

REMOTE SIGNAL TORQUE WRENCH MODEL: FHM/FH

Operating Instruction



To use this product properly and safely, please read this operating instruction carefully before use. If you have any question about the product and its operations, please contact your nearest distributor or Tohnichi Mfg. Co., Ltd.

Safety Precautions

To customers: Before using this product, please read this operating instruction carefully to use it properly.

If you have any question, please contact your nearest distributor or Tohnichi Mfg. Co., Ltd.

This operating instruction should be stored in a safe place.



Safety symbol

This symbol indicates attention is required for your safety. When this symbol appears in this instruction, pay particular attention for your safety concerns. Take preventative measures according to the written message for appropriate operation and management.

Signal Words

A signal word accompanies the safety symbol, which indicates the level of cautions on safety of people and the appropriate use of the equipment. Signal words are classified into 3 levels: "danger", "warning" and "caution" by the degree of risk.

- "  **Danger**": Imminent danger which may cause serious damage
- "  **Warning**": Potential danger which may cause serious damage
- "  **Caution**": Potential danger which hinder ordinary operation but may not lead to serious damage.



Warning

- The receiver can be operated only with the power voltage of DC18V to 36V specified in this operating instruction.
- Do not drop water or oil on this instrument
- Do not use this instrument in an atmosphere of flammable gas and steam.
- Use in such an atmosphere may result in fire.
- Avoid shock or vibration to this instrument. It may cause a damage or failure.
- Before use, make a pre-operation inspection and check the settings.
- Be sure to conduct a periodic inspection of torque wrenches.
- Use a torque wrench within the measurement range specified in the operating instruction.
- Be sure to use an AAA alkaline battery for power supply to the transmitter T-FH256MC.
- Do not use other than the specific battery instructed in manual. The battery may overheat, leak, or explode.
- When discarding or storing the battery, insulate it with tape or something.

Should this instrument give out abnormal smell or catch fire during use, stop using it immediately and remove the AC adapter from the outlet. Then, move the instrument to a safe place and contact Tohnichi Mfg. Co., Ltd.

- Be sure to use an AAA alkaline battery for power supply to the transmitter T-FHM/T-FH.
- Be sure to use CR2032 coin type lithium battery for power supply to the T-FHSL256, FHP and RTDFH/RNTDFH transmitters.
- Remove the battery if the product will not be used for a long time.
- Avoid using the instrument in a place where there are metal structures around it.
- Do not install the antenna for the receiver close to any metal pole, electric wire, iron piping, etc.
- * Especially, if the antenna and piping are positioned in parallel, the communication status may be worsened.

- Avoid using the instrument near welding machines, electric discharge machines or machines producing electromagnetic noise such as PC.
- If the receiver is placed adjacent to the transmitter, different groups must be set between the receiver and the transmitter.
- * If the receiver where the ID is set on a different channel in the same group is placed adjacent to the transmitter, in extremely rare cases when "simultaneous transmission" occurs, a communication error may be caused.
- Before wiring, check that the power of the device to be connected to the receiver is in the OFF position.
- Do not handle the torque wrench roughly.
- Be sure to read the operating instruction of the torque wrench.
- When the adjusting screw of a preset or pre-lock type torque wrench is adjusted, the switch function of the transmitter may not operate properly. In that case, the stud of the torque wrench must be changed. Contact your nearest distributor or Tohnichi Mfg. Co., Ltd.

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1 Outline

By combining a remote signal transmitter T-FHM/T-FH with a Tohnichi torque wrench, a completion signal can be sent wirelessly to the receiver. Unlike wired LS torque wrenches, wireless wrench allows greater freedom of movement and ability to use the tool in places a wired tool cannot reach. With combination of R-CM receiver and T-FHM transmitter newly available battery monitoring function, and count checker functions for prevent missed tightening.

2 Feature

- **FHSS (Frequency Hopping Spread Spectrum) enhances reliability.**

With the application of radio equipment technologies such as Bluetooth, radio signals are received or transmitted while the frequency is switched at a high speed. If noise or interference with other radio equipment occurs at a certain frequency, the frequency is automatically switched to make it possible to receive a high reliable tightening completion signal.

- **Simultaneous transmission of 256 transmitters**

With this model, adoption of FHSS realizes simultaneous transmission of 256 transmitters.

- * Only when 256 receiver groups are set without being overlapped.

A single receiver can control the almost infinite number of transmitters.

- * Only when simultaneous transmission in the same group does not occur.

- **Minimum management cost**

Each one transmitter and receiver can support settings for all groups (256 models).

Therefore, a minimum number of spare devices is required.

- **Easy transmitter/receiver setting**

Without removing the transmitter from the torque wrench or removing the receiver panel, the group and ID can be set and checked by wireless on the Setting BOX (option).

Group and ID

[Group]

There are 256 groups in total, with one group comprising 5ch extracted from the 78ch frequencies of 2.402GHz to 2.479GHz

(at an interval of 1MHz). 5ch frequencies in a group are used to send or receive radio waves.

[ID]

000 to 999 and 7-digit alphanumeric characters can be set. According to the ID, the receiver identifies a torque wrench.

- **Traceability**

The serial or reference number of a torque wrench (7-digitalphanumeric characters) can be set as an ID and transmitted. The tightening bolt (portion) and the manufacturing number (reference number) are managed in combination, to ensure traceability: "Which torque wrench was used to tighten this bolt (portion)?" → "Which torque wrench tester was used to calibrate this torque wrench?" → "Which...was used to calibrate this torque wrench tester?" For 7-digit ID setting, consult to Tohnichi.

- **Answer back system**

The operator is enable to know the communication status by the LED mounted on the transmitter, without checking the receiver or the control device.

- **Long life with non-contact reed switch**

Non-contact lead switch (T-FH/T-FHM/T-FH256MC/RTDFH/RNTDFH/FHP) achieves long product life.

- **Installation on LS torque wrench is possible. (T-FHSLS256)**

T-FHSLS256 can be installed instead of limit switch on LS type torque wrenches to be modified it for wireless Pokayoke. * Not available to MS type torque wrenches, and the model SPLS8N and RSPLS8N.

- **New and previous communication mode**

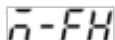
T-FHM can use AAA alkaline battery provides with available 4800 signals per day for 6 months or more.

T-FHSLS: A CR2032 coin type lithium battery provides 3600 signals per day for 4 months or more.

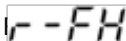
- **Selectable two different Communication mode**

It has two communication mode for advanced mode and previous product compatible mode.

New Mode : Available advanced communication mode and new functions,
such as battery alert

Indication of R-CM receiver with M-FH radio module : 

Indication of SB-FH2 setting box : R-CM(M-FH)

Indication of Transmitter (Display of SB-FH2) : 

Previous Mode: Compatible mode for previous FH series.

Indication of R-CM receiver with M-FH radio module :

Indication of SB-FH2 setting box : R-FH

Indication of Transmitter (Display of SB-FH2) : R-FH

* Should be match the communication mode for receiver and transmitter.

eg.: Receiver (New mode) → Transmitter (New mode)

Receiver (Previous mode) or Previous receiver R-FH256 → Transmitter (Previous mode) or
Previous transmitters.

- **650,000 times (T-FH256MC) and 300,000 times (T-FHSLS) of transmitting**

T-FHM can use AAA alkaline battery provides with available 4800 signals per day for 6 months or more.

T-FHSLS: A CR2032 coin type lithium battery provides 3600 signals per day for 4 months or more.

- **Use of the universal 2.4 GHz ISM band.**

Ask to Tohnichi for status of wireless certification acquisition for each country.

- **Relay output**

Up to 4 torque wrenches can be registered and output relay signal individually

* Multiple wrenches can connect to one receiver as long as they do not signal at the exact same time.

- **Quick Pairing**

The transmitter (T-FHM / T-FH) and the previous transmitters (T-FH256MC, RTDFH/NTDFH, FHP) can be connected to the receiver (R-CM) without using the setting box. Since the quick connection method differs between the T-FHM and the previous models, refer to "7-9-4. Quick Setting" and "7-9-5 T-FH Setting Screen" for details.

This function is available only for FH256MC series transmitter.

*Quick connection does not support the extension box IO-CM.

• Interchangeable radio module

Possible to correspond to existing various wireless torque wrench system and a future upcoming products by replacing the module part. Refer to each operating instruction of module for corresponding transmitters.

* Initial setting is required when replaced the radio module to communicate with the transmitter.

• Battery alert, Time stamp function

According to the settings of receiver and transmitter, outputs residual voltage value of transmitter T-FHM to R-CM and time stamp via RS232C terminal. By always monitoring the battery level and send signal when voltage drops to prevent interruption of the work.

• Optional Extension Box

Optional extend boxes for R-CM is released.

IO-CM, expands the maximum relay output from 4 to 8 and BZ-CM makes the buzzer sound louder than standard.

• Count Checker function

The receiver body has OK/NG judgment function for the number of tightening of one unit of torque wrench.

If you need count check for multiple torque wrenches, purchase CNA-4mk3.

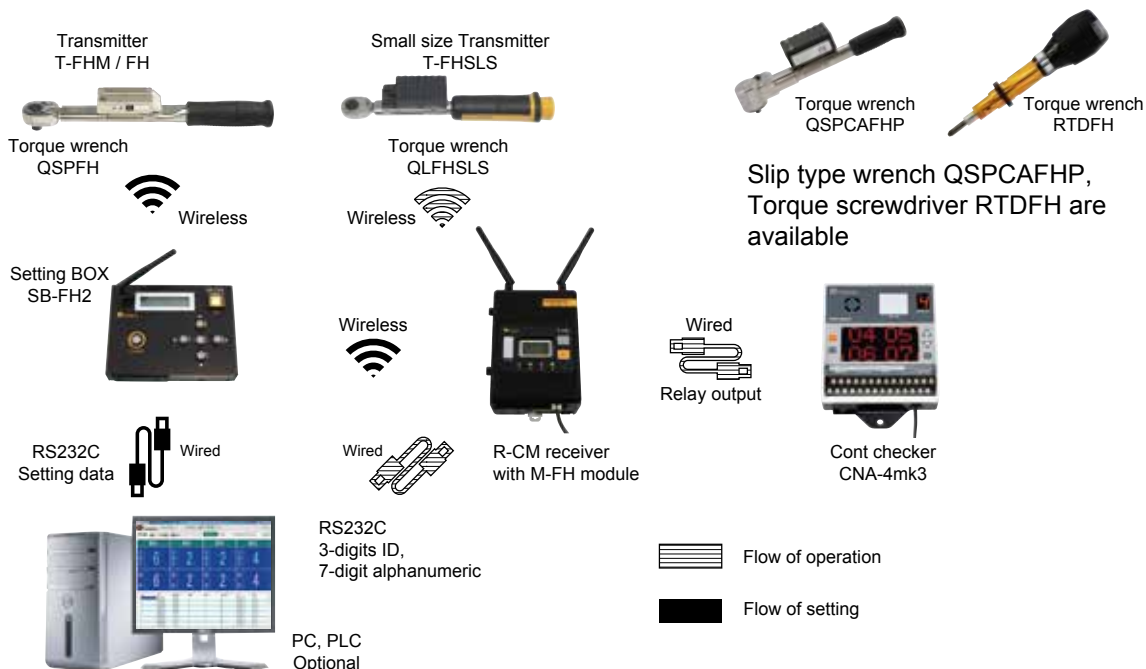
• Remote Setting

Using the setting box SB-FH2, the receiver can be set remotely.

Easy to change the settings even after installing the receiver at a high place.

3

Pokayoke System Components



4 Specifications

	Transmitter	Receiver	Setting Box	Transmitter for LS
Model	T-FH/T-FHM	R-CM	SB-FH2	T-FHSLS256
Frequency	2.4GHz (2.403GHz - 2.479GHz, 1MHz interval, 78kinds)			
Communication Method	Spread spectrum (FHSS)			
Modulation	GFSK			
Speed	250kbps / 1Mbps			1Mbps
Frequency Group	000 - 255			
ID	3-digits (000-999), 7-digits alphanumeric		RS232C input	3-digits (000-999), 7-digits alphanumeric
Input/Output		Relay output x 4 Rest input x 1, LS input x 1, RS232C input/output		
Power Source		DC24V (18-36V) Power consumption less than 5W	DC9V alkaline x 1	DC3V CR2032 coin battery x 1
Antenna	Chip antenna	Dipole antenna x 2	Dipole antenna	Pattern antenna
Display	Communication check LED	Status lamp LCD, receiving LED x 4	Power LED, LCD	Communication check LED
Temperature in use	0 to 50°C , RH less than 85% non condensation			
Communication Distance	T-FHM, set at M-FH mode: 20 - 30m *1 T-FH, set at R-FH mode: 10 - 20m *1			Approx. 10 - 20m*1

*1. Transmitting/receiving distance varies depending on surrounding radio environment.

* Radio frequency communication errors may be caused by noise or a shield placed between the transmitter and the receiver. In addition, radio waves reflected by metal, concrete, etc. may interfere with radio waves directly sent to the antenna of the receiver and a dead point occurs, resulting in communication error.

*2. For T-FH/T-FHM with a brand-new alkaline battery, about 650,000 tightening operations can be conducted.

*3. For the battery life of the transmitter T-FHSLS256, FHP, and RTDFH/RNTDFH, tightening operation can be performed about 300,000 times with a new Panasonic-made coin type lithium battery CR2032.

*4. T-FHSLS256, FHP and RTDFH/RNTDFH transmitters are using the same T-FHSLS transmitter module.

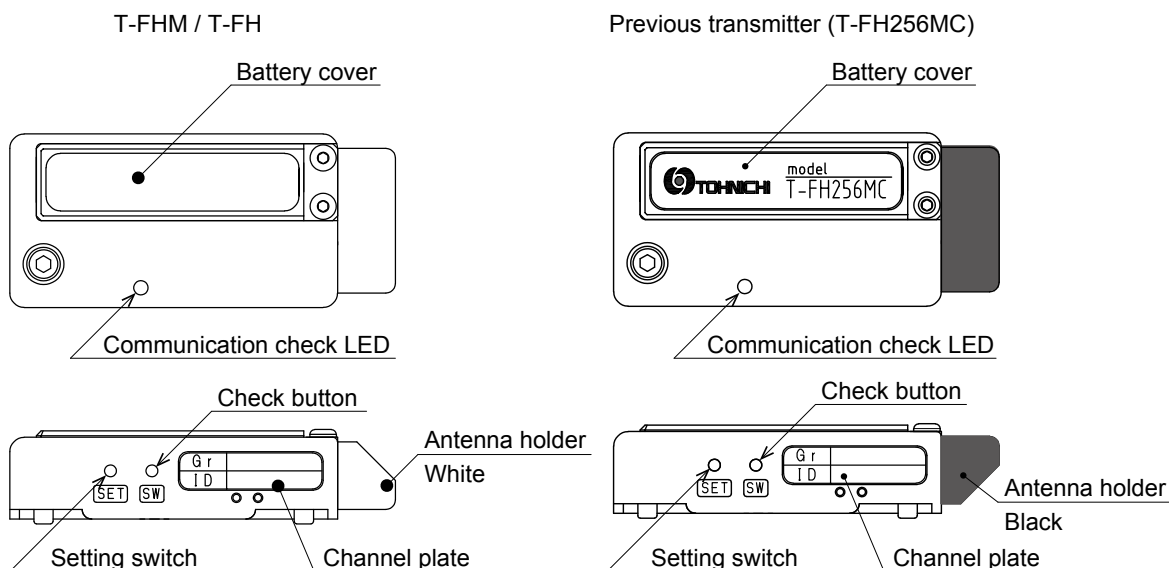
*5. To use the receiver under AC100V ~ 240V power conditions, optional AC adapter "BA-8R" is required.

