SETTING BOX

MODEL: SB-FH2

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

● 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.
● Use only the specified battery. 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 move the instrument to a safe place and contact Tohnichi Mfg. Co., Ltd.
● Be sure to use an 9V alkaline battery for power supply to the transmitter T-FHM/-FH.
● 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.
● Avoid using the instrument near welding machines, electric discharge machines or
  machines producing electromagnetic noise such as PC.
● When setting, be sure to set one by one. If multiple transmitters and receivers are set to
  the setting mode at the same time, they cannot be set correctly.
● Do not disassemble or modify this product. It may result in loss of safety,
  it may be punished by law.

■Contents

1 Outline

This setting box can perform various settings of FH/FD radio signal torque wrench series wirelessly.

Since it operates by itself, it is possible to change settings while carrying. In addition, by connecting to a PC and using dedicated setting software to perform more detail setting easily

2 Feature

● Easy transmitter / receiver settings

· Various settings such as group and ID can be confirmed wirelessly using the setting box without removing the transmitter from the torque wrench or removing the receiver panel.

About groups and IDs

[**Group] :** 5ch extracted from 78ch frequency from 2.402GHz to 2.479GHz (1MHz interval) 1 group

There are 256 groups in total, and radio waves are transmitted and received using the 5ch frequencies in this group.

[**ID] :** 000 to 999 and 7 alphanumeric characters can be set, and the receiver identifies the torque wrench with this ID.

● Easy battery replacement

The old setting box (SB-FH256) could not be replaced without removing the screw and removing the panel when replacing the battery. However, the SB-FH2 can be easily replaced without using tools.

● Uses the worldwide 2.4GHz frequency band (ISM band)

Contact Tohnichi for status of wireless certification acquisition for each country.

● Remote setting function

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.

* Only for available for R-CM and M-FH module with set at M-FH mode. Refer to "7-2-3. Remote Setting.

3 Components

Torque Driver
RTDFH

Torque Wrench
QSPFHM / FH

Torque Wrench
QLFHSLS

Torque Wrench
QSPCAFHP

Torque Wrench
CSPFD / CSPFDD

Radio Signal

Setting BOX: SB-FH2

Radio Signal

R-CM receiver
with a radio module

Receiver
R-FHD256

RS232C
Setting data   Wired

PC, PLC

4 **Specifications**

Model	SB-FH2
Frequency band	2..402GHz - 2.479GHz 1 MHz interval 78 kinds
Communication method	Spread spectrum (FHSS)
Modulation	GFSK
Group channel	256 (000-255)
In/Output	RS232C
Power source [DC] V	9 V alkaline battery x 1
Antenna	Dipole antenna
Temperature	0-50 ℃
Distance	10-20m *
Weight	0.9kg

*1. 10 hours in use with a bland new battery.

*2. Communication distance varies depending on the radio environment.

5 External Figure and Part of Name
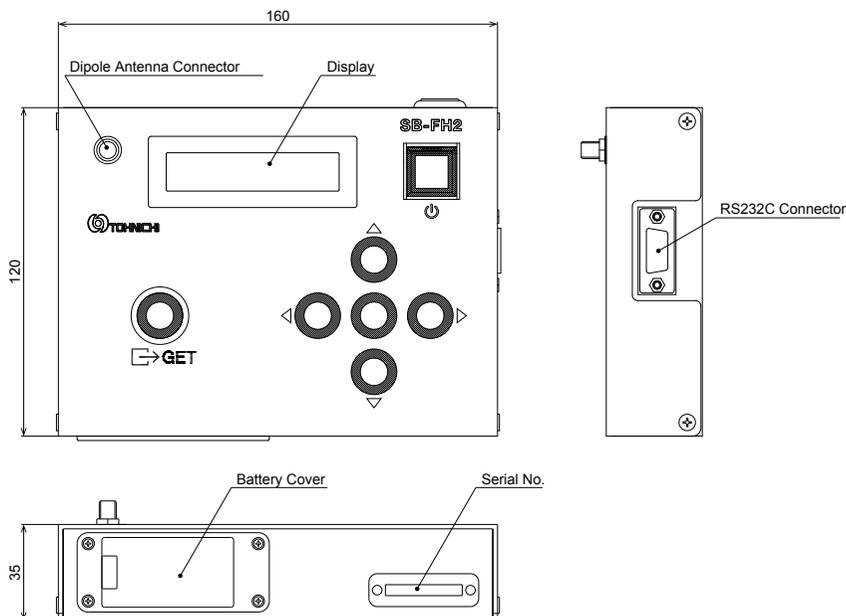
● **Dipole antenna connector**

Connector for attaching a dipole antenna.

