

OneWireless XYR 6000 Transmitter

Professional Installation Guide

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Preliminary

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Date	Revision	Reason
15 October 2007	A	Document Release
18 August 2008	B	<ul style="list-style-type: none"> a) Added FCC and IC Compliance Statement information in Section 3 b) Added IC Compliance Statement and regulations in Section 17 c) Added label information in Section 15 d) Moved Abbreviations and Definitions to Section 1 e) Added Intended Country usage in Section 6 f) Add grounding wire information in Section 10 g) Removed IC ICES-001 statements h) Added 4 dBi Integral Antenna i) Added MSG information for FHSS/DSSS radios to Section 5 j) Split Table 10 into two parts (Table 11 and Table 12) so as to better show differences between FHSS and DSSS EIRP levels k) Split Table 11 into two parts (Table 13 and Table 14) so as to better show differences between FHSS and DSSS power levels l) Added cable lengths and cable losses to Table 11 and Table 12 m) Added restrictions for units installed in France to Table 11 and Table 12 n) Added and changed notes for Table 11 and Table 12 o) Added Multiple DI and Temperature DI to Table 1 p) Added note in French to Section 3.1 q) Added Table 7 for XYR 6000 with N connectors r) Added information for installation in Thailand

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1 DESIGNATION, SCOPE AND PREFACE

1.1 Designation

This document is valid for the following XYR 6000 Model Key numbers:

Table 1 – Model Key Numbers

Model Key Number	Description
STTW400	Temperature Transmitter (remote sensors)
STTW8	Temperature Transmitter with integral probe
STTW401	Temperature/Digital Inputs
STTW500	Multiple Digital Inputs
STIW600	High Level Analog Input Transmitter
STGW9	Gauge and Absolute Pressure Transmitters
STDW9	Differential Pressure Transmitters
CETW6000M	Corrosion Transmitter

Model Selection Guide Table IV selections XF, EF or JF mean that the XYR 6000 has a FHSS radio.

Model Selection Guide Table IV selections XD, ED or JD mean that the XYR 6000 has a DSSS radio.

For the complete model number information, please see the appropriate XYR 6000 Transmitter Model Selection Guides.

1.2 Scope

This document outlines professional installation requirements for the Honeywell XYR 6000 Transmitter for the Honeywell OneWireless Network. Professional installation is required to comply with certification agency and legal requirements. This document must be adhered to for all installations of the Honeywell OneWireless XYR 6000 Transmitters.

1.3 Preface

This manual covers professional installation of the Honeywell OneWireless XYR 6000 Transmitters. See the Getting Started with Honeywell OneWireless, Honeywell OneWireless Planning Guide and Honeywell OneWireless XYR 6000 User’s Guides for general information on overall system implementation, configuration, and management of these devices.

Since these devices may require that the Transmit (TX) power limit settings for the higher gain antennas be manually adjusted, then the XYR 6000 is classified by the FCC as a device that must be professionally installed. To be in compliance with FCC requirements, the radio must be installed with one of approved antennas listed in this document.

1.4 Site Survey

It is assumed for the purposes of this document that a site survey has been performed and that the antenna types, cable lengths and lightning surge arrestors were appropriately selected per the results of that survey. Any changes to these items as a result of the actual installation of the XYR 6000 transmitters into the site may require that the TX power setting of the radio board

needs to be adjusted from the factory setting in order to maintain agency approvals. See Sections 13 and 14 for more information.

1.5 Abbreviations & Definitions

The term **Honeywell XYR 6000 Transmitter** will be used to describe the composite unit which includes the Honeywell FHSS or DSSS RF Module and all subassemblies housed within the XYR 6000 Transmitter enclosure.

Table 2 –Table of Abbreviations and Definitions

ACMA	Australian Communications and Media Authority
AD	Authentication Device
ATEX	Potentially Explosive Atmospheres Directive
AWG	American Wire Gauge
Co-located	Two or more radios transmitting simultaneously and with less than 20cm of separation distance.
COTS	Commercial Off-The-Shelf
CSA	Canadian Standards Association
DCS	Distributed Control System
DSSS	Direct Sequence Spread Spectrum
EMC	Electromagnetic Compatibility
ETSI	European Telecommunications Standards Institute
EU	European Union
FCC	Federal Communications Committee
FHSS	Frequency-Hopping Spread Spectrum
FM	Factory Mutual
FSK	Frequency Shift Keying
GFSK	Gaussian Frequency Shift Keying
HLAI	High Level Analog Input
IC	Industry Canada
IEEE	Institute of Electrical and Electronics Engineers
IR	Infrared
IrDA	Infrared Data Association
LUI	Local User Interface
MPE	Maximum Permissible Exposure
MSG	Honeywell Model Selection Guide
MTBF	Mean Time Between Failures
NA	North America – United States of America and Canada
NEMA	National Electrical Manufacturers Association
PCB	Printed Circuit Board
PCI	Peripheral Components Interconnect
OQPSK	Offset Quadrature Phase-Shift Keying
RAM	Random Access Memory
RJ-45	Registered Jack-45
RPN	Reverse Polarity N-type
SQA	Supplier Quality Assurance
TNTC	Thailand National Telecommunications Commission
TX	Transmit
Wi-Fi	Wireless Local Area Network based on IEEE 802.11 Specifications
WNSIA	Wireless Network for Secure Industrial Application

2 FEDERAL COMMUNICATION COMMISSION (FCC)

2.1 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 his own expense.
- Intentional or unintentional changes or modifications must not be made to the XYR 6000 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.

