

**Wireless equipment for Torque wrench
Transmitter**

TW-510T

**Manual
V2.40**

HERUTU ELECTRONICS CORPORATION
62-1 Toyooka-cho, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 433 Japan
Tel.81-53-438-3555
Fax.81-53-438-3411

To use this product in safety and comfort,

(Be sure to read)

Thank you very much for purchasing our product.

This operation manual contains the precautions necessary for preventing an accident caused by the use in an improper ways.

Read it carefully while thoroughly understanding the meanings of pictorial symbols.



Using in an improper way while ignoring this pictorial symbol might cause a serious human injury.



Using in an improper way while ignoring this pictorial symbol might cause a human injury or physical damage.

- The type of precautions that should be observed, are classified using the following pictorial symbols.



This pictorial symbol indicates a “Reminder” to attract an attention.



This pictorial symbol indicates a “Prohibition” to prohibit a certain action.



- For the usage to be commonly applied in all the models:

- Avoid using in a place with a plenty of humidity or dust. Otherwise, absorbing a dust or water contents may cause machine trouble, fire or electrical shock.





- For handling this machine:

- This is the electronic devise or wireless radios composed of the precision parts. Do not overhaul/remodel. It may cause accident or machine trouble.













Warning

■ For handling this machine:

- | | |
|--|---|
| ● Do not use this product for the application needing the high reliability related to human lives. |  |
| ● Do not use this product in a place where it is uncertain about whether or not radio waves reach. |  |



■ For handling the power source:

Be sure to observe the following precautions to prevent the AC adapter and Power cord from being heated, damaged or ignited.

- | | |
|---|---|
| ● Do not approximate the AC adapter and Power cord to a fire, or do not put them into a fire. The AC adapter and Power cord can be broken or ignited, resulting in an accident. |  |
| ● You can use the AC adapter and main body only with the specified power voltage to protect them from the damage and fire accident. |  |
| ● Do not use the AC adapter and main body in a wettable atmosphere. It may cause accidents or troubles such as heating, igniting or electrical shock. |  |
| ● Do not touch the AC adapter, main body, Power cord and Plug outlet with wet hands. It may cause an electrical shock. |  |
| ● Do not damage the Power cord. A short-circuit or heating may cause a fire or electrical shock. |  |
| ● Do not use the Power plug with dust being adhered. A short-circuit or heating may cause a fire or electrical shock. |  |
| ● Do not give a strong impact onto the AC adapter. It may cause an accident or machine failure. |  |
| ● If you find out deformed AC adapter, do not use it. It may cause an accident or machine failure. |  |
| ● do not use this product in a place where flammable gas can be generated. It may cause a fire accident. |  |
| ● Never overhaul the AC adapter. It may cause an accident or machine failure. |  |

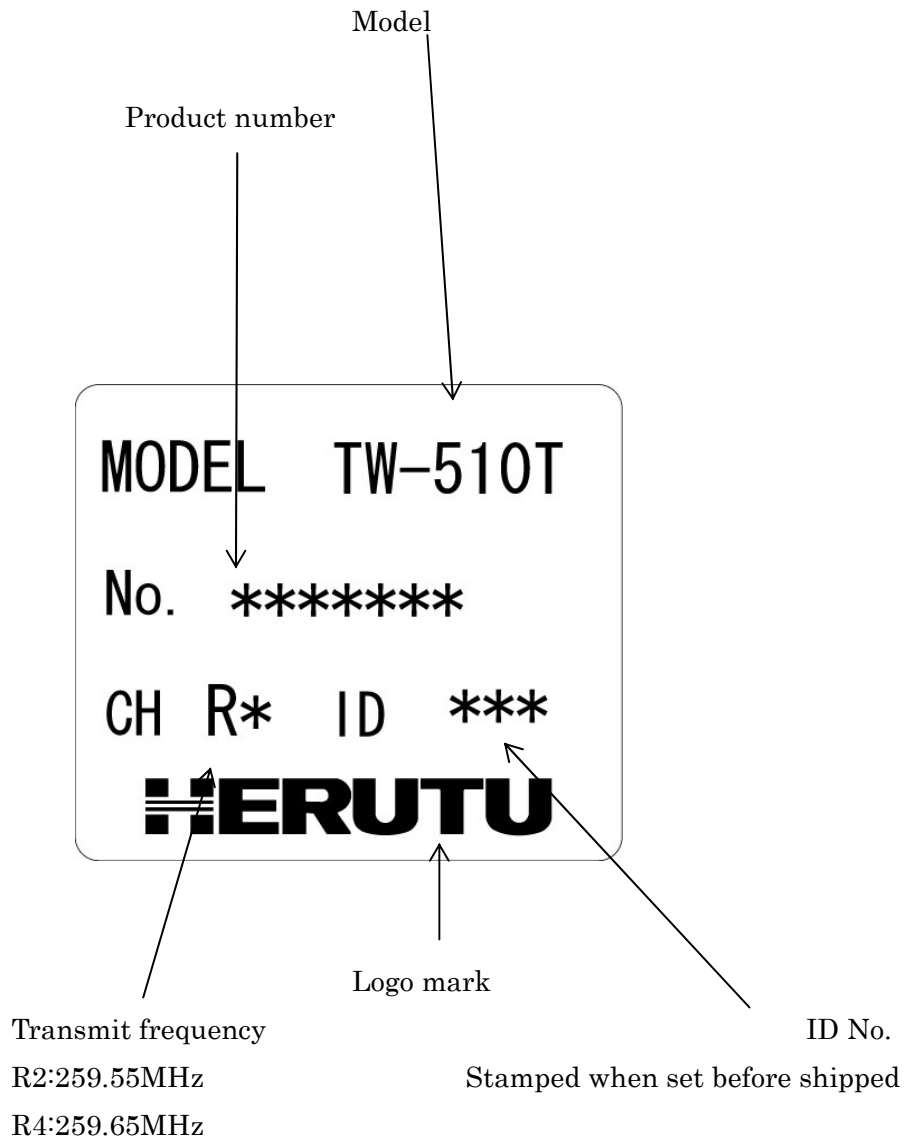
■ When trouble happens during use:

Since it may cause a fire or electrical accident, disconnect a power plug, and immediately ask outlet store or our company to repair.

- | | |
|---|---|
| ● When smoke or abnormal odors are generated, stop using, immediately disconnect a power plug, and ask outlet store or our company to repair. |  |
| ● Once the Power cord is damaged, do not use it. Using it as is may cause a fire or electrical accident. |  |

**This operation manual is translated a product for Japan into English/
This product is based on Japanese Wireless law.**

Descriptions of Product number label



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1.General descriptions

1.General descriptions

Thank you very much for purchasing the Wireless Equipment for Torque Wrench Transmitter TW-510T”.

This operation manual contains the instructions necessary for using the “TOBISHIME Transmitter TW-510T” (hereinafter specified as “TW-510T”). Thoroughly read through this manual before use to correctly operate.

Once the TW-510T is mounted on the Torque wrench with Limit switch (LS), the tightening completion signal of Torque wrench can be transmitted to each series of our TW-510R.

This high capacity Radio Transmitter running through the weak radio wave of 260MHz zone provides the noise-proof and reliable system.

1-1.Features

- This machine is designed as the successor device to the TW-200T, intended for miniaturizing the overall dimensions.
- The Torque wrench with Limit Switch (LS) currently being used can be easily remodeled into the wireless type.
- This Transmitter consists of compact design using the coin battery type power supply.
- License and qualification for radio unwanted.
- Noiseless weak radio wave of 260MHz-zone is used.
- The antenna-built-in type is superior in handling (controllability).
- The ABS resin case mounted enables the dust & oil mist proof.
- The 8-bit code can be set so that multiple units can be used.