● **Power switch**

Power ON/OFF the main unit

● **GET button**

For confirmation of the currently settings of the transmitter or receive

● **SET button**

For updating the settings of transmitter or receiver.

● **LEFT key**

This switch moves the cursor to the

● **RIGHT key**

This switch moves the cursor to the right.

● **UP key**

This switch moves the cursor up.

● **DOWN key**

This switch moves the cursor to the right.

● **Battery cover**

 Open this battery cover and replace the battery.

● **RS232C connector**

Connect it to PC to use dedicated setting software to change settings of the Transmitter and receiver. Use RS232C straight cable.

● **Version sticker**

Shows the software version of the setting box

6   Precaution for Use

6-1. Power Source

Make sure to use 9V alkaline battery.

6-2. Usage Environment

● Use the product where there is no metal structure around as much as possible.

● 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.

● Avoid using in the vicinity of machines that generate electromagnetic noise, such as welding machines, electrical discharge machines, and personal computers.

 *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.

6-3. Precaution for Antenna

Refer to the following instructions when mounting or dismounting an antenna on R-CM, M-FH or SB-FH2.

Do not turn antenna itself. Hold the antenna and turn the notched end. Otherwise, antenna joint of the receiver will be damaged, and the receiver cannot receive signals definitely.

Hold the antenna not to rotate

Rotate here to fix antenna
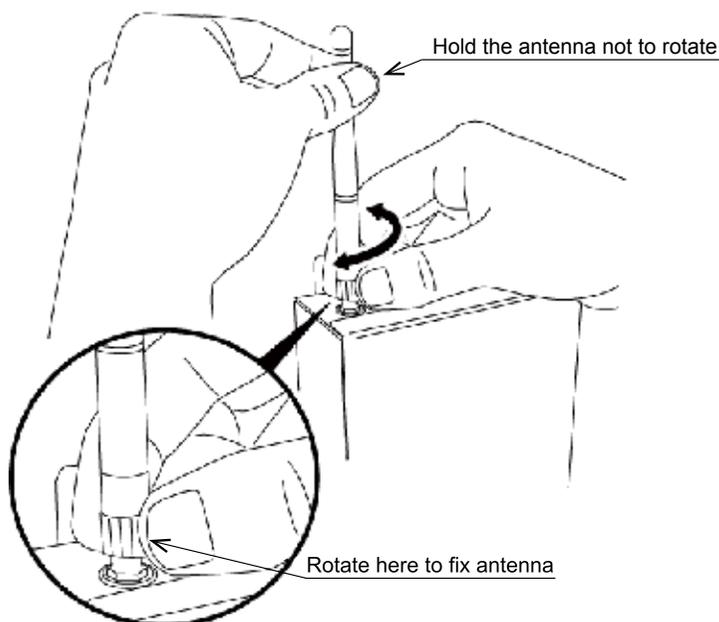
7 Handling

7-1. Basic Settings

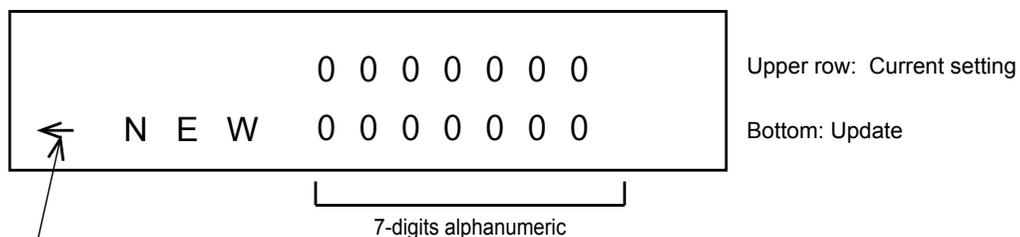| | Upper row: Current setting |
| 0 0 0   0   0 0 0 | |
| N E W   0 0 0   0   0 0 0 | Bottom: Update |

