flange mount and remote seal type transmitters.

In most cases, you can readily remove the process head or heads from the transmitter's meter body to clean the process head cavity and inspect the barrier diaphragm or diaphragms. For flange mount and remote seal diaphragms, you may only need to run a purge line in the tank to rinse off the face of the diaphragm.

The procedure in Table 6-1 outlines the general steps for inspecting and cleaning barrier diaphragms. You may have to modify the steps to meet your particular process or transmitter model requirements. Figure 6-1 shows an exploded view of a DP transmitter's meter body for reference.

> **WARNING**
>
> Risk of death or serious injury by explosion. Do not open transmitter enclosure when an explosive gas atmosphere is present.

Tools required

- 5/8" Wrench or Socket for 7/16" Dia. Hex Bolt

- 3/4" Wrench or Socket for 7/16" Hex Nut

- Calibrated torque wrench. For the most accurate performance, select a torque wrench with which the applied torque value is near the middle of the tool's torque range. For example, if applying 68 N-M (50 Lb-Ft), select a torque wrench with range of 7 N-M to 136 N-M (5 to 100 Lb-Ft).

Procedure

Table 6-1 Inspecting and Cleaning Barrier Diaphragms

Step	Action
1	Close all valves and isolate transmitter from process. Open vent in process head to drain fluid from transmitter's meter body, if required.
	ATTENTION We recommend that you remove the transmitter from service and move it to a clean area before taking it apart.
	WARNING Risk of death or serious injury by explosion. Do not open transmitter enclosure when an explosive gas atmosphere is present.
2	Remove nuts from bolts that hold process head or heads to meter body. Remove process heads and bolts. See Figure 6-1.
3	Remove gasket and clean interior of process head using soft bristle brush and suitable solvent.
	CAUTION Diaphragm surface is fragile. Be very gentle, do not damage.
4	Inspect barrier diaphragm for any signs of deterioration or corrosion. Look for possible residue and clean if necessary. If diaphragm is dented, has distorted convolutions or radial wrinkles, performance may be affected. Contact Honeywell for assistance.
5	Replace process head gasket.
	ATTENTION • We recommend that you install a new gasket whenever a process head is removed for cleaning. For process heads of a GP or AP transmitter with dual-head design, see illustration for differential pressure transmitters in Figure 6-1.
6	Coat threads on process head bolts with anti-seize compound such as "Neverseize" or equivalent.
7	Replace process head or heads and bolts. Finger tighten nuts.
8	Use a torque wrench to gradually tighten nuts to torque rating shown in Table 6-2, in sequence shown in Figure 6-1. Tighten head bolts in stages of 1/3 full torque, 2/3 full torque, and then full torque.
9	Return transmitter to service.
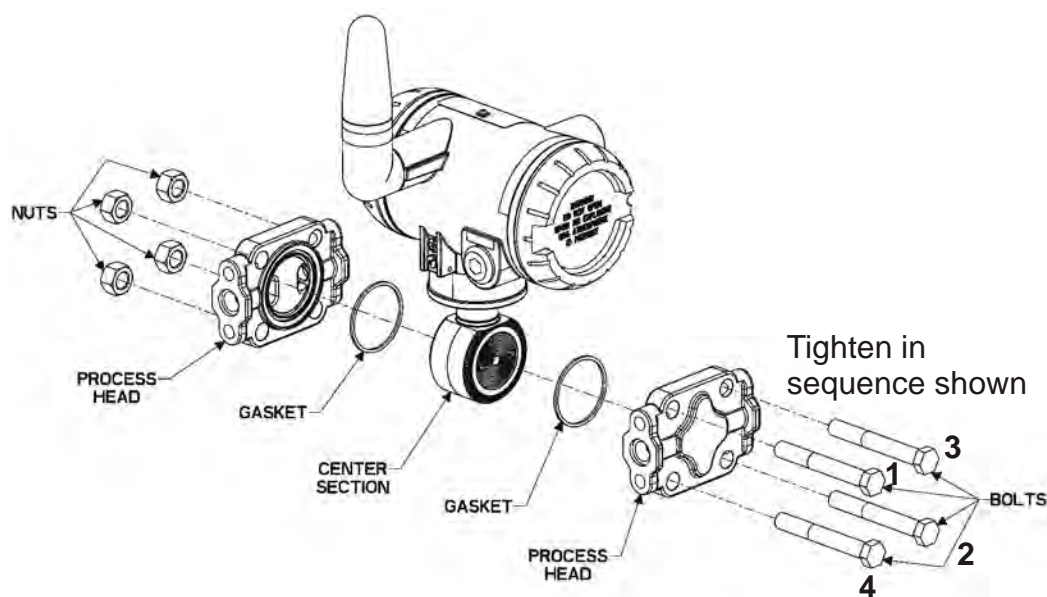
Figure 6-1 Assembly of DP Transmitter Process Heads

Torque ratings

Table 6-2 lists process head bolt torque ratings for given transmitter type.

Table 6-2 Process Head Bolt Torque Ratings

Meterbody Type	Bolt Type 7/16 x 14 UNC		
	51452557-001 (Carbon Steel - standard; no option specified)	51452557-002 and –003 (NACE ["CR" option], Non-NACE ["SS" option] 316 Stainless Steel)	51452557-004 (B7M Alloy Steel ["B7" option])
50019775XXXX	67,8 N•M +/- 3,4 N•M (50.0 Lb-Ft +/- 2.5 Lb-Ft)	56,9 N•M +/- 2,8 N•M (42.0 Lb-Ft +/- 2.1 Lb-Ft)	48,8 N•M +/- 2,4 N•M (36.0 Lb-Ft +/- 1.8 Lb-Ft)

6.4   Replacing sensor module

Tools required

- #1 Phillips Screwdriver or 1/8" Slotted Screwdriver

- Torque Screwdriver

- 1.5 mm hex key

Procedure

> ⚠️ **WARNING**
>
> Risk of death or serious injury by explosion. Do not open transmitter enclosure when an explosive gas atmosphere is present.

> ⚠️ **CAUTION**
>
> Take precautions against electrostatic discharge to prevent damaging the sensor module.

Table 6-3 Sensor module replacement

Step	Action
1	Honeywell recommends that the transmitter be removed from service and moved to a clean area before servicing.
2	Loosen the M3 locking set screw on the display end-cap. See item 1 in Figure 6-2. Unscrew and remove the end cap.
3	Loosen the two screws on the sensor module. See items 2 in Figure 6-2.
4	Disconnect each connector on the sensor module. See items 3 in Figure 6-2
5	Install new sensor module. Be sure to orient sensor module in the proper viewing orientation before tightening two sensor compartment screws. Reverse steps 1-4. Torque screws to 0,4 – 0,6 N-M (3.5 – 5.3 Lb-in). Honeywell recommends lubricating the end cap O-ring with a Silcone Grease such as Dow Corning #55 or equivalent before replacing the end cap. Return transmitter to service.
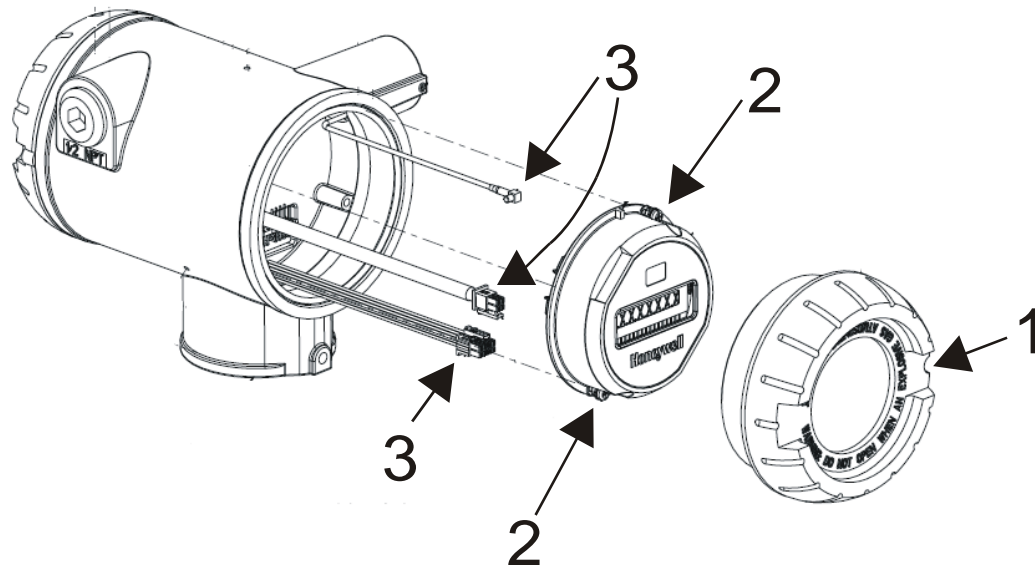
Figure 6-2 Sensor module removal and replacement

6.5   Replacing batteries

When to replace

When the transmitter displays a LOW BAT message you have 2-4 weeks to replace both batteries before they expire. When batteries are removed or expired, all transmitter data is retained in the transmitter's non-volatile memory.