*6. One receiver (R-CM with M-FH) can manage up to 4 torque wrenches. However, simultaneous transmission is not supported.

5

Outside Figure and Name of Part

5-1. Figure and Name of Parts for T-FH/T-FHM and previous transmitters



* The difference of T-FH/T-FHM and previous T-FH256MC transmitter

T-FH/T-FHM: It has a white resin antenna holder

T-FH256MC: It has a black and rubber antenna holder

●Battery cover

The battery cover is removed before the battery is changed.

●Antenna holder

A chip antenna is contained.

●Communication status check LED

When communication with the receiver is normal, the LED lights up in blue.

When a communication error occurs, the LED flashes on and off in red 3 times.

●Check button

Check the remaining battery life and for communication test.

●Setting mode switch

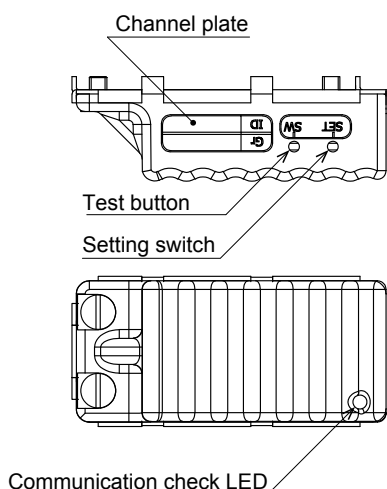
Press it for 1 sec. to start to blink in red and move to setting mode for checking or changing the group/judgment code/ID.

Press the setting mode switch to return to normal mode.

●Channel plate

If channels are specified when you order to Tohnichi, the group and ID will be marked on the plate.

5-2. Transmitter T-FHSL256 Outside, Figure and Name of Part



- Communication status check LED

When communication with the receiver is normal, the LED lights up in blue.

When a communication error occurs, the LED flashes on and off in red 3 times.

- Check button

Check the remaining battery life and for communication test.

If the LED lights on blue during pressing this button, the battery is enough to use.

If it blinks in red, replace the battery to a new one.

- Setting switch

Press it for 1 sec. to start to blinks in red and move to setting mode for checking or changing the group/judgment code/ID.

Press the setting mode switch to return to normal mode.

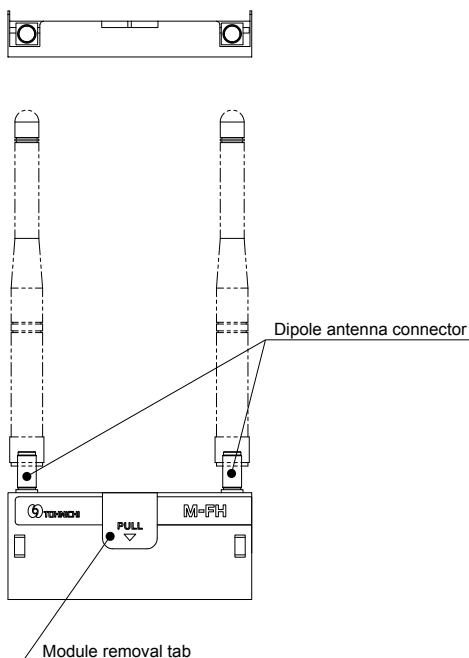
- Channel plate

If channels are specified when you order to Tohnichi, the group and ID will be marked on the plate.

- Remaining battery life notification function *T-FHSL256, FHP, RTDFH/RNTDFH only

When the battery level falls, communication status LED flashes 3 times alternately blue and red after regular operation. Recommend battery exchange.

5-3. Radio Module M-FH Outside, Figure and Name of Part



- Dipole antenna connector
Connector for attaching a dipole antenna.
Attach two antennas.
- Seal for module removal
When removing the module from the receiver
(R-CM), lift it horizontally while pinching this seal.

6 Precautions for Use

6-1. Power Source



1. Be sure to use AAA alkaline battery for the transmitter T-FH/T-FHM.
For the transmitter T-FHSL256, use Panasonic Coin type battery model CR2032.
2. Be sure to use DC 24 V for the R-CM power supply.
 - * When installing the power supply, be careful not to attach DC 24 V and GND in reverse.
 - To use at AC100V to 240V, use an optional AC adapter BA8R.
 - * Tightening torque of terminal screws are $T = 50\text{cN} \cdot \text{m}$.
3. Be sure to use a 9V alkaline battery for setting box SB-FH2.

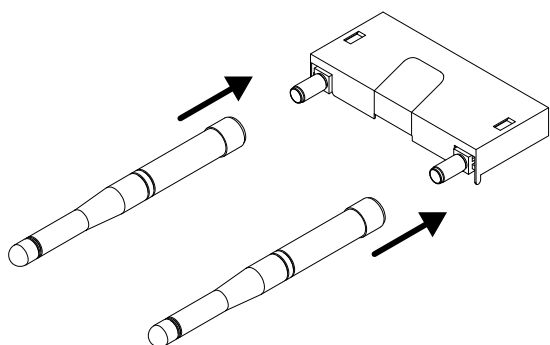
6-2. Usage Environment



1. Use the product where there is no metal structure around as much as possible.
2. Do not place the antenna of the receiver in the immediate vicinity of metal pillars, electric wires, iron pipes, etc. Especially when the antenna and piping are parallel, the communication status may deteriorate.
3. Avoid using in the vicinity of machines that generate electromagnetic noise, such as welding machines, electrical discharge machines, and personal computers.
4. When installing receivers adjacent to each other, set them in different frequency.
 - * If there are receivers set in the same group with different IDs installed adjacent to each other, it is extremely rare, but a communication error may occur when the transmitter performs "simultaneous transmission".

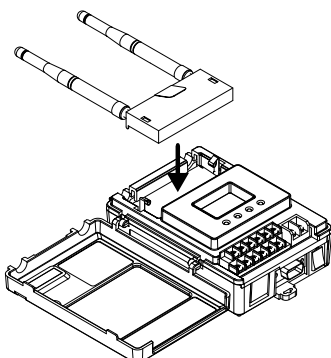
6-3. How to Install radio module M-FH

1. Attach 2pcs of antenna on M-MH module.



2. Open the front cover of receiver and fit the module to the board.

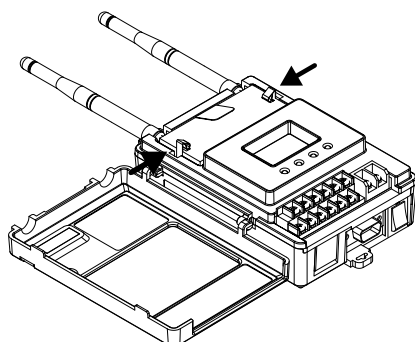
Take care not to pinch the metal fittings by the module.



3. After installing the module on the receiver, push it inward until the metal fittings on both sides enter the groove of the module.

* If the module does not enter even if it is pressed, the module may not be installed correctly.

Make sure that the module is installed correctly and do not push the lever in.



6-4. Error Messages

If an error is displayed on the LCD, refer to following table to release the error.

Display	Contents	Corrective action
Err03	Communication error between an external device	Data corruption or the data format does not match. Check the connection cable and data format.
Err04	Communication error between an external device	BCC error has occurred. Check if the connection cable and BCC calculation.
Err05	Time out error between receiver to an external device	Receiver could not receive return from an external device within 0.5 seconds. Check the communication conditions and connection cable.
Err06	Flow control error	CTS signal is undetected. - Turn on CTS/RTS flow control of the connected PC/PLC.. - Check if the connector cable is properly connected.
Err08	Memory error	The set value is wrong. Please do a re-set. If it does not recover, repairing is necessary.
Err10	ID setting error	Not match the 3-digits ID of receiver and the ID sent from transmitter. Check the ID settings of the transmitter and receiver.
Err11	Module error	Cannot communicate with M-FH. Check if M-FH is connected to the receiver. Check if the ID of OUT1 to OUT4 is duplicated.

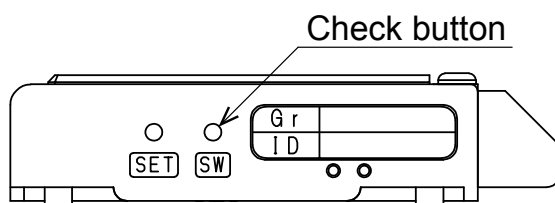
7 Handling

7-1. Precautions for Handling of Torque Wrench

- 1 Do not handle the torque wrench or torque screwdriver roughly.
- 2 Be sure to read the operation manual of the main body.
- 3 When the adjusting screw of a preset and pre-lock type torque wrench is adjusted, the switch function of the transmitter may not operate properly. The stud of the torque wrench must be changed.
Contact your nearest distributor or Tohnichi Mfg. Co., Ltd.

7-2. Check of Battery Life and Communication Test of Transmitters T-FHM/T-FH

1. Keep pressing the TEST button on the side panel of the transmitter.



2. During pressing the TEST button, LED lights on blue when the battery is enough remain to use.
In case LED lights on red, replace the battery to new one, refer to 7-3. for battery replacement.
3. Communication check will be conducted after releasing the TEST switch and completed battery level check consecutively.
* Power on the receiver that you are going to conduct communication check.
4. If the communication has been established normally, LED lights in blue and blinks in red 3 times if the result is error.

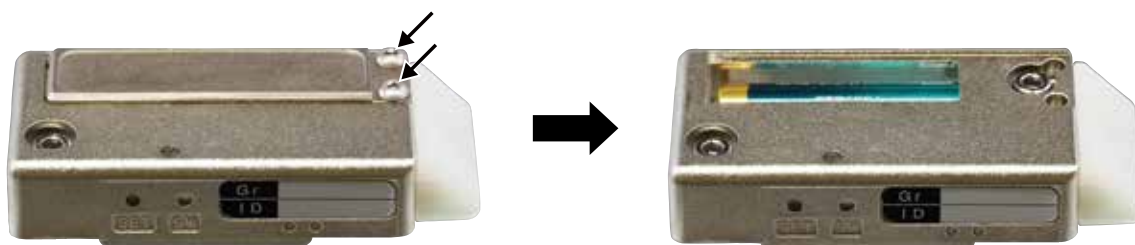
7-3. Battery Replacement of T-FHM/T-FH Transmitter

[Preparation]

Torque screwdriver, e.g. RTD120CN and Hex bit B-W1.5...Catalog No. 57

1. Loosen the 2 screws and remove the battery cover.

* The screws on the battery cover are adopted dropout prevention screw.

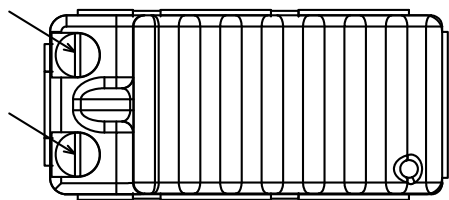


- 2 Replace the old battery to a new one. Make it sure in the correct direction of polarity.
- * Be sure to use an AAA alkaline battery.
- 3 Attach the battery cover and tighten the 2 screws.
- * Be sure to use the torque screwdriver and tighten with the tightening torque $T=63\text{cN}\cdot\text{m}$.

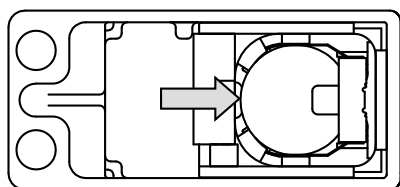
7-4. Battery Replacement of T-FHSL256 Transmitter

[Preparation]

Torque screwdriver, e.g. RTD500CN and Minus bit B-16, 0.9x7...Catalog No. 89



- 1 Loosen the 2 screws on the case and remove the case.



- 2 Remove the old battery and insert a new battery.
- * Be sure to use Panasonic-made coin type lithium battery CR2032.
- * To remove the battery, push it in the arrow direction and shift upward.
- 3 Attach the case and tighten the 2 screws. Use a torque screwdriver to tighten.
- * Tightening Torque= $150\text{cN}\cdot\text{m}$

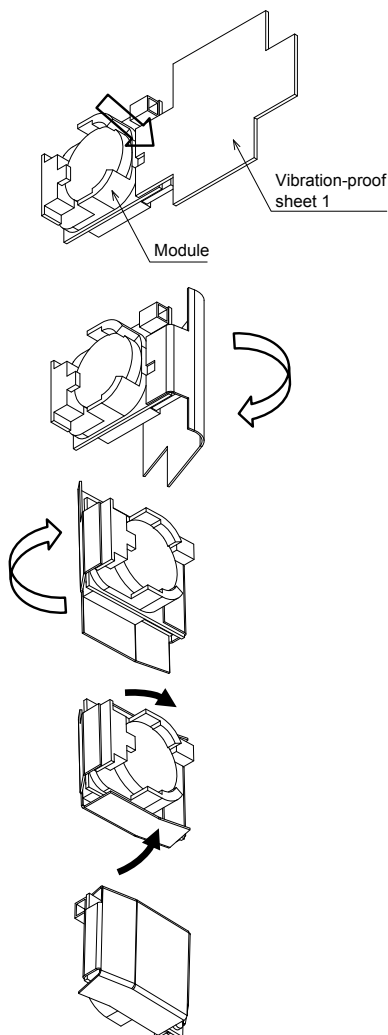
7-4 Replacement of Vibration-proof Sheets for T-FHSL256, FHP

The T-FHSL256 and FHP use vibration-proof sheets in order to alleviate an impact to the substrate. To maintain shock resistance, it is necessary to replace the vibration-proof sheets every 3 years.

In case of T-FHSL256

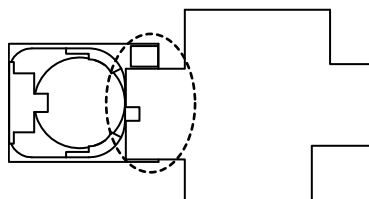
Vibration-proof sheet 1 : 01T201218, Vibration-proof sheet 2 : 02T201218

1 Replacement of vibration-proof sheet 1



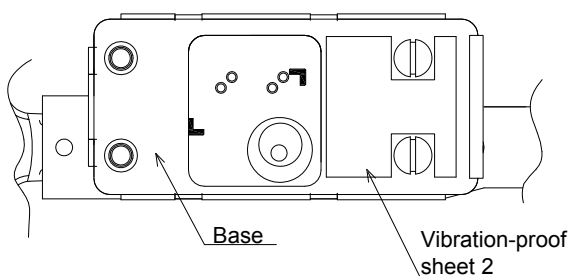
- 1 Remove an old vibration-proof sheet from the module and paste new one to the illustrated position.

As shown in the figure below, align the notched side of the vibration-proof sheet with the near part of the battery holder on the back of the substrate, and paste.



- 2 As illustrated, paste the vibration-proof sheet onto the module without flexure.
- 3 Paste the vibration-proof sheet onto the back of the battery holder as well.
- 4 Finally, fold the remaining parts on both sides to paste them onto the module.
- 5 Now, you are finished with replacement.

Replacement of vibration-proof sheet 2



1. Remove an old vibration-proof sheet from the base and paste new one to the illustrated position.

7-6. Input/Output Format, RS232C Output for R-CM receiver with M-FH radio module

7-6-1. Communication Conditions

Baud rate	2400/4800/9600/19200/38400/115200bps	(Default : 9600bps)	Default: 9600bps
Parity	None/Even/Odd	(Default : None)	Default: None
Data length	7/8bit	(Default : 8bit)	Default: 8 bit
Stop bit	1/2bit	(Default : 1bit)	Default: 1 bit
Flow control	CTS/RTS		

* Communication conditions are changeable by the key operation on the receiver or SB-FH2 setting box and setting software..