2.Specifications

2.Specifications

Items	Specification	Remarks
Frequency	259.55MHz	R2 *1
	259.65MHz	R4 *1
Intensity of radio wave	Electric intensity at 3m distance is 500 μ V/m or less	Weak radio wave
Modulation method	Binary FSK by the direct modulation	
Transmission method	Unidirectional transmission	
Transmit data	14-bit/1-frame Approximate 7-9frame transmission	1-shot
Input	Limit SW \times 1	SS-01GL(Omron)
	Test SW \times 1	
Communication distance	Approximate 10m in radius	*2
Guarantee of working temperature	0-50 $^{\circ}$ C	
Power supply	Coin battery CR2032(3V)	
Battery life	Approximate 250,000-shot	Measured at interval of 1sec
1-shot time	Approximate 300mS	
Antenna	Mounted in case	
ID setting	8-bit Dip SW	
Display	Battery check display LED	
External size	34 \times 71 \times 17.5mm	See drawing.
Weight	40g (Seat, Limit SW and battery are included)	

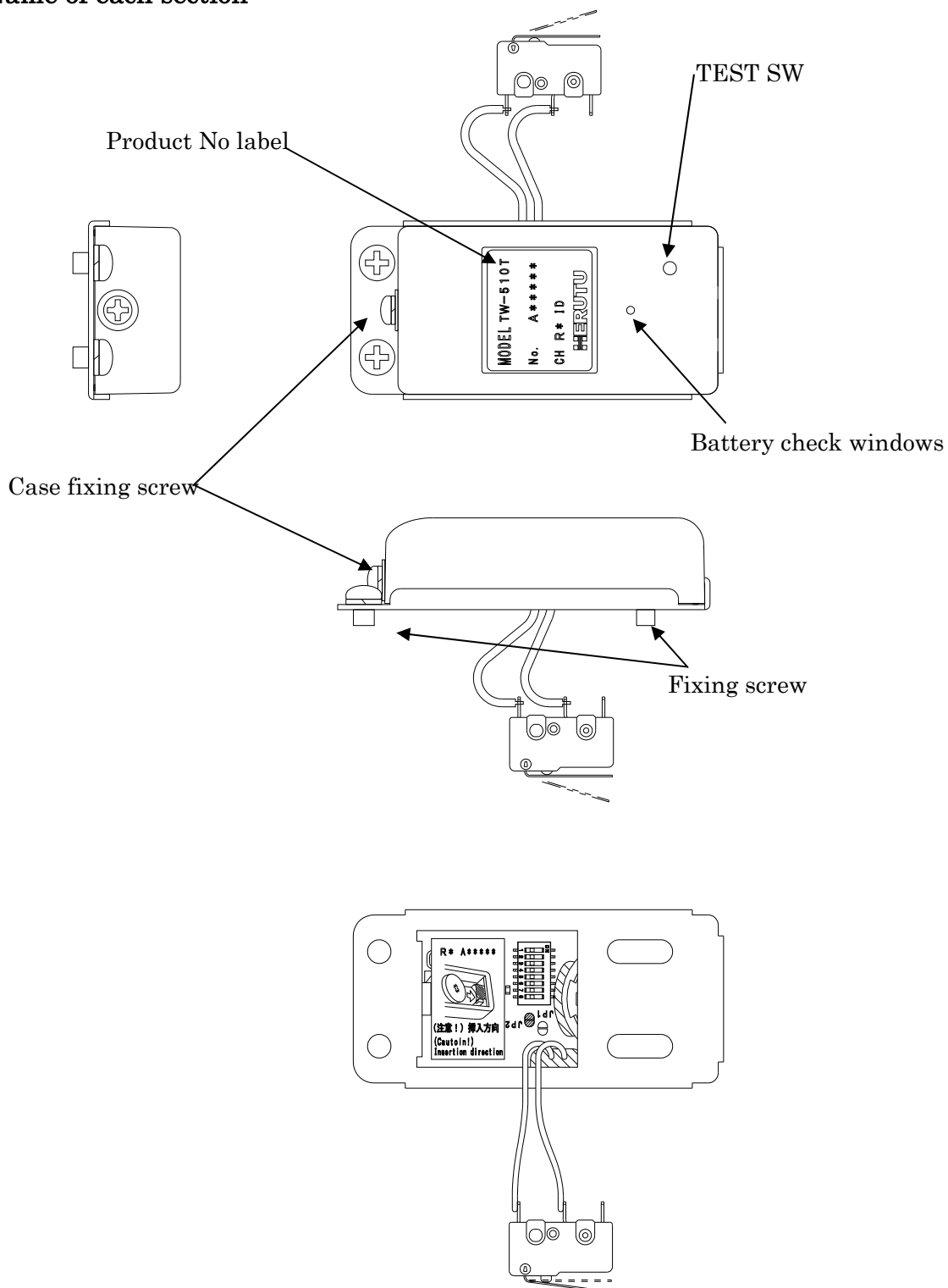
*1:Use either R2 or R4 frequency. (Stated on product number label)

*2:It may sometime disable the communication at the place with a lot of radiation noise emitted from an electrical welding equipment.

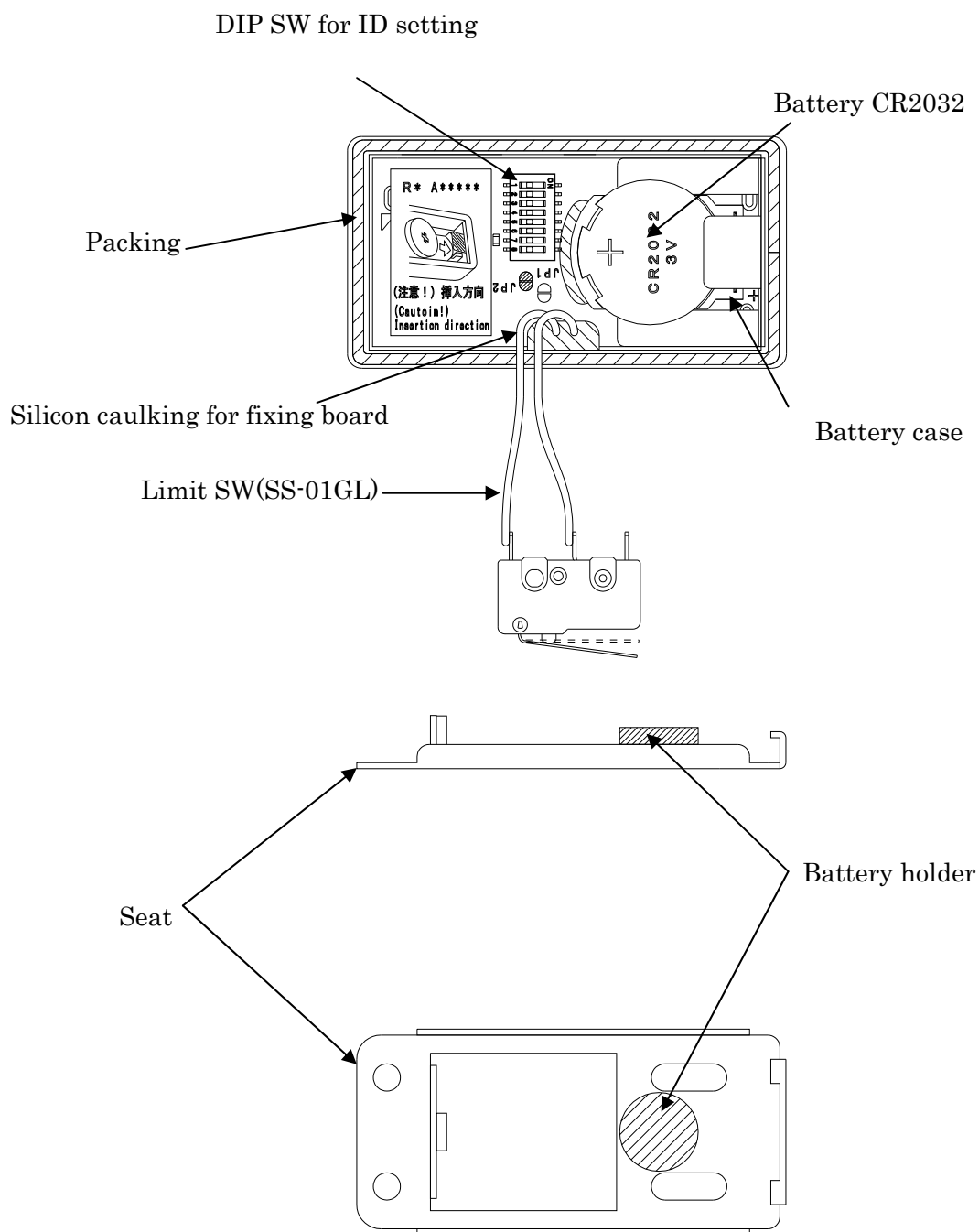
It is possible to interrupt communication at the dead point where a reflected electric wave interferes. We recommend you to use Diversity type receiver (TW-510RD) in such a case.