3 INDUSTRY CANADA (IC)

3.1 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.

4 RF Safety 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.
- Furthermore, when using integral antenna(s) the XYR 6000 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.

5 FCC and Industry Canada (IC) Identification Numbers:

5.1 FHSS Radios

- Honeywell XYR 6000 Transmitter FHSS Radio Module Identification
 - Honeywell Identification for Class 1 Div 2 RF Modules: **50016517-001**
 - Honeywell Identification for Intrinsically Safe RF Modules: **50025132-001**
- Honeywell XYR 6000 Transmitter FHSS Radio Limited Modular Approval
 - Federal Communication Commission Identification for Class 1 Div 2 RF Modules: **S5750016517**
 - Federal Communication Commission Identification for Intrinsically Safe RF Modules: **S5750016517**
- Honeywell XYR 6000 Transmitter FHSS Radio Limited Modular Approval
 - Industry Canada Identification for Class 1 Div 2 RF Modules: **573I-50016517**
 - Industry Canada Identification for Intrinsically Safe RF Modules: **573I-50016517**

5.2 DSSS Radios

- Honeywell XYR 6000 Transmitter DSSS Radio Module Identification
 - Honeywell Identification for Intrinsically Safe RF Modules: **50025034-001**
- Honeywell XYR 6000 Transmitter DSSS Radio Limited Modular Approval
 - Federal Communication Commission Identification for Intrinsically Safe RF Modules: **S5750025034**
 - Industry Canada Identification for Intrinsically Safe RF Modules: **573I-50025034**

This information is shown on the label attached to each RF Module.

6 INTENDED COUNTRY USAGE

6.1 NORTH AMERICA

Country	ISO 3166 2 letter code
UNITED STATES	US
CANADA	CA

6.2 ASIA PACIFIC

Country	ISO 3166 2 letter code
AUSTRALIA	AU
THAILAND	TH
NEW ZEALAND	NZ

6.3 EUROPEAN UNION

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

7 XYR 6000 TRANSMITTER GENERAL DESCRIPTION

7.1 Intended Use

The XYR 6000 Transmitter is a key component of the Honeywell *Wireless Network for Secure Industrial Application* (WNSIA). These transmitters are available for various sensor types including Digital Inputs, Temperature, High Level Analog Inputs, Pressure and Corrosion. The XYR 6000 Transmitter uses a low-powered FHSS or DSSS 2.4 GHz radio to communicate with Multinode and Gateway devices that are connected to a wired DCS network.

7.2 XYR 6000 Transmitter Diagrams

Figure 1 shows unit-level drawings of the XYR 6000 Transmitter antenna options.

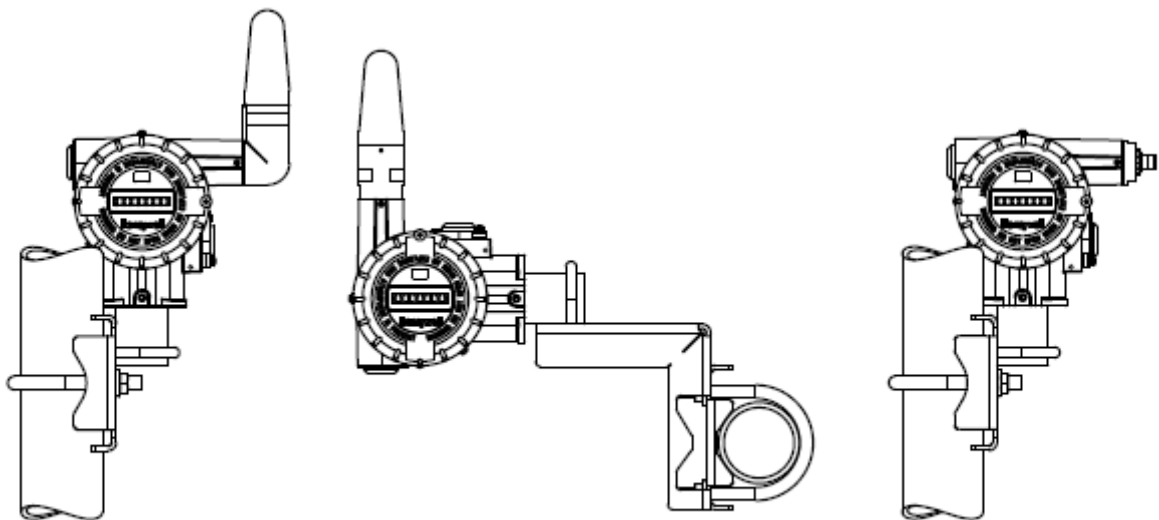


Figure 1 – XYR 6000 Transmitters showing Right-angle Integral Antenna (left), Straight Integral Antenna (center) and Remote Antenna connector (right) options

The XYR 6000 Transmitter is available with either an integral antenna or with a remote antenna. Remote antennas are attached via cables to a connector on the XYR 6000. The integral antennas and/or the remote antenna connectors are not replaceable or changeable in the field.