7-6-2. Input/Output Format

R-CM to PC

● **Selected mode: R-CM(M-FH) or R-FH** **Data output mode: r-FH**

R	E	,	0	0	1	,	1	2	3	4	5	6	A	CR	LF
Header			3-digits ID 000 - 999			7-digits alphanumeric							Delimiter		

● **Selected mode: R-FH** **Data output mode; STD**

R	E	,	0	0	1	,	1	2	3	4	5	6	A	,	1	9	/	0	9	/	2	1	,	1	2	:	3	4	:	5	6	CR	LF
Header			3-digits ID 000 - 999			7-digit ID Alphanumeric							Date and time of output data Internal clock of R-CM receiver												Delimiter								

● **Selected mode: R-CM(M-FH)** **Data output mode: STD**

R	E	,	0	0	1	,	1	2	3	,	1	2	3	4	5	6	A	,	1	9	/	0	9	/	2	1	,	1	2	:	3	4	:	5	6	CR	LF
Header			3-digits ID 000 - 999			Battery voltage 0.00 - 9.99V			7-digit ID Alphanumeric							Time stamp										Delimiter											

7-6-3. RS232C Input/Output Format for Setting

Only when the receiver and the torque wrench are not communicating, the 3-digits ID and 7-digits ID of the receiver can be changed through RS232C communication.

* When changing settings, select the contact output (R1 to R4) you want to change.

PLC to R-CM

• 3-digits ID (000 to 999)

A	T	1	4	3	,	R	1	,	0	0	1	CR	LF
---	---	---	---	---	---	---	---	---	---	---	---	----	----

Relay output port No.
R1 - R4

3-digits ID
000 - 999

• 7-digits ID (Alphanumeric)

A	T	0	2	3	,	R	1	,	1	2	3	4	5	6	A	CR	LF
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----

Relay output port No.
R1 - R4

7-digits ID
Alphanumeric

R-CM to PC/PLC

• Setting completion

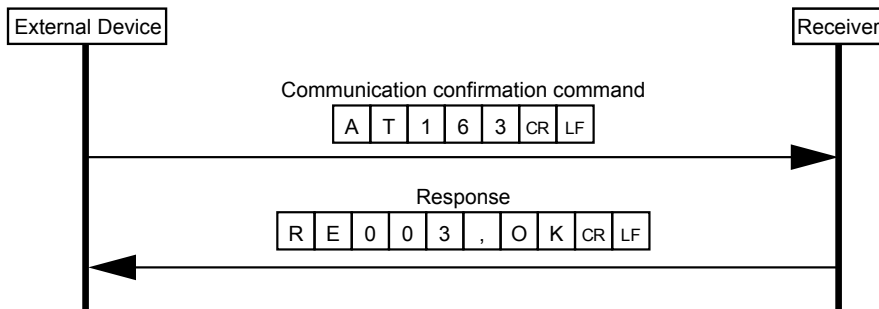
R	E	0	0	3	,	O	K	CR	LF
---	---	---	---	---	---	---	---	----	----

• Error

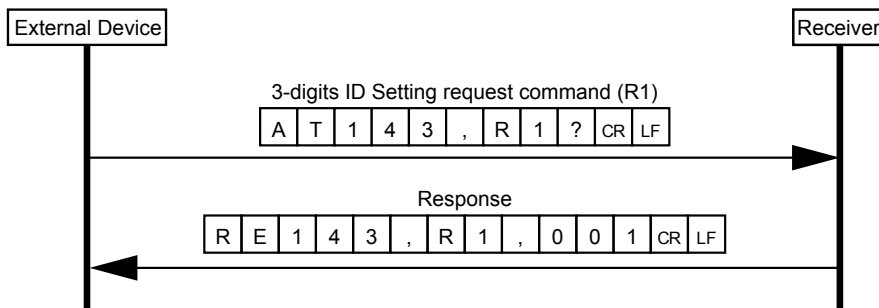
R	E	0	0	4	,	E	R	R	O	R	9	9	CR	LF
---	---	---	---	---	---	---	---	---	---	---	---	---	----	----

7-6-4. Communication Example

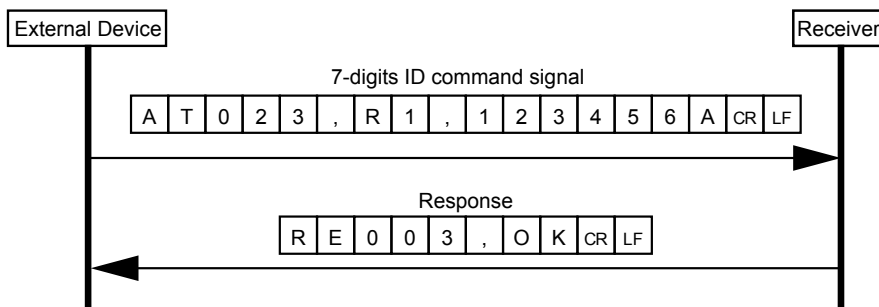
1. Communication confirmation command



2. 3-digit ID request command (Setting: 3-digit ID at 001)



3. 7-digit ID request command (Setting: 7-digit ID at 123456A)



7-7. Usage Example of Count Checker Function

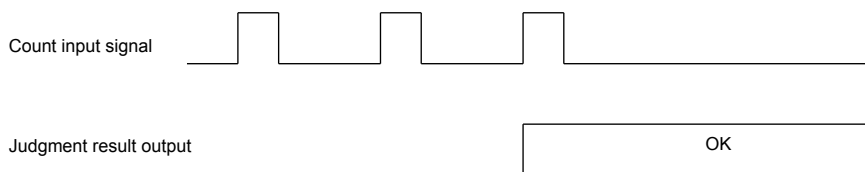
• Usage Example A

[Setting example]

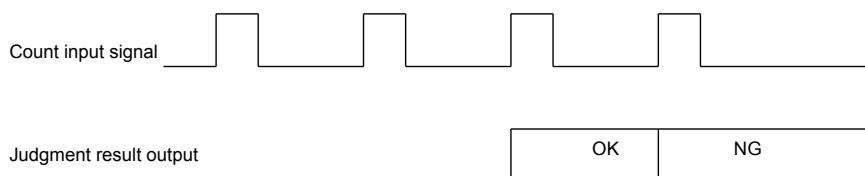
- Count over: NG
- Preset judgment
- Auto reset timer: OFF

[Timing Chart]

1. Within a preset number of times



2. Over the preset number of times



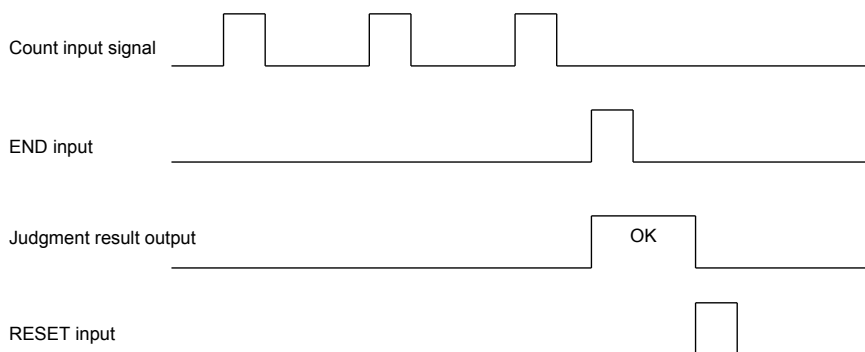
• Usage Example B

[Setting example]

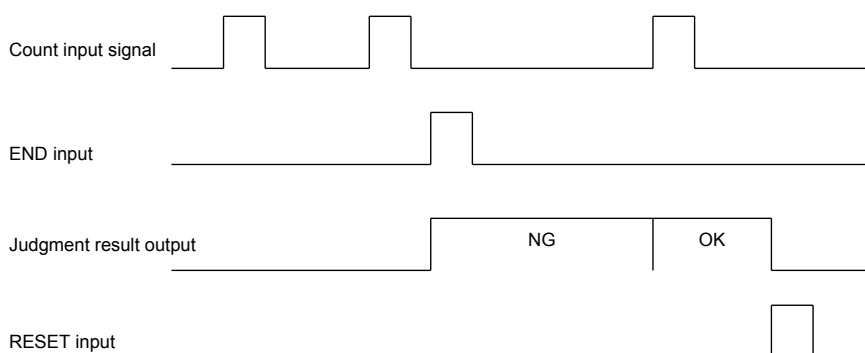
- JG4: Makes judgment by END input
- Automatic reset timer: None (Input RESET signal)

[Timing Chart]

1. Judgment Result OK



2. Judgment Result NG



Relay Terminal when the Count Checker function set at ON

IN1: RESET input

IN2: END input

OUT1: OK signal out

OUT2: NG signal out

7-8. How to enter setting mode

Transmitters has setting mode to change various settings,.

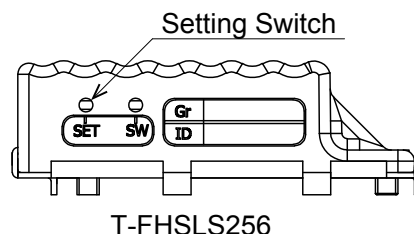
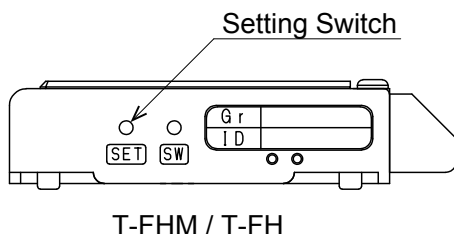
Refer to following explanation for how to enter setting mode.

* For setting confirmation by SB-FH2 setting box, refer to operating instruction of SB-FH2, "7 How to use".

How to switch to setting mode of transmitter (T-FH/T-FHM and T-FHSLS256)

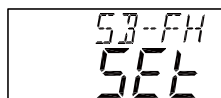
1. Press the SET switch for more than 1 second to enter setting mode.

The LED on the transmitters will be started flashing in red.



7-9. Check and change receiver R-CM+M-FH settings by key operation

R-CM has following 5 different setting screen



•SB-FH

SB-FH setting screen is used for setting by SB-FH2 setting box or Setting software with PC.

* Refer to operating instruction of receiver R-CM and Setting software.

Refer to 7-9-1. SB-FH Setting screen



•MODEL

Channel settings for connecting transmitter and receiver.

Refer to 7-9-2. MODEL setting screen



•BASE

Basic settings of receiver.

Refer to 7-9-3. BASE setting screen

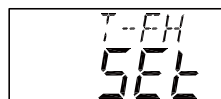


•QUICK

Quick pairing screen for T-FHM/FHW with R-CM without setting box.

Refer to 7-9-4. QUICK pairing screen T-FH/T-FHM with R-CM receiver

* It available R-CM is set at R-CM(M-FH) mode.



•T-FH

Quick pairing screen with R-CM for previous T-FH256MC/T-FHSLS256/RNTDFH/RTDFH/FHP or T-FH/T-FHM/FHW set at R-FH mode without setting box.

Refer to 7-9-5, T-FH screen for QUICK paring of previous transmitters

* It is available and appears when R-CM is set at R-FH mode.

*Either QUICK or T-FH will be displayed according to selected model.

* Turn off the power after completing the setting.

● Communication Mode

Select a communication mode of transmitter and receiver.

R-FH

R-CM(M-FH): advanced longer range signal, Battery monitoring functions are available.

r-FH

R-FH: Compatible the previous R-FH256 receiver's. Above new function is unavailable

● Group

Selectable 000 to 255 of 256kinds of frequency channels

● JGC: Judgment Code (0 to 3)

0: 3-digit ID, 7-digit alphanumeric characters without identification.

When multiple torque wrenches are used with one receiver.

Applicable only when simultaneous transmission is not performed).

1: 3-digit ID with identification.

2: 7-digit alphanumeric characters with identification.

3: 3-digit ID, 7-digit alphanumeric characters with identification.

* Must be set the same judgment code for the transmitter and the receiver.

* Setting of 7-digit alphanumeric requires setting box SB-FH2 or application software.

● 3-digits ID (ID1 - ID4)

Set 3-digits ID (000 - 999) for each relay output (OUT1 to 4) to identify received data from transmitters.

● OUT: Data Output Format

Select RS232C output format from STD/R-FH.

Refer to "7-6. Input/Output Format, RS232C Output with R-CM+M-FH.

● BPS: Baud Rate

2400 / 4800 / 9600 / 19200 / 38400 / 115200

● PRT: Parity

None/Odd/Even

● BIT: Data Length

7 / 8bit

● STOP: Stop Bit

1bit / 2bit

● FLOW: Flow Control

OFF/ON of CTS, RTS control

● BUZZ: Buzzer Sound

OFF / ON

● DTIME: Double Count Preventing Timer

0.2 - 10.0 seconds

During the timer is activated, receiver count 1 time only even if the signal is sent twice or more.

- **B-ALM: Battery Residual Voltage**

0.0 to 9.99V * Only for R-CM is set at R-CM(M-FH) mode

Receiver alerts when the voltage drops less than setting value.

Standard brand new AAA battery has 1.5v output and if the voltage drops below 0.9V, transmission will not be possible.

- **COUNT: Tightening Count Number 0 to 99 count**

This function will have been activated when set the counter 1 or more, and will be off at 0 .

After activation or inactivation the function, it is necessary to turn off and on the power.

- **STOP: Count Over**

NG: Judge the tightening as error when the counting beyond the setting count.

OK: Judge as OK even if count over the setting count.

- **ART: Auto Reset Timer**

0.0 to 9.9 seconds (0.1 sec. interval)

In case judgment result is OK, OK/NG judgment lamp and OK output signal will be OFF after passing the set time.

- **JGM: Judgment mode**

Timer will be activated when received first signal and delivers judgment by the remaining count when passed set time.

JG1: Preset Judgment (Gives OK judgment when the count become "0" or start to judge when entered END input.

JG2: reset Judgment, delivers judgment by END input or auto judgment timer passed.

JG3: Perform judgment when auto judgment timer passed.

JG4: Makes judgment by END input

- **JGT: Auto judgment timer**

Setting timer (1 to 300 seconds) for use at judgment mode JG2 and JG3.

It is unavailable for JG1 and JG4 setting.

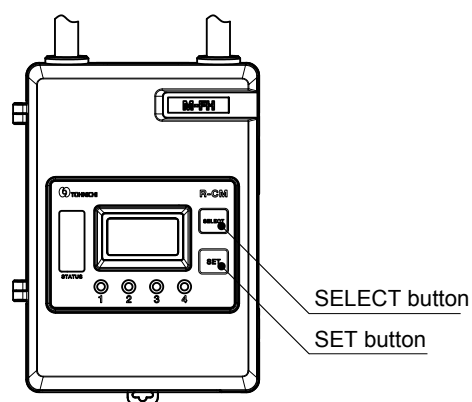
- **DFLT: Initialization of BASE screen settings**

Reset the BASE screen settings to the factory settings.

Setting Item	Display	Selection	Default
Communication Mode	MODEL	R-CM(M-FH), R-FH	R-FH
Group	GROUP	000 - 255	000
Judgment Code	JGC	0, 1, 2, 3	0
3-digits ID	ID1 - 4	000 - 999	000
Data Output Format	OUT	STD, R-FH	STD
Baud Rate	BPS	2400, 4800, 9600, 19200, 38400, 115200bps	9600bps
Parity	PRT	NONE, ODD, EVEN	NONE
Data Length	BIT	7, 8bit	8bit
Stop Bit	STOP	1, 2bit	1bit
Flow Control	FLOW	ON, OFF	OFF
Buzzer	BUZZ	ON, OFF	ON
Double Count Timer	DTIME	0.2 - 10.0	0.2
Battery Residual Voltage	B-ALM	0.00 - 9.99	1.00
Tightening Count	COUNT	0 - 99	0
Count Over	OVER	NG, OK	NG
Auto Reset Timer	ART	0.0 - 9.9	0.1
Judgment Mode	JGM	1, 2, 3, 4	1
Auto Judgment Timer	JGT	1 - 300	1

7-9-1. SB-FH Setting screen

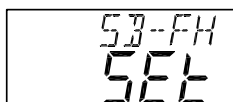
Setting process of SB-FH setting screen is as follows



1. Turn on the Setting Box and the next, turn on the receiver and keep pressing the SET button for 2 seconds, enter to setting mode.
During setting mode, status lamp keep blinking.