Cursor Group 000 - 255 Judgment code 0 - 3 3-digits ID 000 - 999 Next page

	Upper row: Current setting
0 0 0 0 0 0 0	
N E W 0 0 0 0 0 0 0	Bottom: Update

7-digits alphanumeric
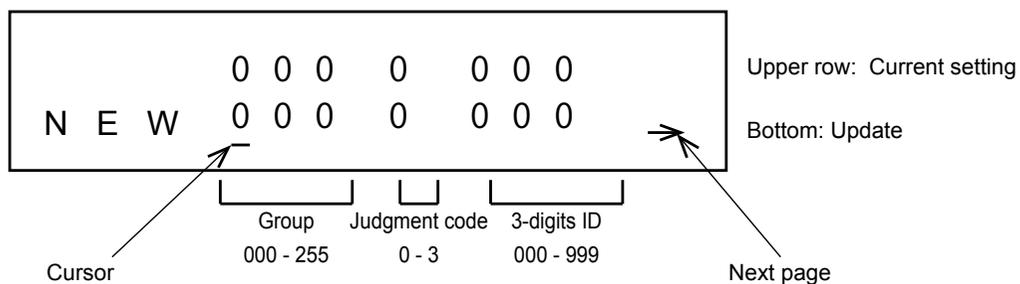
Previous page

● **Group**

Communication is possible by setting the transmitter and receiver to the same group.

Group 000 to 255 is available

● **3-digit ID**

This ID is necessary for identifying the torque wrench.

000 to 999 can be set.

● **7-digit ID**

Seven alphanumeric characters necessary for torque wrench identification.

Set the serial number and control number of the torque wrench.

● **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.

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.

● **Change of settings**

1. Press the GET switch to display the current setting in the upper row, and press the SET switch to send the lower setting.

   * When sending the settings, only the items displayed are sent without sending the settings on another page.

2. When OK is displayed, the setting has been received or transmitted.
   When NG is displayed, the transmitter or receiver may not been set in the setting mode.
   Enter the setting mode and press GET / SET again.

3. After changing the setting, press the GET switch and confirm that the upper and lower stages are set to the same setting value.

4. When the setting change is completed, exit the transmitter or receiver setting mode and press the power switch on the setting box to turn off the power.

7-2. How to Use

* 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.

1. Attach the dipole antenna (standard accessory) to the setting box.

2. Set the transmitter or receiver at setting mode.
   * For how to enter the setting mode, see the instruction manual of the target product.
   * You can use this device to enter the R-CM receiver setting mode with the remote control.
     Refer to "7-2-3 Remote Setting for details.

3. Confirm that the following is displayed on the display when the power switch is pressed.

```
┌─────────────────────────────────┐
│                                 │
│  T O H N I C H I   M F G        │
│                                 │
│  S E T T I N G   B O X     O  O │
│                                 │
└─────────────────────────────────┘
                            └──┘
                        software version
```

4. When power ON, following setting mode selection screen will appear.
   Select the setting item with the direction switch and press the SET button to enter.

```
┌─────────────────────────────────┐
│                                 │
│  M O D E   S E L E C T          │
│                                 │
│  F H / F D                      │
│                                 │
└─────────────────────────────────┘
   └──────────┘
   Setting mode
```

● **Setting mode selection table**

● **FH/FD**

The same operation as the old setting box SB-FH256 is possible, and the group, judgment code, and 3-digit ID can be changed.

● **TRANSMITTER**

Available to change the settings of the new transmitters T-FHM/T-FH and FHW

Refer to "7-2-1. TRANSMITTER Mode" for details

● **R-CM**

The setting of R-CM, only when a M-FH module is installed can be changed.

Refer to "7-2-2. R-CM Mode" for details.

● **REMOTE SETTING**

Settings of R-CM can be changed remotely from a distance.

Refer to "7-2-3. REMOTE SETTING mode" for details.

● **R-FHD**

* R-FHD settings can be changed.

