

CONNECTOR CHECK GAUGE

【NWF-610】

Users Manual

V1.03

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1. Information about the FCC Standards

FCC WARNING !

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Standards. Operation is subjected to the following two requirements:

- (1) This device may not cause any harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Precautions for Use

- Do not use this device for any purpose other than inspection for connector fitting.
- Do not disassemble or remodel this device, since it is a precision instrument.
- Do not operate the device or replace its battery with wet hands.
- Do not make an excessive impact on the radio transmitter, since it is a precision apparatus and housed in a plastic enclosure.
- To replace the battery, slide the battery in the arrowed direction and then pull it out.
- In assembling work, including battery replacement, be careful not to pinch the cables.

3. Overview

This manual includes the requirements of using the “Connector Fitting Inspection Jig NWF-610 Series” (hereinafter referred to as “NWF-610”). Read this manual carefully before using the device to ensure proper use.

The NWF-610 is a “connector fitting inspection jig” composed of a fitting frame equipped with touch sensor and a radio transmitter. This device can wirelessly send the fitting completion signal to Herz Electronics’ receiver TWF-610R.

For radio transmission, a high-efficiency weak radio wave transmitter of 426.1MHz range is used.

3-1. Features

- The transmitter is compact with power supplied from a coin-type battery.
- No radio license or qualification is required for operation.
- The radio wave used is of less-noise 426MHz band
- The built-in antenna makes it easy to handle (operate).
- The ABS resin case used ensures high resistance to dust and oil mist.

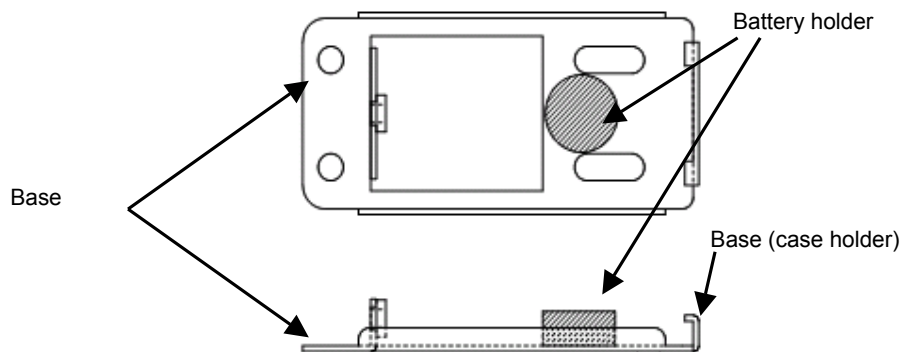
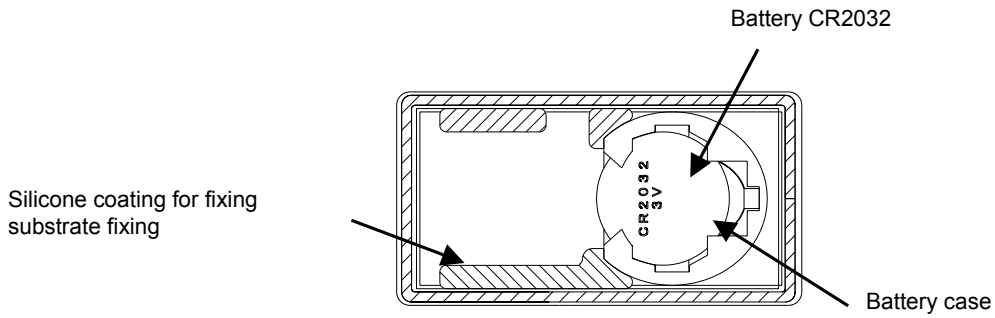
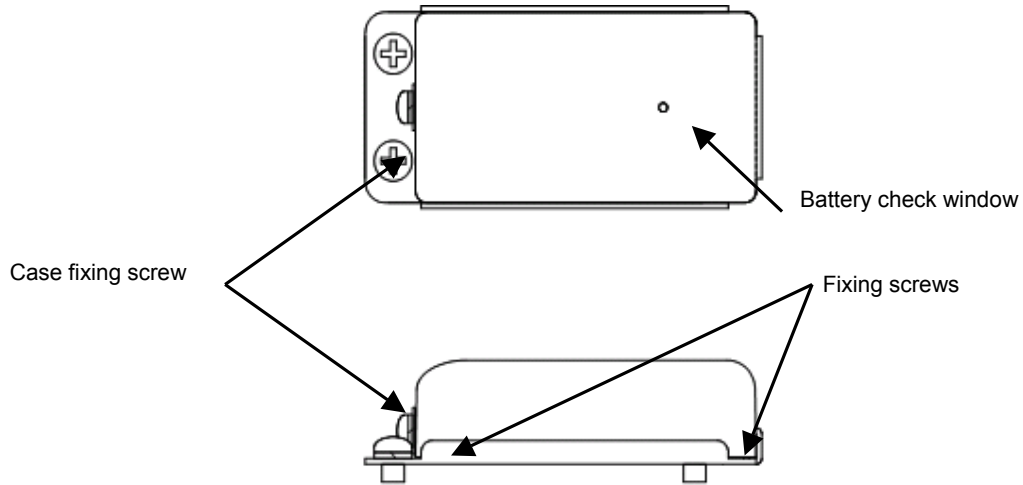
4. Specifications of Radio Transmitter