* In case using setting software, connect Setting Box and a PC by a RS232C straight cable.

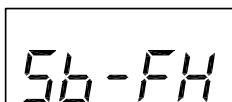
2. Setting mode



2. Entering to Setting Mode

By pressing SET button on this screen, it starts "3. SB-FH setting mode" for parameter settings by setting box and setting software.

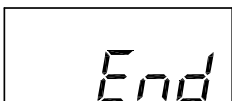
3. SB-FH setting mode



3. SB-FH setting mode screen

* Refer to operating manual of SB-FH2 setting box for details and "8. How to Use Setting Software".

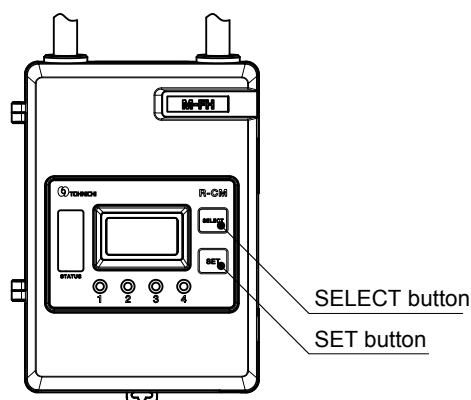
4. End of Setting mode



4. Press the SET switch of R-CM to end setting mode.

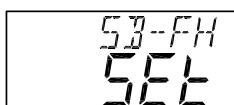
7-9-2. Model setting

Setting process of MODEL setting screen is as follows



1. Turn on the receiver and press and hold the SET button for 2 seconds to enter setting mode.

2. Move to setting mode



2. Setting mode screen

During the setting mode, the status lamp keeps blinking blue. By pressing SELECT button one time, enter to MODEL setting mode.

3. MODEL setting mode



3. MODEL setting mode appears.

By pressing SET button to move to #4 for confirming and changing in the current MODEL settings.

4. Communication mode



4. Communication mode setting screen

Select an wireless communication mode.

T-FHM is set on M-FH mode immediately.

T-FH, T-FHW is available to change to M-FH by SB-FH2 setting box.

Advanced signal mode:

Previous signal mode :

5. Group setting



5. Group setting screen

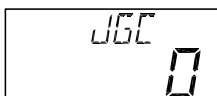
Set the frequency group channel from 000 to 255.

SELECT: Change the number

SET: Move the digit

Move to the next setting when the left end of digit was set.

6. Judgment code setting



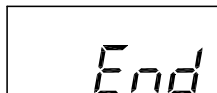
7. ID 1 setting



8. ID 4 setting



9. Completion of setting mode



5. Judgment code setting screen

SELECT: Change the number

SET: Save and move to #7

0: 3-digit ID, 7-digit alphanumeric characters without identification.

1: 3-digit ID with identification.

2: 7-digit alphanumeric characters with identification.

3: 3-digit ID, 7-digit alphanumeric characters with identification.

7. ID setting of relay OUT 1 of wrench

SELECT: Change the number from 0 to 9

SET: Save and move to the next

Move to the next OUT2 of ID (ID2) setting when the left end of digit was set.

3-digit ID: 000 - 999

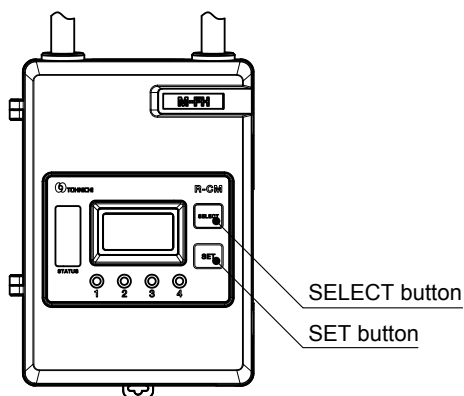
* Do not overlap the same ID number on ID1 - ID4

8. ID Setting is start from ID1 to ID4.

9. ID4 setting is completed, MODEL setting mode ends and return to normal mode.

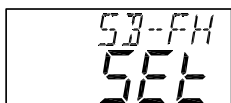
7-9-3. BASE setting

Setting process of BASE setting screen is as follows



1. Turn on the receiver and keep pressing the SET button for 2 seconds to move to #2 Setting mode.

2. SET mode



2. Setting mode screen

During the setting mode, the status lamp keep blinking blue.
By pressing SELECT button twice, enter to #3 BASE setting mode.

3. BASE setting



3. BASE Setting screen

By pressing SET button, enter to #4 BASE setting mode

4. Data Output Format



4. Select and set settings and move to the next.

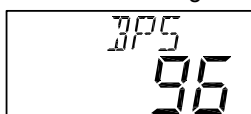
SELECT: Select settings

SET: Save and move to #5.

Std (STD): Standard data format
r--FH (R-FH): R-FH data format

* Refer to "7-6. RS232C Output of receiver and M-FH module for details of data format.

5. Baud rate setting



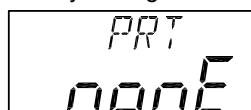
5. Select baud rate and move to the next

SELECT: Select baud rate

SET: Save and move to the next

96(9600bps)→192(19200bps)→384(38400bps)→1152
(115200bps) →24(2400bps) →48(4800bps)

6. Parity setting



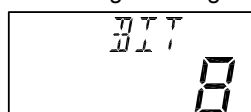
6. Select parity and move to the next

SELECT: Select parity

SET: Save and move to #7

NONE → ODD → EVEN

7. Data length setting



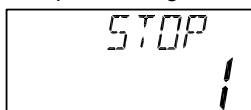
7. Select data length and move to the next

SELECT: Select data length

SET: Save and move to #8

8bit → 7bit

8. Stop bit setting



7. Select stop bit and move to the next

SELECT: Select stop bit

SET: Save and move to the next

1bit → 2bit

9. Flow control setting



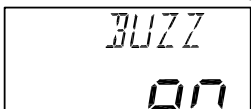
8. Select flow control and move to the next

SELECT: Select stop bit

SET: Save and move to the next

OFF → ON

10. Buzzer sound setting



8. Select buzzer sound and move to the next

SELECT: Select stop bit

SET: Save and move to the next

ON → OFF

11. Double count prevention timer setting



11. Double count prevention timer setting

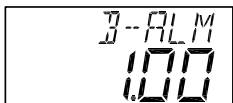
SELECT: Change the number of digit from 0 to 9

SET: Save and move to the next digit

Move to #12 when the left end of digit was set.

0.2 to 10.0 seconds

12. Battery alert voltage setting



12. Setting of Battery alert voltage setting.

SELECT: Change the number of the digit from 0 to 9

SET: Save and move to the next digit

Move to #13 when the left end of digit was set.

This function is available only for M-FH mode setting.

0.00 to 9.99V

13. Count checker setting



13. Setting of tightening count number

SELECT: Change the number from 0 to 9

SET: Save and move to the next digit

Move to the next setting when the left end of digit was set.

The next setting item varies depending on the tightening count set on 0 or any other number.

* Set the count at 00: OFF this function and skip to #18

* Set the count 01 to 99, ON this function and move to #14

Once changed ON or OFF this function, should be power off this receiver after completing setting mode.

14. Count over setting



14. Setting of count over setting

SELECT: Change the setting ON/OFF

SET: Save the setting and move to #15

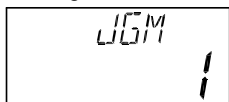
n9 ➡ NG: If tightening signal were input beyond the set count number, judges it as NG and output an signal through OUT2.

o9 ➡ OK: If tightening signal were input beyond the setted count number, accept it as OK and output an signal through OUT1

15. Auto reset timer setting



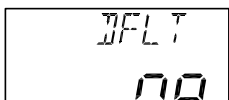
16. Judgment mode setting



17. Auto judgment timer setting



18. Default setting



15. Setting of auto reset timer

SELECT: Change the number

SET: Save and move to the next digit

Move to the next setting when the left end of digit was set.

0.0 to 9.9 seconds

16. Setting of judgment mode

SELECT: Change the judgment mode

SET: Save and move to #17

Judgment mode:

Automatic judgment timer (0 - 300 sec., 1sec. interval) starts after START input or the first count signal is input, and the OK/NG judgment is made based on the remaining count when the set time has elapsed.

JG1: Makes OK/NG judgment with preset judgment (count "0" for OK judgment) or END input.

JG2: Makes OK/NG judgment with preset judgment, END input or the automatic judgment timer.

JG3: Makes OK/NG judgment with the automatic judgment timer.

JG4: Makes OK/NG judgment with END input.

JG1 / JG4 is selected. move to #18

JG2 / JG3 is selected. move to #17

17. Setting of auto judgment timer setting.

SELECT: Change the number of digit from 0 to 9

SET: Save and move to the next digit

Move to the next setting when the left end of digit was set

1 - 300 second

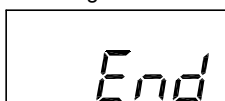
18. Select if proceed initialization of BASE settings

Select YES and press SET key to reset the BASE settings to the factory setting.

no : Setting mode ends without initializing BASE setting

YES : Initialize BASE setting and ends setting mode

19. Setting mode end



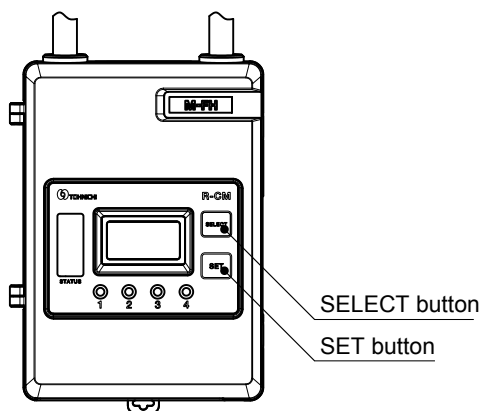
19. When setting No.18 is completed, the BASE mode setting ends and return to normal mode.

* Once changed ON or OFF this function, should be power off this receiver after completing setting mode.

7-9-4. QUICK pairing screen T-FH/T-FHM/FHW with R-CM receiver

The setting procedure of the QUICK screen is as follows.

- * Need a transmitter T-FHM/T-FH or T-FHW which have been set at M-FH mode.
- * Refer to 5-.1 External View and Each Part Name of T-FHM/T-FH and Previous Transmitters.
- * Check your transmitter whether it has been set at M-FH mode.



1. Set the transmitter at SET mode.

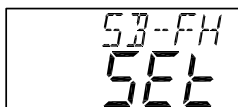
Refer to "7-8. Setting Mode" and set a transmitter at setting mode.

* When registering several units, should be set the setting mode one by one.

Power on the receiver and keep pressing SET button for 2 seconds to move to #2. Setting Mode.

During Setting Mode, Status lamp will have been blinking in blue.

2. Setting Mode



2. Setting Mode screen

During the setting mode, the status lamp blinks blue.

By pressing SELECT button three times to move to #3. QUICK setting mode.

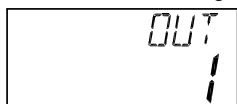
3. QUICK setting screen



3. Appears QUICK setting screen.

By pressing SET button to proceed to QUICK pairing settings.

4. OUT 1 Quick Paring



4. Relay output OUT1 of quick paring.

SELECT: Choose a relay output from OUT 1 to 4.

SET : Move to #5.

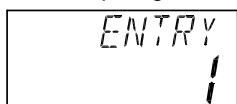
* Up to 4 torque wrenches can be set by quick pairing.

* Be sure to register the first torque wrench on OUT1.

*The second wrench can be set OUT2 to OUT4.

1 → 2 → 3 → 4 → END → CLEAR - return to 1

5. QUICK paring stand by screen

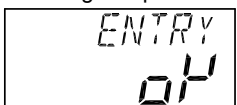


5. QUICK paring screen standby state

The relay output No. shows in below blinks during stand by status.

Press the TEST button on the transmitter to register.

6. Pairing completion

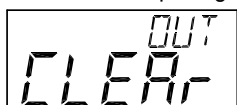


6. Pairing completion screen

Display shows OK when pairing completed and move to the next wrench registration.

Repeat #4 to #6 of process for OUT1 to OUT 4.

7. All Clear the pairing

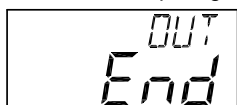


7. QUICK pairing initialization screen

SET: Clear all pairing.

Press SET if you want to start from beginning.

8. End of Quick paring mode



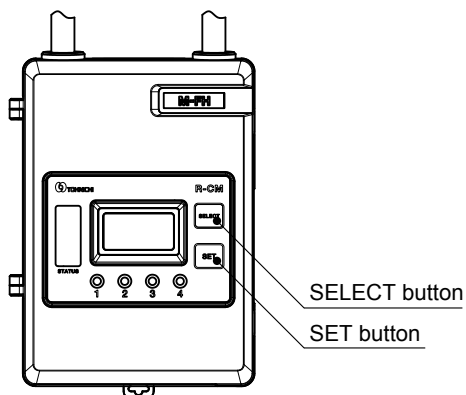
8. End of QUICK pairing

Select "END" on #4 process and press SET button, return to standard mode.

7-9-5. QUICK pairing for T-FH, previous transmitters

The previous transmitters, which used with R-FH256 receiver are also available the QUICK pairing function of R-CM receiver.

- * Previous transmitters models (T-FH256MC/T-FHSL256/RTDFH/RNTDFH/FHP) and new T-FH/T-FHM/FHW with R-FH mode is available for T-FH quick pairing.
- * Be sure to set the fist torque wrench on OUT1.
- * Refer to "5-1. for how to distinguish for new and previous transmitters.
- * Should be confirm whether the both transmitter and the receiver are set at R-FH mode.



1. Set the transmitter at SET mode.

Refer to "7-8. Setting Mode".

- * When registering several units, should be set the setting mode one by one.

2. Refer to "7-9-2. Model setting screen" and set Group, Judgment code and 3-digits for output "OUT1 to 4".

- * Do not overlap ID number for OUT1 to 4.

3. Setting mode

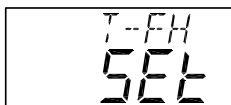


3. Turn on the receiver and keep pressing the SET button for 2 seconds to enter setting mode.

During setting mode, the status lamp blinks blue.

By pressing SELECT button 3 time, move to #4 T-FH quick setting screen.

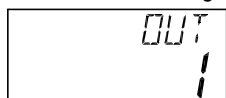
4. T-FH quick setting screen



4. T-FH QUICK setting screen

By pressing SET button to proceed to #5. QUICK pairing setting for previous transmitters.

5. T-FH QUICK Paring



5. Starts Relay output OUT1 of quick paring.

SELECT: Sift relay output from OUT 1 to 4,

SET: Move to #6

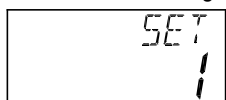
* Up to 4 torque wrench can be set by quick pairing.

* Be sure to register the fist torque wrench on OUT1.

*The second wrench can be select from OUT2 to OUT4.

1 → 2 → 3 → 4 → END → return to 1

6. T-FH QUICK Paring standby screen

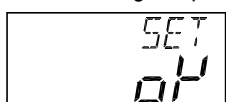


6. T-FH Quick pairing stand by screen

The relay output No. shows in below blinks during stand by status.