8 PRODUCT SPECIFICATIONS

8.1 Frequency Hopping Spread Spectrum (FHSS) Radio, 2.4 GHz

Warning! The XYR 6000 Transmitter must be Professionally Installed in accordance with the requirements specified in this document. See Section 10, for professional installation maximum TX power setting requirements. Only the specified TX power settings, antenna types and gains and cable lengths (attenuation) as outlined in this document are valid for XYR 6000 Transmitter installations.

Table 3 – Specifications of FHSS Radio Module in XYR 6000 Transmitter

Item	Specification
Wireless Standard	Frequency Hopping Spread Spectrum (FHSS), 2.4 GHz
Data Rates and Modulation	Data Rate: 250 kbps Modulation: Gaussian Frequency Shift Keying (GFSK)
Frequency Band	2,402 – 2,482 MHz
Module Transmit Power	Maximum: 20 dBm (Maximum transmit power will vary by channel)
Receive Sensitivity (typical)	-97 dBm

8.2 Direct Sequence Spread Spectrum (DSSS) Radio, 2.4 GHz

Warning! The XYR 6000 Transmitter must be Professionally Installed in accordance with the requirements specified in this document. See Section 10, for professional installation maximum TX power setting requirements. Only the specified TX power settings, antenna types and gains and cable lengths (attenuation) as outlined in this document are valid for XYR 6000 Transmitter installations.

Table 4 – Specifications of DSSS Radio Module in XYR 6000 Transmitter

Item	Specification
Wireless Standard	FCC 15.247 / IEEE 802.15.4 Direct Sequence Spread Spectrum (DSSS), 2.4 GHz
Data Rates and Modulation	Data Rate: 250 kbps Modulation: Offset Quadrature Phase-Shift Keying (OQPSK – DSSS)
Frequency Band	2,405 – 2,475 MHz
Module Transmit Power	Maximum: 20 dBm (Maximum transmit power will vary by channel)
Receive Sensitivity (typical)	-100 dBm

8.3 XYR 6000 Transmitter User Environment

Table 5 – User Environment Specifications for XYR 6000 Transmitter

Item	Specification
Operating Temperature:	-40°C to +85°C (-40°F to +185°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Operating Humidity:	0 to 100% RH

8.4 XYR 6000 Instrument Power Specifications

The XYR 6000 Transmitters operate from two (2) D-size 3.6V Lithium batteries. These are joined in series to produce a maximum voltage of +7.6 Vdc. An optional external +24 Volt power supply option will be available at a future date.

8.5 Weight

The weight of the complete XYR 6000 Transmitter units shall be 14.0 lb. (6.4 kg) maximum. This weight does not include remote cables and antennas.