Tools required

- #1 Phillips Screwdriver or 1/8" Slotted Screwdriver

- Torque Screwdriver

- 1.5 mm hex key

Procedure

> **ATTENTION**
>
> Batteries must be replaced only by a trained service technician.

> **WARNINGS**
>
> - Risk of death or serious injury by explosion. Do not open transmitter enclosure when an explosive gas atmosphere is present.
>
> - Batteries must not be changed in an explosive gas atmosphere.
>
> - If IS Battery Pack, Honeywell 50047517-001, has been installed in the Wireless Transmitter, the transmitter enclosure maybe opened when an explosive gas atmosphere is present. Otherwise, do not open transmitter enclosure when and explosive gas atmosphere is present.
>
>   - When not in use the Battery Pack must be stored in a non Hazardous Area
>
> - The batteries used in this device may present a risk of fire or chemical burn if mistreated. Do not recharge, disassemble, heat above 100°C (212°F), or incinerate.
>
> - When installing batteries, do not snag the battery terminal on the clip or the battery may be damaged. Do not apply excessive force.
>
> - Do not drop. Dropping the battery may cause damage. If a battery is dropped, do not install the dropped battery into the transmitter. Dispose of dropped battery promptly per local regulations or per the battery manufacturer's recommendations.

IS Battery Pack, 50047517-501

IS Battery Pack replacement procedure

Step	Action
1	**WARNING** ⚠️ **DO NOT DISASSEMBLE OR ASSEMBLE WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT**
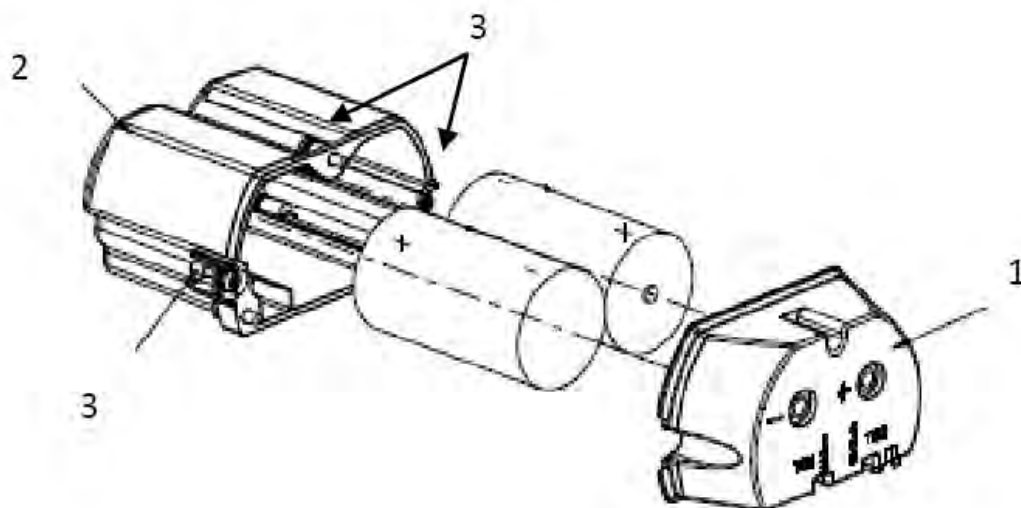
Figure 6-3: IS Battery Pack

Step	Action
2	Loosen the M3 locking set screw on the battery end-cap (opposite end from display). Unscrew and remove the end cap.
3	Using thumb and forefinger, squeeze the battery connector at top and bottom to disengage the locking mechanism, then pull to disconnect.
4	Loosen the two battery holder retaining screws (closest to the batteries). The screws are captive.
5	Pull the battery holder out of the transmitter.
6	Remove top of battery pack by using a #1 Philips or 1/8" slotted screwdriver for the screws identified as #3 in Figure 6-3.
7	Remove the spent batteries and dispose of them properly according to local regulations to the battery manufacturer's recommendations.
8	Install the new batteries following the polarity as noted on the lid
9	Re-install top of the battery pack and tighten screws
10	Insert the Battery pack into the transmitter. Reattach the screws as indicated in Figure 6-3, item 3, to 0.4 to 0.6 N-M (3.5 – 5.3 Lb-in).
	Reconnect the Battery Pack connector
	Honeywell recommends lubricating the end cap thread with a silicone grease such as Dow Corning #55 or equivalent before replacing the end cap
11	Screw the cap back on and tighten the M3 locking screw

6.6 Replacing 24V external power module

When to replace

When the transmitter displays LOW PWR and external power is present and sufficient. When the external power is removed to allow replacement of the module, all transmitter data is retained in the transmitter's nonvolatile memory.

Tools required

- • #1 Phillips Screwdriver or 1/8" Slotted Screwdriver

- • Torque Screwdriver

- • 1.5 mm hex key

Procedure

ATTENTION

24V power module must be replaced only by a trained service technician.

WARNINGS

- Risk of death or serious injury by explosion. Do not open transmitter enclosure when an explosive gas atmosphere is present.

SHOCK HAZARD

- Depending on your installation, transmitter input wiring sources may contain high voltage. Disconnect all power from transmitter input sources before accessing the 24V power module. Failure to do so could result in death or serious injury if the input terminals or wires are accidentally touched.
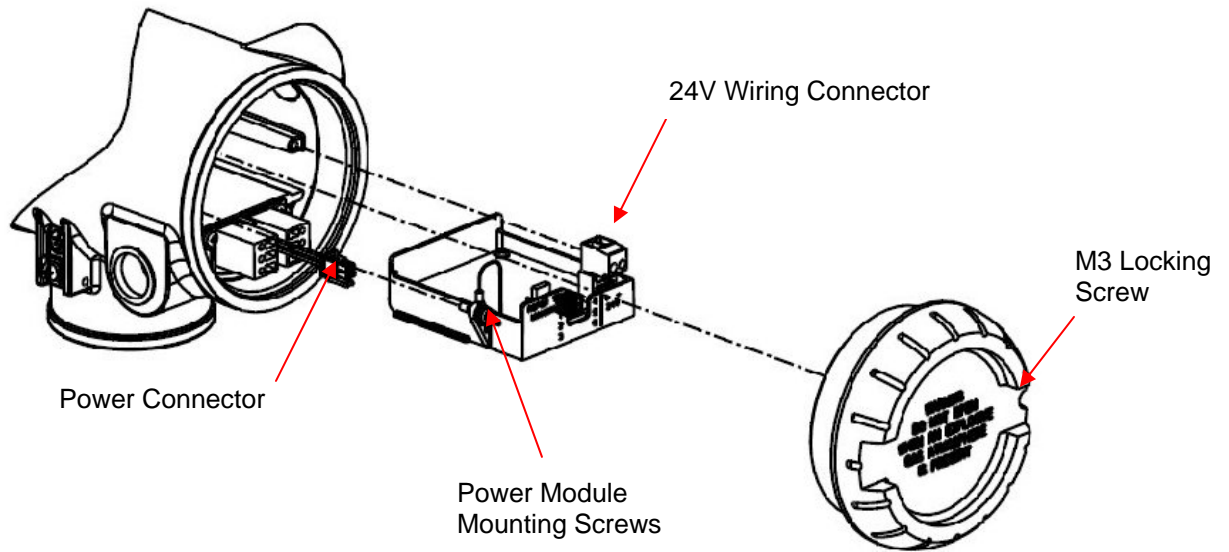
Figure 6-4 24V Power Supply Module Assembly

