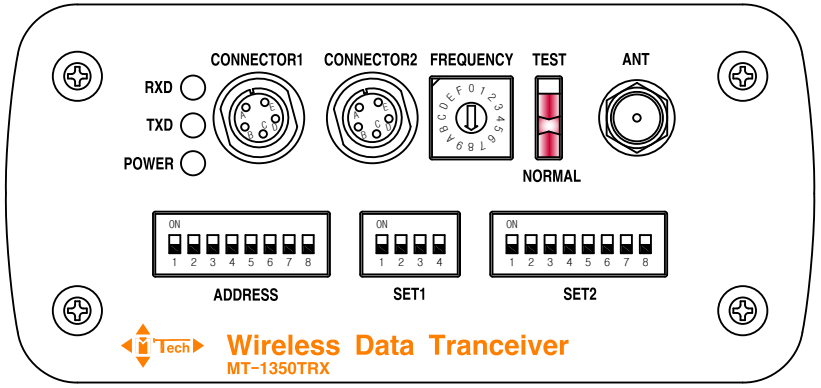
2.4GHz Wireless Data Tranceiver



M-Technology

FCC notice to users and product statements
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 undersired operation. CAUTION : Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE 2200

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User Guide

Professional Wireless DATA Tranceiver MT-1350TRX

Before installing and operating this product,
please read this manual thoroughly.

English

Cautions & Warnings

1. The following section contains vital information that helps protect the safety of the user and prevent property damage/loss. Please read it carefully for safe and proper use of your product.
2. Avoid installing and operating the MT-1350TRX in the places where there is high humidity.
3. Please install the product on a completely flat floor.
   -Always check the strength and stability of the installation location.
   -Do not drop the appliance on the floor. this may result in damage or injury.
   Do not attempt to disassemble the appliance. To prevent electric shock, do not remove screws or covers.
   -There are no user-serviceable parts inside. Contact qualified service personnel for maintenance.
4. Never use the appliance in places where there are flammable materials.
   -Never use the appliance in places where flammable materials such as gas are used.
5. This may result in fire, explosion, and other serious accidents.
6. Never touch un-insulated parts with wet hands.
   -Touching un-insulated parts with wet hands may result in serious electric shock.
7. Never expose the appliance to water or moisture.
   -If the appliance gets wet, immediately turn the power off.
   -Stop using the appliance if it gets wet. Contact the manufacturer immediately.
8. Stop using the appliance if the appears to be any operational problem.
   -Immediately turn the power off to the appliance if there is any abnormal condition such as smoke or unusual smells.
   -Continuing to use the appliance under abnormal conditions may result in serious damage.
9. Always use the recommended power.
   -Using incorrect power source ratings may result in fire, electric shock, or damage.
10. Do not operate the appliance in temperatures beyond those specified.
    -Excessive heat or cold may damage the appliance.
    -Always operate the appliance within the recommended temperature range of 0°C ~ 40°C.
11. Do not apply excessive shock to the appliance.
    -Excessive shock may damage the appliance.
12. Use the appliance indoors only.
    -Do not place the appliance outdoors or expose it to rain or moisture.
    -If dropped in water, the appliance may be corroded and damaged.
13. This product is designed for use in the frequency range of ISM band; therefore, possible interference by other products may occur due to overlapped use of the same frequency range.
14. Bad data transmission and reception may occur in case of the simultaneous use of the same products in the vicinity; therefore, different RF channels must be selected in case of the simultaneous use of the same products in the vicinity.

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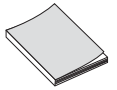
Product Components

MT-1350TRX Tranceiver



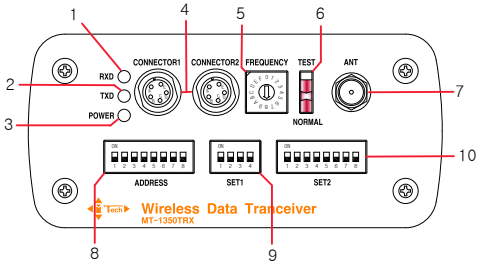
User's Manual

Antenna

Connector

Names and Functions of Each Part

Connector & Dip Switch Layout



1. Wireless Data Receiving Indicator(green)
2. Wireless Data Transmission Indicator(red)
3. Power Indigator(blue)
4. CONNECTOR1, 2 : Power & RS-485 signal
5. Frequency Setup Rotary Switch
6. Test Mode Slide Switch
7. SMA Antenna Connector
8. ID Setup Dip Switch
9. Rxd/Txd Setup Dip Switch
10. Baudrate Setup Dip Switch

Names and Functions of Each Part

1. RF Data Receiving Indicator : Upon receiving RF data in receiving mode, green LED blinks.

2. RF Data Transmission Indicator : Upon sending RF data in transmission mode, red LED blinks.

3. Power Indicator : When power is on, blue LED will be turned on. At this time, do not look at LED directly. It may deteriorate your eyesight.

4. Connector1 & Connector2 : Connector 1 and connector 2 are connected inside in parallel.

5. Frequency Setup Rotary Switch : This is the rotary switch for changing channel. Set the frequency by turning the rotary switch with a flat-tip screw driver(Refer to Frequency Setting).