3.Name of each section

3.Name of each section

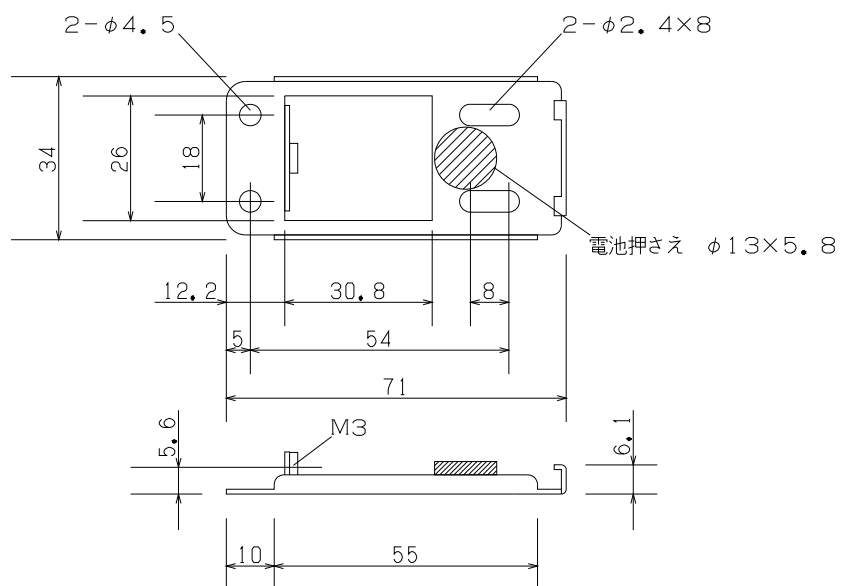
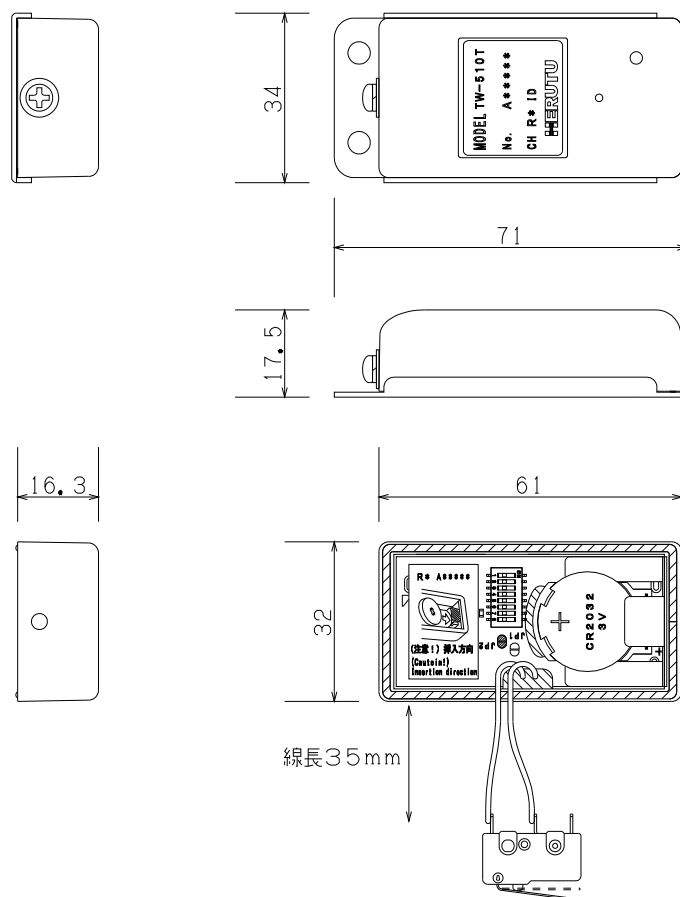


3.Name of each section



4. Dimensional drawing

4. Dimensional drawing

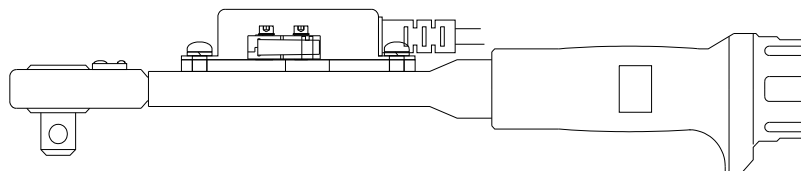


5.To install on the Torque wrench

5.To install on the Torque wrench

5-1.Preparation for installation

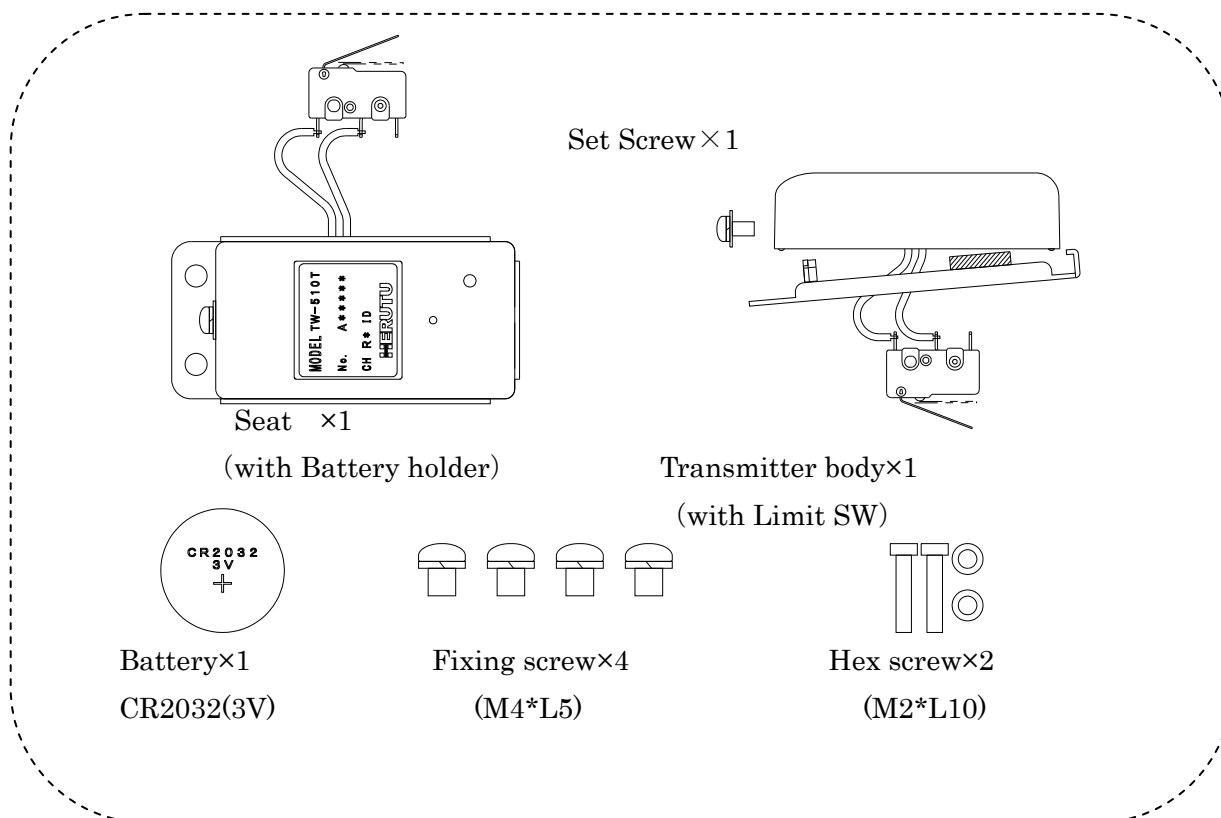
1)Check the parts necessary for installation.