24V External power module

Figure 6-5 24V External power module

Step	Action
1	Loosen the M3 locking set screw on the end-cap (opposite end from display). See Figure 6-4. Unscrew and remove the end cap.
2	Using thumb and forefinger squeeze the power connector at top and bottom to disengage the locking mechanism then pull to disconnect. See Figure 6-4
3	Unplug the 24V wiring from the module
4	Loosen the two 24V power module retaining screws. The screws are captive.
5	Pull the 24V power module out of the transmitter.
6	The replacement 24V Power Modules are supplied with the "J2" Jumper in the NON-RTD position. For 24V Transmitters utilizing RTD sensors, move the "J2" jumper to the "RTD" position on the power module shown in Figure 6-4.
7	Insert the replacement 24V power module into the transmitter. Reattach the screws and tighten to 0,4 – 0,6 N-M (3.5 – 5.3 Lb-in). Re-connect battery connector. Honeywell recommends lubricating the end cap O-ring with a Silicone Grease such as Dow Corning #55 or equivalent before replacing the end cap.
8	Screw the end cap back on and tighten the M3 locking screw.
9	Dispose of the Power Module according to local regulations

6.7 Replacing antenna

Tools required

- #1 Phillips Screwdriver or 1/8" Slotted Screwdriver

- Torque Screwdriver

- 1.5 mm hex key

Procedure

ATTENTION

You must replace your antenna with the same type, that is, elbow, straight, or remote. Changing to a different antenna type is not permitted by approval agencies.

CAUTION

Take precautions against electrostatic discharge to prevent damaging the sensor module.

WARNING

POTENTIAL ELECTROSTATIC CHARGING HAZARD

The integrally mounted antenna shroud is made of Teflon® and has a surface resistance greater than 1Gohm per square. When the XYR 6000 transmitter is installed in potentially hazardous locations care should be taken not to electrostatically charge the surface of the antenna shroud by rubbing the surface with a cloth, or cleaning the surface with a solvent. If electrostatically charged, discharge of the antenna shroud to a person or a tool could possibly ignite a surrounding hazardous atmosphere.

Antenna replacement procedure

| Step	Action
1	Honeywell recommends that the transmitter be removed from service and moved to a clean area before servicing.
2	Loosen the M3 locking set screw on the display end-cap. See item 1 in Figure 6-6. Unscrew and remove the front end cap.
3	Loosen the two screws on the sensor module. See items 2 in Figure 6-6.
4	Remove the sensor module from the transmitter body and disconnect the antenna connector from CN2 connector on the sensor module. See item 3 in Figure 6-6.
5	Loosen the locking set screw at the antenna base. Unscrew the antenna from the transmitter. Remove the antenna and its connector from the transmitter. See Figure 6-6.
6	Feed the new antenna's connector through the antenna hole to the front of the transmitter. Do not connect to sensor module yet. Lubricate O-ring with a Silicone Grease such as Dow Corning #55 Screw new antenna into transmitter body until finger-tight, then back off 180 degrees to permit adjustment later.
7	Attach antenna connector to CN2 connector on sensor module. See item 3 in Figure 6-6.
8	Insert sensor module. Orient in the proper viewing orientation before tightening two sensor compartment screws. See items 2 in Figure 6-6. Torque screws to 0,4 – 0,6 N-M (3.5 – 5.3 Lb-in).
9	Replace the front end cap. Honeywell recommends lubricating the front end cap O-ring with a Silicone Grease such as Dow Corning #55 or equivalent before replacing the end cap.
10	Adjust antenna for best reception. Don't rotate antenna more than 180 degrees either direction or you could twist and break the antenna wiring inside. Tighten the antenna locking set screw.
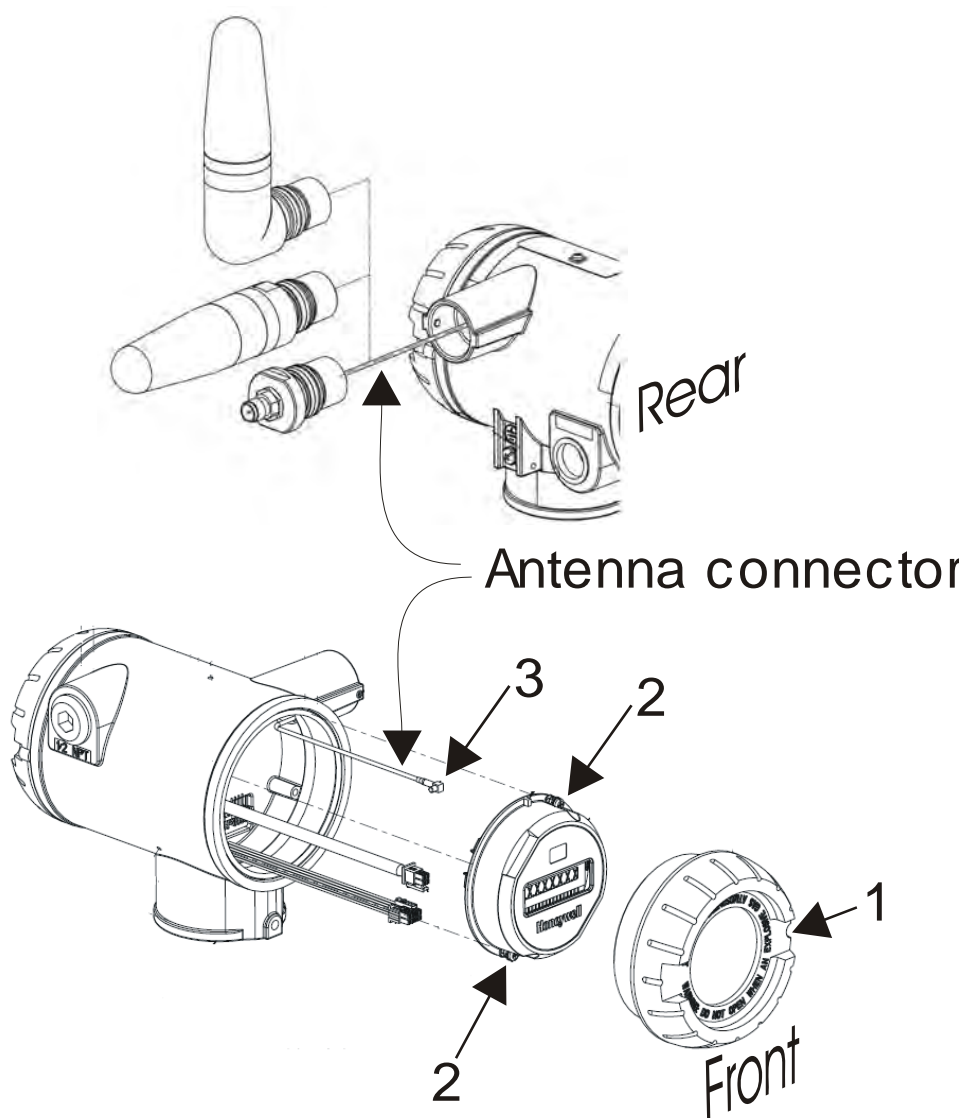
Figure 6-6 Antenna replacement

6.8   Parts

Transmitter body

The following replacement parts may be ordered from Honeywell.