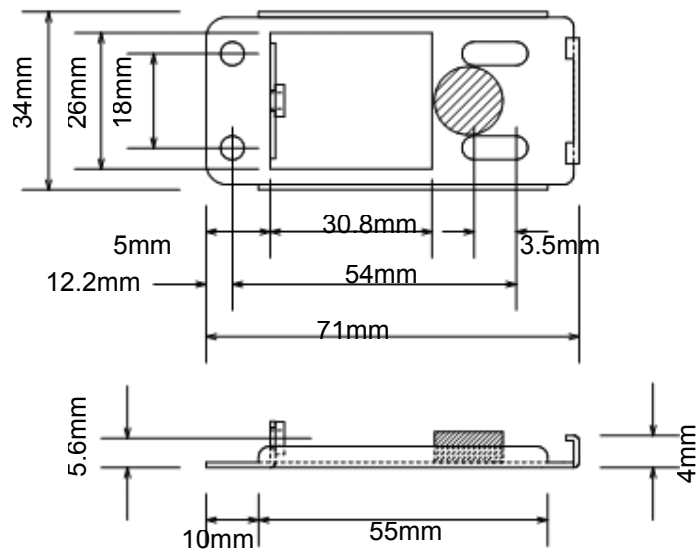
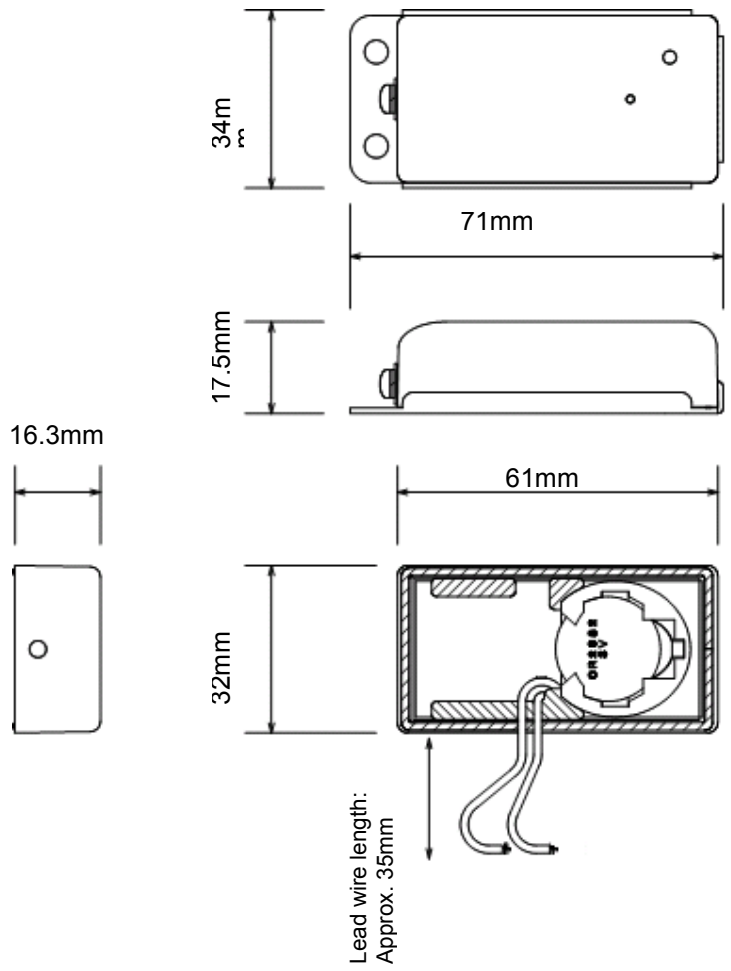
	Item	Specifications	Remarks
	【Radio frequency unit】		
1	Frequency	426.1MHz	Compliant with Part 15-231 (b) of the FCC Standards
2	Radio wave intensity	Field intensity at 3m distance: 5700 μ V/m or less	
3	Transmission method	Unidirectional transmission method	
4	Modulation method	Binary FSK modulation method	
5	Radio wave type	F1D	
6	Modulation speed	1000bps	
7	Max. frequency shift	\pm 2kHz	
8	Oscillation method	Crystal oscillation multiplying method (fixed channel)	
9	Source transmission frequency	71.0166MHz	
10	Antenna	Built-in type	
	【Data communication unit】		
11	Encoding system	MFM encoding	
12	Transfer speed	1000bps	
13	No. of frames sent	2	
14	Comm. distance	Approx. 30m radial	※1
15	Frame composition	2 frames sent, each frame having a fixed length equivalent to 66 bits.	
16	ID	65526 (16 bits) exclusive, unique ID	Assigned before shipment.
17	Error detection system	CRRC-CCITT (CCITT V.41)	
	【Main unit specifications】		
18	Indicator	Power voltage reduction alert LED	
19	Power source	Coin-type lithium battery	CR2032 (3V 220mAh)
20	Battery life	Approx. 150,000 times or more	As measured at one second interval
21	Power consumption	12mA or less	Ta25°C
22	Operating voltage	2.1 to 3.2VDC	System start voltage: 2.25VDC or more Voltage reduction detecting voltage: 2.3VDC System stop voltage: 2.1VDC
23	Transmission interval	0.5 sec or more	
24	Operating ambient temperature	0 to 50°C	
25	Operating ambient humidity	85%RH or less (No condensation)	
26	Outside dimensions	W32.0 × D71.0 × H17.5mm	※Radio transmitter unit only
27	Weight	40 g	Transmitter (including base and battery)