8.6 Dimensions

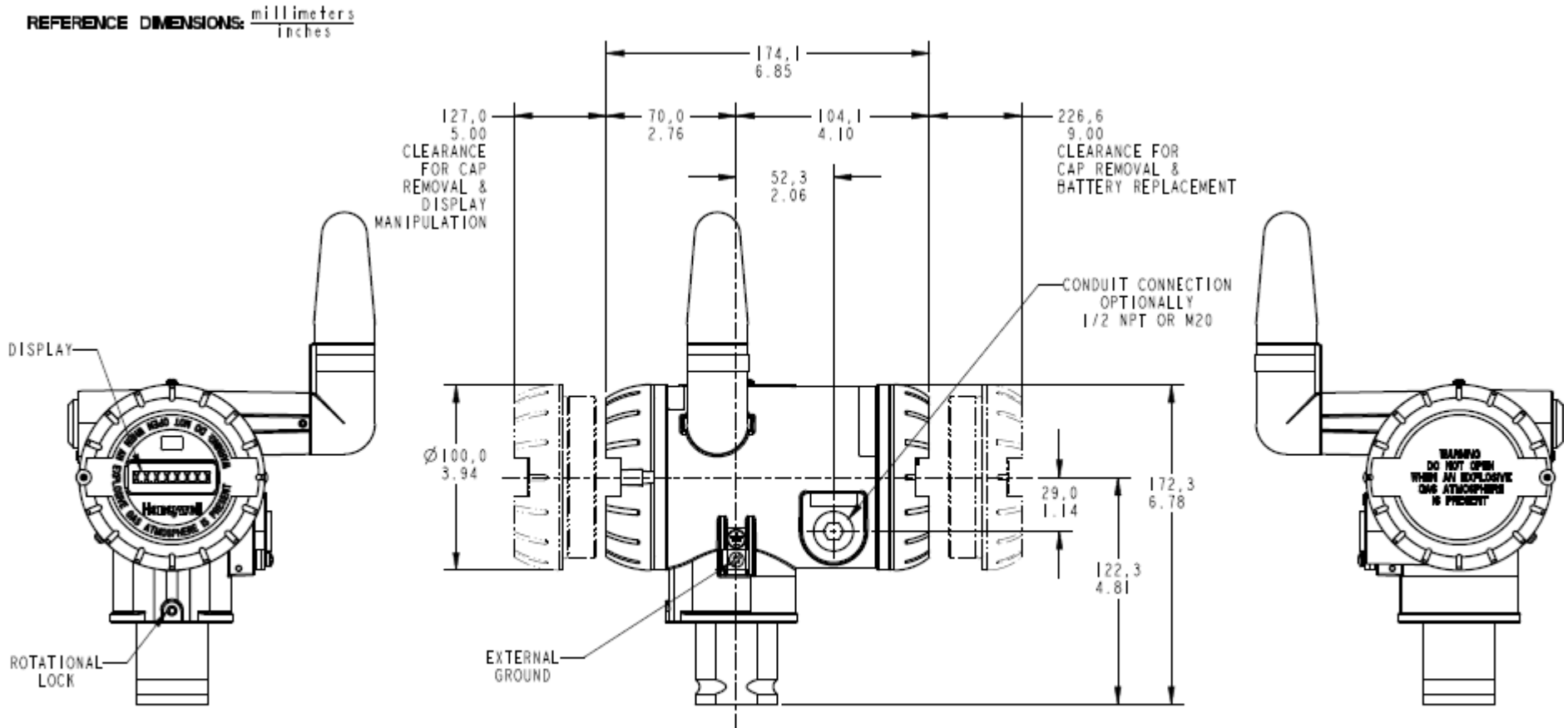


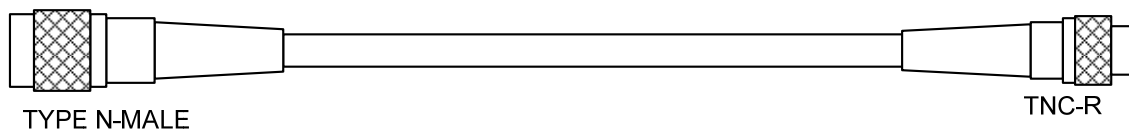
Figure 2 – Dimensions of the XYR 6000 Transmitter with Right-angle -2 dBi Integral Antenna Option

9 Cables

9.1 XYR 6000 Transmitter with RP-TNC Connectors Antenna or Lightning Arrestor Cables

Table 6 – Transmitter to Antenna or Lightning Arrestor Cable Specifications for XYR 6000 with RP-TNC connectors

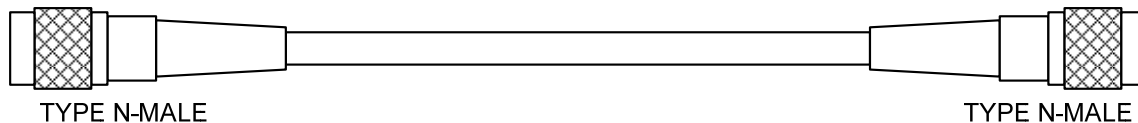
Honeywell Part Number	Cable Type	Connector Type	Frequency (GHz)	Length (m)	Loss (dB)
50018110-001	400 Series	RP-TNC to N male	2.4	1	1
50018110-003	400 Series	RP-TNC to N male	2.4	3	2
50018110-010	400 Series	RP-TNC to N male	2.4	10	3



9.2 XYR 6000 Transmitter with N Connectors Antenna or Lightning Arrestor Cables

Table 7 – Transmitter to Antenna or Lightning Arrestor Cable Specifications for XYR 6000 with N connectors

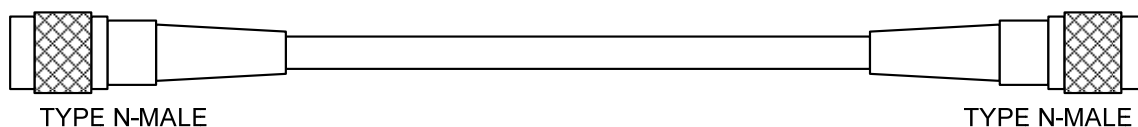
Honeywell Part Number	Cable Type	Connector Type	Frequency (GHz)	Length (m)	Loss (dB)
50018278-001	400 Series	N male to N male	2.4	1	1
50018278-003	400 Series	N male to N male	2.4	3	2
50018278-010	400 Series	N male to N male	2.4	10	3