Torque wrench with Limit SW(LS) (User shall prepare)

Note) Depending on the type of Torque wrench, transmitter may not be installed. Contact our sales office.

Transmitter and a set of accessories

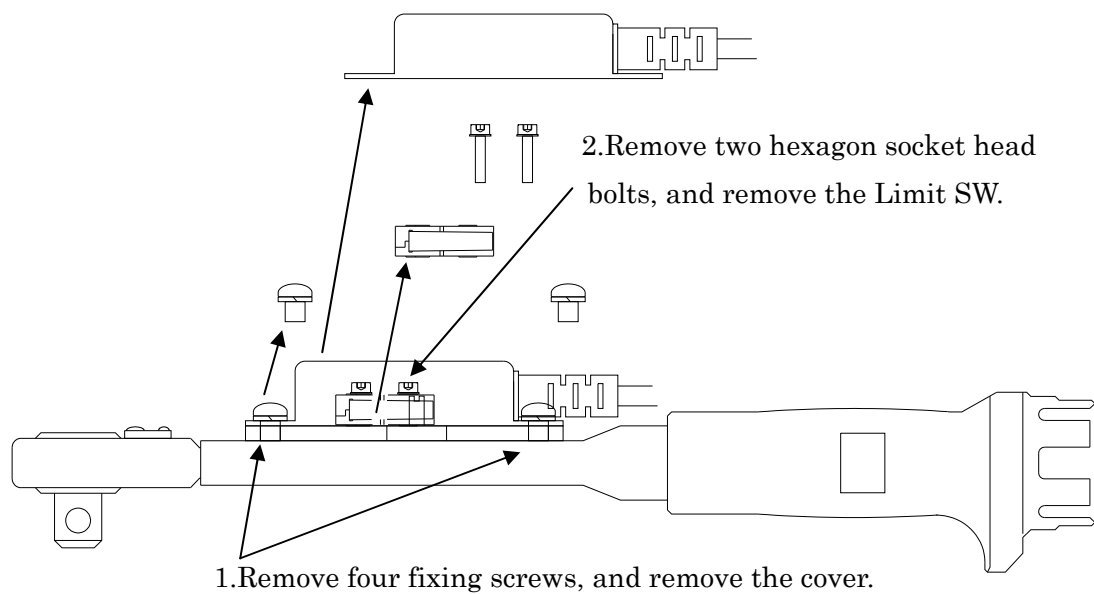


2)Tools necessary for installation

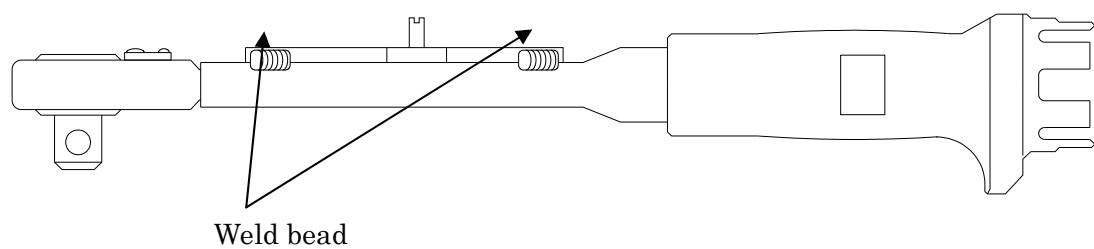
- Allen wrench : Size 1.5mm
- Phillips screwdriver : Size # 2
- Screw locking agent
- Prick punch (sharp edge)

5.To install on the Torque wrench

3)Remove the Cover and Limit SW.



Because the limit SW mounted with Torque wrench as standard has the different current capacity, do not use it.



3.Verify that the Seat of Torque wrench is flat.

If the weld bead is protruded from the Seat, grind it.

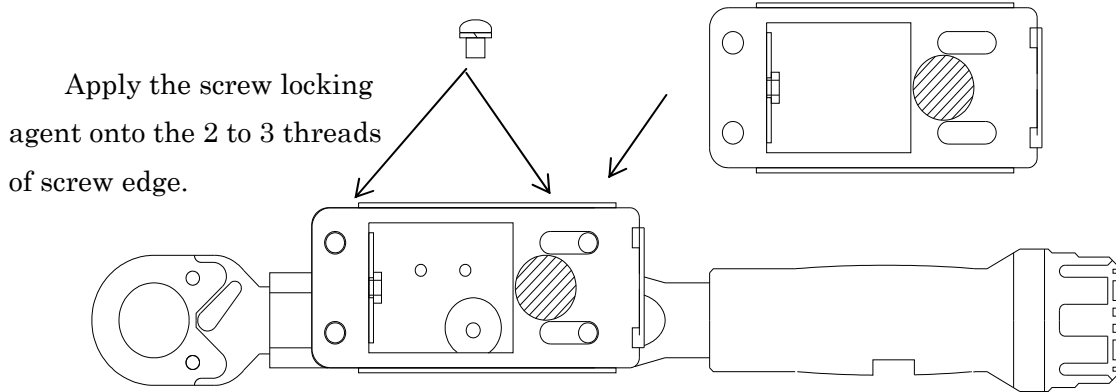
5.To install on the Torque wrench

5-2.Installation

1)To install the Seat

-Fix the Seat with four fixing screws.

-For the application with heavy oil mist, fill up the caulking agent between Wrench seat and Seat and also between Wrench shaft and Wrench seat to protect the internal board.



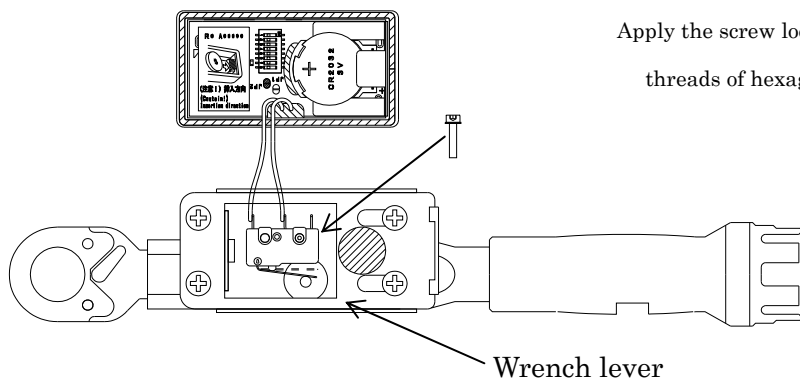
2)For ID setting

-See the next article(6. To change ID) .

3)-Fix the Transmitter Limit SW with two hexagon socket head bolts(which was removed).

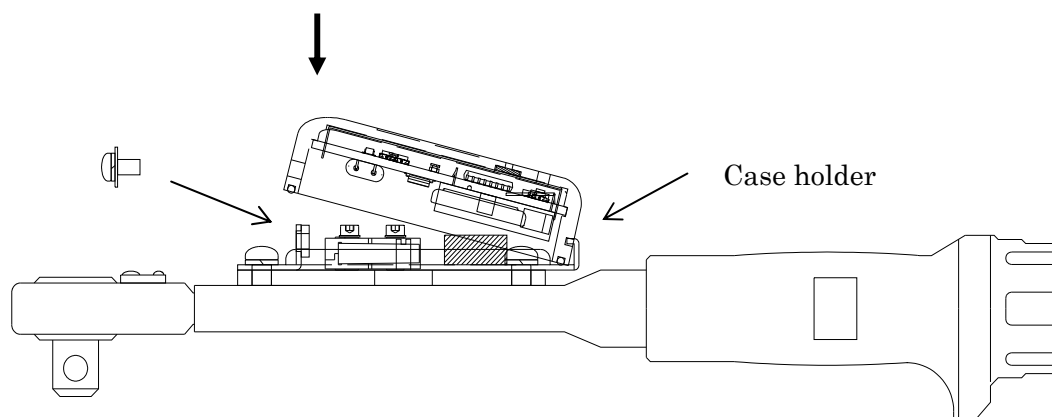
-Verify that the moving range of wrench lever is well suited for the movement range of switch during the wrench in movement.