Refer to "7-2-4. R-FHD mode" for details.

7-2-1. TRANSMITTER mode

1. When select TRANSMITTER mode, the following receiver selection screen will be displayed.

   If you are now using R-CM with M-FH module and selected "R-CM(M-FH)" as the model selection,

   select "R-CM" or otherwise select "R-FH".

   Refer to 7-2-2. R-CM mode" for setting details, if not select "R-FH".

```
┌─────────────────────────────────────┐
│                                      │
│   R E C E I V E R   S E L E C T      │
│                                      │
│   R - C M                            │
│                                      │
└─────────────────────────────────────┘
    └───────────┘
```

R-CM ←New mode   : Advanced communication, new functions mode
R-FH ←Previous mode: Corresponding to previous FH series mode

2. When the selection of the receiver is completed, the screen will move to the setting mode selection screen for

   the transmitter shown below. Select and determine the setting item.

```
┌─────────────────────────────────────┐
│                                      │
│   →    C H    S E T T I N G          │
│                                      │
│        F H W    S E T T I N G        │
│                                      │
└─────────────────────────────────────┘
         └───────────────────────┘
```
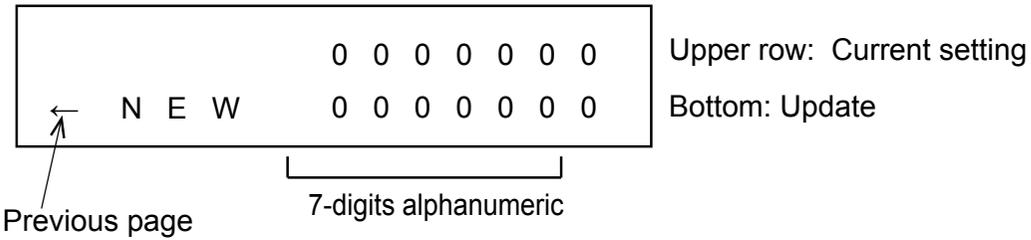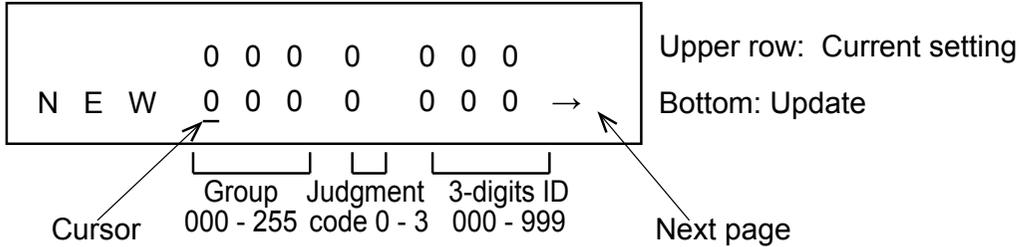
Transmitters setting mode

● **Setting mode selection table for transmitter**

● **CH SETTING**

Changeable of transmitter's Group channel, Judgment code, 3-digit ID, and 7-digit alphanumeric ID.

By GET button to show current setting value on the upper row and send setting value of the bottom by SET.

* Only the settings for the currently displayed page will be sent.

```
          0  0  0   0     0  0  0        Upper row:  Current setting
  N  E  W  0  0  0   0     0  0  0   →    Bottom: Update
```

Cursor

Group   Judgment   3-digits ID
000 - 255   code 0 - 3   000 - 999   Next page

```
              0  0  0  0  0  0  0          Upper row:  Current setting
  ←   N  E  W  0  0  0  0  0  0  0          Bottom: Update
```

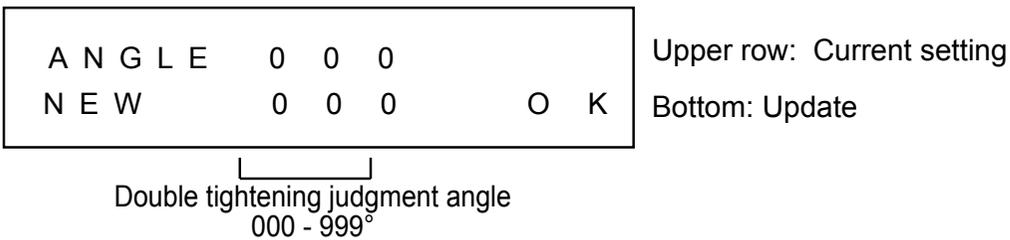Previous page   7-digits alphanumeric

● **FHW SETTING**

Available for Double tightening judgment angle setting of FHW transmitter.

