Digital Torque Screwdriver

Model STC2-G

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.

STC200CN2-G

※Bits are sold separately.
※Commercially available hexagonal bits with a 6.35 mm width across flats can be used.

Contents

Safety Precautions ・・・・・・・・・・・・・・・ 1
1. Outline ・・・・・・・・・・・・・・・ 2
2. Features ・・・・・・・・・・・・・・・ 2
3. Specifications ・・・・・・・・・・・・・・・ 2
4. Names of Parts ・・・・・・・・・・・・・・・ 3
5. Setting Mode ・・・・・・・・・・・・・・・ 4
6. Usage ・・・・・・・・・・・・・・・ 6
7. Torque Range & Remaining Battery Capacity Display ・・ 8
8. Calculation Function ・・・・・・・・・・・・ 9
9. Measurement Data Output ・・・・ 10
10. Measurement Data Memory Clear ・・ 11
11. External Output Specifications ・・・・・・ 12
12. Charging ・・・・・・・・・・・・・・・ 13
13. Error Displays ・・・・・・・・・・・・・・・ 14

⚠Warning

・Consider the ambient environment of the workplace.
・Do not use the main body in the rain or a moist or wet place.
Failure to observe this may result in electric shock or smoking.
Keep the workplace well illuminated.
・Working in a dark place may cause an accident.
・Do not use the product in a place exposed to a combustible liquid or gas.
・Use specified accessories and options.
Failure to observe this may cause an accident or an injury.

⚠Cautions

(1) Use only the specified battery.
(2) When not using the product for a long period of time, store it with the battery removed.
(3) Do not give vibrations or a shock to the product.
(4) Use the product only in the working environment mentioned in the operating instruction.
(5) Before use, carry out daily inspection to check the settings.
(6) Note that if the product is wetted with water or oil, it may result in trouble or burnout.
(7) Note that if the product is dropped or hit, it may result in damage and trouble.
(8) Use the product within the measurement range mentioned in the operating instruction.
(9) Be sure to conduct periodic inspection on the product.
If the product emits a foul odor or ignites during use, stop using it immediately,
move this measuring instrument to a safety place, and contact TOHNICHI MFG. CO., LTD.

1. Outline

The operating instruction describes a digital torque screwdriver designed for tightening and inspection.
If the upper-limit and lower-limit values are preset in the tightening mode, you are informed of completion of tightening by a LED and a buzzer.
If the upper-limit and lower-limit values are preset in the inspection mode, you are informed of OK/NG judgment by a LED and a buzzer.

