

Datasheet

RS PRO INDUSTRIAL WIRELESS PRESSURE TRANSMITTER

Stock No: 123-5237

123-5232

123-5235

123-5238

123-5241

123-5239

123-5242

123-5233

123-5234



Whilst every effort has been taken to ensure the accuracy of this document, we accept no responsibility for damage, injury, loss, or expense resulting from errors or omissions, and reserve the right of amendment without notice.

Information for users

This equipment has been tested and found to comply with the limits for a Class B device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Caution: To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance operation at closer than this distance is not recommended. The antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. No other antenna may be used with this equipment other than the PCB antenna supplied with this equipment.

CONTENTS

1. INTRODUCTION	2
1.1 SAFETY INFORMATION	2
1.2 HARDWARE FEATURES	2
2. UNPACKING	3
3. PRODUCT IDENTIFICATION LABEL	3
5. SETTING UP THE IWPT WIRELESS PRESSURE TRANSMITTER	4
6. TROUBLE-SHOOTING GUIDE	6
7. SYSTEM PART NUMBERS	7
8. SPECIFICATIONS & CERTIFICATIONS	9

1. INTRODUCTION

1.1 Safety Information

This manual contains information that must be observed in the interest of your safety and to avoid damage to assets. Please read this manual before installing and commissioning the device and keep the manual in an accessible location for all users.

Contains FCC ID: W70MRF24J40MDME

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Please see the Certifications section for more information on RF Exposure Compliance

1.2 Hardware Features

The IWPT range of Wireless Pressure Transmitters has been designed to measure the pressure of the medium connected and transmit the value to one of the IWR range of receivers where the value can be outputted as either a 4-20 mA or 1-5 V dc signal.

The IWR-1 has a single output and the IWR-5 has five outputs, each of which can be linked to an IWPT transmitter. The IWPT pressure transmitter works on the license-free 2.4 GHz band.

Ranges of up to 500 m are possible using the standard transmitter and receiver unit with the optional 3dBi antenna giving a range of up to 750 m. The transmitter is powered by a 3.6V lithium cell and care must be taken to insert the battery in the correct polarity.

2. UNPACKING

The instrument should be carefully inspected for signs of damage that may have occurred in transit. In the unlikely case that damage has been sustained, DO NOT use the instrument, but please retain all packaging for our inspection and contact your supplier immediately.

3. PRODUCT IDENTIFICATION LABEL

The unit delivered should be carefully inspected to ensure it is suitable for the application required. Detailed information on the product is included in the identification label and the user manual.

Please ensure in particular, that the pressure range of the IWPT is suitable for the intended application and that the IWPT unit will not be subjected to pressures and/or temperatures greater than those specified in this manual.

4. INSTALLING/CHANGING THE BATTERY

A Lithium 3.6V battery is included inside the IWPT transmitter. The battery may be changed at any time but the correct polarity must be observed at all times! After the battery has been changed, the pushbutton SW1 should be pushed for 5s at the same time as the unit is switched on using SW3. This is to ensure the battery life count is set correctly when a new battery is installed.

The internal LED will flash 5 times to indicate this procedure has been carried out successfully.

The battery life is determined by the rate the transmitter sends the Pressure value to the receiver, this update rate can be selected using Dip Switch 1 and the default value is 10s. Please dispose of all batteries as specified by the legislator according to the Closed Substance Cycle and Waste Management Act or country regulations.



**! WARNING !
MAKE SURE THE CORRECT
BATTERY POLARITY IS OBSERVED!**



**! WARNING !
INCORRECT BATTERIES MAY DAMAGE THE UNIT
USE ONLY 3.6V LITHIUM C CELL BATTERIES**

5.1 Mounting Instructions

Ensure that:-

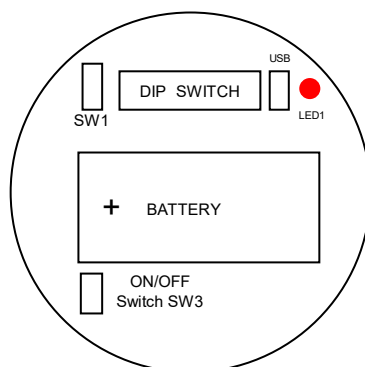
- The instrument is used on a pressure medium that is compatible with the wetted parts
- The correct seal is used and that the maximum torque (see below) is not exceeded
- Fluid is not allowed to freeze in the pressure port as the diaphragm may be ruptured
- No sharp objects are inserted into the pressure port as the diaphragm may be damaged

Tighten the unit in place using a wrench on the 18mm A/F hexagon provided on the unit. Ensure that no more than 15Nm is applied, that the system is de-pressurized, and that a suitable pressure seal is used.