Table 6-4 Transmitter Body Parts

Part number	Qty.	Description
50015866-522	1	ELECTRONICS MODULE ASSEMBLY aka SENSOR MODULE for Pressure ISA100.11a INTRINSICALLY SAFE
50015623-501	1	CAP ASSEMBLY, BATTERY, ALUMINUM, DARK BEIGE
50016190-501	1	CAP ASSEMBLY, LCD, ALUMINUM, DARK BEIGE
50026009-501	1	CAP ASSEMBLY, BATTERY, STAINLESS STEEL
50026127-501	1	CAP ASSEMBLY, LCD, STAINLESS STEEL
50016229-501	1	ANTENNA ASSEMBLY, 2 dBi INTEGRAL RIGHT-ANGLE, ALUMINUM
50016229-502	1	ANTENNA ASSEMBLY, 2 dBi INTEGRAL RIGHT-ANGLE, STAINLESS STEEL
50020767-501	1	ANTENNA ASSEMBLY, 2 dBi INTEGRAL STRAIGHT, STAINLESS STEEL
50020767-502	1	ANTENNA ASSEMBLY, 2 dBi INTEGRAL STRAIGHT, ALUMINUM
50031715-501	1	ANTENNA ASSEMBLY, 4 dBi INTEGRAL RIGHT-ANGLE, ALUMINUM
50031715-502	1	ANTENNA ASSEMBLY, 4 dBi INTEGRAL RIGHT-ANGLE, STAINLESS STEEL
50018414-001	1	REMOTE OMNI-DIRECTIONAL ANTENNA, 8 dBi
50018415-001	1	REMOTE DIRECTIONAL ANTENNA, 14 dBi
50016577-502	1	ANTENNA ADAPTER ASSEMBLY, REMOTE, TYPE TNC, ALUMINUM
50028364-501	1	ANTENNA ADAPTER ASSEMBLY, REMOTE, TYPE N, ALUMINUM
50028364-502	1	ANTENNA ADAPTER ASSEMBLY, REMOTE, TYPE N, STAINLESS STEEL
50018110-001	1	COAX CABLE ASSY, 1.0M (3.3 Ft) LONG, RP-TNC - N-MALE
50018110-002	1	COAX CABLE ASSY, 3.0M (10.0 Ft) LONG, RP-TNC - N-MALE
50018110-003	1	COAX CABLE ASSY, 10.0M (33.0 Ft) LONG, RP-TNC - N-MALE
50018278-001	1	COAX CABLE ASSY, 1.0M (3.3 Ft) LONG, N-MALE - N-MALE
50018278-002	1	COAX CABLE ASSY, 3.0M (10.0 Ft) LONG, N-MALE - N-MALE
50018278-003	1	COAX CABLE ASSY, 10.0M (33.0 Ft) LONG, N-MALE - N-MALE
50018279-090	1	LIGHTNING SURGE ARRESTOR
50047517-501	1	I.S. BATTERY PACK HOUSING ASSEMBLY
50031428-501	1	24V EXTERNAL POWER MODULE
50026010-001	2	3.6V LITHIUM THIONYL CHLORIDE (Li-SOCl2) BATTERY
50026010-002	4	3.6V LITHIUM THIONYL CHLORIDE (Li-SOCl2) BATTERY
50026010-003	10	3.6V LITHIUM THIONYL CHLORIDE (Li-SOCl2) BATTERY

Meter body

Use the following figures and table to find replacement parts.
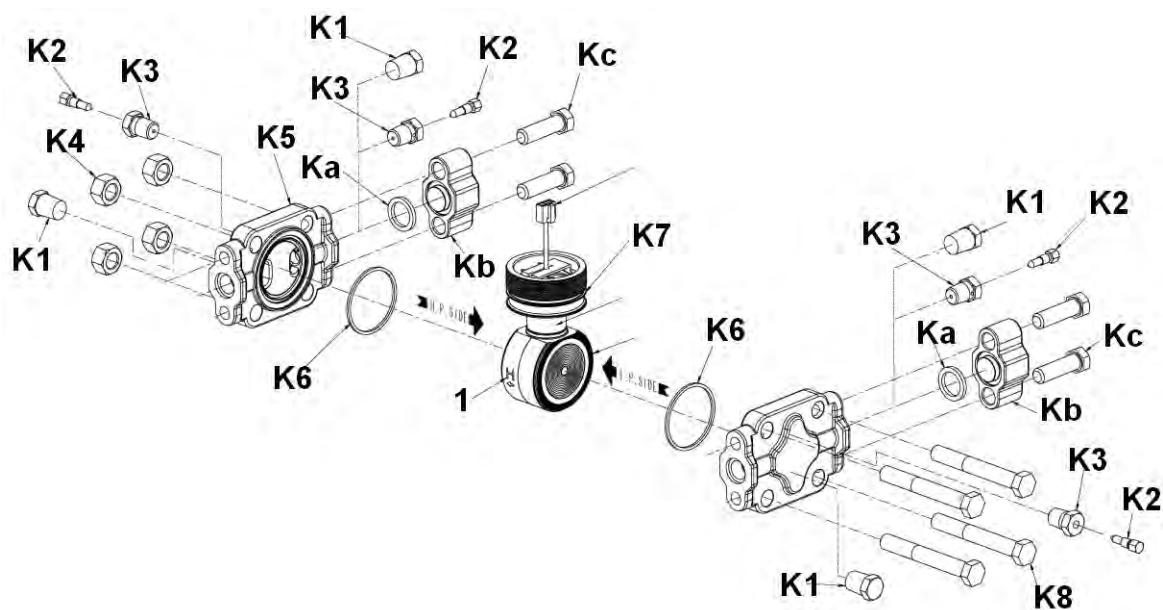
Figure 6-7 STDW1xx, STDW9xx
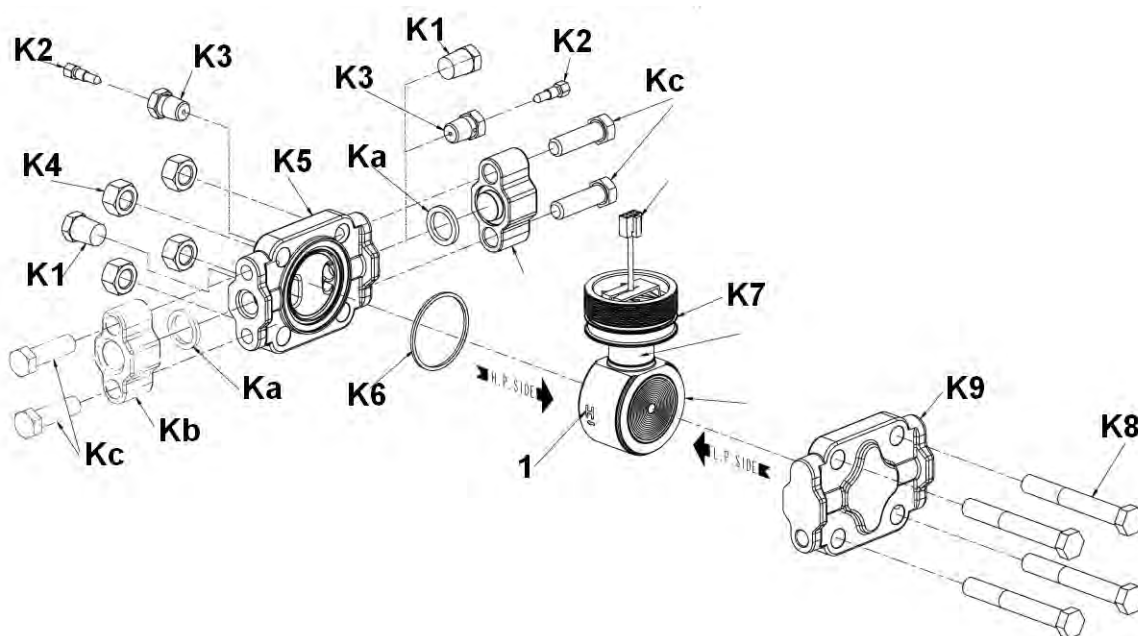
Figure 6-8 STGW944, STGW974

Table 6-5 Parts (see Figure 6-7, Figure 6-8)