Press the TEST button on the transmitter to register.

7. T-FH Pairing completion

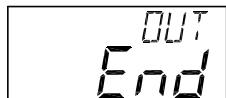


6. Pairing completion screen

Display shows OK when pairing completed and move to the next wrench registration.

Repeat #5 to #7 of process for OUT1 to OUT 4.

8. T-FH QUICK pairing end



8. End of QUICK pairing

Select "END" on #5 process and press SET button, return to standard mode.

7-10. Remote setting method of R-CM+M-FH

"R-CM" receiver with "M-FH" radio module can be changed the setting remotely.

The setting method is varies depending on the set mode, M-FH mode or R-FH mode.

For M-FH mode, refer to operating manual of SB-FH2 setting box 7-2-3 Remote Setting.

This section describes the remote setting when the communication mode of the receiver is set at R-FH, previous production mode.

Prepare the previous FH series transmitter T-FH256MC and setting box SB-FH256.

1. Set the Group, Judgment code and 3-digits ID of the transmitter T-FH256MC as follows.

Refer to operating instruction for setting box SB-FH256 for operation.

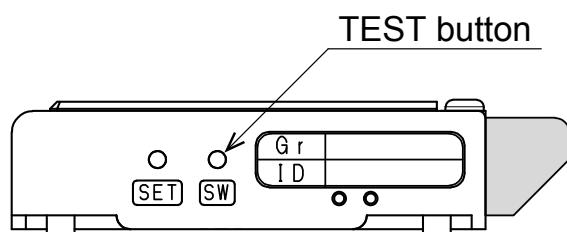
Group : Match the Group number to the receiver

Judgment code : 3

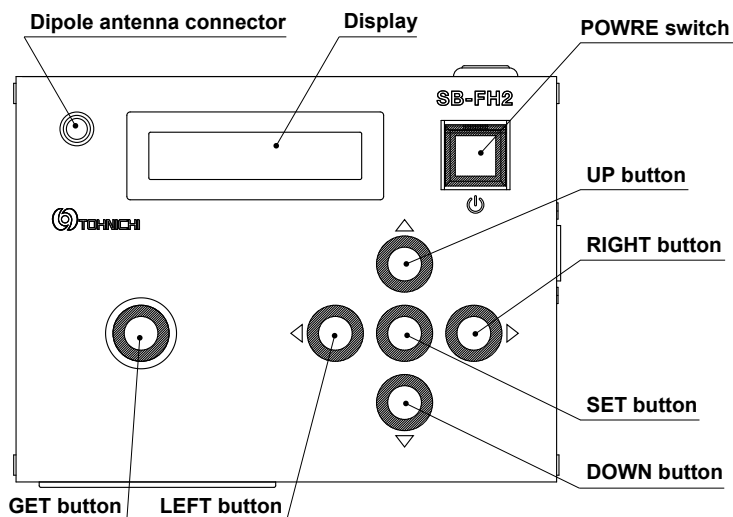
3-digits ID : 999

* Judgment code:3 and 3-digits ID 999 of setting is not available for tightening operation at R-CM receiver.

2. Press TEST button of the transmitter. When the receiver entered to setting mode, the status lamp blinks in blue.



3. Turn on SB-FH256 setting box.
4. Press GET button to confirm the current settings.
Group, Judgment code, and 3-digits ID are changeable by remotely.
5. Change the setting items by SB-FH256 setting box.

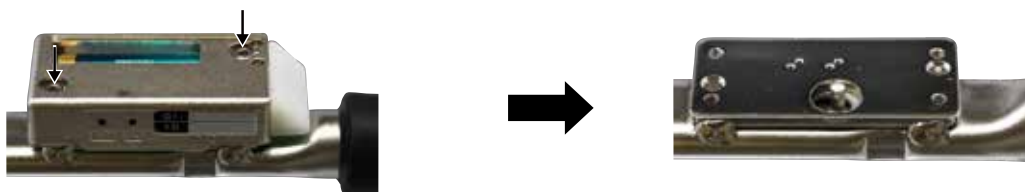


6. By pressing LEFT, RIGHT and GET buttons at once to release setting mode.

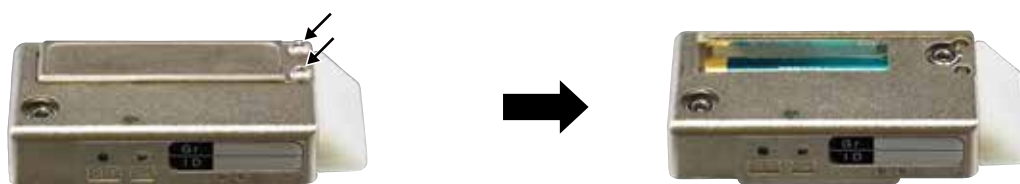
7-11. Replacement of transmitter T-FHM/T-FH

[Preparation]

- 1 Your FH torque wrench
 - 2 Transmitter T-FHM/T-FH
 - 3 Receiver R-CM receiver and M-FH radio module
 - 4 Torque screwdriver e.g. RTD120CN, Hex bit B-W2...Catalog No.58
 - 5 Torque screwdriver e.g. RTD500CN, Hex bit B-W3...Catalog No.60
- 1 Remove the battery cover of the transmitter on your FH torque wrench, loosen the 2 mounting screws and remove the transmitter. * The screws on the transmitter are adopted dropout prevention screw.



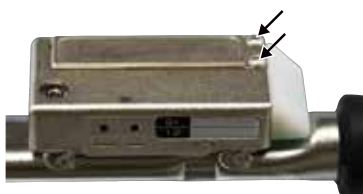
- 2 Remove the battery cover of the replacing Transmitter T-FHM/T-FH.
* The screws on the battery cover are adopted dropout prevention screw.



- 3 Mount the Transmitter on the switch board and tighten the 2 screws using the torque screwdriver.
Tightening torque=270cN·m.
* When mounting the Transmitter, be careful that the stud is not placed between the leaf spring and the battery case.



- 4 Attach the battery cover and tighten the 2 screws with torque screwdriver. * Tightening torque=63cN·m



- 5 Operate the torque wrench. After you hear it clicks, check that the communication status check LED flashes in red.

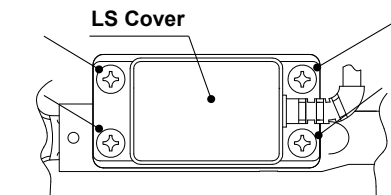
In addition, check the following points:

- a. The LED does not light up when the torque wrench is turned to the right and left while it is not activated.
 - b. The LED lights up when the torque wrench is activated while it is turned to the right and left.
6. Turn on the Receiver, activate the torque wrench, and check that the communication status check LED lights up in blue.

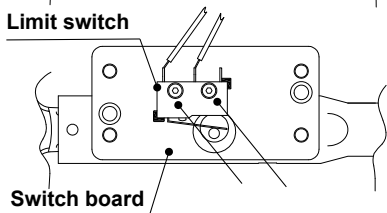
7-12. Installation of Transmitter T-FHSLS on LS Torque Wrench

[Preparation]

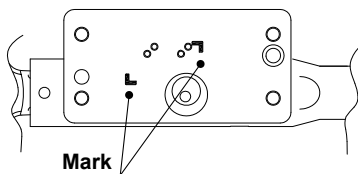
- 1 Your LS torque wrench
- 2 Transmitter T-FHSLS256
- 3 Receiver R-CM and M-FH radio module
- 4 Setting BOX SB-FH2
- 5 Torque screwdriver e.g. RTD120CN, Hex bit B-W1.5...Catalog No.57
- 6 Torque screwdriver e.g. RTD500CN, Minus bit B-16...Catalog No.89
- 7 Philips-head screwdriver



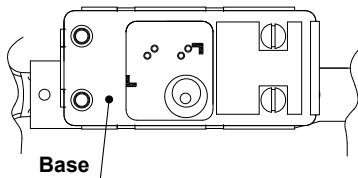
- 1 Loosen the 4 mounting screws on the LS cover and remove it.



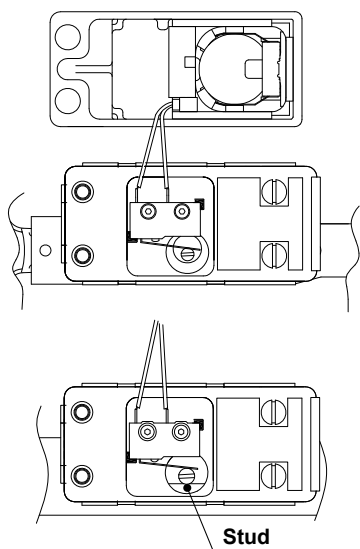
- 2 There are 2 screw holes for installing the Limit switch. As shown in the left figure, mark the Limit switch installed position on the switch board and loosen the 2 mounting screws on the Limit switch and remove the Limit switch.



- 3 View from the above with the Limit switch removed



- 4 Use supplied base mounting screws to attach the base. Apply a screw locking agent, TB1324N made by ThreeBond recommended) to the threads and use the torque screwdriver to tighten. * $T=150\text{cN}\cdot\text{m}$



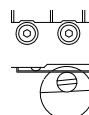
Before activation

5. Attach a Transmitter Limit switch (accessory) in alignment with the marked position, using switch mounting screws and washers (accessories). Apply a screw locking agent (TB1324N) made by ThreeBond recommended) to the threads and use the torque screwdriver to tighten. $*T=25cN \cdot m$
 - * Be sure to insert washers between the Limit switch and the bolts.
 - * Note that a cord may be disconnected by pulling it hard.



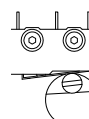
OK

Adequate



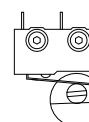
NG

Pressed too much



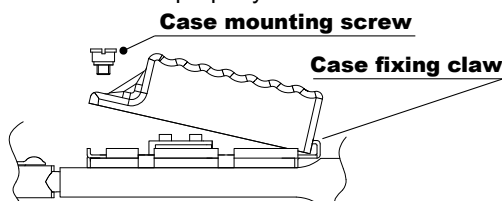
NG

Not pressed enough



After activation

- 6 After attaching the Transmitter Limit switch, click the torque wrench. If a Limit switch lever is pressed too much by the stud, the switch may be damaged, and if not pressed enough, it does not function properly.



- 7 Hook the Transmitter body onto the fixing claw of the base and attach the case. Do not catch a Limit switch wire. Use case mounting screw (accessories) to attach the case. Use the torque screwdriver to tighten.
 - *Tightening torque= $150cN \cdot m$

- 8 Activate the torque wrench. After you hear it clicks, check that the communication status check LED flashes. In addition, check the following points:
 - a. The LED does not light up when the torque wrench is turned to the right and left while it is not activated.
 - b. The LED lights up when the torque wrench is activated while it is turned to the right and left.
 - c. After using the setting BOX to set the transmitter and receiver to the same group, operate the torque wrench and check that the communication status check LED lights up in blue.
- 9 Set the same Group number for both receiver and torque wrench and operate the torque wrench. Confirm whether the communication check LED turns on in Blue.

8 Settings with Setting Software

8. Settings with Setting Software

T-FHW can be change setting items through dedicated setting software which Tohnichi provides.
Prepare setting box SB-FH2 and RS232C straight cable and install the setting software to your PC.

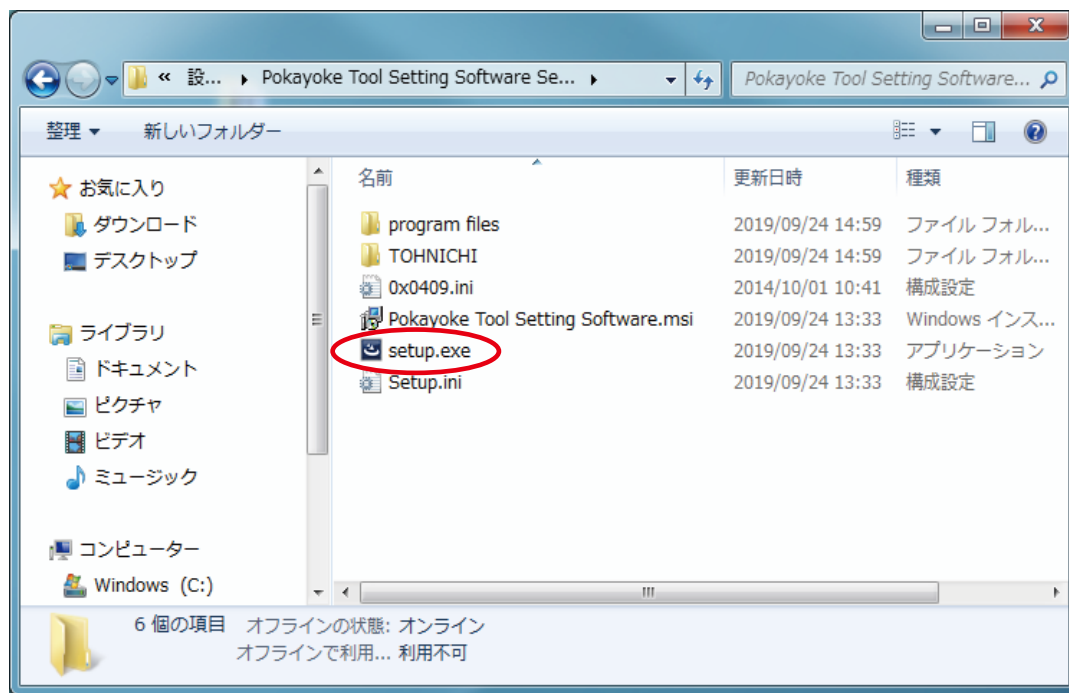
* System requirements

- a. OS: Windows 7 or later version
- b. Microsoft.NET Framework 4.0 or later version.

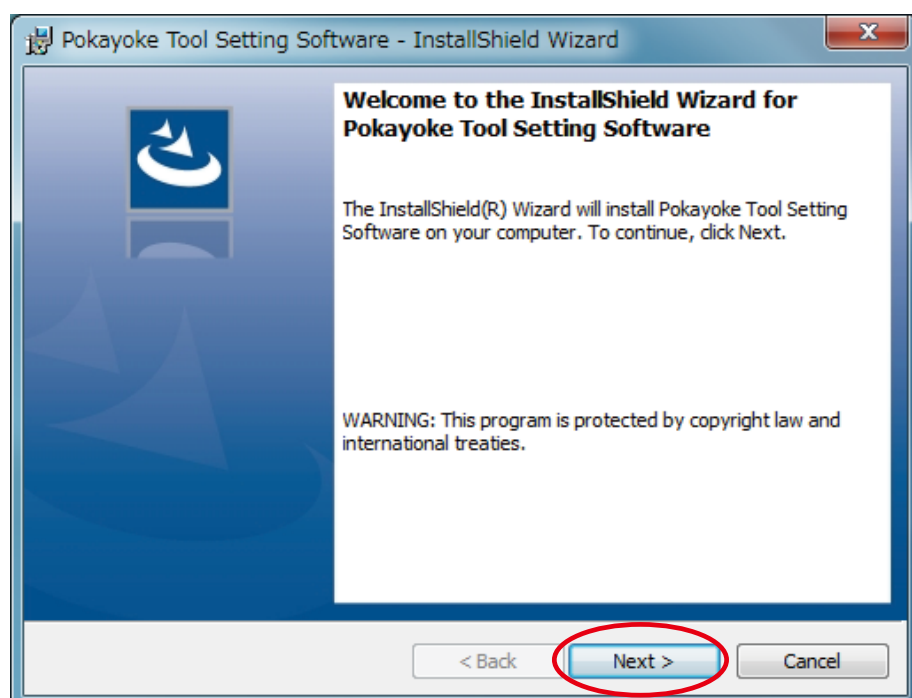
If Microsoft.NET Framework4.0 or higher is not installed on your PC, refer to the Microsoft Download Center and install Microsoft.NET Framework4.0.