5.2 SETTING UP THE IWPT WIRELESS PRESSURE TRANSMITTER

The IWPT instrument is shipped in a default configuration which allows the unit to connect with any default IWR receiver unit and transmit the measured pressure every 10s simply by switching the unit on using SW3 on the internal circuit board.

If a different update rate is required, or a different network frequency channel is required these parameters can be selected using DIP Switch 1 as detailed below:



Switches 1, 2, 3 & 4 select the RF Network the IWPT will transmit on. The default network for both the IWPT transmitter and IWR receiver is network 1.

RF NETWORK	1	2	3	4
1	0	0	0	0
2	0	0	0	1
3	0	0	1	0
4	0	0	1	1
5	0	1	0	0
6	0	1	0	1
7	0	1	1	0
8	0	1	1	1

9	1	0	0	0
10	1	0	0	1
11	1	0	1	0
12	1	0	1	1
13	1	1	0	0
14	1	1	0	1
15	1	1	1	0
16	1	1	1	1

Switches 5, 6 & 7 select the Transmission rate of the unit. This effectively sets how often the pressure value is sent to the receiver.

Transmit time	5	6	7
10 seconds	0	0	0
20 seconds	0	0	1
30 seconds	0	1	0
60 seconds	0	1	1
120 seconds	1	0	0
600 seconds	1	0	1
1 second	1	1	0
5 seconds	1	1	1

Switches 8, 9, and 10 set the Channel Number of the transmitter. This is used with the 5 channel receiver unit (IWR-5) to select which Pressure transmitter is linked to which 4-20 mA or 1-5 V dc output channel.

Tx Channel Number	8	9	10
1	0	0	0
2	0	0	1
3	0	1	0
4	0	1	1
5	1	0	0

The IWPT transmitter is now set up and ready to be used. Install the unit into the pipework as required and switch the unit ON using SW3. Pushbutton switch SW1 can be pushed to force the unit to transmit its current pressure and LED 1 will flash twice if the transmission has been received and acknowledged by an IWR receiver unit.

If the unit has transmitted successfully the 4-20 mA or 1-5 V dc output of the connected receiver unit will output a value reflecting the pressure level being measured.



6. TROUBLE-SHOOTING GUIDE

Problem encountered	Possible Causes
LED1 doesn't flash when push button SW1 is pressed	Unit not switched on, switch on using SW3. The battery is not installed correctly. The battery needs replacing.
LED1 only flashes once when SW1 is pressed	IWR receiver not switched on. IWR receiver is not set up for the same RF network. IWR receiver not within range of the transmitter. If an IWR-1 receiver is used, ensure that the transmitter is set to Tx Channel 1
Output from the IWR receiver isn't equivalent to the Pressure being monitored	IWR receiver set up incorrectly, see IWR user manual for further details. Check that the green external LED on the receiver is flashing when the transmitter push button is pressed as the receiver may be out of range.