9.3 Lightning Arrestor to Antenna Cables

Table 8 – Lightning Arrestor to Antenna Cable Specifications

Honeywell Part Number	Cable Type	Connector Type	Frequency (GHz)	Length (m)	Loss (dB)
50018278-001	400 Series	N male to N male	2.4	1	1
50018278-003	400 Series	N male to N male	2.4	3	2
50018278-010	400 Series	N male to N male	2.4	10	3



10 Antenna Lightning Arrestors

Table 9 – Lightning Arrestor Specifications for Remote Antenna(s)

Honeywell Part Number	Manufacturer	Manufacturer Part Number	Specification	Connector Type	Frequency (GHz)	Attenuation (dB)
50018279-090	ALTELECON	AL-NFNFB-9	50 ohm	N Female to N Female	0 – 3	0.4 (max)

The lightning surge arrestor must be properly grounded in order to perform per specification. Connecting to local ground using a No. 12 (4 mm²) copper conductor is recommended. See the installation manual for other details.



**LIGHTNING SURGE ARRESTOR
ALTELECON AL-NFNFB-9
50018279-090**

11 Approved Antenna Types/Gains

Table 10 – Approved Antenna Types/Gains

Antenna Type	Antenna Application	Manufacturer	Manufacturer Part Number	Honeywell Part Number	Beam Width	Peak Gain (dBi)	Freq. (GHz)	Agency Compliance
Omni (integral)	Point to Multi-Point	CENTURIO N	MAF94152	50016185-001	Omni	-2 ¹	2.4	FCC, IC, ETSI, ACMA
Omni (integral)	Point to Multi-Point	HYPERLINK	WHON511 – 0001	50029933-001	Omni	4	2.4	FCC, IC, ETSI, ACMA
Omni (remote)	Point to Multi-Point	HYPERLINK	HGV-2409U	50018414-001	Omni	8	2.4	FCC, IC, ETSI, ACMA
Directional (remote)	Point to Multi-Point	HYPERLINK	HG2414D	50018415-001	25°	14	2.4	FCC, IC, ETSI, ACMA

Note:

1. The Centurion antenna listed in Table 10 has a specified gain of 2.2 dBi. Through EIRP measurements performed during antenna qualification testing, this antenna when installed in the Honeywell Radome and attached to the XYR 6000 Transmitter body in either the right-angle or straight integral antenna options has an actual gain of -2 dBi. This value is used in determining the maximum EIRP for Agency Compliance.

12 Equivalent Isotropically Radiated Power (EIRP)

In radio communication systems, Equivalent Isotropically Radiated Power (EIRP) or, alternatively, Effective Isotropic Radiated Power, is the amount of power that would have to be emitted by an isotropic antenna (that evenly distributes power in all directions and is a theoretical construct) to produce the peak power density observed in the direction of maximum antenna gain. EIRP can take into account the losses in transmission line and connectors and includes the gain of the antenna. The EIRP is often stated in terms of decibels over a reference power level that would be the power emitted by an isotropic radiator with an equivalent signal strength. The EIRP allows making comparisons between different emitters regardless of type, size or form. From the EIRP, and with knowledge of a real antenna's gain, it is possible to calculate real power and field strength values.

$$\text{EIRP(dBm)} = \text{Radio TX Power (dBm)} - \text{Cable Loss (dB)} + \text{Antenna Gain(dBi)}$$

Antenna gain is expressed relative to a (theoretical) isotropic reference antenna (dBi).

13 EIRP LIMITS

Table 11 – Maximum EIRP Limits for FHSS Radios

Antenna Type	Radio Usage / Application		Freq. (GHz)	Max. Ant. Gain (dBi)	Min. Cable Length (m)	Min. Cable Loss (dB)	Agency/Country	Max. Radio Output Power (dBm)	Max. EIRP (dBm)
-2 dBi Omni	Point to Multi-Point	Integral	2.4	-2	0	0	FCC, IC	20	18
							ETSI, ACMA, TNC	20	18
							France 2400-2454 MHz	20	18
							France 2454-2482.5 MHz	Do not use ³	---
4 dBi Omni	Point to Multi-Point	Integral	2.4	4	0	0	FCC, IC	20	24
							ETSI, ACMA, TNC	16	20
							France 2400-2454 MHz	16	20
							France 2454-2482.5 MHz	Do not use ³	---
8 dBi Omni	Point to Multi-Point	Remote	2.4	8	1	1	FCC, IC	18	25
							ETSI, ACMA, TNC	13	20
							France 2400-2454 MHz	13	20
							France 2454-2482.5 MHz	Do not use ³	---
14 dBi Directional	Point to Multi-Point	Remote	2.4	14	1	1	FCC, IC	12	25
							ETSI, ACMA, TNC	7	20
							France 2400-2454 MHz	7	20
							France	Do not use ³	---