8-1. Installation (for Windows 7)

1. Download "Pokayoke Tool Parameter Setting Software" from Tohnichi Website.
2. Open "Setup" folder and click "PKYKTLSTS" icon.

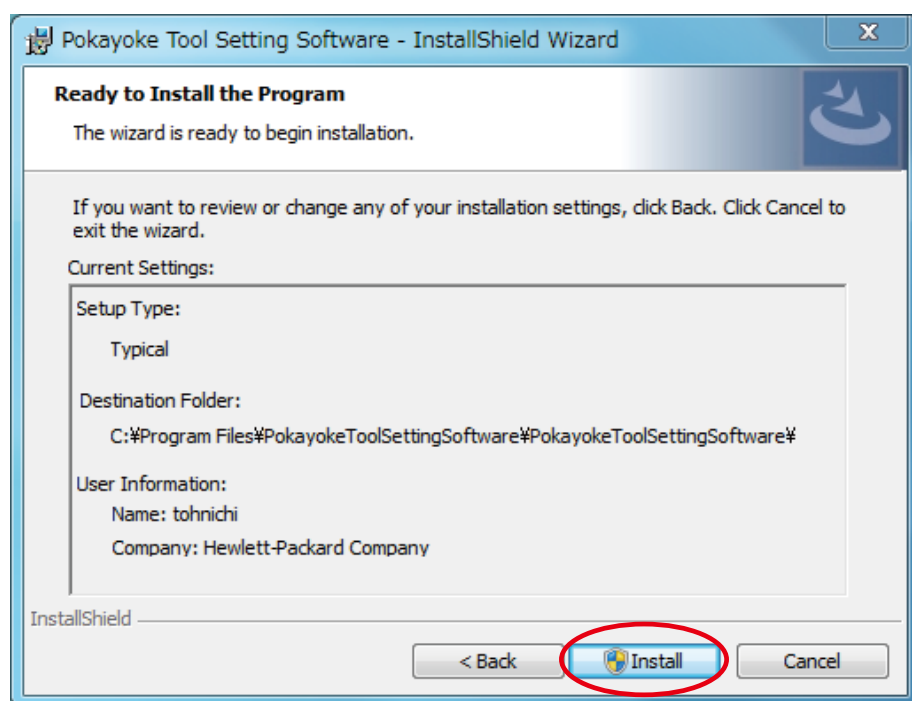


3. Click "Next" to proceed the setup.

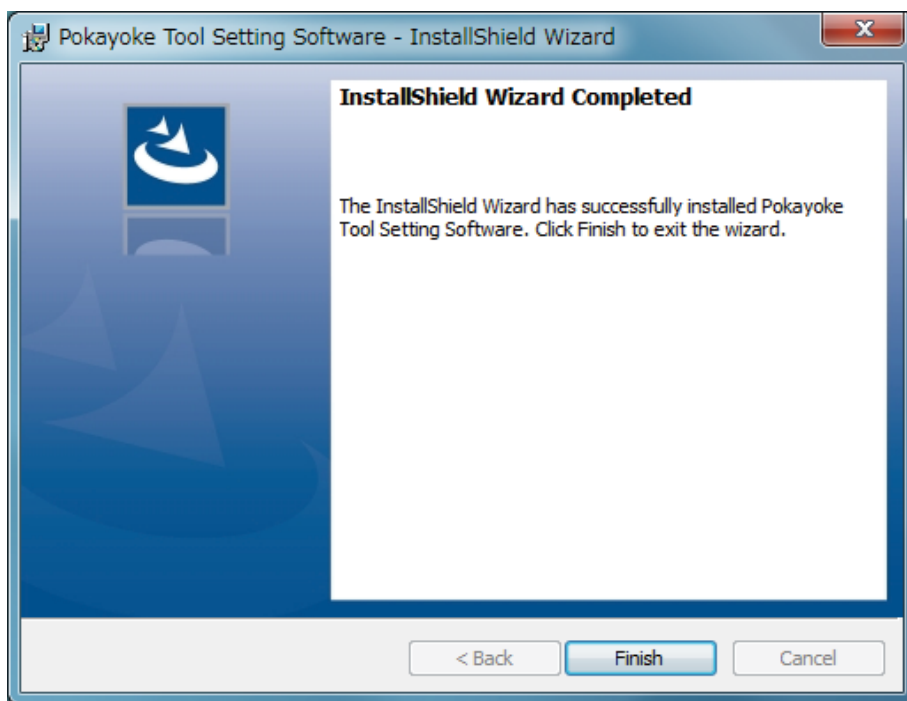


4. Click "Install".

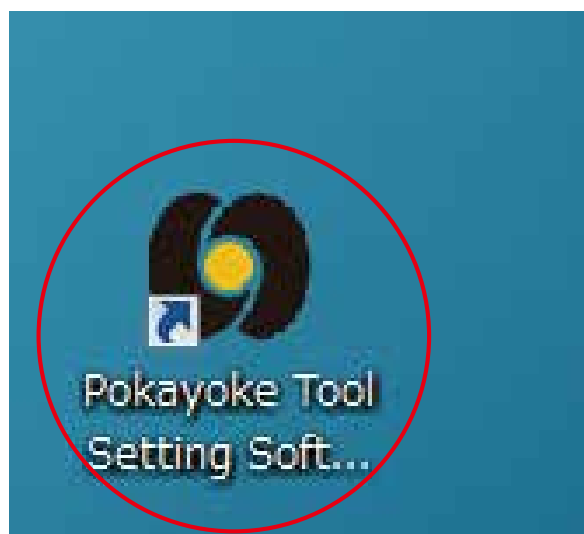
Depending on OS system, the message "Do you want to allow the following program from an unknown publisher to make changes to this computer?" is displayed. Click the [Install] to proceed with installation.

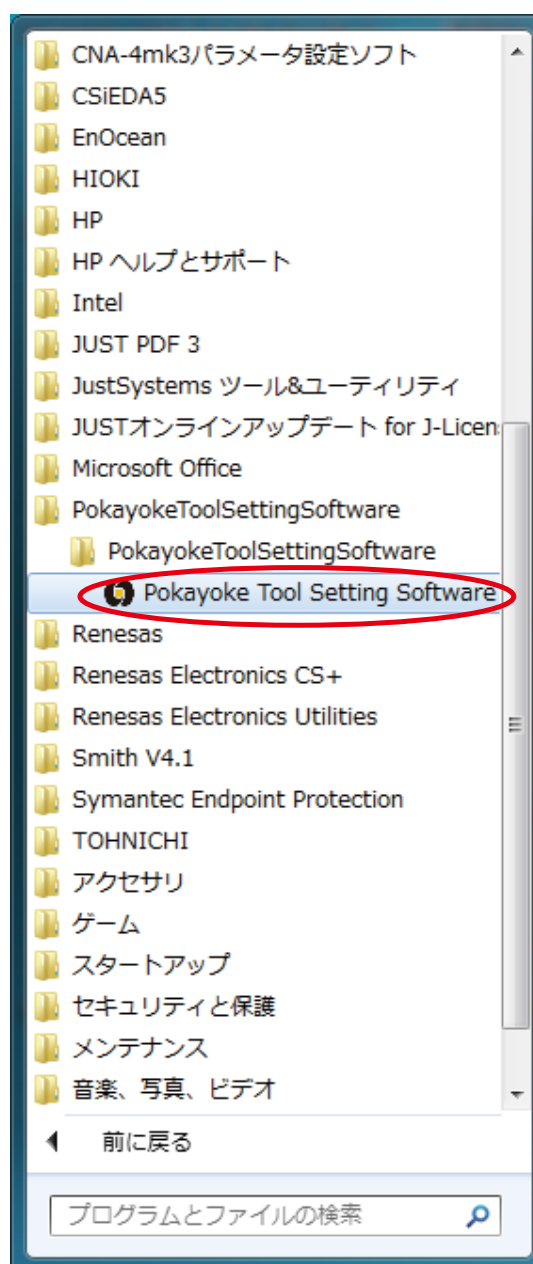


5. Installation has been completed.



6. When installation has been completed, a shortcut icon of "Pokayoke Tool Parameter setting Software" will appear on the desktop screen and startup menu.





* Trademarks

Microsoft and Windows are registered trademarks of the Microsoft Corporation.

8-2. How to use Setting Software

■Setting of R-CM+M-FH by SB-FH2 and setting software

1. Connect the setting box SB-FH2 to PC on which the Pokayoke Tool Parameter Setting Software has been installed with an RS232C straight cable, and turn on the setting box.

* In case of previous product mode, power on the SB-FH2 and find "R-CM" from the menu of setting box by UP or DOWN key, select "R-CM" and press SET button.

* Be sure to set one unit at a time. If multiple transmitters and receivers are set to the setting mode at the same time, they cannot be set correctly.



PC



RS232C
Straight Cable

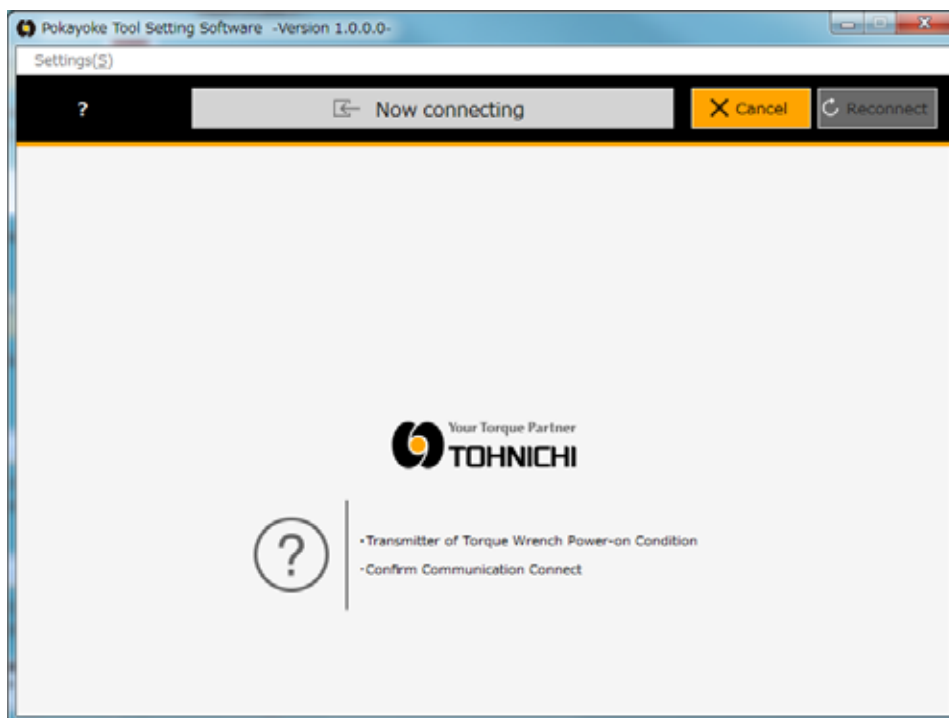


SB-FH2

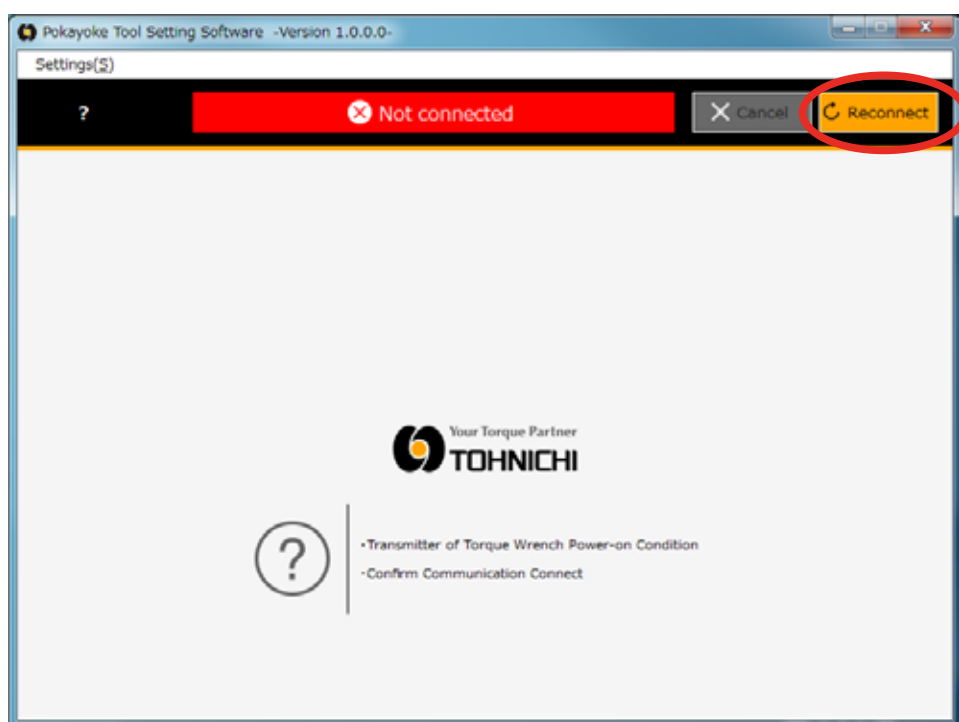
2. Set the R-CM at Setting mode. Refer to 7-9-1. SB-FH Setting Screen Procedure.

3. Boot Pokayoke Tool Parameter Software setting software.

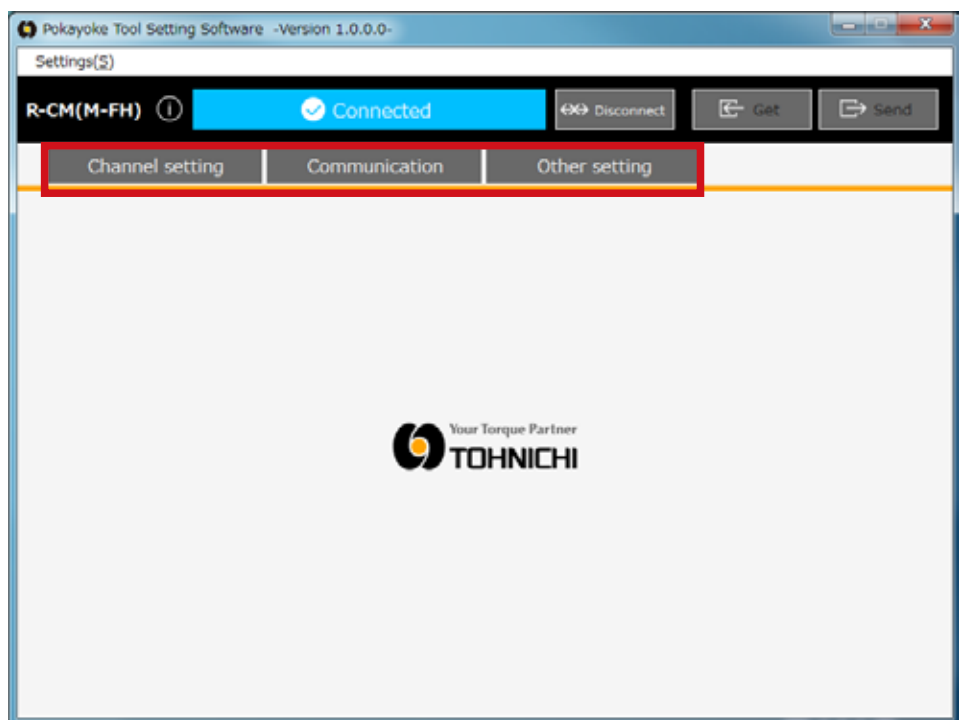
If the PC has been connecting to SB-FH2 with RS232C straight cable and T-FHW is in the setting mode, it will automatically connect to T-FHW.