The following setting screen will be displayed.

By GET button to show current setting value on the upper row and send setting value of the bottom by SET.

* Refer to CSPFHW manual for details.

```
  A  N  G  L  E    0   0   0              Upper row:  Current setting
  N  E  W          0   0   0        O  K  Bottom: Update
```

Double tightening judgment angle
000 - 999°

7-2-2. R-CM mode

1. When the R-CM mode is selected, the following model selection screen is displayed. When use the new transmitter T-FH or T-FHW and set at "R-CM" on the receiver selection screen in "TRANSMITTER" mode, select "R-CM (M-FH)".

   Refer to "7-2-1. TRANSMITTER mode" for how to set the transmitter, if not, select "R-FH".

   Select this mode also when changing settings using the R-CM setting software.

   * Please refer to the "R-CM (M-FH)" manual for detailed settings.

```
┌─────────────────────────────────────┐
│                                      │
│   M  O  D  E  L     S  E  L  E  C  T │
│                                      │
│   R  -  F  H                         │
│                                      │
└─────────────────────────────────────┘
    └──────────────┘
```

   R-CM(M-FH) ←New mode   : Advanced communication, new functions mode
   R-FH ←Previous mode: Corresponding to previous FH series mode

2. When the model selection is completed, the group, judgment code, 3-digit ID, and 7-digit ID can be set for each of the four contact outputs on the R-CM.

   By GET button to show current setting value on the upper row and send setting value of the bottom by SET.

   * When transfer setting, sends only the displayed items without sending the settings for another page.

Relay output No.
R1 - R4 (OUT1 to OUT4)

```
┌─────────────────────────────────────────┐
│      R  1    0  0  0  0    0  0  0        │   Upper row:  Current setting
│                                          │
│   N  E  W    0  0  0  0    0  0  0   →    │   Bottom: Update
└─────────────────────────────────────────┘
              └──────┘ └──┘ └──────┘
               Group  Judgment 3-digits ID
   Cursor      000 - 255 code 0 - 3  000 - 999
```

```
┌─────────────────────────────────────────┐
│         R  1    0  0  0  0    0  0  0     │   Upper row:  Current setting
│                                          │
│   ←  N  E  W    0  0  0  0    0  0  0     │   Bottom: Update
└─────────────────────────────────────────┘
                  └──────────────┘
                   7-digits alphanumeric
```
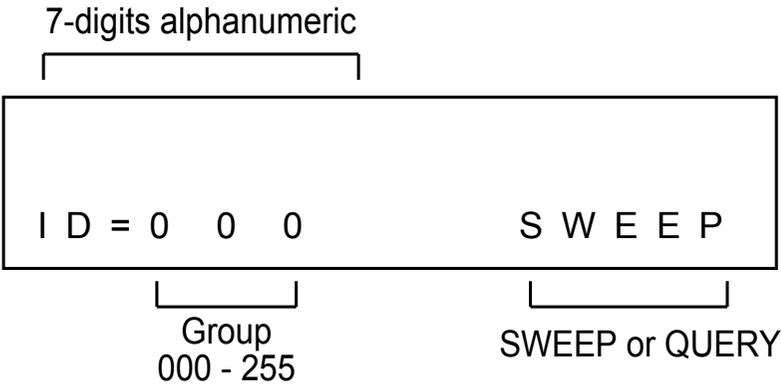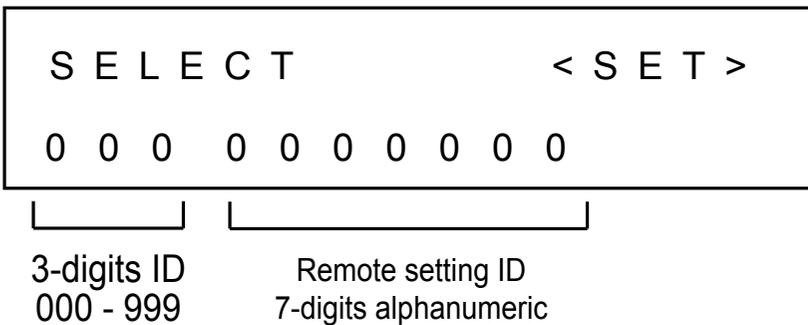
Previous page