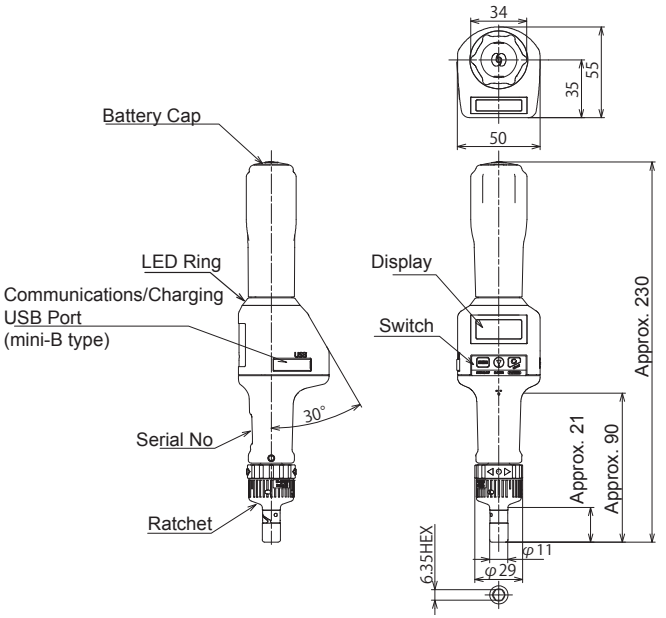
2. Features

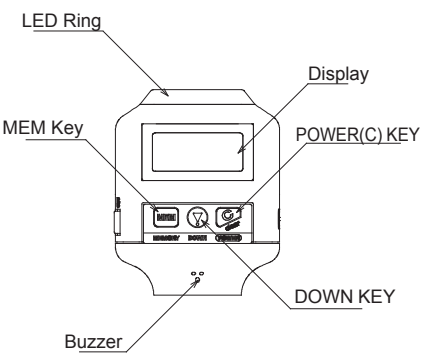
- A tightening torque level is informed by the LED's color ((white lighting, blue lighting, yellow/red alternate lighting)) and the buzzer.
- The torque indication direction can be reversed depending on the work posture.
- Up to 1,000 measurement data can be stored.
- A built-in lithium ion battery is rechargeable and repeatedly usable.
- ESD (Electrostatic Discharge) protection is supported, conforming to IEC 61340-5-1:2007.

3. Specifications

Model	STC50CN2	STC200CN2	STC400CN2
Torque Range cN·m/1digit	10 ~ 50 / 0.05	40 ~ 200 / 0.2	80 ~ 400 / 0.5
kgf·cm/1digit	1 ~ 5 / 0.005	4 ~ 20 / 0.02	8 ~ 40 / 0.05
lbf·in/1digit	1~ 4.4 / 0.005	4 ~ 17 / 0.02	8 ~ 35 / 0.05
ozf·1n/1digit	15 ~ 71 / 0.05	———	———
Accuracy	±1% +1digit		
Direction	CW/CCW		
Measurement Mode	Tightening mode/Inspection mode		
Data Memory	1000		
Remaining Battery	4 steps		
OK/NG Judgment	Buzzer and LED when the upper and lower limits have been set		
Other Functions	Auto power off, Auto memory/reset, Auto zero		
Power Source	Lithium ion battery		
Data Output	USB		
Continuous Use	Approx. 30 hours		
Battery Charge	AC adapter: Approx. 5 hours, PC (via USB): Approx. 10 hours		
Operating Environment	0 to 40 °C, 85 % RH or less (no condensation)		
Accessories	AC adapter, USB cable, lithium ion battery		
Weight	Approx. 325 g		

4. Names of Parts





① Display
Shows the torque values, counter, units, mode, and remaining battery capacity.

② POWER (C) Key
Switches the power ON, and when held down for 2 seconds or longer, switches the power OFF

③ DOWN Key
Decrements the counter value. When the key is held down, the counter value will decrement in steps of 10. If the POWER (C) key is pressed while holding down the DOWN key, the counter value will increment.

④ MEM Key
Press this key when you want to save data

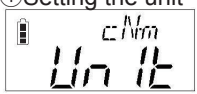
⑤ LED Ring
When upper-limit values and lower-limit values have been set, indicates the OK/NG judgment and the charging condition.

⑥Buzzer
Gives notification of various conditions with a beeping sound.

5. Setting Mode

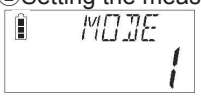
Press the Clear key to turn on the power.
With a counter value of “0000” being displayed, hold down the MEM key for 2 seconds or longer to display the setting screen.To increment the counter value, press the Clear key together with the ▼ key.
The counter value is incremented in steps of 10; set to “0000”.
Further, by holding down the ▼key, the counter value will decrement in steps of 10 and will then stop at “0000”

①Setting the unit



Use the ▼ key to select a unit. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

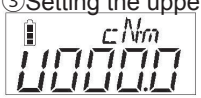
②Setting the measurement mode



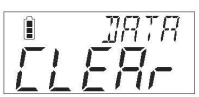
Use the ▼key to select a measurement mode.
Press the MEM key to proceed to the next step. Press the Clear key to return to the measurement screen.
1 => 2 => 1 (Mode 1: Inspection mode, Mode 2: Tightening mode)

If the mode is changed over, the data measured in the previous mode is cleared. If all right, press the MEM key to proceed to the next step.
To output the data, press the Clear key to return to the measurement screen. Then, output the data.