The hexagon socket head bolt requires a washer.



5.To install on the Torque wrench

4)Hook the Transmitter on the Case holder of Seat, set it with an attention being paid not to bite the cord, and fix it with the set screw as firmly pushing the case.



<Installation and confirmation method of Limit switch>

When the lever movement reach of the torque spanner is small, it isn't possible to hit limit switch, and a transmitter doesn't send. Please be careful sufficiently in case of a limit switch installation. We'll recommend to install it using testers and confirm the state as follows.

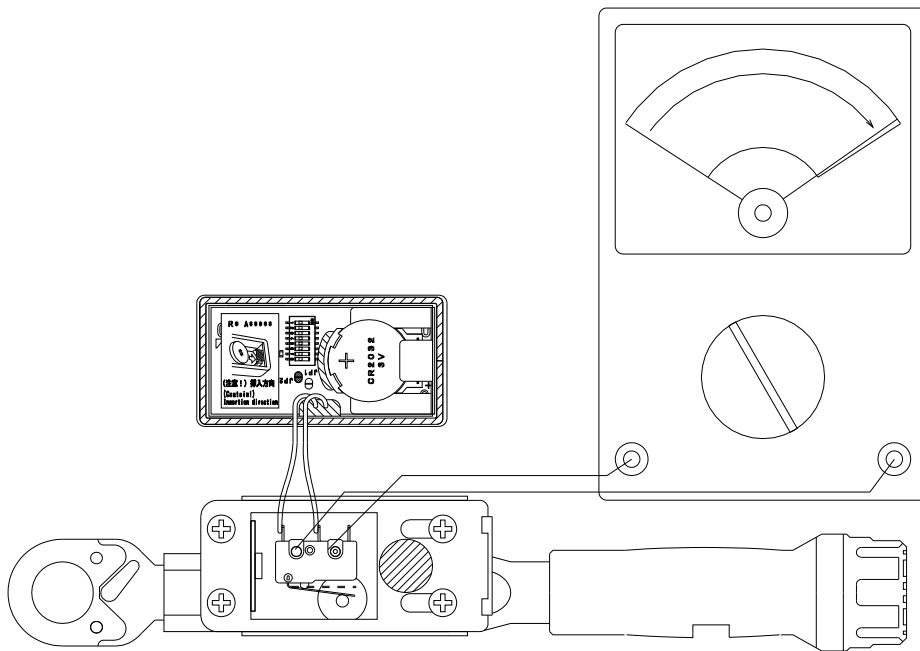
1. A wrench is made an adjustment to the use Newton value
2. The limit switch is tacked in a wrench.
3. The connector of wrench socket is set on the vice table or to fix it in order to turn the bolt. Please be careful sufficiently not to be broken the wrench.
4. Limit switch is connected with a tester.(+)(-) is as follows.
5. A limit switch of a wrench moves a wrench to the done location and fixes hexagon socket head cap bolt by the location a limit switch enters certainly. A wrench has a roughly 2 sets of mounting hole, and the person who arrives obediently is chosen. Hexagon socket head cap bolt is M2 and a mounting hole of a limit switch is $\phi 2.35$, so it's adjusted by slanting having for this difference. Please bend and don't adjust a lever. When the torque did the location of the lever, it's adjusted at the location which isn't forced more than level.

5. To install on the Torque wrench

6. It's confirmed whether it receives in its state and normally outputs.

It's confirmed once again whether the lever location isn't forced too much.

7. A case of TW-510T is covered, and it's confirmed whether a receiver normally receives.



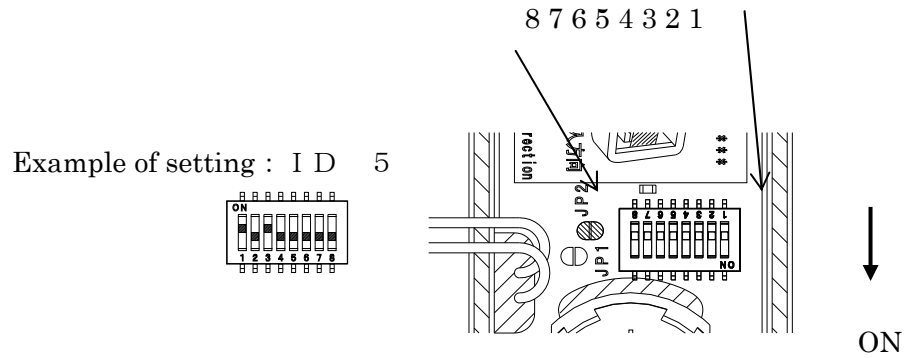
6.To change the ID setting

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6-1.Displaying method of ID

The ID is normally addressed in decimal notation, however, for setting, convert it into binary notation and set it with the DIP Switch.

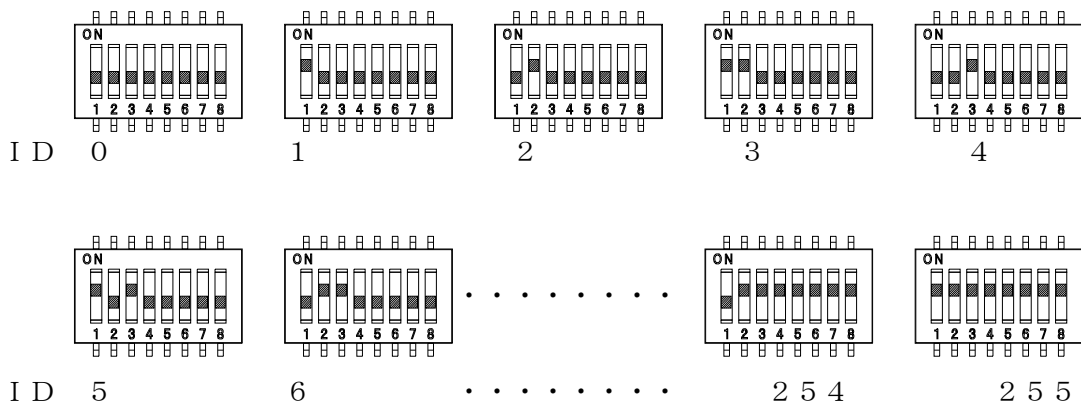
The following figure shows the case where each bit of DIP switch is set in decimal notation.



Bit	Bit weight	Decimal number
1	$2^0 =$	1
2	$2^1 =$	2
3	$2^2 =$	4
4	$2^3 =$	8
5	$2^4 =$	16
6	$2^5 =$	32
7	$2^6 =$	64
8	$2^7 =$	128

Add "ON bit".
 e.g. : If "1" and "3" are ON, $1 + 4 = 5$

The examples of ID setting are shown below.



The 8-bit ID includes 256-type ranging from 0 to 255.

6.To change the ID setting

6-2.To change the ID setting

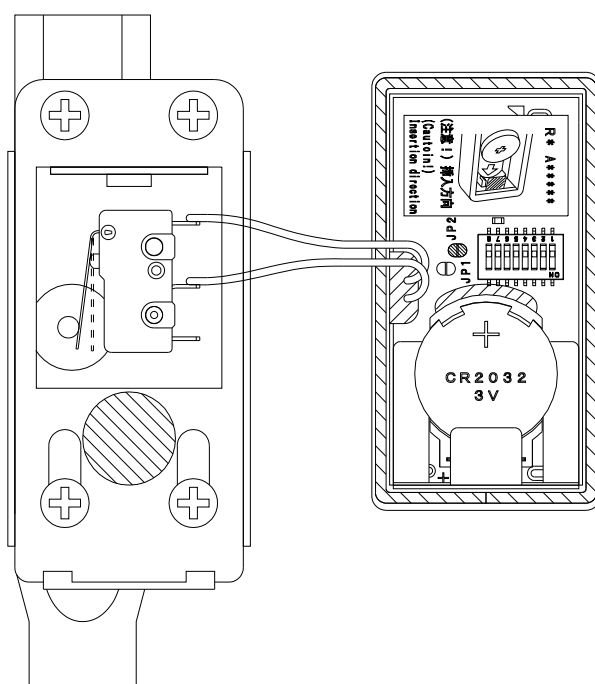
Pull out the fixing screw of Transmitter, and disassemble the main body from the Seat.