7-2-3. REMOTE SETTING mode

1. When REMOTE SETTING mode is selected, the following screen will be displayed. Press the GET button.

    If you select 7-digits ID of the target R-CM, and press the GET button then only one target will be searched.

    * The unique remote setting ID is attached on the back side of M-FH radio module.

```
 ┌─────────────────────────────────────┐
 │                                     │
 │  R E M O T E    S E T   < S E T >   │
 │                                     │
 │  I D =  _                           │
 │                                     │
 └─────────────────────────────────────┘
          └──────────────────┘
           Remote setting ID
           7-digits alphanumeric
```
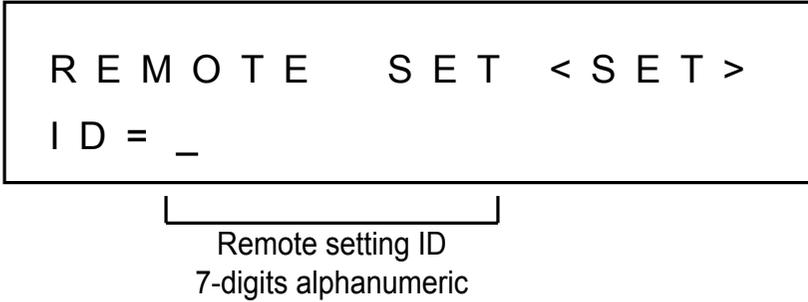
2. The search is started and all the R-CM groups installed in the vicinity are searched in the order of 000 to 255.

    When 7-digit ID is inputted directly, the ID of the R-CM to be displayed and appears "QUERY" on the screen.

```
        7-digits alphanumeric
        ┌──────────────────┐
 ┌─────────────────────────────────────┐
 │                                     │
 │                                     │
 │  I D = 0   0   0         S W E E P  │
 │                                     │
 └─────────────────────────────────────┘
        └──────────┘        └──────────┘
           Group              SWEEP or QUERY
          000 - 255
```

3. When search is complete, the R-CM found by searching can be selected. By pressing SET button while the
    7-digit ID of the R-CM is displayed, the target R-CM enters the setting mode. When 7-digit ID is selected,
    the target R-CM automatically shifts to the setting mode.

    If cannot find the target receiver, "NOT FOUND" will be displayed on the screen, so approach the target R-CM
    and search again.

```
 ┌─────────────────────────────────────┐
 │                                     │
 │  S E L E C T           < S E T >    │
 │                                     │
 │  0  0  0   0  0  0  0  0  0  0       │
 │                                     │
 └─────────────────────────────────────┘
    └────────┘ └──────────────────────┘
     3-digits ID      Remote setting ID
     000 - 999        7-digits alphanumeric
```

4. When the setting BOX shift to R-CM mode, change the setting.

For details, refer to "7-2-2. R-CM mode". If the target R-CM does not enter setting mode, "GET (RF) ERROR!" or "NOT FOUND" is displayed, so approach the target R-CM and search again.

5. When the setting change is completed, press and hold the GET switch to exit the R-CM setting mode.

7-2-4. R-FHD mode

When the R-FHD mode is selected, the following R-FHD setting change screen will appear.

Select the item you want to change and press the GET button to display the current setting value.

Change it and press the SET button.

* Please refer to the "FD/FDD" manual for detailed settings.