③Setting the upper limit



Use the ▼key to select a value. Press the Clear key to shift a digit, and press the MEM key to proceed to the next step.



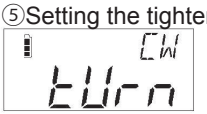
If the upper-limit value has been changed, the data measured using the previous upper-limit value will be cleared. If all right, press the MEM key to proceed to the next step. To output the data, press the Clear key to return to the measurement screen. Then, output the data.

④Setting the lower limit

Use the ▼key to select a value. Press the Clear key to shift a digit, and press the MEM key to proceed to the next step.
If the upper-limit and lower-limit values have been zeroed, proceed to ⑥Setting the auto memory/reset.

If the lower-limit value has been changed, the data measured using the previous lower-limit value will be cleared. If all right, press the MEM key to proceed to the next step. To output the data, press the Clear key to return to the measurement screen. Then, output the data.

⑤Setting the tightening direction

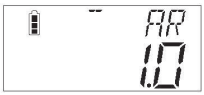


Use the ▼ key to select the tightening direction. Press the MEM key to proceed to the next step. Press the Clear key to return to the measurement screen.
CW => CCW => CW (CW: Clockwise, CCW: Counterclockwise)

⑥Setting the auto memory/reset

Use the ▼ key to select a time. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

0.0 => 5.0 => 4.0 => 3.0 => 2.0 => 1.0 => 0.5 => 0.4 => 0.3 => 0.2 => 0.1 => 0.0 sec.



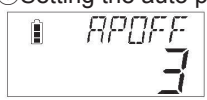
If any value other than 0.0 is set, " - - " appears as shown in the left figure, indicating that the auto memory/reset has been set.

⑦Setting the buzzer

Use the ▼ key to select ON/OFF. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

ON => OFF => ON

⑧Setting the auto power off



Use the ▼ key to select a time. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

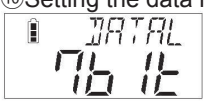
3 minutes => nonE (no auto power off) => 30 minutes => 10 minutes => 3 minutes

⑨Setting the baud rate

Use the ▼ key to select a baud rate. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

2400bps⇒19200bps⇒9600bps⇒4800bps⇒2400bps

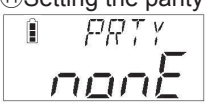
⑩Setting the data length



Use the ▼ key to select a data length. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

7⇒8⇒7bit

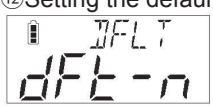
⑪Setting the parity



Use the ▼ key to select a parity. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

nonE (none) => odd (odd number) => EvEn (even number) => nonE (none)

⑫Setting the default



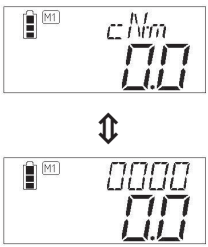
Use the ▼ key to select a default. Press the MEM key to proceed to the next step.
Press the Clear key to return to the measurement screen.

dFt-n => dFt-y (return to the factory default) => dFt-n

6. Usage

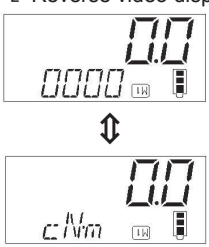
①M1: Inspection mode

①-1 Power-on



Press the CLEAR key to turn on the power.
If the counter value is “0000”, press the MEM key to increment it to “0001”.
To decrement the counter value, press the ▼ key.
Holding the ▼ key and press the CLEAR key decrements it in steps of 10.(When the key is held down, the counter value will stop at “0000”.)
To increment the counter value, press the CLEAR key while holding down the ▼ key to increment it in steps of 10.
The unit and the counter value are displayed alternately in the measurement screen.

①-2 Reverse video display



To display in reverse video, press the MEM and ▼ keys at the same time.