※ 1 Communication may be disabled in a place with large radiant noise, such as noise from electric welding machines.

5. Outside and Dimensional Drawings of Radio Transmitter

The outside and dimensional drawings are shown below:

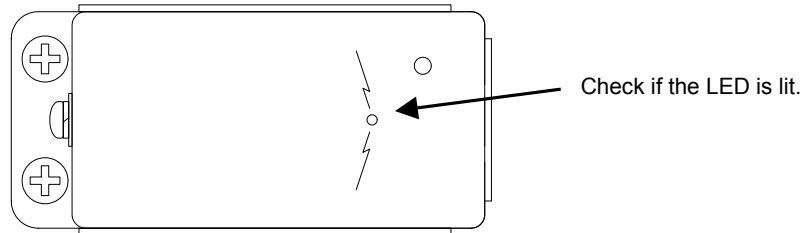




6. How to Use Radio Transmitter

6-1. Checking the Battery

- The transmitter has a battery voltage checking LED. It lights up when the voltage of the battery in use is running low to alert the battery replacing time. The LED lights up when the battery voltage lowers below 2.3V (but does not light up during transmission).

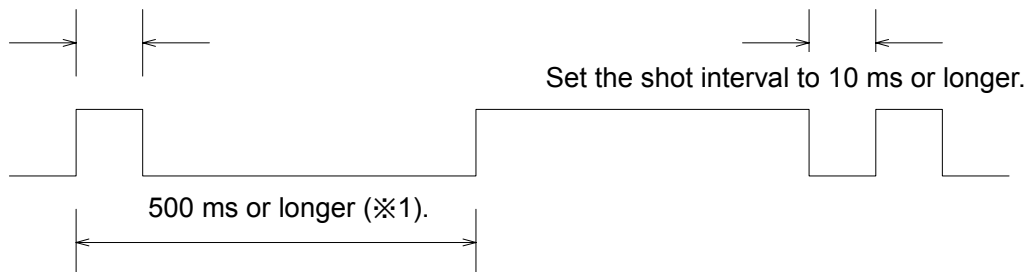


6-2. Operation Timing

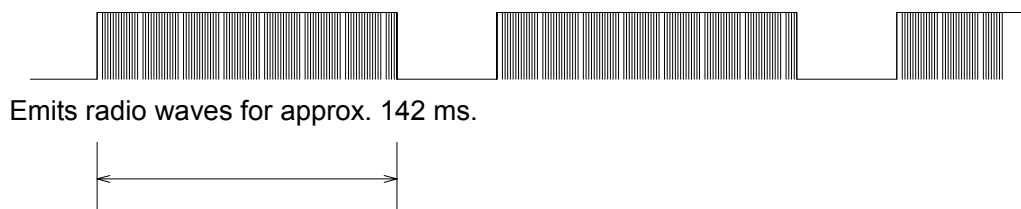
- The operation timings of the touch sensor/transmitter are shown below:

Touch sensor

Set the touch sensor ON time to 10ms or longer.



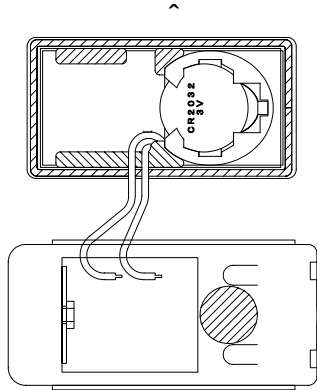
Transmitter



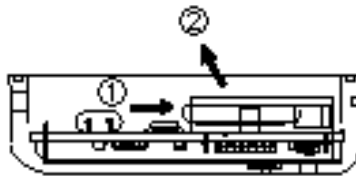