2454-2482.5 MHz

Table 12 – Maximum EIRP Limits for DSSS Radios

Antenna Type	Radio Usage / Application		Freq. (GHz)	Max. Ant. Gain (dBi)	Min. Cable Length (m)	Min. Cable Loss (dB)	Agency/Country	Max. Radio Output Power (dBm)	Max. EIRP (dBm)
-2 dBi Omni	Point to Multi-Point	Integral	2.4	-2	0	0	FCC, IC	20	18
							ETSI, ACMA, TNTC	14	12
							France 2400-2454 MHz	14	12
							France 2454-2482.5 MHz	Do not use ³	---
4 dBi Omni	Point to Multi-Point	Integral	2.4	4	0	0	FCC, IC	20	24
							ETSI, ACMA, TNTC	8	12
							France 2400-2454 MHz	8	12
							France 2454-2482.5 MHz	Do not use ³	---
8 dBi Omni	Point to Multi-Point	Remote	2.4	8	1	1	FCC, IC	18	25
							ETSI, ACMA, TNTC	5	12
							France 2400-2454 MHz	5	12
							France 2454-2482.5 MHz	Do not use ³	---
14 dBi Directional	Point to Multi-Point	Remote	2.4	14	1	1	FCC, IC	14	25
							ETSI, ACMA, TNTC	-2	11
							France 2400-2454 MHz	-2	11
							France 2454-2482.5 MHz	Do not use ³	---

Notes for Table 11 and Table 12:

- The values in the above tables have been determined through agency certification testing.
- The following shall apply for antenna type, frequency range, application/usage and agency/country compliance:
 - Antenna gains above the maximum values shown shall not be used.
 - Cable length/loss below the minimum values shown shall not be used.
 - Maximum overall radio output power shown shall not be exceeded.
 - Maximum EIRP values shown above shall not be exceeded.
- France** restricts outdoor use to 10mW (10 dBm) EIRP in the frequency range of 2,454-2,483.5 MHz. Installations in France must limit EIRP to 10 dBm for operating modes utilizing frequencies in the range of 2,454 – 2,483.5MHz. For this reason, Honeywell does not recommend configuring frequency hopping modes that use this frequency range. *For installations in France, use only the following OneWireless Frequency Hopping (FH) Mode Selections: EU Channel #1, EU Channel #7, NA/EU Guard Bands and NA/EU Channel 3 (FH Mode selections #4, 5, 8 and 10).*

4. Industry Canada Compliance Statement: This device has been designed to operate with the antenna types listed in this document, and having a maximum gain of 14 dBi. Antenna types not included in this list or having a gain greater than 14 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

Table 13 – FHSS Transmit Power Settings for the antennas and cable lengths specified above for FCC, IC, ETSI, ACMA and TNC approvals

Description	Model Selection Guide Table III ¹	Cable(s) Length ² (m)	TX Power Setting for ETSI/ACMA/TNC ³ (dBm)	TX Power Setting for FCC/IC ³ (dBm)
-2 dBi Integral Antenna	V 0 0 0 0 or S 0 0 0 0	N/A	16	16
4 dBi Integral Antenna	R 0 0 0 0 or H 0 0 0 0	N/A	16	16
8 dBi Omni w/o suppressor	M 0 1 0 0 or M 0 3 0 0	1, 3	13	16
8 dBi Omni w/o suppressor	M 1 0 0 0	10	15	16
8 dBi Omni with suppressor	M 0 1 0 1	1+1	15	16
8 dBi Omni with suppressor	M 0 1 0 3 or M 0 3 0 3 or M 0 3 1 0 or M 0 3 0 1 or M 1 0 0 3 or M 1 0 1 0	1+3, 3+3, 3+10, 3+1, 10+3, 10+10	16	16
14 dBi directional w/o suppressor	D 0 1 0 0 or D 0 3 0 0	1,3	7	12
14 dBi directional w/o suppressor	D 1 0 0 0	10	9	14
14 dBi directional with suppressor	D 0 1 0 1	1+1	9	14
14 dBi directional with suppressor	D 0 1 0 3 or D 0 3 0 1 or D 0 3 0 3	1+3, 3+1, 3+3	10	15
14 dBi directional with suppressor	D 0 3 1 0 or D 1 0 0 3	3+10, 10+3	11	16
14 dBi directional with suppressor	D 1 0 1 0	10+10	13	16

Table 14 – DSSS Transmit Power Settings for the antennas and cable lengths specified above for FCC, IC, ETSI, ACMA and TNTC approvals