①-3 Retightening inspection

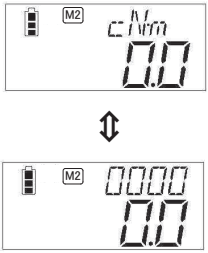
Set the counter value to “0001”.
Implement retightening inspection and press the MEM key. To clear the data, press the CLEAR key.
If the auto memory/reset has been set, it is activated to increment the counter value by 1 after a lapse of the setting time.
If upper and lower limit setting has been carried out, OK/NG judgment will be carried out when the MEM key is pressed or after an auto memory/reset. If the measured value is between the lower-limit value and the upper-limit value, the LED ring will be illuminated in blue for 1 second and the buzzer will make a continuous beep sound. If the measured value is greater than the minimum torque measurement range and is also less than the lower-limit value or greater than the upper-limit value, the LED ring will be illuminated alternately in yellow and red and the buzzer will make an intermittent beeping sound.
If upper and lower limit setting has not been carried out, or if the measured value is below the torque measurement range, the LED ring will not be illuminated and the buzzer will not sound.

①-4 Data check

With the counter value of other than “0000” being displayed, hold down the MEM key for 2 seconds or longer to display the computation screen.
Press the MEM key once to display a data volume, twice to display a maximum value, three times to display a minimum value, and four times to display an average value.
Press the CLEAR key to return to the measurement screen.

②M2: Tightening mode

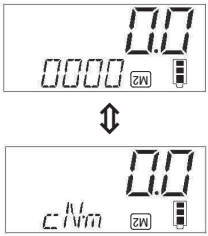
②-1 Power-on



Press the C key to turn on the power.
If the counter value is “0000”, press the MEM key to increment it to “0001”.
To decrement the counter value, press the ▼ key together with the ▼ key. Holding down the key decrements it in steps of 10. (When the key is held down, the counter value will stop at “0000”.)
To increment the counter value, press the C key while holding down the ▼ key to increment it in steps of 10.

The unit and the counter value are displayed alternately in the measurement screen.

②-2 Reverse video display



To display in reverse video, press the MEM and ▼ keys at the same time.

②-3 Tightening operation

If the upper and lower limits have been set, the LED ring is illuminated in white and the buzzer beeps intermittently when reaching 80% of the lower-limit value.
When between the lower-limit and upper-limit values, the LED ring is illuminated in blue and the buzzer beeps continuously.
When beyond the upper-limit value, the LED ring is illuminated alternately in yellow and red and the buzzer beeps intermittently at short intervals.
Once tightening is completed, press the MEM key. To clear the data, press the C key.
If the auto memory/reset has been set, it is activated to increment the counter value by 1 after a lapse of the setting time.
If the upper and lower limits have not been set, or if the measured value is below the torque measurement range, the LED ring is not illuminated and the buzzer does not sound.

②-4 Data check

With the counter value of other than “0000” being displayed, hold down the MEM key for 2 seconds or longer to display the computation screen.
Press the MEM key once to display a data volume, twice to display a maximum value, three times to display a minimum value, and four times to display an average value.
Press the C key to return to the measurement screen.

7. Torque Range / Remaining Battery Capacity Display

Overtorque Alarm and Peak Hold Start Torque

Model	STC50CN2	STC200CN2	STC400CN2
Torque Range cN・m	10～50	40～200	80～400
1digit	0.05	0.2	0.5
Overtorque Alarm*1	52.50	210.0	420.0
Peak Hold Start Torque*2	3.75	15.0	30.0
Auto Zero Range*2	3.75	15.0	30.0

*1:MAX Torque 110%
*2:MIN Torque 37.5%

Remaining Battery Capacity Display Function

There is a sufficient remaining battery capacity.

The remaining battery capacity has been lowered.
A remaining available time is about half.

It is about time to recharge.

Battery alarm state
The battery remaining capacity has run out. Recharge immediately.
LCD "----" is displayed, allowing only the power switch to be operated.
Once in this state, the power is turned off in one minute.
The stored data and various settings remain if the battery runs out.