Key No.	Part Number	Description	Qty/ Unit
1	Specify complete model number from nameplate	**Series 100 Meter Body replacement kit** includes: Meter body (without Process Heads) Neoprene O-ring, Meter Body to Electronic Housing (**K7**; Part no. 30752785-009; 1/unit) Process Head Gasket; PTFE (**K6**; Part No. 51452560-002; 2/unit)	1
	Specify complete model number from nameplate	**Series 900 Meter Body replacement kit** includes: Meter body (without Process Heads) Neoprene O-ring, Meter Body to Electronic Housing (**K7**; Part no. 30752785-009; 1/unit) Process Head Gasket; PTFE (**K6**; Part No. 51452560-002; 2/unit)	1
		Bolting Kits:	
	51452866-001	Bolts and Nuts Kit, Carbon Steel	
	51452866-002	Bolts A286 SS (NACE) and Nuts, 304 SS (NACE) Kit	
	51452866-003	Bolts, 316 SS (non-NACE) and Nuts, 316 SS (non-NACE) Kit	
	51452866-004	Bolts B7M and Nuts 7M Kit	
		Each Bolts and Nuts Kit includes:	
Kc	....	Bolt, Hex head, 7/16-20 UNF, 1.50 Inches long (Flange Adapter)········	4
K4	....	Nut, Hex, 7/16 UNC (Process Head)··	4
K8	....	Bolt, Hex Head, 7/16 UNC X 3.25 inches long (Process Head)···········	4
		Vent and Plug Kits:	
	30753785-001	Drain and Plug Kit, stainless steel	
	30753787-001	Drain and Plug Kit, Monel	
	30753786-001	Drain and Plug Kit, Hastelloy C	
		Each Drain and Plug Kit includes:	
K1	....	Pipe Plug ··	4
K2	....	Vent Plug ··	2
K3	....	Vent Bushing ···	2
		Meterbody Gasket Kits:	
	51452865-001	Meterbody Gasket Kit (PTFE Material); Kit includes:	
	51452865-002	Meterbody Gasket Kit (Viton Material); Kit includes:	
K6	....	Gasket, Process Head ··	6
Ka	....	Gasket, Flange Adapter ··	6
K7	....	O-Ring, Meterbody to Electronics Housing ·······························	3

Key No.	Part Number	Description	Qty/ Unit
		Process Head Gasket Kits:	
K6	51452868-001	Gasket only, Process Head (12 PTFE Gaskets/pack)	12
K6	51452868-002	Gasket only, Process Head (6 Viton Head O-Rings)	6
K6	51452868-007	Gasket only, Process Head Graphite Gasket (use only as replacement of existing graphite gasket)	6
		Flange Adapter Gasket Kits:	
Ka	51452868-004	Gasket only, Flange Adapter, 6 PTFE Adapter Gaskets	6
Ka	51452868-005	Gasket only, Flange Adapter, 6 VITON Adapter O-Rings	6
Ka	51452868-078	Gasket only, Flange Adapter Graphite Gasket (use only as replacement of existing graphite gasket)	6
		½ inch NPT Flange Adapter Kits:	
		Flange Adapter Kit, with:	
	51452867-110	SS Flange Adapters and with carbon steel bolts	
	51452867-210	SS Flange Adapters and with A286 SS (NACE) bolts	
	51452867-310	SS Flange Adapters and with 316 SS (non-NACE) bolts	
	51452867-410	SS Flange Adapters and with B7M alloy steel bolts	
	51452867-150	Monel Flange Adapters and with carbon steel bolts	
	51452867-350	Monel Flange Adapters and with 316 SS (non-NACE) bolts	
	51452867-130	Hastelloy C Flange Adapters and with carbon steel bolts	
	51452867-330	Hastelloy C Flange Adapters and with 316 SS (non-NACE) bolts	
		Each 1/2-inch NPT Flange Adapter Kit includes:	
Ka	....	Gasket, Flange Adapter ··	2
Kb	....	1/2-inch NPT Flange Adapter ···	2
Kc	....	Bolt, hex head, 7/16-20 UNF, 1.50 inches long, Flange Adapter ··	4
		Blind Flange Adapter Kits:	
	51452867-100	SS Blind Flange Adapter Kit, with Carbon Steel bolts	
	51452867-200	SS Blind Flange Adapter Kit, with A286 SS (NACE) bolts	
	51452867-300	SS Blind Flange Adapter Kit, with 316 SS (non-NACE) bolts	
	51452867-400	SS Blind Flange Adapters and B7M alloy steel bolts	
		Each Blind Flange Adapter Kit includes:	
Ka	....	Gasket, Flange Adapter ···	2
Kb	....	Blind Flange Adapter ···	2
Kc	....	Bolt, hex head, 7/16-20 UNF, 1.50 inches long, Flange Adapter ··	4

Key No.	Part Number	Description	Qty/ Unit
		Process Head Kits:	
		Process Head Assembly Kit, with PTFE Gasket and with:	
	51452864-010	Carbon steel head (zinc plated) without side vent/drain	
	51452864-012	Carbon steel head (zinc plated) with side vent/drain	
	51452864-020	Stainless steel head without side vent/drain	
	51452864-022	Stainless steel head with side vent/drain	
	51452864-030	Hastelloy C head without side vent/drain	
	51452864-032	Hastelloy C head with side vent/drain	
	51452864-040	Monel head without side vent/drain	
	51452864-042	Monel head with side vent/drain	
	51452864-050	Carbon steel head (nickel plated) without side vent/drain	
	51452864-052	Carbon steel head (nickel plated) with side vent/drain	
		Process Head Assembly Kit, with VITON Gasket and with:	
	51452864-110	Carbon steel head (zinc plated) without side vent/drain	
	51452864-112	Carbon steel head (zinc plated) with side vent/drain	
	51452864-120	Stainless steel head without side vent/drain	
	51452864-122	Stainless steel head with side vent/drain	
	51452864-130	Hastelloy C head without side vent/drain	
	51452864-132	Hastelloy C head with side vent/drain	
	51452864-140	Monel head without side vent/drain	
	51452864-142	Monel head with side vent/drain	
	51452864-150	Carbon steel head (nickel plated) without side vent/drain	
	51452864-152	Carbon steel head (nickel plated) with side vent/drain	
		Each Process head Assembly Kit includes:	
K1	....	Pipe Plug (See Note 1, 2.)···················· ·································	2
K2	....	Vent Plug (See Note 1.)·························· ····················	1
K3	....	Vent Bushing (See Note 1.)····························· ···········	1
K5	....	Process Head ··	1
K6	....	Gasket (PTFE), Process Head ·································	1
Ka	....	Gasket (PTFE), Flange Adapter·································	1
		NOTE 1 : This item is made of the same material as the Process Heads, except for Kits with carbon steel Process Heads, which include stainless steel Pipe Plug, Vent Plug, and Vent Bushing. NOTE 2: The Kit for Process Heads without side vent/drain does not include Pipe Plugs (K1).	
		Reference Head:	
K9	51452951-001	Carbon Steel Blind Reference Head	1
K9	51452951-002	316 SS Blind Reference Head (Model Selection Guide HR Option)	1
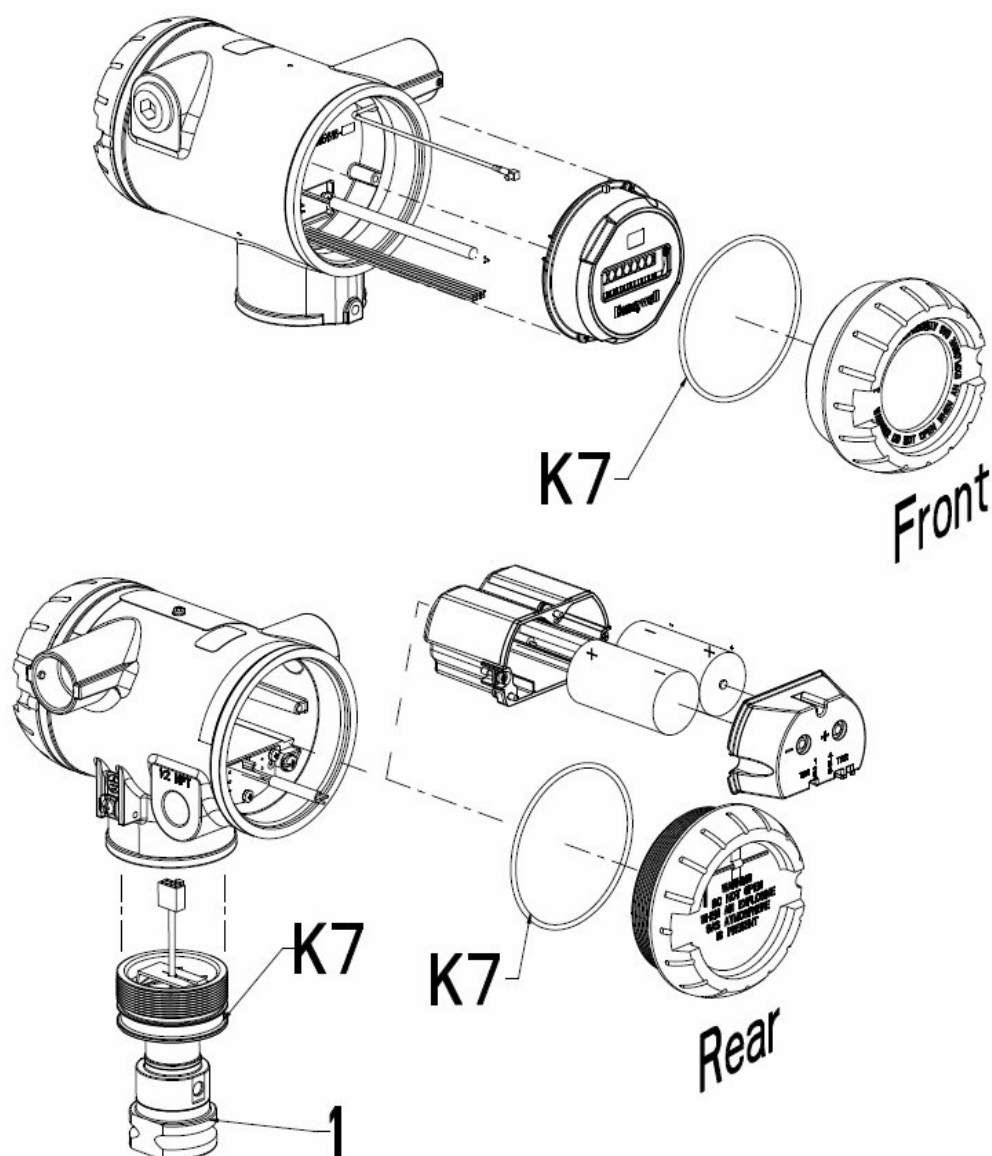
Figure 6-9 STAW1xL, STAW9xL, STGW1xL, STGW9xL