Description	Model Selection Guide Table III ¹	Cable(s) Length ² (m)	TX Power Setting for ETSI/ACMA/TNTC ³ (dBm)	TX Power Setting for FCC/IC ³ (dBm)
-2 dBi Integral Antenna	V 0 0 0 0 or S 0 0 0 0	N/A	14	16
4 dBi Integral Antenna	R 0 0 0 0 or H 0 0 0 0	N/A	8	16
8 dBi Omni w/o suppressor	M 0 1 0 0 or M 0 3 0 0	1, 3	5	16
8 dBi Omni w/o suppressor	M 1 0 0 0	10	7	16
8 dBi Omni with suppressor	M 0 1 0 1	1+1	6	16
8 dBi Omni with suppressor	M 0 1 0 3 or M 0 3 0 3 or M 0 3 1 0 or M 0 3 0 1 or M 1 0 0 3 or M 1 0 1 0	1+3, 3+3, 3+10, 3+1, 10+3, 10+10	7	16
14 dBi directional w/o suppressor	D 0 1 0 0 or D 0 3 0 0	1,3	-2	12
14 dBi directional w/o suppressor	D 1 0 0 0	10	0	14
14 dBi directional with suppressor	D 0 1 0 1	1+1	-1	14
14 dBi directional with suppressor	D 0 1 0 3 or D 0 3 0 1 or D 0 3 0 3	1+3, 3+1, 3+3	-2	15
14 dBi directional with suppressor	D 0 3 1 0 or D 1 0 0 3	3+10, 10+3	2	16
14 dBi directional with suppressor	D 1 0 1 0	10+10	3	16

Notes for Table 13 and Table 14:

1. The Model Number of any instrument may be found on the identification name plate located on the outside of the XYR 6000 transmitter. The values in the Cable(s) Length column represent those customer selections from Table III of the XYR 6000 Model Selection Guides.
2. In the Cable(s) Length column, entries of the form “X+X” indicate that there are two cables between the XYR 6000 and the remote antenna, with a lightning surge arrestor used to connect the two cables together. Entries of the form “X” mean that there is a single cable and that no lightning surge arrestor is used. For entries of the form “X+X”; the first value is the length of the cable between the instrument and the arrestor while the second value is the length of the cable between the arrestor and the remote antenna. All cables are 400 series types as specified in Table 6 and Table 7.
3. TX Power is set by the Honeywell factory producing the XYR 6000 to the values shown in the above tables. These factory values are determined by the customer’s model number selections in Table III for antenna type, cables and the lightning suppressor. If the cable lengths, antenna type or the use of a lightning surge arrestor are changed in the field away from the Model Number listed on the instrument, then the TX power setting should likewise be changed per the tables above to match the new antenna/cable/arrestor selections.
4. The TX Power Setting values given in Table 12 and Table 13 represent the power produced by the Radio circuit within the RF Module. These TX Power Setting values do not include antenna gains nor do they include losses caused by cables, connectors and lightning arrestors. When these external gains and losses are included, using the TX power values in Table 13 and Table 14 ensures that the EIRP will not exceed the maximum limits as given in Table 11 and Table 12.

14 Setting TX Power

Warning! The XYR 6000 Transmitter must be Professionally Installed in accordance with the requirements specified in this document. Only the specified power settings, antenna types and gains and cable lengths (attenuation) as outlined in this document are valid for XYR 6000 Transmitter installations.

TX Power setting is accomplished with the Authentication Device when a special application (app) is installed. This app is considered to be Honeywell sensitive material and is made available only to the qualified Professional Installer.

When this app is installed in the AD, the XYR 6000 TX power setting, normally a read-only parameter, becomes a read/write parameter.

Using the virtual keyboard in the Device Local Configuration AD routine to manipulate the local user interface (LUI), navigate to the **TX_POWER** display in the **RADIO** setup group. The XYR 6000 as shipped from the factory should show a TX Power value consistent with those given in Table 13 and Table 14.

The TX Power adjustment feature is provided for Professional Installers to adjust the XYR 6000 TX power to match the specific selection of antenna and cables at the installation site and keep the total TX power under the regulatory thresholds.

15 Agency Label Information

The following information shall be clearly and permanently labeled on the XYR 6000 Transmitter unit:

15.1 External FCC/IC Labels

15.1.1 50016195-001 – Transmitters with FHSS Radios

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. 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 UNDESIRE OPERATION.
FCC ID: S5750016517 / IC: 5731-50016517



15.1.2 50016195-002 – Transmitters with DSSS Radios

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. 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 UNDESIRE OPERATION.
FCC ID: S5750025034 / IC: 5731-50025034



15.2 Internal FCC/IC Labels

50021957-001

RF MOD 50016517-001
FCC ID: S5750016517
IC: 5731-50016517

50021957-002

RF MOD 50025132-001
FCC ID: S5750016517
IC: 5731-50016517

50021957-003

RF MOD 50025034-001
FCC ID: S5750025034
IC: 5731-50025034

16 RF Safety, Maximum Permissible Exposure (MPE) 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 antenna(s) for this unit must be fixed and mounted on outdoor permanent structures with a separation distance between the antenna(s) of at least 20 cm and a separation distance of at least 20 cm from all persons.