8. Calculation Function

This function calculates the data volume, maximum value, minimum value and average value of the measurement values in the specified range.

Use the ▼ key to set the counter value to the upper limit of the data range you want to calculates. Hold down the MEM key for 2 seconds or longer to display the computation screen.

Displays the computation starting counter
Press the ▼ key to set the starting counter value.
Press the MEM key. Press the Clear key to cancel.

Displays the data volume.
Press the MEM key. Press the Clear key to cancel.

Displays the maximum value.
(Minus values are computed as absolute values.)
Press the MEM key. Press the Clear key to cancel.

Displays the minimum value.
(Minus values are computed as absolute values.)
Press the MEM key. Press the Clear key to cancel.

Displays the average value.
(Minus values are computed as absolute values.)
Press the MEM key. Press the Clear key to cancel.

Displays the measurement data.

9. Measurement Data Output

Measurement value data in the specified range are externally output in a collective manner. The baud rate, data length and parity settings should be made consistent with the settings of the PC to be connected beforehand.

Use the ▼ key to set the counter value to the upper limit of the data range you want to output. Hold down the MEM key for 2 seconds or longer to display the computation screen.

Press the ▼ key to set the starting counter value.
Press the MEM key. Press the CLEAR key to cancel.

If the ▼ key is pressed with the data volume being displayed, the measurement data are collectively output.
Press the CLEAR key to cancel.

Measurement data batch output is carried out.
When you want to interrupt data output, press the CLEAR key.
The other keys cannot be operated during data output.

After the measurement data batch output,
the LCD will display the data volume again.

10. Measurement Data Memory Clear

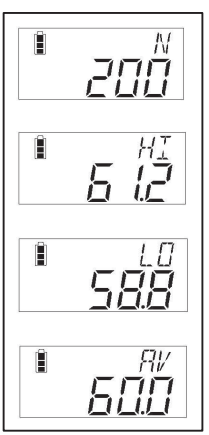
■Clearing 1 data value

Press the ▼ key to display the counter measurement data that you want to clear. Press the C key to clear the counter measurement data that is being displayed.

■Data Range Specified Clearing

Use the ▼ key to set the counter value to the upper limit of the data range you want to clear. Hold down the MEM key for 2 seconds or longer to display the computation screen.

Press the ▼ key to set the starting counter value you want to clear. Press the MEM key. Press the C key to cancel.



In the condition where either of the displays shown in the box in the figure at left are displayed, press the C key while holding down the MEM key, then remove your fingers from both keys.

Measurement data memory clearing is carried out.

The LCD will return to the start counter measurement screen that was cleared.

11. External Output Specifications

USB Interface		Compliant with USB 2.0 (USB-serial conversion chip used)
Connector		USB mini B
Serial Interface	Baud rate	2400, 4800, 9600, 19200 bps (Default: 2400 bps)
	Data length	7 bits/8 bits (Default: 7 bits)
	Stop bit	1 bit
	Parity	None, even number, odd number (Default: None)
	Flow control	Hardware（RTS/CTS）

※Note: Prior to STC2 software version 1.4, flow control: None.
(Version infoemation is displayed by an LCD screen when reset it. See page 14 Reset Operation.)

■USB output method

・Preparation (PC)

①Install a communication driver in the USB responsive PC.
(Download the communication driver from the Tohnichi Mfg. Co., Ltd. website.)

②Set the PC ports and communication format.
(For the installation method and communication setting, see the downloaded operating instruction.)

・Preparation (STC2-G)

③Turn on the STC2-G

④Make the baud rate, data length and parity settings consistent with the settings of the PC.

・Communication

⑤Connect a USB cable (accessory) to the PC and the STC2-G.

⑥Start communication software. (Option)

・Data output

⑦Data output method (See Measurement Data Batch Output.)