Setting Item

→ U P P E R   L I M I T
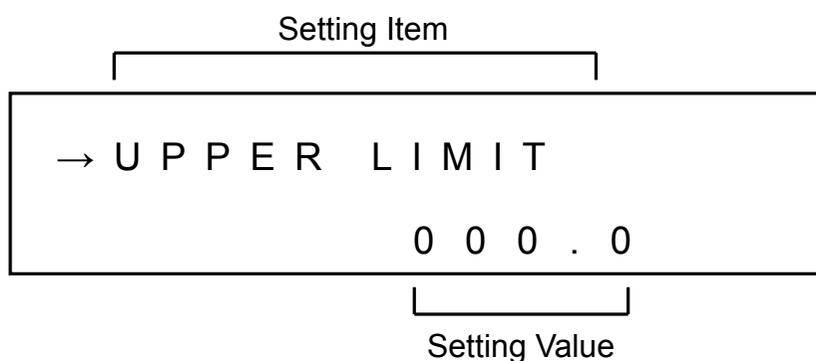
0 0 0 . 0

Setting Value

● Table of Setting Items

Setting items	Setting value
UPPLER LIMIT	000.0 to 999.9
LOWER LIMIT	000.0 to 999.9
AUTO RESET TIMER	0.0 to 9.9
DATA FORMAT	PC / PCL / CD42 / PRINTER
BAUD RATE	2400 / 4800 / 9600 / 19200 / 38400 / 115200
PARITY	NONE / ODD / EVEN
DATA LENGTH	7BIT / 8BIT
STOP BIT	1BIT / 2BIT
RE-TRY	OFF / ON
BCC	OFF / ON

7-3. Battery Replacement

If the POWER button LED does not light on yellow, or if nothing is displayed on the LCD display,