4. If it is not connected automatically, make sure that the setting box is power on, RS232C cable has been connecting firmly, and R-CM is in the setting mode, and then click "Reconnecting".

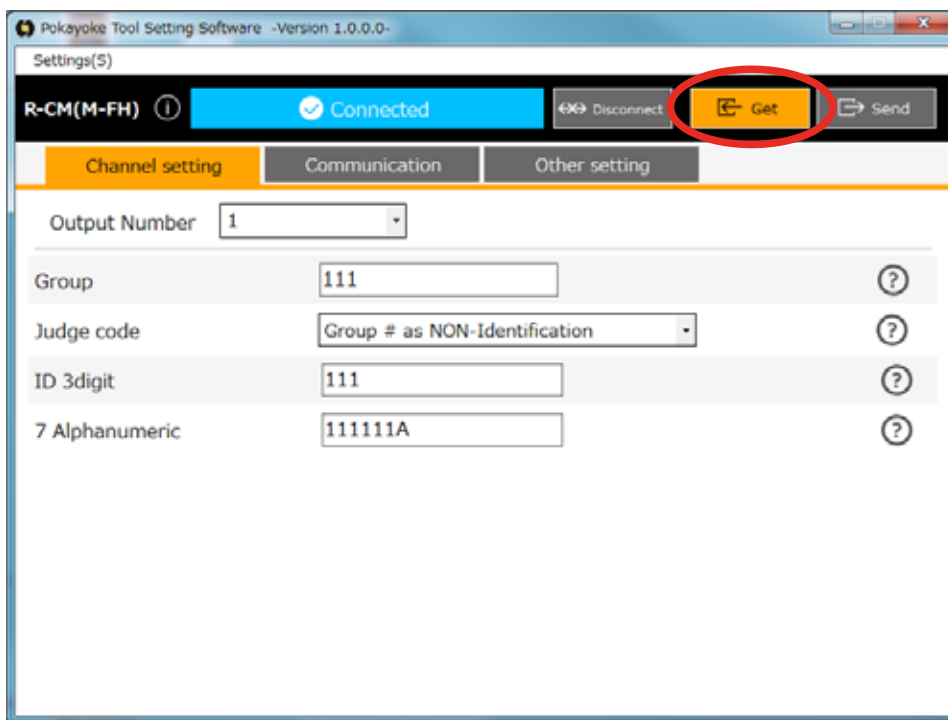


5. When "Connected" appears on the screen, select a tab of setting items.



6. By clicking "GET", the software receives current setting of R-CM+M-FH and displays it on the screen.

- **Channel Setting**



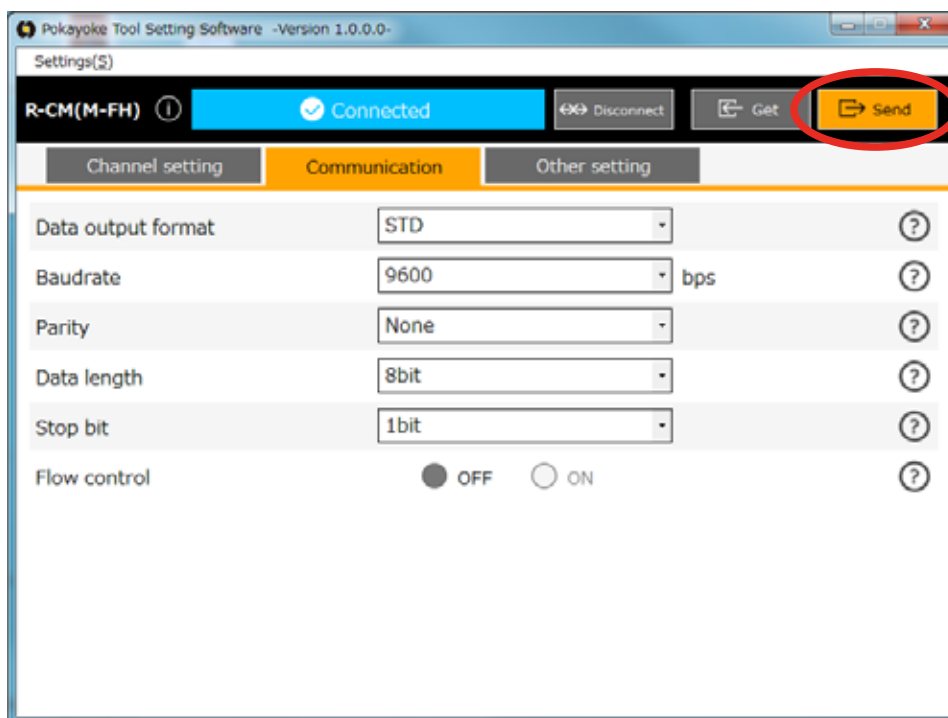
[Description of various settings]

- **Relay output No.** Select 1 to 8 *1.
- **Group** 0: 3-digit ID, 7-digit alphanumeric characters without identification.
- **Judgment code *2** →When multiple torque wrenches are used with one receiver
(applicable only when simultaneous transmission is not performed).
1: 3-digit ID with identification (factory setting).
2: 7-digit alphanumeric characters with identification.
3: 3-digit ID, 7-digit alphanumeric characters with identification.
- **3-digits ID *3** IDs from 000 to 999 can be set.
- **7-digits ID** Input S/N of wrench or unique tool management number.
For relay output No. 1 to 4 only

Note.

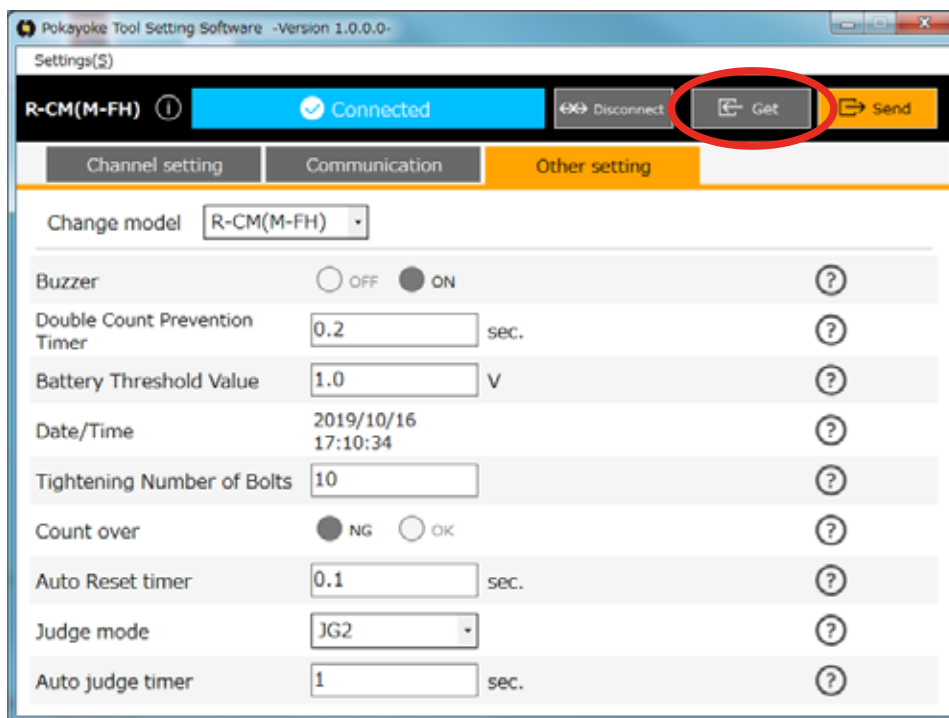
- * 1. Relay output No. 5 to 8 are available when connecting optional extension box IO-CM
- * 2. Set the judgment code at "0" when use relay output No. 5 to 8.
- * 3. Set so that the 3-digit ID does not duplicate to other contact output numbers.

•Communication settings



【Setting Explanation】

- **Data output format** Select a RS232C data output format from STD/R-FH
- **Baud rate** 2400/4800/9600/19200/38400/115200
- **Parity** None/Odd/Even
- **Data length** 7bit/8bit
- **Stop bit** 1bit/2bit
- **Flow control** Select CTS, RTS control OFF/ON



【Other Settings】

- **Model selection** R-CM(M-FH): Advanced mode, or R-FH mode: previous model mode
- **Buzzer** OFF/ON
- **Double count prevention timer** 0.0 to 10.0 seconds
Timer starts when receive 1st signal and rejects following signals during on.
- **Battery voltage level** 0.0 to 9.99V. *Only for R-CM(M-FH) mode setting.
Receiver alerts when the voltage drops less than setting value.
- **Date/Time** Current data and time
- **Number of tightening** 0 - 99 counts.
Count checker function will be activated by setting tightening count.
While activation, setting items will be appear, and if it off it will not be shown.
if changed this setting on/off, power off the receiver before use.
- **Count over** NG/OK
NG: Judges as NG when the counting beyond the setting count.
OK: Judge as OK even if cont over the setting count.
- **Auto reset timer** 0.0 - 9.9 seconds
Timer starts after outputting ON signal and reset when it counts over.
- **Judgment mode** JG1: Preset Judgment, judges OK at count 0 or OK/NG when entered END input.
JG2: Preset Judgment, judges by END input or when auto judgment timer expires.
JG3: Perform judgment when count up auto judgment timer.
JG4: Perform judgment by END input
- **Auto judgment timer** 0 - 300 seconds
Timer activated when receive 1st signal and judges by the remaining count when timer expired.

7. Click ""SEND" to settings to R-CM via SB-FH2

8. Click "GET" to check if the setting are completed successfully and exit from setting mode and conduct communication check.

■ Setting of T-FHM / T-FH by SB-FH2 and setting software

1. After installation, connect the SB-FH2 to PC by RS232C straight cable and power on SB-FH2.

* Make sure to set one by one. If several transmitters and receivers are set at setting mode at the same time, they cannot be set correctly.



PC



RS232C
Straight Cable

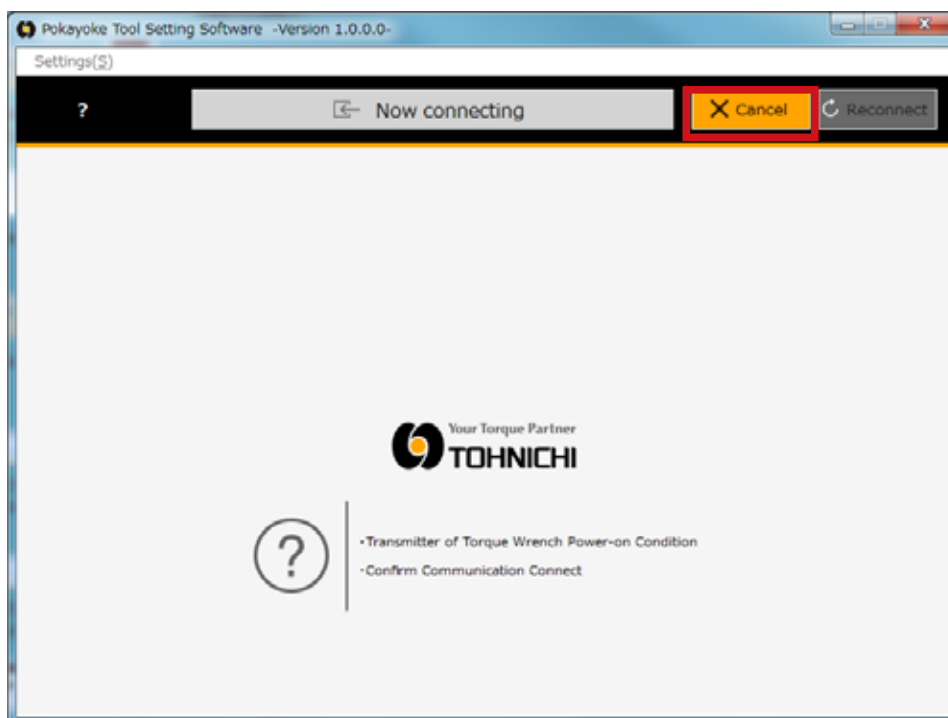


SB-FH2

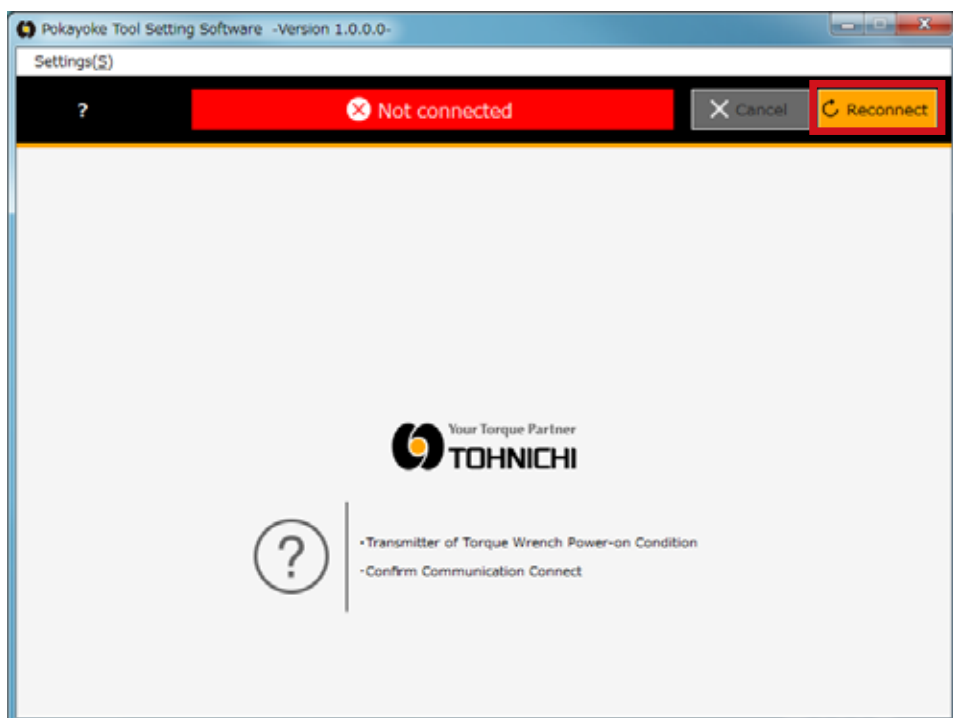
2. Refer to 7-8 and set the T-FHM/T-FH transmitter on set mode.