Table 6-6 Parts (see Figure 6-9)

Key No.	Part Number	Description	Qty/ Unit
1	Specify complete model number from nameplate	**Meter Body replacement kit** includes: Meter body	 1
K7	30757503-001	Electronics enclosure seals kit for LGP/LAP models. Kit includes:	
	……..…….……………	O-ring for transmitter end caps	6
	…………………………	O-ring, meter body to electronics housing	3

6.9   Dimension drawings

Dimension drawings are available for each transmitter model. If you need a copy of a drawing, please determine the appropriate drawing number from the following tables and contact your Honeywell representative.

Table 6-7 Drawing numbers for DP models STDW1xx, STDW9xx

Angle Bracket ("MB" or "SB")		Flat Bracket ("FB")	
Vertical Pipe	Horizontal Pipe	Vertical Pipe	Horizontal Pipe
50022275	50022274	50022273	50022272

Table 6-8 Drawing numbers for DHGP models STGW944, STGW974

Angle Bracket ("MB" or "SB")		Flat Bracket ("FB")	
Vertical Pipe	Horizontal Pipe	Vertical Pipe	Horizontal Pipe
50022279	50022278	50022277	50022276

Table 6-9 Drawing numbers for GP/AP models STAW1xL , STGW9xL, STGW1xL, STGW9xL

Angle Bracket ("MB" or "SB")		Flat Bracket ("FB")	
Vertical Pipe	Horizontal Pipe	Vertical Pipe	Horizontal Pipe
50022279	50022278	50022277	50022276

Table 6-10 Drawing Numbers for Flush, Extended and Pseudo Flanged Models

STFW1xx, STFW9xx, Flush Flange	50060110
STFW1xx, STFW9xx Extended Flange	50060111
STFW1xF, STFW9xF Pseudo Flange	50060112

Table 6-11 Drawing Numbers for DP Remote Seal Models STRW1xD, STRW9xD

	1 Remote Seal on High Side	1 Remote Seal on Low Side	2 Remote Seals
Flat Bracket Horizontal	50060115	50060119	50060829
Flat Bracket Vertical	50060116	50060120	50060830
Angle Bracket Horizontal	50060117	50060121	50060831
Angle Bracket Vertical	50060118	50060122	50060832

Table 6-12 Drawing Numbers for GP/AP Remote Seal Models STRW1xG, STRW9xG, STRW1xA, STRW9xA

Flat Bracket Horizontal	50060131
Flat Bracket Vertical	50060132
Angle Bracket Horizontal	50060133
Angle Bracket Vertical	50060134

Appendix A - Modbus

Table 6-13 – XYR 6000 Pressure Analog In – Modbus table

XYR 6000 Pressure Analog In

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description
PV	Channel process value.	AnalogValueStatus	5	Read Only	Dynamic		
MODE	Channel mode.	Mode	4	Read/Write	Static		
MODE.TARGET	Channel target mode.	Uint8	1	Read/Write	Static		
						0 - Normal	Normal
						1 - OOS	Out Of Service Mode
						16 - Auto	Automatic Mode
MODE.ACTUAL	Channel actual mode.	Uint8	1	Read Only	Static		
						1 - OOS	Out Of Service Mode
						16 - Auto	Automatic Mode
MODE.PERMITTED	Channel permitted mode.	BitString	1	Read/Write	Static		
						1 - OOS	Out of Service Mode Permitted
						16 - Auto	Automatic Mode Permitted
MODE.NORMAL	Channel normal mode.	Uint8	1	Read/Write	Static		
						1 - OOS	Out Of Service Mode
						16 - Auto	Automatic Mode
SCALE	Channel transducer scale.	Scaling	11	Read/Write	Static		
SCALE.EU_100	Channel EU at 100%.	Float	4	Read/Write	Static		
SCALE.EU_0	Channel EU at 0%.	Float	4	Read/Write	Static		
SCALE.UNITS_INDEX	Channel units index.	Uint16	2	Read/Write	Static		
						1002 - Â°F	degree Fahrenheit
						1132 - MPa	megapascal
						1133 - kPa	kilopascal
						1137 - bar	bar
						1138 - mbar	millibar
						1141 - psi	pounds per square inch
						1142 - psia	pounds per square inch absolute
						1143 - psig	pounds per square inch gauge
						1144 - g/cmÂ²	gram per square centimeter
						1145 - kg/cmÂ²	kilogram per square centimeter
						1147 - inH2O (4Â°C)	inches of water at 4Â°C
						1148 - inH2O (68Â°F)	inches of water at 68Â°F
						1150 - mmH2O (4Â°C)	millimeters of water at 4Â°C
						1151 - mmH2O (68Â°F)	millimeters of water at 68Â°F
						1156 - inHg (0Â°C)	inches of mercury at 0Â°C
						1158 - mmHg (0Â°C)	millimeters of mercury at 0Â°C
						1342 - %	percent
SCALE.DECIMAL	Channel decimal points.	Uint8	1	Read/Write	Static		

XYR 6000 Pressure Analog In continued ..