NOTE)・Use the accessory USB cable to connect to the PC.
・Communication may not be enabled unless software is started up after connecting the cable.
・Communication is disabled if multiple units of the,STC2-G and our USB serial output products (CEM3-G, ST2, ATGE-G) are connected to the PC simultaneously.

■Output format

R	E	,	0	1	0	0	,	−	1	0	0	.	0	CR	LF

Header — Memory counter (4 digits) — Torque value (Including decimal point) — Delimiter

CW: Blank

CCW: " - "

NOTE)
Measurement is disabled while the USB cable is connected.

12. Charging

■ Charging method with the AC adapter

①Connect a combination of the exclusive AC adapter (accessory) and exclusive USB cable (accessory) to the USB port of the STC2-G.

②Connect the power plug of the AC adapter to an AC 100 to 240 V plug socket.

③ After the STC2-G LED ring has been illuminated alternately in yellow and red during the charging circuit diagnostic operation, confirm that the LED ring changes to white illumination and the charging starts.

Note) In the case where the LED yellow/red alternate illumination does not clear, it can be expected that there is a defect in the charging circuit, lithium ion battery, or in the AC adapter. You should therefore stop using the STC2-G and contact the distributor where you purchased the product or TOHNICHI MFG. CO., LTD. for more information.

④Once charge is completed, the LED ring of the STC2-G is illuminated in blue. Disconnect the AC adapter from the plug socket, and disconnect the USB cable from the USB port of the STC2-G.

■ Charging method with the PC (via USB)

①Turn on the PC.

(2) Connect the exclusive USB cable (accessory) to the respective USB ports of the STC2-G and PC.

(3) After the STC2-G LED ring is illuminated in yellow and red during the charging circuit diagnostic operation, confirm that the LED ring changes to white illumination and the charging starts.

Note) In the case where the LED yellow/red alternate illumination does not clear, it can be expected that there is a defect in the charging circuit, lithium ion battery, or in the personal computer. You should therefore stop using the STC2-G and contact the distributor where you purchased the product or TOHNICHI MFG. CO., LTD. for more information.

(4) Once charge is completed, the LED ring of the STC2-G is illuminated in blue. Disconnect the USB cable from the USB ports of the STC2-G and PC.

■ Charge status indication

LED Ring Indication	Charge Status
Illuminated in white	Charging
Illuminated in blue	Charge is completed. If the battery has fully run out, charge is completed in the following hours. AC adapter: Approx. 5 hours PC (via USB): Approx. 10 hours
Illuminated alternately in yellow and red	Charge error (Including the illumination of the charging circuit diagnostic operation)

NOTE) Measurement is disabled while the USB cable is connected.

13. Error Displays

■Error Displays

If an error is displayed on the LCD display, implement the corrective actions described below or carry out the reset operation.
If the error display is not cleared even after implementing these actions, it can be expected that there is a defect in the keys, circuit boards, or in the memory. You should therefore stop using the STC2-G and contact the distributor where you purchased the product or TOHNICHI MFG. CO., LTD. for more information.

Display	Error Description	Corrective Action
Err1	The MEM key is in the constantly pressed condition.	Switch OFF the power, then switch the power ON again without touching the MEM key.
Err2	The ▼ key is in the constantly pressed condition.	Switch OFF the power, then switch the power ON again without touching the ▼ key.
Err6	Upper/lower limit setting problem	Because it will be possible that the setting values are outside the torque measurement range or that the lower limit setting is higher than the upper limit setting, carry out the setting again.
Err8	Memory abnormality	Holding down the MEM key for 2 seconds or longer in the condition where Err8 is displayed will change the display to the setting screen, so carry out the settings again.
Err9	Torque sensor abnormality	Switch the power OFF, set the STC2-G to the torque unloaded condition, then switch the power ON again.

■Reset Operation

While the STC2-G is in the power OFF condition, press the C clear key while holding down the MEM key, then remove your fingers from both keys immediately afterwards.

Designs and specifications are subject to change without notice.

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