6. Test Mode Slide Switch : Test data is to be emitted via RF in transmission mode, whereas via RS-485 in receiving mode.

7. Antenna Connector : SMA Antenna connector

8. Address : No communication is possible even between different groups at the same frequency which can be set by the group-setting switch.

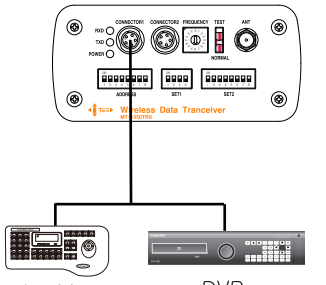
9. SET1 : This is the resetting switch for initialization of transmission/receiving mode, frequency, and ID, and more(Refer to SET1 Setting).

10. SET2 : This is the setting switch for baudrate, and protocol(Refer to SET2 Setting).

General Connection

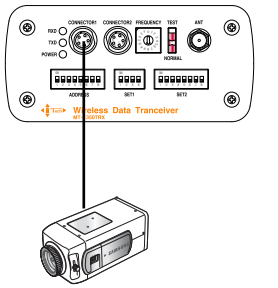
Camera and Controller Wiring Diagrams

<TXD Mode>



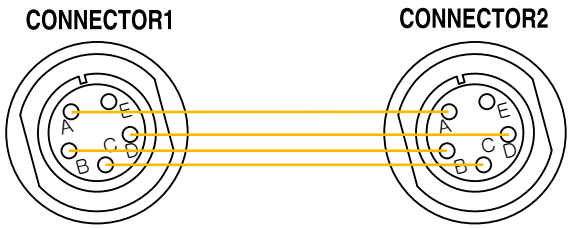
Joystick DVR

<RXD Mode>



CAMERA

JOINING CONNECTORS



CONNECTOR1	CONNECTOR2	PURPOSE
A	A	+12V
B	B	GND
C	C	+RS485
D	D	-RS485
E	E	N.C

1. Joining Connectors

Connector1 and connector2 are connected inside in parallel. For that reason, either connector has the same function. Disassemble the provided connector, and solder the cable to the internal PIN as described in the above table to avoid power shortage.

2. RS-485 Signal

RS-485 signal are turned into receiving mode in RF transmission mode, transmission mode in RF receiving mode.

FREQUENCY SETTING

FREQUENCY CH1 **FREQUENCY CH8**

In case of frequency change, set the frequency by turning from 1 to C with a small flat-head screw driver. The above picture demonstrates the case of the frequency channel 1 and 8.

Frequency Table

802.15.4

CHANEL	FREQUENCY
CH 1	2.410MHz
CH 2	2.415MHz
CH 3	2.420MHz
CH 4	2.425MHz
CH 5	2.430MHz
CH 6	2.435MHz
CH 7	2.440MHz
CH 8	2.445MHz
CH 9	2.450MHz
CH A	2.455MHz
CH B	2.460MHz
CH C	2.465MHz

1. Make sure that the power is off.
2. Lift the number 3 SET1 switch up to ON.
3. Set the preferred frequency using a small flat-tip screw driver by turning the rotary switch according to the above frequency table(Number 0, D, E, and F, not present in the table, is the same as CH1)
4. Turning the power on, RXD and TXD LED will flicker 8 times. At last, the frequency has changed.
5. Lower number 3 SET1 switch to OFF to avoid repetition of the above process whenever the power is on. In doing so, the frequency setting is skipped, and the device will function normally.

TEST MODE

Normal Mode **TEST Mode**

- In receiving mode, test data is transmitted as a RF signal.
- In transmission mode, test data is transmitted as a RS-485 signal.
- In test mode, even if the switch is set to NORMAL, data transmission will occur for about 10 seconds before getting out of the test mode.
- Test mode comes in handy in case of testing communication between a transmitter and a receiver.

ADDRESS SETTING

The maximum number of ID allowed in ID setting is 65,536; however, 256 IDs were preset by the factory default setting; therefore, the actual number of ID available for user's setting is 256 for setting the group.

ADDRESS

If switch is set as shown in the picture to the left, group is F000

Factory Release Code – F000 – Switch Setup Code

ADDRESS

If switch is set as shown in the picture to the left, group is F0D7

Factory Release Code – F0D7 – Switch Setup Code

1. Make sure that the power is off.
2. Lift the number 3 SET1 switch up to ON.
3. Set Address switch to the appropriate group referring to the above picture.
4. Turning the power on, RXD and TXD LED will flicker 8 times. At last, the address(ID) has changed.
5. Lower number 3 SET1 switch to OFF to avoid repetition of the above process whenever the power is on. In doing so, the frequency setting is skipped, and the device will function normally.

SET1 SETTING

The operation of SET1 switch can cover the conversion of send/receiving mode, anemometer, CCTV mode, and resetting of the frequency and ID; the setting can be done as shown in the below picture.

1. SELECT ANEMOMETER OR CCTV SYSTEM

SET1

SW-#1 = Off : RF Tranceiver for Anemometer System

SET1

SW-#1 = On : RF Tranceiver for CCTV System

2. SELECT TRANSMISSION OR RECEIVING MODE

SET1

SW-#2 = Off : RF Transmission mode.
RS-485 Receiving mode.