- ※1 The interval that is longer than the double-counting prevention time of the receiver is required. The receiver has set the double-counting prevention time to prevent repeating the counting. For details of the double-counting prevention time, refer to the instruction manual of each receiver.

6-3. Replacing the Battery

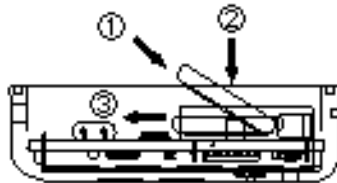
Loosen the fixing screws and remove the transmitter body from the base.



Take out the old battery in the direction ② while pushing it in the direction ①.



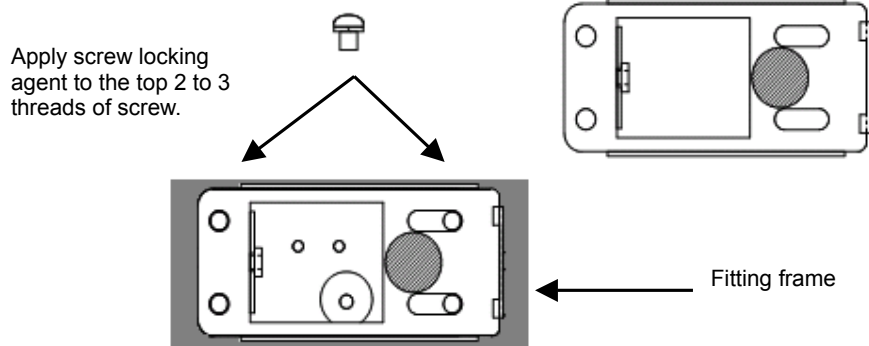
Inserting a new battery in the direction ①, thrust it in the direction ②, and then push it back in the direction ③ for fixing.



- ※ Be careful not to disconnect the lead wires.
- ※ When new battery is fixed, radio wave may be emitted by one shot.

7. How to Set Transmitter in Fitting Frame

- 1) Fix the base with 4 fixing screws.

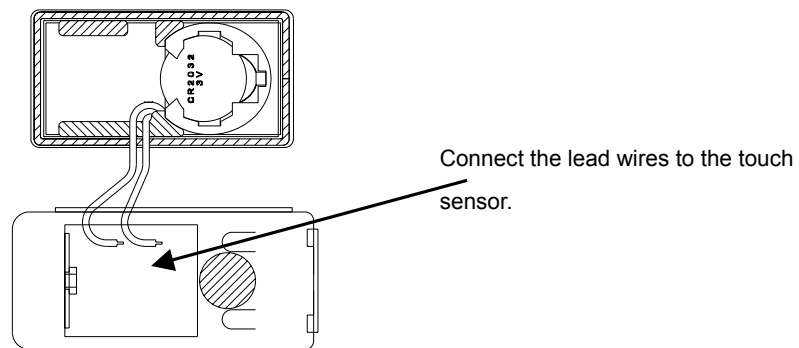


- 2) Set the ID.