Change the ID of Transmitter according to the Display stated in previous page.

Verify that Receiver is set in the same contents as well.

Set the lever of Dip Switch using the sharp edge like Prick punch.

The Dip Switch can be easily damaged. Do not apply an excessive force during setting.



Test the transmission before assembling to check that Receiver is consistent with the ID number.

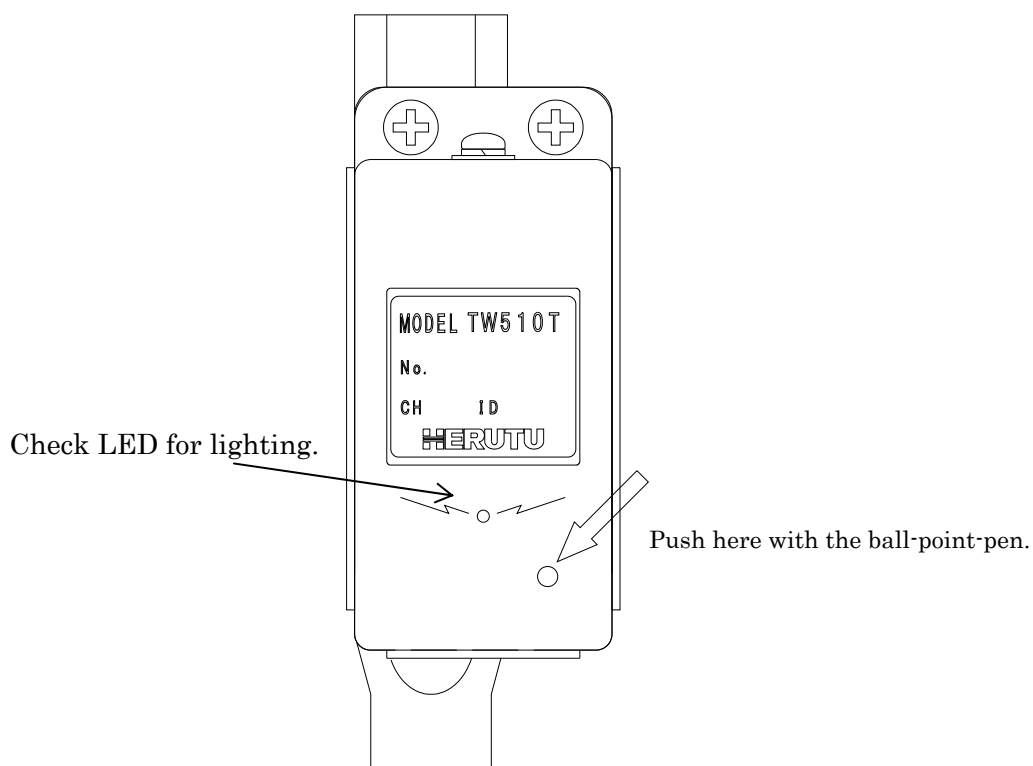
Upon completion of setting, install the Transmitter according to “5-2 Installation” with an attention being paid not to bite the cord.

7.Operational methods

7.Operation methods

7-1.To test the Transmitter

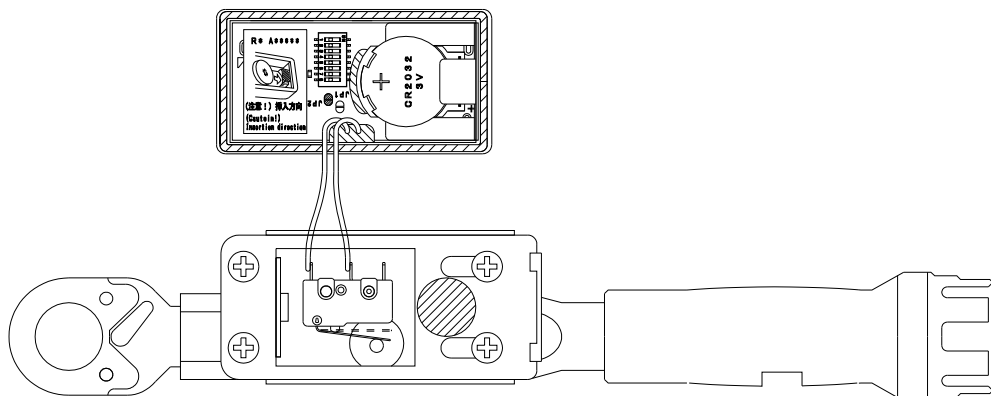
- Push the Test switch of Transmitter using the edge of ball-point pen.
(LED is lit on Battery check window and data for one shot is transmitted.)
- Verify the Transmitter for LED lighting conditions through the Battery check window.
- If LED blinks or does not light on during Test switch being pressed, replace the battery (CR2032).
- The battery should be checked not only before operation but also after use.
- Checking the operation(Output, Buzzer sound) of Receiver allows you to confirm the communication status.



7.Operational methods

7-3.To replace the battery

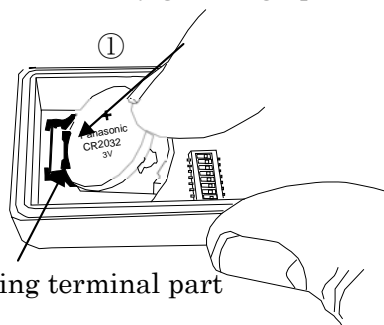
Pull out the fixing screw from Transmitter, and disassemble it from the Seat.



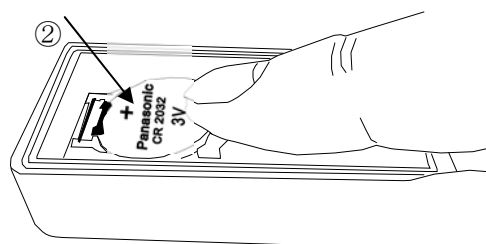
<Installation and removing the coin battery for transmitter>

●Installation the coin battery for transmitter

"+ terminal side" of a coin battery (CR2032) is turned up.A coin battery is previously inserted in a gilding terminal part like following figure ②. Then, as shown in the following figure ①, a coin battery is lightly pushed in from a top. Please push until it snap on so that it may get hung up to two pawls of the resin part of a battery holder.

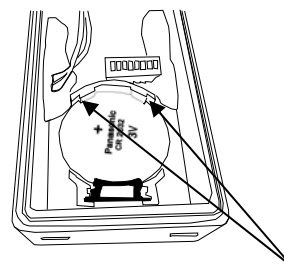


Gilding terminal part



[Caution!]

Please be sure to insert a battery from a gilding terminal part. If it inserts from a resin part, a gilding terminal part may be damaged.

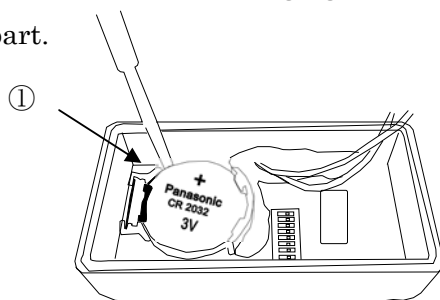


Pawls of the resin part

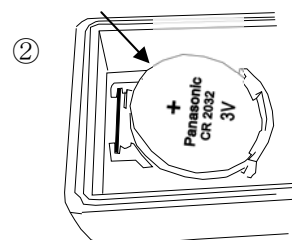
7.Operational methods

●Removing the coin battery for transmitter

When removing a coin battery by exchange etc., as a tip is not sharp and shown in the following figure①, It inserts so that the bottom portion of a battery may be raised lightly. As shown in the following figure②, a battery removes from the pawl of a gilding terminal part.