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description
ALERTS	No Help Available	Uint8	1	Read/Write	Static		
						0 - High	No Help Available
						1 - HighHigh	No Help Available
						2 - Low	No Help Available
						3 - LowLow	No Help Available
						6 - OutOfService	No Help Available
						128 - Sensor Over Temperature	No Help Available
CAL_CMD	Calibration command	Uint8	1	Read/Write	Dynamic		
						0 - None	No value
						1 - Cal Lower	Calibrate for lower value
						2 - Cal Upper	Calibrate for upper value
						3 - Cal Zero	Calibrate for zero
						4 - Cal Restore	Restore calibration command
						5 - Cal Clear	Clear calibration command
CAL_STATUS	Calibration status	Uint8	1	Read Only	Dynamic		
						0 - None	No value
						1 - Success	Calibration successful
						2 - Failed	Calibrate failed
						3 - Bad Factory Cal	Bad factory calibration
						4 - Bad User Cal	Bad user calibration
						5 - Internal Error	Internal error
						6 - Bad Units	Bad units
						7 - Bad Sensor	Bad sensor
						8 - Bad Trim Point	Bad trim point
						9 - Success with Excess	Success with excess
CAL_POINT_HI	Calibration Point High	Float	4	Read/Write	Static		
CAL_POINT_LO	Calibration point low	Float	4	Read/Write	Static		
CAL_SOURCE	Calibration Source	Uint8	1	Read Only	Dynamic		
						1 - None	Calibration source none
						2 - User	User Calibration
						3 - Factory	Factory Calibration
CAL_UNIT	Units of calibration point	Uint16	2	Read/Write	Static		
						1002 - Â°F	degree Fahrenheit
						1132 - MPa	megapascal
						1133 - kPa	kilopascal
						1137 - bar	bar
						1138 - mbar	millibar
						1141 - psi	pounds per square inch
						1142 - psia	pounds per square inch absolute
						1143 - psig	pounds per square inch gauge
						1144 - g/cmÂ²	gram per square centimeter
						1145 - kg/cmÂ²	kilogram per square centimeter
						1147 - inH2O (4Â°C)	inches of water at 4Â°C
						1148 - inH2O (68Â°F)	inches of water at 68Â°F
						1150 - mmH2O (4Â°C)	millimeters of water at 4Â°C
						1151 - mmH2O (68Â°F)	millimeters of water at 68Â°F
						1156 - inHg (0Â°C)	inches of mercury at 0Â°C
						1158 - mmHg (0Â°C)	millimeters of mercury at 0Â°C
						1342 - %	percent

XYR 6000 Pressure Analog In continued ..

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description
SENSOR_TEMP	Sensor temperature value	AnalogValueStatus	5	Read Only	Dynamic		
SENSOR_TEMP.TEMP_VAL_STAT	Digital transducers	unlike their analog versions can detect faults that make the measurement bad or prevent the actuator from responding. This additional valuable information will be passed along with each transmission of a data value in the form of a status attribute.			Uint8	1 Read Only	Dynamic
SENSOR_TEMP.TEMP_VAL	A numerical quantity entered by a user or calculated by the algorithm.	Float	4	Read Only	Dynamic		
TEMP_UNIT	Units of temperature	Uint16	2	Read/Write	Static	1001 - Â°C 1002 - Â°F	degree Celsius degree Fahrenheit
SENSOR_RANGE	Upper and lower range limits of sensor	expressed in units chosen in SCALE unit index	Scaling	11	Read Only	Constant	
SENSOR_RANGE.EU100	The engineering unit value which represents the upper end of range of the associated block parameter.	Float	4	Read Only	Constant		
SENSOR_RANGE.EU0	The engineering unit value which represents the lower end of range of the associated block parameter.	Float	4	Read Only	Constant		
SENSOR_RANGE.UNITS_INDEX	Device Description units code index for the engineering unit descriptor for the associated block value.	Uint16	2	Read Only	Constant	1002 - Â°F 1132 - MPa 1133 - kPa 1137 - bar 1138 - mbar 1141 - psi 1142 - psia 1143 - psig 1144 - g/cmÂ² 1145 - kg/cmÂ² 1147 - inH2O (4Â°C) 1148 - inH2O (68Â°F) 1150 - mmH2O (4Â°C) 1151 - mmH2O (68Â°F) 1156 - inHg (0Â°C) 1158 - mmHg (0Â°C) 1342 - %	degree Fahrenheit megapascal kilopascal bar millibar pounds per square inch pounds per square inch absolute pounds per square inch gauge gram per square centimeter kilogram per square centimeter inches of water at 4Â°C inches of water at 68Â°F millimeters of water at 4Â°C millimeters of water at 68Â°F inches of mercury at 0Â°C millimeters of mercury at 0Â°C percent
SENSOR_RANGE.DECIMAL	The number of digits to the right of the decimal point which should be used by an interface device in displaying the specified parameter.	Uint8	1	Read Only	Constant		
MAX_SP	Maximum static pressure rating in selected scale units	Float	4	Read Only	Constant		
MAX_OVP	Maximum over pressure rating in selected scale units	Float	4	Read Only	Constant		

Table 6-14 XYR 6000 Pressure – Modbus table

XYR 6000 Pressure

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description		
UAP_VERREV	Field device application revision.	VisibleString	64	Read Only	Static				
UAP_STREV	Field device application static data revision level.	Uint16	2	Read Only	Static Revision				
IDENT_NUMBER	Field device application identity.	OctetString	8	Read Only	Static				
CTS_VERSION	Field device application CTS version.	Uint16	2	Read Only	Static				
ITS_VERSION	Field device application ITS version.	Uint16	2	Read Only	Static				
DIAG_STATUS	Field device application diagnostic status bitstring.	BitString	4	Read Only	Dynamic	2147483647 - Failure Status	Failure status		
						1073741824 - Function Check Status	Function check status		
						536870912 - Out of Specification Status	Out of specification status		
						268435456 - Maintenance Required Status	Maintenance required status		
						134217728 - Fault in Electronics	Faults in electronics		
						67108864 - Fault in Sensor or Actuator Element	Faults in sensor or actuator element		
						33554432 - Installation or Calibration Problem	Installation or calibration problem		
						8388608 - Outside Sensor Limits	Outside sensor limits		
						1048576 - Power is Critically Low: Maintenance Need Short-term	Power is critical low: maintenance need short-term		
						128 - Configuration Error	Invalid	inconsistent	corrupted or lost static data
						1 - Detail Information Available	Detail information available		
UAP_OPTION	Option	BitString	2	Read/Write	Static	8192 - Enable Software Write Protect	Enable Software Write Protect		
UAPMO_ALERT	No Help Available	Uint8	1	Read/Write	Static	0 - Begin Alert Recovery	No Help Available		
						1 - End Alert Recovery	No Help Available		
						2 - Device Restart	No Help Available		
						3 - Maintenance Alert	No Help Available		
						4 - Out of Specification Alert	No Help Available		
						5 - Function Check Alert	No Help Available		
						6 - Failure Status Alert	No Help Available		
DIAG_STATUS_DETAIL_1	Diag status detail	BitString	4	Read Only	Dynamic	1 - Electronics Failure	An electronic component has failed		
						4 - Input Failure	Input failure		
						16 - Low Battery	Battery needs replacement		
						128 - Calibration Error	Persistent calibration error		
						256 - No Radio Error	Radio is not present or not functioning		
						4096 - Low External Power	External power is low		
						65536 - Program Memory Fault	Program memory is corrupted		
						131072 - RAM Fault	Random access memory is corrupted		
						262144 - NVM Fault	Non-volatile memory is corrupted		
						524288 - ADC Failure	Analog to digital converter failed		
						1048576 - Characterization Memory Fault	Characterization memory fault		
						16777216 - Meter Body Over Temperature	Meter body temperature is too high		
						33554432 - Meter Body Overload	Pressure input exceeds twice the upper range limit		
						67108864 - Excess Zero Calibration	Zero calibration exeeds 5 percent		
						134217728 - Excess Span Calibration	Span calibration exeeds 5 percent		
						268435456 - Excess Calibrated Range	Calibrated span exceeds the sensor span		
						536870912 - Calibration Cleared	Calibration was reset		

XYR 6000 Pressure continued ..

