

IWTT Series

Industrial Wireless Temperature Transmitter



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1. INTRODUCTION

1.1 Safety Information

This manual contains information that must be observed in the interest of your own 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.

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.

1.2 Hardware Features

The IWTT range of Wireless Temperature Transmitters has been designed to measure the Temperature 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 4-20mA or 1-5Vdc signal.

The IWR-1 has a single output and the IWR-5 has five outputs, each of which can be linked to an IWTT transmitter.

The IWTT temperature transmitter works on the licence-free 2.4 GHz band.

Ranges of up to 500m are possible using the standard transmitter and receiver unit with the optional 3dBi antenna giving a range of up to 750m.

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 which 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 temperature range of the IWTT is suitable for the intended application and that the IWTT unit will not be subjected to temperatures and/or temperatures greater than those specified in this manual.

4. INSTALLING/CHANGING THE BATTERY

A Lithium 3.6V battery is included inside the IWTT 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 unit should be switched on using SW3 pushbutton and then SW1 should be pushed for 5s. This is to ensure the battery life count is reset 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 Temperature 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!

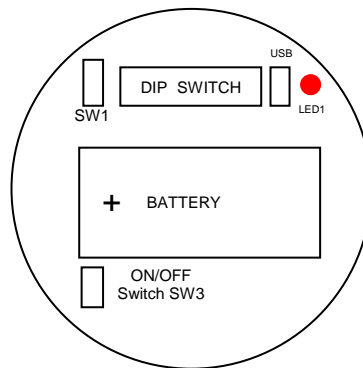


! WARNING !
INCORRECT BATTERIES MAY DAMAGE THE UNIT
USE ONLY 3.6V LITHIUM C CELL BATTERIES

5. SETTING UP THE IWTT WIRELESS TEMPERATURE TRANSMITTER

The IWTT instrument is shipped in a default configuration which allows the unit to connect with any default IWR receiver unit and transmit the measured temperature 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 IWTT will transmit on. The default network for both the IWTT 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 temperature 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 Temperature transmitter is linked to which 4-20mA or 1-5Vdc 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 IWTT 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 temperature 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 4-20mA or 1-5Vdc output of the connected receiver unit will output a value reflecting the temperature level being measured.

6. TROUBLE-SHOOTING GUIDE

Problem encountered	Possible Causes
LED1 doesn't flash when pushbutton SW1 is pressed	Unit not switched on, switch on using SW3. Battery not installed correctly. Battery needs replacing.
LED1 only flashes once when SW1 is pressed	IWR receiver not switched on. IWR receiver not set up for the same RF network. IWR receiver not within range of transmitter. If IWR-1 receiver is used, ensure that the transmitter is set to Tx Channel 1
Output from IWR receiver isn't equivalent to the Temperature 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 pushbutton is pressed as receiver may be out of range.

7. SYSTEM PART NUMBERS

Part Number	Temperature Range	Probe Type
IWTTTP100A	-200 - +800 PT100	100mm ¼" BSP
IWTTTP150A	-200 - +800 PT100	150mm ¼" BSP
IWTTTP200A	-200 - +800 PT100	200mm ¼" BSP
IWTTTP250A	-200 - +800 PT100	250mm ¼" BSP
IWTTTP300A	-200 - +800 PT100	300mm ¼" BSP
IWTTTP400A	-200 - +800 PT100	400mm ¼" BSP
IWTTJ200A	0- 1200 J Type t/c	200mm ¼" BSP
IWTTJ300A	0- 1200 J Type t/c	300mm ¼" BSP
IWTTJ400A	0- 1200 J Type t/c	400mm ¼" BSP
IWTTK150A	0- 1200 K Type t/c	150mm ¼" BSP
IWTTK200A	0- 1200 K Type t/c	200mm ¼" BSP
IWTTK300A	0- 1200 K Type t/c	300mm ¼" BSP
IWTTK400A	0- 1200 K Type t/c	400mm ¼" BSP
IWTTUP100A	-200 - +800 PT100	100mm ¼" NPT
IWTTUP150A	-200 - +800 PT100	150mm ¼" NPT
IWTTUP200A	-200 - +800 PT100	200mm ¼" NPT
IWTTUP250A	-200 - +800 PT100	250mm ¼" NPT
IWTTUP300A	-200 - +800 PT100	300mm ¼" NPT
IWTTUP400A	-200 - +800 PT100	400mm ¼" NPT
IWTTUJ200A	0- 1200 J Type t/c	200mm ¼" NPT
IWTTUJ300A	0- 1200 J Type t/c	300mm ¼" NPT
IWTTUJ400A	0- 1200 J Type t/c	400mm ¼" NPT
IWTTUK150A	0- 1200 K Type t/c	150mm ¼" NPT
IWTTUK200A	0- 1200 K Type t/c	200mm ¼" NPT
IWTTUK300A	0- 1200 K Type t/c	300mm ¼" NPT
IWTTUK400A	0- 1200 K Type t/c	400mm ¼" NPT

Part Number	Number of Output Channels
IWR-1	One
IWR-5	Five
IANT-3	3 dBi Antenna

8. SPECIFICATIONS

System Performance	
Accuracy (non-linearity & hysteresis)	<±0.5 °C
Setting Errors	Zero & Full Scale, <±0.5°C
Thermal Zero Shift	<±0.04% / FS / °C
Thermal Span Shift	<±0.02% / °C typical
Media Temperature	-200 to +1200 °C (depending on sensor type)
Ambient Temperature	-20 to +80 °C
Storage Temperature	-20 to +80 °C
Temperature Probe	Stainless Steel
O Ring Seals	Viton
Probe type	Mineral Insulated
Enclosure Material	Acetal
Weight	310g
RF Transmitter	Contains FCC W70MRF24J40MDME
Power Requirements	Lithium Ion C 3.6V Cell
Battery Life	5 Years (10s transmission rate)
Dimensions	132-432mm x 79 x 52mm (L x W x D) (length depends on sensor ordered)
Mounting	Any Orientation