it is the battery life. Refer to following instruction to replace a new battery.
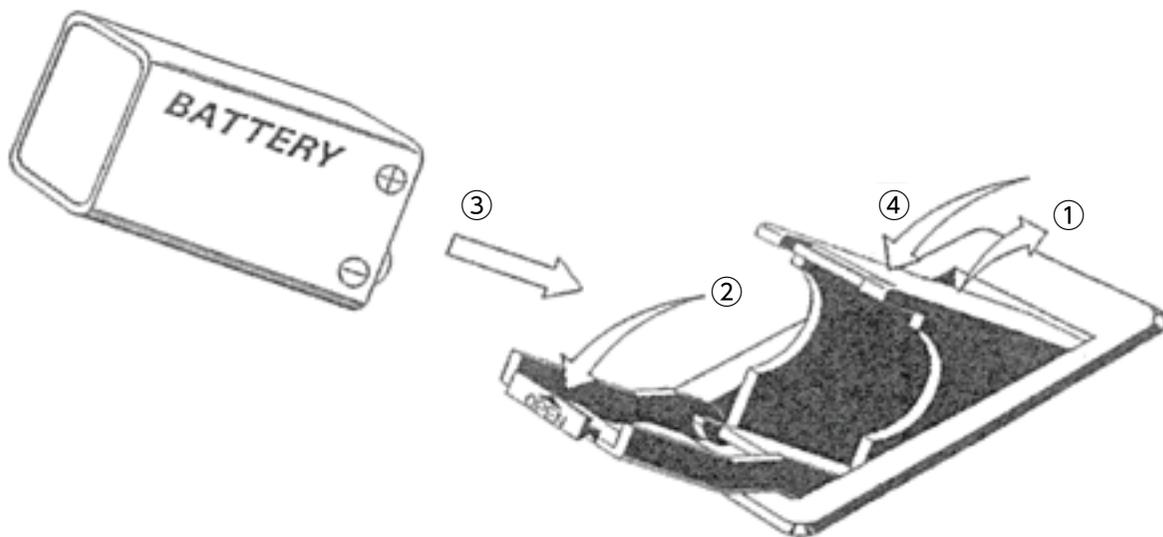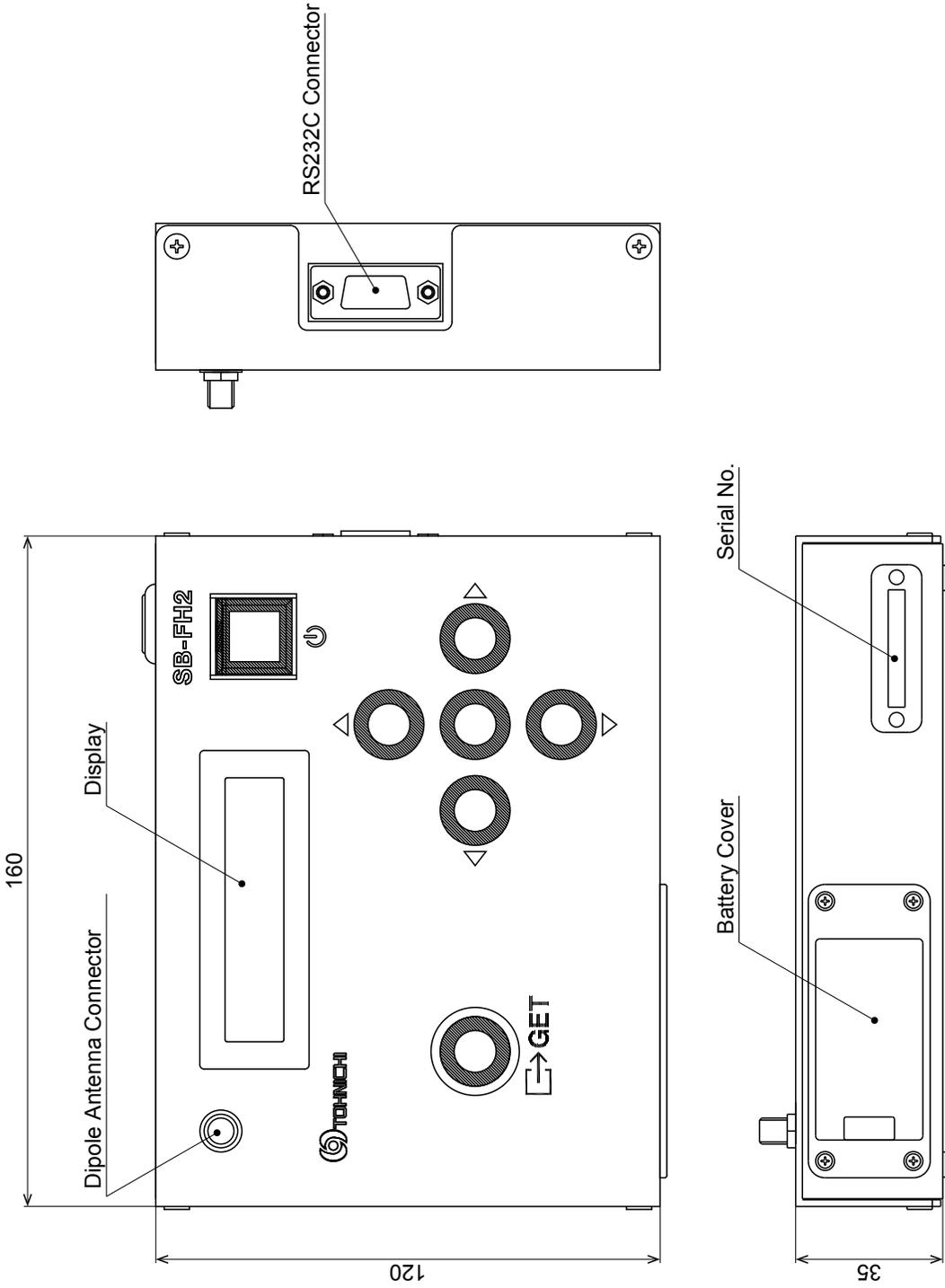

* Insert the battery paying attention to the polarity.

* Use 9V alkaline battery

8 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 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.
Nothing is displayed on the LCD or the screen is dark.	The battery is dead.	Replace the battery.
	The battery inserted in the opposite direction.	Insert battery with the correct polarity.
Cannot connect with PC	The cable is wrong	Use RS232C straight cable.
Cannot communicate the transmitter and receiver.	The Group is wrong.	Check the settings, and if the settings do not match, reset the settings.
	The set ID is wrong.	
	Judgment code is not match.	
	Radio wave environment problem.	Change the Group.

9 Dimensions

RS232C Connector

Serial No.

Display

Dipole Antenna Connector

Battery Cover

SB-FH2

GET

TOHNICHI

160

120

35

Your Torque Partner
TOHNICHI

10.19.EN