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description		
SENSOR_DEVREV	Device Revision	Uint16	2	Read Only	Static				
SENSOR_BUILD	Software Version	Uint16	2	Read Only	Static				
MAINTENANCE_ALERT	Maintenance Alert	BinaryAlarmDesc	2	Read/Write	Static				
MAINTENANCE_ALERT.ALERT_DISABLE	Enable or Disable the Alert	Boolean	1	Read/Write	Static				
MAINTENANCE_ALERT.ALERT_PRIORITY	Priority set for the Alert	Uint8	1	Read/Write	Static				
OUT_OF_SPEC_ALERT	Out of Specification Alert	BinaryAlarmDesc	2	Read/Write	Static				
OUT_OF_SPEC_ALERT.ALERT_DISABLE	Enable or Disable the Alert	Boolean	1	Read/Write	Static				
OUT_OF_SPEC_ALERT.ALERT_PRIORITY	Priority set for the Alert	Uint8	1	Read/Write	Static				
FUNCTION_CHECK_ALERT	Function Check Alert	BinaryAlarmDesc	2	Read/Write	Static				
FUNCTION_CHECK_ALERT.ALERT_DISABLE	Enable or Disable the Alert	Boolean	1	Read/Write	Static				
FUNCTION_CHECK_ALERT.ALERT_PRIORITY	Priority set for the Alert	Uint8	1	Read/Write	Static				
FAILURE_STATUS_ALERT	Failure Status Alert	BinaryAlarmDesc	2	Read/Write	Static				
FAILURE_STATUS_ALERT.ALERT_DISABLE	Enable or Disable the Alert	Boolean	1	Read/Write	Static				
FAILURE_STATUS_ALERT.ALERT_PRIORITY	Priority set for the Alert	Uint8	1	Read/Write	Static				
POWER_SOURCE	Power source	Uint8	1	Read Only	Dynamic	1 - Battery Module	Device is powered by internal battery		
						2 - 24V External Power Module	Device is powered using 24V external power		
V_POWER	Power voltage	Float	4	Read Only	Dynamic				
EUI_64	Field device radio EUI64 unique identifier.	OctetString	0	Read Only	Constant				
DL_ALIAS_16_BIT	Field device radio short address.	Uint16	2	Read Only	Static				
NETWORK_ADDRESS_128_BIT	Field device radio IP6 address.	OctetString	0	Read Only	Static				
DEVICE_ROLE_CAPABILITY	Field device radio role capability.	Uint16	2	Read Only	Constant	128 - Provisioning Device	Provisioning Device		
						64 - System Time Source	System Time Source		
						32 - Security Manager	Security Manager		
						16 - System Manager	System Manager		
						8 - Gateway	Gateway		
						4 - Access Point	Access Point		
						2 - Routing Device	Routing Device		
						1 - I/O Device	I/O Device		
VENDOR_ID	Field device radio vendor ID.	VisibleString	16	Read Only	Constant				
MODEL_ID	Field device radio model ID.	VisibleString	16	Read Only	Constant				
TAG_NAME	Field device tag name.	VisibleString	16	Read/Write	Static				
SERIAL_NUMBER	Field device radio serial number.	VisibleString	16	Read Only	Constant				
POWER_SUPPLY_STATUS	Field device power supply status.	Uint8	1	Read Only	Dynamic	0 - Line Powered	Line Powered		
						1 - Battery	High	Battery powered	greater than 75% remaining
						2 - Battery	Medium	Battery powered	between 25% to 75% remaining
						3 - Battery	Low	Battery powered	less than 25% remaining
JOIN_COMMAND	Field device radio join command.	Uint8	1	Read/Write	Static	0 - None	None		
						2 - Warm Restart	Warm Restart		
						3 - Restart as Provisioned	Restart as Provisioned		
RESTART_COUNT	Field device radio restart counter.	Uint16	2	Read Only	Static				
UPTIME	Field device radio uptime.	Uint32	4	Read Only	Dynamic				
SOFTWARE_REVISION	Field device radio revision.	VisibleString	16	Read Only	Constant				
DROP_OFF_COUNT	Field device radio network drop off counter.	Uint16	2	Read Only	Static				
JOIN_ATTEMPT_COUNT	Field device radio network join attempt counter.	Uint16	2	Read Only	Static				
RESET_COUNTERS	Field device radio reset counters command.	Boolean	1	Read/Write	Static				
ROUTING_ASSIGNMENT	Field device radio network routing assignment.	Uint8	1	Read/Write	Static	0 - Routing Disabled	Routing Disabled		
						1 - Routing Enabled	Routing Enabled		
						2 - Not Applicable	Not Applicable		

XYR 6000 Pressure continued ..

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description
DLMO_RADIO_TRANSMIT_POWER	Radio maximum transmit level.	Int8	1	Read Only	Static		
DLMO_CHANNEL_DIAG	Channel diagnostics.	ChannelDiag[16]	3	Read Only	Dynamic		
DLMO_CHANNEL_DIAG.CHANNEL	Channel number.	Uint8	1	Read Only	Dynamic		
DLMO_CHANNEL_DIAG.NO_ACK	Percentage of transmissions for this channel that did not receive an ACK or NACK.	Uint8	1	Read Only	Dynamic		
DLMO_CHANNEL_DIAG.BACKOFF	Percentage of transmissions for this channel aborted due to CCA backoff.	Uint8	1	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG	Neighbor diagnostics.	NeighborDiag[8]	27	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.NEIGHBOR	Neighbor name.	VisibleString	16	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.RSSI	RSSI (Received Signal Strength Indicator) with respect to this neighbor.	Int16	2	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.RSQI	RSQI (Received Signal Quality Indicator) with respect to this neighbor.	Uint8	1	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.TX_FAILED	Number of failed unicast transmissions to this neighbor.	Uint16	2	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.TX_BACKOFF	Number of transmissions to this neighbor that were aborted due to CCA backoff.	Uint16	2	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.TX_NACK	Number of NACKs received from this neighbor.	Uint16	2	Read Only	Dynamic		
DLMO_NEIGHBOR_DIAG.CLOCK_SIGMA	Standard deviation of clock corrections with respect to this neighbor.	Int16	2	Read Only	Dynamic		
STAT_PUBSEND	Publications from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_PUBRECV	Publications from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_READREQSEND	Read requests from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_READREQRECV	Read requests from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_READREQTIMEOUT	Read request timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_READRSPSEND	Read response from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_READRSPRECV	Read response from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_READRSPTIMEOUT	Read response timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_WRITEREQSEND	Write request from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_WRITEREQRECV	Write requests from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_WRITEREQTIMEOUT	Write request timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		

XYR 6000 Pressure continued ..

Name	Description	Data Type	Data Size	Access	Class	Enum Value	Enum Description
STAT_WRITERSPSEND	Write response from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_WRITERSPRECV	Write response from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_WRITERSPTIMEOUT	Write response timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_EXECREQSEND	Execute request from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_EXECREQRECV	Execute requests from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_EXECREQTIMEOUT	Execute request timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_EXECRSPSEND	Execute response from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_EXECRSPRECV	Execute response from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_EXECRSPTIMEOUT	Execute response timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_ALERTREPSEND	Alert report from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_ALERTREPRECV	Alert report from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_ALERTREPTIMEOUT	Alert report timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_ALERTACKSEND	Alert acknowledge from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_ALERTACKRECV	Alert acknowledge from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_ALERTACKTIMEOUT	Alert acknowledge timeouts between WDM and field device application.	Uint32	4	Read Only	Dynamic		
STAT_PUBMISSED	Publications missed from field device application to WDM.	Uint32	4	Read Only	Dynamic		
STAT_RESETSTATS	Reset statistics.	Boolean	1	Read/Write	Dynamic		
STAT_PUBTIMEOUT	Publication timeouts from WDM to field device application.	Uint32	4	Read Only	Dynamic		
STAT_EUI64STR	Field device EUI64 string.	VisibleString	16	Read Only	Dynamic		
STAT_IP6ADDRSTR	Field device IP6 address string.	VisibleString	32	Read Only	Dynamic		
STAT_SHORTADDR	Field device short address.	Uint16	2	Read Only	Dynamic		
STAT_VENDOR	Field device application vendor string.	VisibleString	24	Read Only	Dynamic		
STAT_MODEL	Field device application model string.	VisibleString	16	Read Only	Dynamic		
STAT_REVISION	Field device application revision string.	VisibleString	64	Read Only	Dynamic		
STAT_RADIOVENDOR	Field device radio vendor string.	VisibleString	24	Read Only	Dynamic		
STAT_RADIOMODEL	Field device radio model string.	VisibleString	16	Read Only	Dynamic		
STAT_RADIOREVISION	Field device radio revision string.	VisibleString	16	Read Only	Dynamic		
STAT_SERIALNUMBER	Field device serial number.	VisibleString	16	Read Only	Dynamic		

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