Refer to “Chapter 4. How to Set ID.”

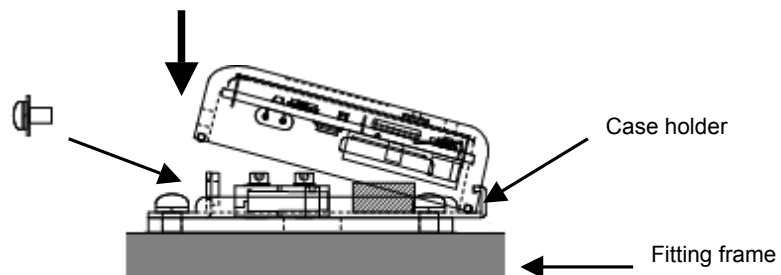
- 3) Wire and connect the touch sensor.

Connect the lead wires from the transmitter to the touch sensor.



- 4) Mount the transmitter body on the base.

Engage the transmitter body case with the case holder of the base, put the case down in such a way that the lead wires are not pinched. Then, fix the transmitter body case with fixing screws while firmly pressing it from the above.



8. Registering ID

An exclusive, unique ID is assigned to each device before shipment.

The data sent from this device is composed of 2 frames, each frame having the fixed length equivalent to 8 blocks and 66 bits.

For an ID, 24 bits in one data frame are used. Normally, 16 bits out of the 24 bits are used to assign 65536 different IDs.

65536 (16 bits) For assigning exclusive, unique IDs before shipment
16 (4 bits) } Spare codes
16 (4 bits) }

Confirm the ID of your receiver and set the ID on the receiver (TEF-600R) accordingly.

8-1. How to register the ID

- ① Turn ON the POWER switch by pressing the receiving lamp corresponding to the ID to be registered.
ID1 → ID REGISTER switch 1, ID2 → ID REGISTER switch 2
(The receiving lamp also serves as the ID REGISTER switch.)
- ② Confirm that the ID REGISTER switch corresponding to the ID to be registered is blinking (at 0.5 sec interval). If not, redo the above procedure.
- ③ Within 30 seconds, turn the transmitter of the ID to be registered to the transmission state once.
- ④ Then, within 5 seconds, repeat the same operation.
- ⑤ Upon the registration of the ID, the blinking of the ID REGISTER switch is replaced by lighting.
- ⑥ After the completion of the registration, turn OFF the POWER switch, and then turn ON the POWER switch before using the device.

Precautions for operation

- ※ During the ID registration work, do not use any other transmitter near the receiver, or a wrong ID could be registered.
- ※ If the registration is not completed within the specified time, the ID REGISTER switch lamp will go out. In this case, repeat the procedure from the start.

8-2. How to delete the ID

- ① Turn ON the POWER switch by pressing the ID REGISTER switch corresponding to the ID to be deleted.
ID1 → Receiving lamp 1, ID2 → Receiving lamp 2
(The receiving lamp also serves as the ID REGISTER switch.)
- ② Confirm that the ID REGISTER switch corresponding to the ID to be deleted is blinking (at 0.5 sec interval).
- ③ Press the flashing ID REGISTER switch for 5 seconds.
- ④ Then, unhand the ID REGISTER switch. If the ID REGISTER switch is blinking faster, it proves that the ID deletion has been completed. To continue the operation, turn OFF the POWER switch, and then turn ON the POWER switch.

9. Troubleshooting

[Normal communication is disabled]

- ◇ Check the battery if it is running low.

Press the TEST switch to see if the battery voltage checking LED lights up.

- ◇ Check the radio frequency and the ID to see if they are different from those of the receiver.

Check the channel and ID of the receiver.

- ◇ Check the device to see if it is used outside the radio wave access range.

Use the device within the range the radio wave access range.

- ◇ Check for dead point.

If the normal communication is disabled in a certain positional relation of the receiver, such position may be a dead point. Change the position of the receiver. (Even if the layout is changed, the communication will be affected.)

- ◇ Check for noise.

If the communication is disabled in a certain time zone or by the operation of a certain device, there may be the generation of noise.

10. Contact

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