3. Boot setting software of the PC.

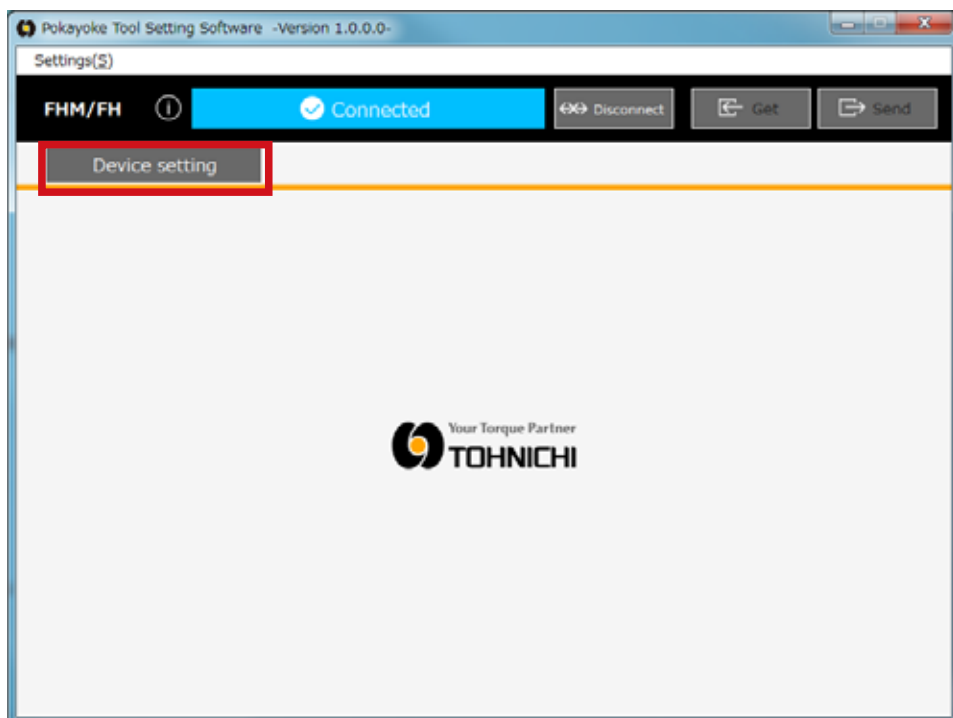
If the PC is connected to the SB-FH2 with an RS232C straight cable and the T-FHM/T-FH is in the setting mode, it will automatically connect to the T-FHM/T-FH.



4. If not connected automatically, check whether SB-FH2 is power on, connecting condition of RS232C, T-FHM/T-FH mode is set, then click "Reconnect".

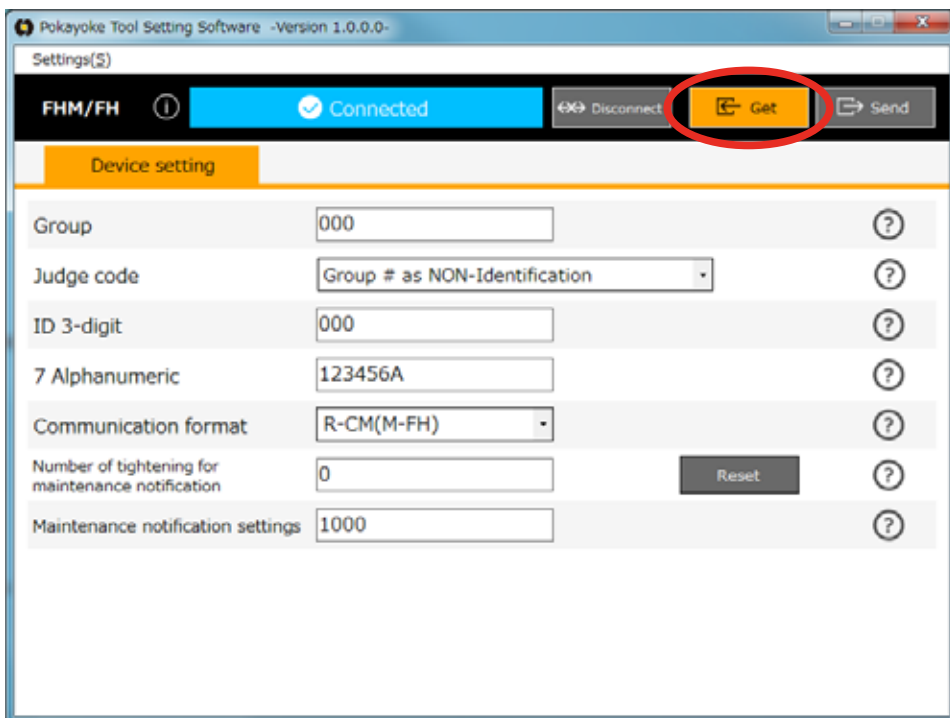


5. When the message "Connected" is displayed, select the tab you want to change the setting item.



6. Click "GET" to receive the current settings of T-FHM/T-FH and display it in each item.

- Setting of transmitters

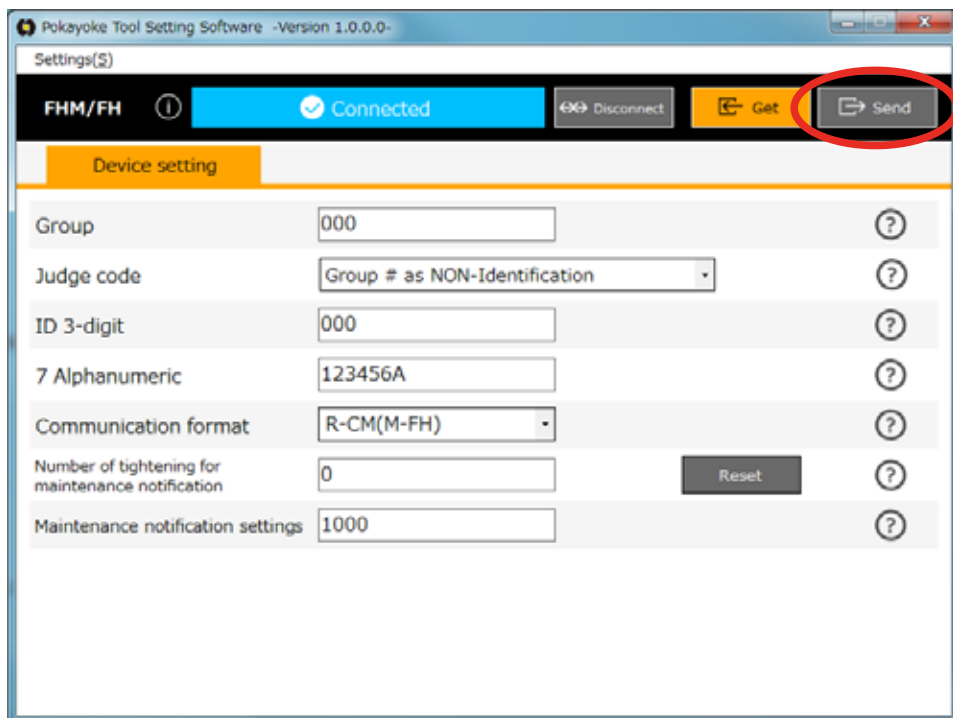


【Description of Setting items】

- **Group** Groups from 000 to 255 can be set.
- **Judgment code** 0: 3-digit ID, 7-digit alphanumeric characters without identification.
→When multiple torque wrenches are used with one receiver (applicable only when simultaneous transmission is not performed).
1: 3-digit ID with identification (factory setting).
2: 7-digit alphanumeric characters with identification.
3: 3-digit ID, 7-digit alphanumeric characters with identification.
- **3-digits ID** IDs from 000 to 999 can be set.
- **7-digits ID** Input S/N of wrench or unique tool management number.
- **Communication format** Select format from R-CM(M-FH)/R-FH
R-CM(M-FH): Advance new transmitter mode
R-FH: Previous FH series compatible mode

7. Change the setting items and click "Send".

The setting items are sent to T-FHM/T-FH via SB-FH2.



8. Settings are completed.

Press SET button of T-FHM/T-FH transmitter to return to normal mode and conduct communication test.

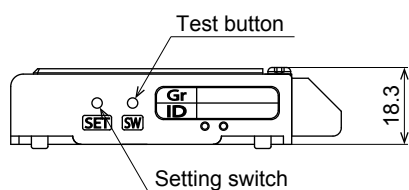
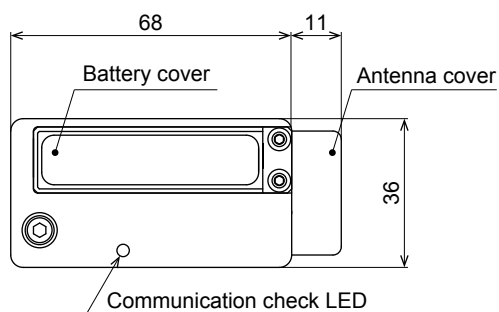
■Language setting

Click "Settings", "Language" to open language setting window.

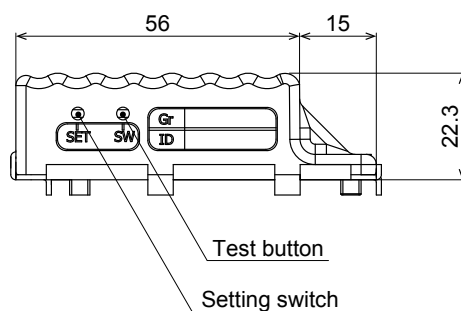
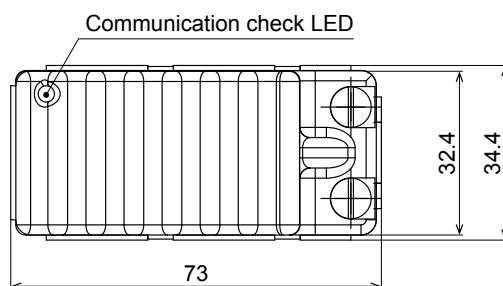
Select a language and click "Save".

9

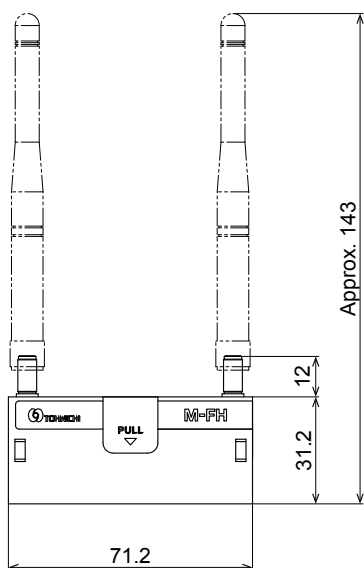
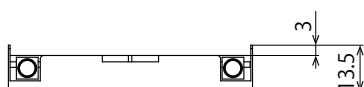
Dimensions



Transmitter
T-FHM / T-FH



Transmitter
T-FHSL256



Radio module
M-FH

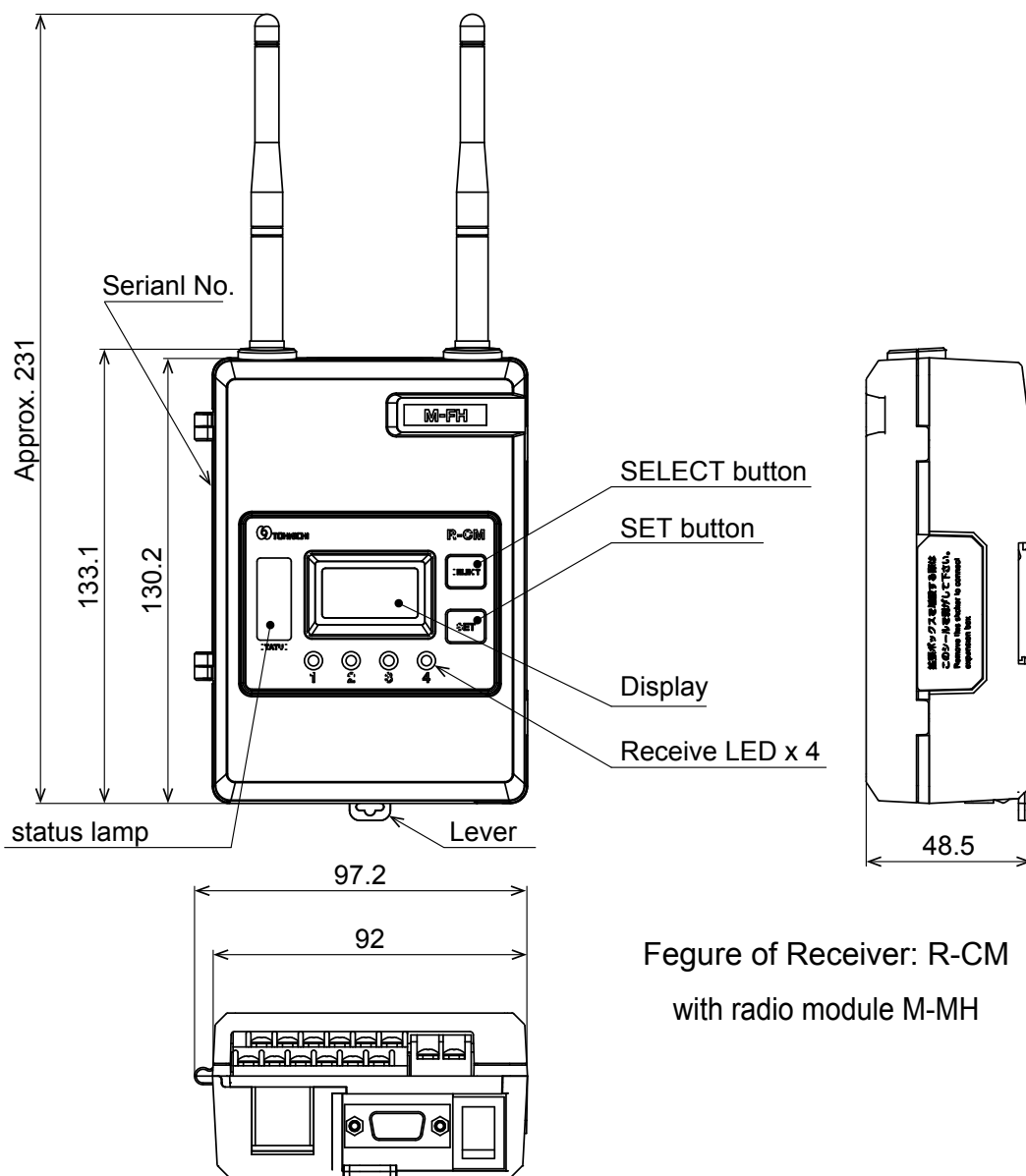


Figure of Receiver: R-CM
with radio module M-MH

10 Trouble Shooting

Check the items in the table below before judging that the device has a breakdown. After checking the items, if the device still has a trouble, contact your nearest distributor or Tohnichi Mfg. Co., Ltd.

Symptoms	Causes	Corrective actions
The communication status check LED does not light up both blue or red after the torque wrench is activated.	The battery is dead.	Check the remaining battery life. If the communication status check LED is red, replace the battery with a new one.
	No battery is put in the case.	Place a battery.
	The switch function is abnormal.	Check the remaining battery life. If the communication status check LED is blue, there is a trouble in the switch function. Send it for repair.
After the torque wrench is activated, the communication status check LED flashes on and off in red 3 times.	The set group is wrong.	Check the settings on the setting BOX. If there is any wrong setting, reset it.
	The set ID is wrong.	
	The Receiver is not powered on.	Turn the Power switch of the Receiver to ON.
	Radio wave environment problem	Change the group.
The receiving distance is short.	There is a poor connection of the antenna for the receiver or might not used double antenna.	Ensure that the antenna for the receiver is installed to the connector.
	The installation location of the receiver is improper.	If there is a metal pole or iron piping close to the antenna for the receiver, move the receiver to a different place.
	There is a shield between the transmitter and the receiver.	Move the shield or the receiver to a different place.
	Radio wave environment problem	Change the group.
The receiving status is not stable.	The setting of the double tightening prevention timer is not proper.	Readjust the double tightening prevention timer.
	Radio wave environment problem	Change the group.
The settings cannot be changed.	The unit is not in the setting mode.	Press the SET switch for 1 sec. to enter to setting mode.
	Multiple models are set in the setting mode.	Set only one model to the setting mode.
LED lights or flashes even if wrench is not activated. (Except display status of set mode and battery check)	The battery is low for use..	Replace the battery to a new one.

* Periodically check the transmitting and receiving status.

* If you have any question, contact your nearest distributor or Tohnichi Mfg. Co., Ltd.

Designs and specifications are subject to change without notice.

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