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

17 Agency Compliance

17.1 Radio and EMC Certifications

17.1.1 Federal Communication Commission (FCC)

- Specification: FCC Part 15.247 Subpart B for unintentional radiators
- Specification: FCC Part 15.247 Subpart C for intentional radiators

17.1.2 Industry Canada (IC)

- Method: RSS-210, Issue 7
- RSS-Gen, Issue 2
- ICES-003, Issue 4

17.1.3 European Telecommunications Standards Institute (ETSI)

- Emissions Specification and Method: EN 300 328 V1.7.1
- Emissions Spec and Method: EN 301 893 V1.3.1
- Immunity Specification: EN 301 489-17 V1.2.1
- Immunity Method: EN 301 489-1 V1.6.1
- Product Standard: IEC61326-1 (1st Edition, 2002-02, Industrial Locations)

17.1.4 Australian communications and media authority (ACMA)

- Specification: AS NZS 4771-2000

17.1.5 Thailand National Telecommunications Commission (TNTC)

- Specification: เรื่อง เครื่องวิทยุคมนาคมและสถานวิทยุคมนาคมที่ได้รับยกเว้นไม่ต้องได้รับใบอนุญาต (Specification for non-licensed Radio and Radio Station Telecommunications)

17.2 Product Safety Agency Certifications

17.2.1 Canadian Standards Association (CSA)

ANSI/ISA S82.02.01 (61010-1) CSA C22.2 No. 1010-1, ANSI/UL 61010-1, Safety Standard for Electrical Equipment for Measurement, Control and Laboratory Use – Part 1: General Requirements

C22.2 No. 0, General Requirements - Canadian Electrical Code, Part II

C22.2 No. 25, Enclosures for Use in Class II, Group E, F & G Hazardous Locations

C22.2 No. 94, Special Purpose Enclosures, Industrial Products

C22.2 No. 14, Industrial Control Equipment, Industrial Products

C22.2 No. 30, Explosion Proof Enclosures for Use in Hazardous Locations, Industrial Products

C22.2 No. 157, Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations

C22.2 No. 213, Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

E60079-0, Electrical Apparatus for Explosive Gas Atmospheres, Part 0: General Requirements

E60079-1, Electrical Apparatus for Explosive Gas Atmospheres, Part 1: Flameproof "d"

E60079-11, Electrical Apparatus for Explosive Gas Atmospheres, Part 11: Intrinsic Safety "i"

E60079-15, Electrical Apparatus for Explosive Gas Atmospheres, Part 15: Electrical Apparatus With Type of Protection "n"

- Temperature code: T4 (135°C) based on the maximum specified ambient of 85°C.

17.2.2 Factory Mutual (FM)

ANSI/ISA S82.02.01 (61010-1) CSA C22.2 No. 1010-1, ANSI/UL 61010-1, Safety Standard for Electrical Equipment for Measurement, Control and Laboratory Use – Part 1: General Requirements

FM electrical equipment requirements for use within Class I, Division 2, Groups A, B, C and D/Zone 2, Group IIC Hazardous Locations.

Factory Mutual Approval Standard Class No. 3600, "Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements

Factory Mutual Approval Standard Class No. 3810, "Electrical and Electronic Test, Measuring, and Process Control Equipment

Factory Mutual Approval Standard Class No. 3611, "Electrical Equipment for Use in Class I, Division 2, Class II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations

- Temperature code: T4 (135°C) based on the maximum specified ambient of 85°C.

17.2.3 European ATEX Certification (ATEX)

EN 60079-0, Electrical Apparatus for Explosive Gas Atmospheres, Part 0: General Requirements

EN 60079-1, Electrical Apparatus for Explosive Gas Atmospheres, Part 1: Flameproof Enclosures “d”

EN 60079-11, Electrical Apparatus for Explosive Gas Atmospheres, Part 11: Intrinsic Safety “i”

EN 60079-15, Electrical Apparatus for Explosive Gas Atmospheres, Part 15: Electrical Apparatus with Type of Protection “n”

EN 50281, Electrical Apparatus for Use in the Presence of Combustible Dust

EN 50284, Special Requirements for Construction, Test and Marking of Electrical Apparatus of Equipment Group II, Category 1G

The temperature code for the XYR 6000 Transmitter shall not exceed T4 (135°C) based on the maximum specified ambient of 85°C.

17.3 European Union Certification (CE-mark)

- Compliance with:
 - R&TTE Directive 1999/5/EC
 - EMC Directive 2004/108/EC
 - LVD Directive 73/23/EEC
 - ATEX Directive 94/9/EC

18 Reference Documents

Table 15 – Reference documents

1	Getting Started with Honeywell OneWireless
2	Honeywell OneWireless Planning Guide
3	Honeywell XYR 6000 User’s Manuals
4	Radio Antenna: A Primer White Paper
5	Honeywell OneWireless System Administration Guide
6	Honeywell OneWireless Field Network Dictionary
7	OneWireless Builder Parameter Reference
8	OneWireless Builder User’s Guide
9	OneWireless XYR 6000 Model Selection Guides