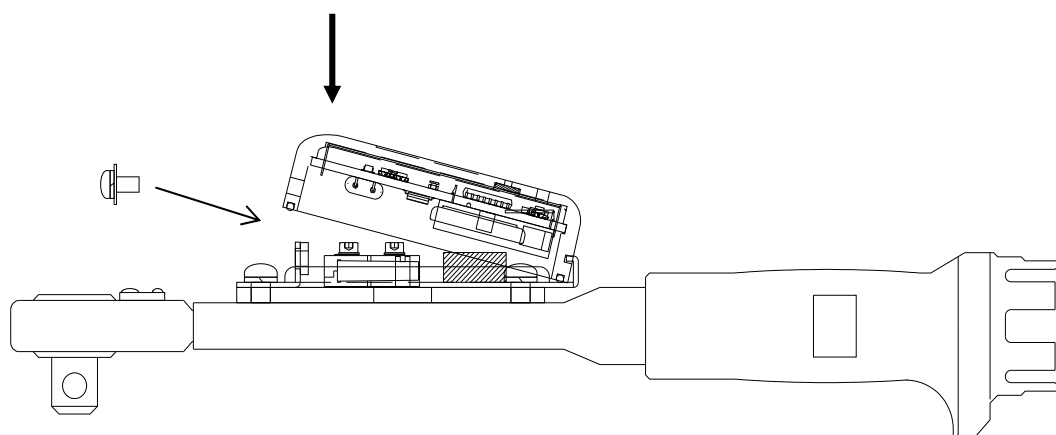
A battery removes from the pawl of a gilding terminal part.



[Caution!]

In the case of installation a battery and removing, please carry out carefully so that the limit switch cable of TW-800T is not broken. We recommend you to work removing a limit switch cable from a connector.

Replace the old battery with the new one(CR2032) , hook the Transmitter on the Case holder, set it with an attention being paid not to bite the cord, and then fix it with the set screw as firmly pushing the case.



When new battery is set, it is possible to emit an electric wave per shot.

8.Precautions during use

8.Precautions during use

- This machine is the precision equipment covered with plastic frame. Do not give an excessive impact.
- Use a care during setting as the Dip Switch for setting ID can be easily damaged. Carefully make setting using the edged tool like Prick punch.
- Shift the battery to the arrow mark side before disconnecting the battery.
- Do not use the edged tool like prick punch when pressing the Test switch.
(Use an extreme care not to damage the Pawl of Battery holder during replacement of battery.)
- Use a care not to bite the cable of Limit switch when replacing a battery or changing the ID setting.

■ About the reliability of the wireless communication.

Wireless communication has the aptitude different from Wired, and generates a Wireless communication error by following factor.

- Over the wireless communication length
- There is entered dead point.
- There is a strong jamming beam.

When it's a problem on the practical use to be interfered with later when being frequently interfered with, please use after use is canceled and the cause of the interference is excluded. The situation that a wireless communication can't also be received besides the above factor occurs, so after understanding beforehand, please use.

※ A sent radio wave influences a reflected radio wave on a wall from a transmitter, and dead point is the area a radio wave becomes weak extremely where.

It can't sometimes be received by simultaneous sending * done case and receiving equipment from more than 2 transmitters in the same channel (frequency).

Even if the ID setting is made different setting for a phenomenon by intervention of the frequency which is being transferred by air, it isn't possible to settle the same symptom.

When practical use like the above is assumed, it's necessary to correspond by channel change, so please even consult about our Sales Division.

*: Sending at the same time within about 0.5 seconds with the simultaneous sending I say here is meant.

When shipping a transmission channel of a this machine only by 1 wave, it'll be fixing. It isn't possible to receive a signal by a receiver in a channel different from a transmitter.

9.Troubleshooting

9.Troubleshooting

[Normal communication does not run]

- ◇ Is the battery used up?
 - : Depress the test SW to check if battery check LED lights on.
- ◇ Are “Radio frequency and ID” different from those of Receiver?
 - : Check the Receiver for its channel and ID.
- ◇ Is this machine used outside the radio wave access range?
 - : Use this machine within the radio wave access range.
- ◇ Does the dead point occur?
 - : If commutation does not run at a given point, dead point might have occurred. Change the position of Receiver (Layout changing also allows to change) or we recommend you to use the Diversity type Receiver (TW-***RD) Contact our sales office for demonstration equipment.
- ◇ Is the moving range of wrench lever is out of the movable range of limit switch during operation of wrench?
 - : Verify the Limit switch for its installation.
- ◇ Is a noise generated?
 - : If communication does not run during a given time zone or due to the operation of the specific device, noise might be generated.

10.Warranty

10.Warranty

The provisions of warranty are set forth by us for warranty of the product after shipment so that the product can be used with a sense of security after purchased. In case our product is out of order, we will provide repair or replacement under the provisions of warranty.

■ Warranty period

Besides, as long as there is not providing, the warranty period shall be 13 months after shipping the products. During the warranty period, we will provide free-of-charge repair subject to the provisions of warranty set forth in the warranty certificate.

If you have anything unclear about the repair or follow-up service during the warranty period, please contact the outlet store through which you purchased the product or our Sales Office.

■ Scope of warranty

If the product should get out of order under the normal conditions of use by the customer, we will repair the failed section(s) free of charge or exchange the new one free of charge subject to the provisions of warranty. Please contact the outlet store through which you purchased the product or our Sales Office.

Also, the warranty period shall be 13 months after shipping the product or shall be 6 months after shipping substituting goods. The warranty periods will be applied the period visited later.

Note, however, that free-of-charge repair under this warranty is limited to the hardware components of the product. Even during the warranty period, the customer shall be responsible for repair cost if any of the following applies:

1. Troubles or damages occurring due to improper handling by the customer, such as a fall, a shock, etc. during transportation or movement of the product by the customer.
2. Troubles caused by overhaul or remodeling of the main body by the customer.
3. Troubles or damages caused by fire, earthquake, flood damage, or other natural disasters, as well as by abnormal voltage.
4. Troubles resulting from any trouble of devices connected to the product, which Devices are other than those designated by us.
5. Troubles with the accessories (AC adapter, antenna, connection cables, or the like) except the main body.
6. Repairing, adjustment, modification by except our company

10. Warranty

7. Replacement of consumables and limited-life items (including batteries).

Consumables and limited-life items include, but not limited to:

- (1) Switches (limit switches, pushbutton switches, or the like)
- (2) Battery cells or batteries (dry batteries, button batteries, or the like)
- (3) Other items subject to consumption or limitation of life caused by use.

8. Troubles occurring due to handling against the use instructions or precautions specified in this operation manual.

■ Initial defects

The period within 30 days from the date of shipping the product is defined as the initial defect period for the product. The product will be replaced with a new one or repaired free of charge provided that it is returned to the outlet store through which you purchased the product or our Sales Office, checked, and recognized as having initial defects. For initial defects, we shall be responsible for the shipping cost.

But it is in Japan only. In case of purchasing the products out of Japan, it will be decided after conference about shipping cost for returning back, insurance cost, custom duty.

■ Disclaimer

We will assume no liability for any damages or monetary losses, direct or indirect, arising out of troubles, failures, or use of the product.

■ Repair service period

Only if we have the stock of parts for repairing, even if after finishing the warranty period, we will repair the product within 5 years after end of production or a fee.

However, we reserve the right to use substitute parts or devices for repairing purposes. If there are unavoidable reasons such as unavailability of service parts.

■ Others

•Independent of the warranty period, the product to be repaired shall in principle be brought into our site because of the necessity of using measuring instruments or the like for adjustments etc., and the shipping cost etc. incurred in bringing the product into our site shall be borne by the customer.

10. Warranty

- In such cases where you request a trip to your place for repair or need substitute devices during the warranty period, please contact the outlet store through which you purchased the product or our Sales Office. We will correspond for a fee.
- We reserve the right to refuse replacement or repair if we are unable to reproduce the concerned failure at our engineering department after receipt of a request for repair.

In addition, an additional charge may be made to the customer for the technical examination cost incurred in reproducing the failure.