SET1

SW-#2 = On : RF Receiving mode.
RS-485 Transmission mode.

3. RESETTING MODE

SET1

Set ID, frequency, send/receiving mode, anemometer, and CCTV mode, etc. with turning the power off, and turn the power on after lifting the number 3 switch of SET1 as shown in the picture to the left, then RXD and TXD LED will blink 8 times, and the setting will be complete.

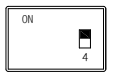
SET1

Once the above setting is complete, lower the number 3 switch of SET1 as shown in the picture on the left to avoid resetting ID, frequency, and more whenever the power is on.

4. Select Existence of Temperature/Humidity Sensor.

SET1

If number 4 switch of SET1 is in lower position as shown in the picture on the left, there is no sensor. As conversion is not allowed when power is on, do the setting before the power is turned on.



SET1

If number 4 switch of SET1 is in upper position as shown in the picture to the left, then the sensor is there.

Configuring MT-1350TRX DIP Switches(SET2)

SET2 DIP switches for communication and protocols are located on the bottom of the MT-1350TRX.
For more instructions, please refer SET2 DIP Switch Settings.

1. RS-485 BAUDRATE SETTINGS

- Select RS-485 baudrate before power turn on.
- Fixed RF Data rate(250,000bps).
- 8bit data / no parity / 1 stop

SET2

BAUDRATE : 1,200bps

	SW1-#1	SW1-#2	SW1-#3
1,200bps	Off	Off	Off

SET2

BAUDRATE : 2,400bps

	SW1-#1	SW1-#2	SW1-#3
2,400bps	Off	Off	On

SET2

BAUDRATE : 4,800bps

	SW1-#1	SW1-#2	SW1-#3
4,800bps	Off	On	Off

SET2

BAUDRATE : 9,600bps

	SW1-#1	SW1-#2	SW1-#3
9,600bps	Off	On	On

SET2

BAUDRATE : 19,200bps

	SW1-#1	SW1-#2	SW1-#3
19,200bps	On	Off	Off

SET2

BAUDRATE : 38,400bps

	SW1-#1	SW1-#2	SW1-#3
38,400bps	On	Off	On

SET2

BAUDRATE : 57,600bps

	SW1-#1	SW1-#2	SW1-#3
57,600bps	On	On	Off

SET2

BAUDRATE : 115,200bps

	SW1-#1	SW1-#2	SW1-#3
115,200bps	On	On	On

2. PROTOCOL SETTINGS

- Select a communication protocol for the camera.
- Select protocol before power turn on.

SET2

PROTOCOL : PELCO-D PROTOCOL

SW1-#1	SW1-#2	SW1-#3	SW1-#4	SW1-#5
Off	Off	Off	Off	Off

SET2

PROTOCOL : PELCO-P PROTOCOL

SW1-#1	SW1-#2	SW1-#3	SW1-#4	SW1-#5
Off	Off	Off	Off	On

SET2

PROTOCOL : SAMSUNG SCC641 PROTOCOL

SW1-#1	SW1-#2	SW1-#3	SW1-#4	SW1-#5
Off	Off	Off	On	Off

SET2

PROTOCOL : CNB PROTOCOL

SW1-#1	SW1-#2	SW1-#3	SW1-#4	SW1-#5
Off	Off	Off	On	On

SET2

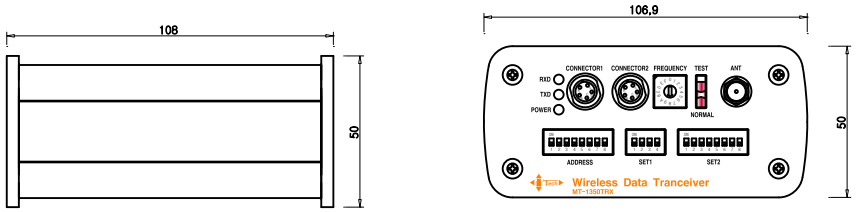
PROTOCOL : DONGYANG PROTOCOL

SW1-#1	SW1-#2	SW1-#3	SW1-#4	SW1-#5
Off	Off	On	Off	Off

Specifications

MODEL		MT-1350TRX
Frequency		2.410 ~ 2.465 GHz
Transmit Power Output		≤ 10mW
Outdoor RF line-of-sight Range		≤ 300m
Data Rate	RF	250,000bps
	RS-485	1,200bps ~ 115,200bps
Number of Channels		12 Channel
Power Consumption		≤ 10W
Supply Voltage		DC 12V / 300mA
Circumstances	Operating Temperature	0℃ ~ 40℃
	Operating Humidity	10% ~ 80%, Non-condensing
	Storage Temperature	-40℃ ~ 60℃
	Storage Humidity	5% ~ 95%, Non-condensing
Dimensions (WxDxH)		106.9 x 50 x 108mm

Appearance



Wireless DATA Tranceiver Manual

MEMO

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 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 to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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 undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum 20 cm between the radiator and your body. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.