7. SYSTEM PART NUMBERS

Part Number	Pressure Range	Receiver Output
1235232	0-1 Bar g	4-20 mA or 1-5 V dc
123-5233	0-6 Bar g	4-20 mA or 1-5 V dc
123-5234	-1-+9 Bar g	4-20 mA or 1-5 V dc
123-5235	0-10 Bar g	4-20 mA or 1-5 V dc
	0-16 Bar g	4-20 mA or 1-5 V dc
	-1-+24 Bar g	4-20 mA or 1-5 V dc
123-5238	0-25 Bar g	4-20 mA or 1-5 V dc
123-5239	0-40 Bar g	4-20 mA or 1-5 V dc
	0-100 Bar g	4-20 mA or 1-5 V dc
123-5241	0-250 Bar g	4-20 mA or 1-5 V dc
123-5242	0-400 Bar g	4-20 mA or 1-5 V dc
	0-15 psi g	4-20 mA or 1-5 V dc
	0-30 psi g	4-20 mA or 1-5 V dc
	-14.5 to +150 psi g	4-20 mA or 1-5 V dc
	0-75 psi g	4-20 mA or 1-5 V dc
	0-100 psi g	4-20 mA or 1-5 V dc
	-14.5 to +350 psi g	4-20 mA or 1-5 V dc
	0-150 psi g	4-20 mA or 1-5 V dc
	0-300 psi g	4-20 mA or 1-5 V dc
	0-750 psi g	4-20 mA or 1-5 V dc
	0-1500 psi g	4-20 mA or 1-5 V dc
	0-3600 psi g	4-20 mA or 1-5 V dc
	0-5800 psi g	4-20 mA or 1-5 V dc
123-5243	0-50 mbar g	4-20 mA or 1-5 V dc
123-5244	0-100 mbar g	4-20 mA or 1-5 V dc
123-5245	0-250 mbar g	4-20 mA or 1-5 V dc
123-5246	0-500 mbar g	4-20 mA or 1-5 V dc
123-5247	0-750 mbar g	4-20 mA or 1-5 V dc
123-5248	0-1000 mbar g	4-20 mA or 1-5 V dc
123-5249	0-500 mbar abs	4-20 mA or 1-5 V dc
123-5250	0-750 mbar abs	4-20 mA or 1-5 V dc
123-5251	0-1000 mbar abs	4-20 mA or 1-5 V dc

Part Number	Number of Output Channels
123-5252	One
123-5253	Five
	3 dBi Antenna
	Swivel Adaptor (1/4" BSP)

8. SPECIFICATIONS & CERTIFICATIONS

System Performance	
Accuracy (non-linearity & hysteresis)	<±0.25% / FS (BFSL)
Setting Errors	Zero & Full Scale, <±0.5% / FS
Thermal Zero Shift	<±0.04% / FS / °C
Thermal Span Shift	<±0.02% / °C typical
Media Temperature	-20 to +135 °C
Ambient Temperature	-20 to +50 °C
Storage Temperature	-20 to +80 °C
Pressure Housing	303 Stainless Steel
O Ring Seals	Viton
Diaphragm	Ceramic
Enclosure Material	Acetal
Weight	310 g
RF Transmitter	Contains FCC W70MRF24J40MDME
Power Requirements	Lithium Ion C 3.6V Cell
Battery Life	5 Years (10s transmission rate)
Dimensions	132mm x 79mm x 52mm (L x W x D)
Mounting	Any Orientation

United States FCC

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- Reorient or relocate the receiving antenna
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- Connect the equipment into an outlet on a circuit different from that which the receiver is connected
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Warning: Changes or modifications not expressly approved by Cynergy3 could void the user's authority to operate the equipment.

RF Exposure

Contains FCC ID: W70MRF24J40MDME

In this equipment, the antenna supplied is a PCB antenna and an alternative antenna must not be used.



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Canada (IC)

English

This device complies with Industry Canada license-exempt RSS standard(s). 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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of the type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

French

Le présent appareil est conforme aux CNR d'industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Europe

The MRF24J40MD/ME wireless module used in this equipment has been tested to R&TTE Directive 1995/5/EC Essential Requirements for Health and Safety (Article 3.1(a)), Electromagnetic Compatibility (EMC) Article 3.1(b)) and Radio (Article 3.2) and are summarized in the table below. A Notified Body Opinion has also been issued for this module.

Certification	Standards	Article
Safety	EN60950-2006+A11+A1:2010	(3.1(a))
Health	EN50371:2002-03	(3.1(a))
EMC	EN301 489-1 V1..8.1 (2008-04)	(3.1(b))
EMC	EN301-489-17 V2.1.1(2009-05)	(3.1(b))
Radio	EN 300 328 V1.7.1(2006-10)	(3.2)