- The information in this manual, our website, catalog we supply, is subject to change without prior notice. Please be forewarned.

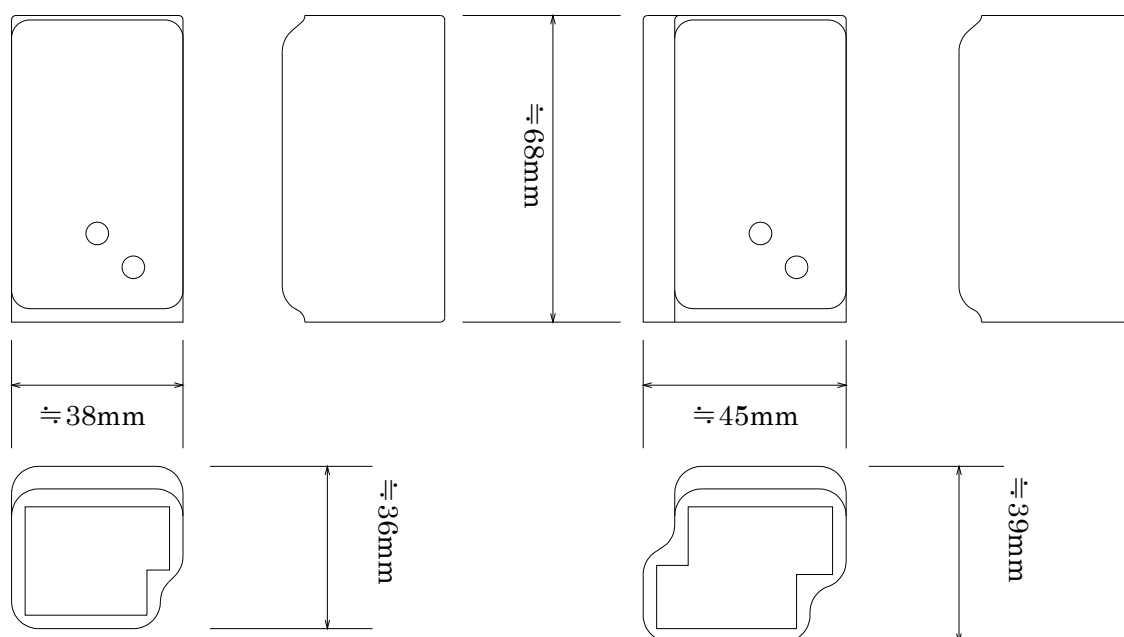
11.Option

11.Option

The Protective cover case (for value) is available as an option to the Transmitter.

Model TW-510C-1

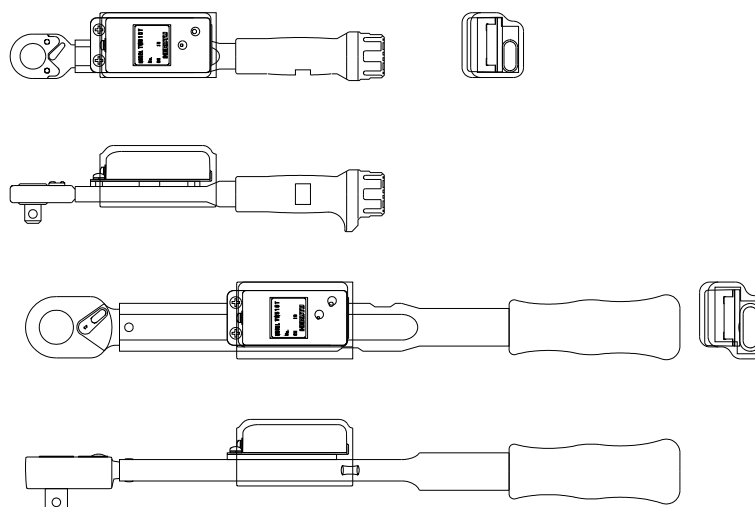
TW-510C-2



Material : Transparent soft polyvinyl chloride

Size : Reference value

Example of installation



Appendix ID Setting list

IDNo.	DIP SW 1~8	IDNo.	DIP SW 1~8	IDNo.	DIP SW 1~8	IDNo.	DIP SW 1~8	IDNo.	DIP SW 1~8
0	00000000	52	00101100	103	11100110	154	01011001	205	10110011
1	10000000	53	10101100	104	00010110	155	11011001	206	01110011
2	01000000	54	01101100	105	10010110	156	00111001	207	11110011
3	11000000	55	11101100	106	01010110	157	10111001	208	00001011
4	00100000	56	00011100	107	11010110	158	01111001	209	10001011
5	10100000	57	10011100	108	00110110	159	11111001	210	01001011
6	01100000	58	01011100	109	10110110	160	00000101	211	11001011
7	11100000	59	11011100	110	01110110	161	10000101	212	00101011
8	00010000	60	00111100	111	11110110	162	01000101	213	10101011
9	10010000	61	10111100	112	00001110	163	11000101	214	01101011
10	01010000	62	01111100	113	10001110	164	00100101	215	11101011
11	11010000	63	11111100	114	01001110	165	10100101	216	00011011
12	00110000	64	00000010	115	11001110	166	01100101	217	10011011
13	10110000	65	10000010	116	00101110	167	11100101	218	01011011
14	01110000	66	01000010	117	10101110	168	00010101	219	11011011
15	11110000	67	11000010	118	01101110	169	10010101	220	00111011
16	00001000	68	00100010	119	11101110	170	01010101	221	10111011
17	10001000	69	10100010	120	00011110	171	11010101	222	01111011
18	01001000	70	01100010	121	10011110	172	00110101	223	11111011
19	11001000	71	11100010	122	01011110	173	10110101	224	00000111
20	00101000	72	00010010	123	11011110	174	01110101	225	10000111
21	10101000	73	10010010	124	00111110	175	11110101	226	01000111
22	01101000	74	01010010	125	10111110	176	00001101	227	11000111
23	11101000	75	11010010	126	01111110	177	10001101	228	00100111
24	00011000	76	00110010	127	11111110	178	01001101	229	10100111
25	10011000	77	10110010	128	00000001	179	11001101	230	01100111
26	01011000	78	01110010	129	10000001	180	00101101	231	11100111
27	11011000	79	11110010	130	01000001	181	10101101	232	00010111
28	00111000	80	00001010	131	11000001	182	01101101	233	10010111
29	10111000	81	10001010	132	00100001	183	11101101	234	01010111
30	01111000	82	01001010	133	10100001	184	00011101	235	11010111
31	11111000	83	11001010	134	01100001	185	10011101	236	00110111
32	00000100	84	00101010	135	11100001	186	01011101	237	10110111
33	10000100	85	10101010	136	00010001	187	11011101	238	01110111
34	01000100	86	01101010	137	10010001	188	00111101	239	11110111
35	11000100	87	11101010	138	01010001	189	10111101	240	00001111
36	00100100	88	00011010	139	11010001	190	01111101	241	10001111
37	10100100	89	10011010	140	00110001	191	11111101	242	01001111
38	01100100	90	01011010	141	10110001	192	00000011	243	11001111
39	11100100	91	11011010	142	01110001	193	10000011	244	00101111
40	00010100	92	00111010	143	11110001	194	01000011	245	10101111
41	10010100	93	10111010	144	00001001	195	11000011	246	01101111
42	01010100	94	01111010	145	10001001	196	00100011	247	11101111
43	11010100	95	11111010	146	01001001	197	10100011	248	00011111
44	00110100	96	00000110	147	11001001	198	01100011	249	10011111
45	10110100	97	10000110	148	00101001	199	11100011	250	01011111
46	01110100	98	01000110	149	10101001	200	00010011	251	11011111
47	11110100	99	11000110	150	01101001	201	10010011	252	00111111
48	00001100	100	00100110	151	11101001	202	01010011	253	10111111
49	10001100	101	10100110	152	00011001	203	11010011	254	01111111
50	01001100	102	01100110	153	10011001	204	00110011	255	11111111
51	11001100								

It is described 1:ON 0:OFF