Digital Torque Screwdriver Checker
MODEL DLC-G

Operating Instruction

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

Read these operating instructions carefully before use. For any questions, contact your nearest

distributor or TOHNICHI Mfg. Co., Ltd. Keep these instructions for future use.

> Safety symbol
> This symbol indicates attention is required for your safety. When this symbol appears in these instructions, pay particular attention to 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 caution for the 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 acting as a serious obstacle.

⚠ "Warning" A potential risk of becoming a serious obstacle.

⚠ "Cautions" A potential risk of becoming an obstacle although it does not result seriously.

⚠ Warning

1. Do not use the product if it is in abnormal condition such as emitting smoke, strange smells, or sounds.

   Doing so may cause electric shock or fire.

   Immediately turn off the power, unplug the AC adapter from the outlet, and contact your nearest distributor or TOHNICHI Mfg. Co., Ltd.

2. Do not disassemble or modify the equipment.

   Doing so may impair safety, reduce functionality or service life, or cause failure.

3. If foreign objects or liquids such as water get inside the product, do not continue to use it. Doing so may cause electric shock or fire.

4. Do not connect or disconnect the AC adapter with wet hands. Doing so may cause electric shock.

5. Do not use any power source other than the one indicated (AC100V to 240V ± 10%).

   Using a power source other than the specified one may cause electric shock or fire.

6. Do not use a damaged USB power cord.

   Doing so may cause electric shock or fire.

   Observe the following points when handling the USB power cord.

   · Do not damage, process such as lengthen, or heat.

   · Do not pull it, place heavy objects on it, or pinch it.

   · Do not forcefully bend, twist, or bundle

   · Do not use for other equipment.

7. Please handle the AC adapter with care.

   Incorrect handling may cause a fire.

   · Do not plug in the power supply with foreign objects such as dust attached.

   · Ensure that the power plug is inserted into the base of the blade.

8. When unplugging the AC adapter from the outlet, be sure to hold the AC adapter itself.

9. Do not place the product in an unstable place or a place subject to vibration, such as on a wobbly table or in a tilted place.
   This torque meter may fall and cause injury.
10. Do not install in a location where there is flammable liquid or flammable gas.
    Doing so may cause electric shock or fire.
11. Be sure to use specified accessories and optional items.
    Do not use any accessories or options other than those specified in this instruction manual. Doing so may cause an accident or injury.

⚠ Cautions

1. Do not put this torque meter in a place of much moisture or dust, in a place that is exposed to water or direct sunlight, or in a place where the humidity or temperature fluctuates largely. It may result in electric shock, fire, malfunction, degradation of performance, or failure.
2. Clean the AC adapter periodically. Before cleaning, disconnect the plug from the power outlet and clean the root of the plug.
3. If this torque meter is not to be used for a long time, be sure to disconnect the AC adapter from the power outlet.
4. When moving this torque meter, for safety reasons, please unplug the AC adapter from the outlet and make sure that all connection cords are disconnected. Also, do not subject it to shock or vibration.
   Doing so may damage the AC adapter, power supply USB cord, or connection cord, resulting in fire, electric shock, or malfunction.
5. Do not use this tester to conduct measurements beyond its capacity. For safe and efficient operation, use this tester to measure.
   the torque wrenches suited to the capacity. Measurement beyond the capacity may cause accidents or damage.
6. Check for any damaged parts. Before use, check the tester and the accessories, and make sure that it operates normally and fulfills the specified functions. Check the parts and all other portions that may affect the damage operation and installation status.
   For replacement or repair of damaged parts, contact your nearest distributor or Tohnichi mfg. co., ltd.

7. Do not touch the reverse load/overload prevention screw on the stopper plate of DLC60CN-G.
   This screw is equipped to protect the torque sensor from overload and reverse load.
   Loosening or tightening the screws may affect the torque measurement or cause a malfunction.

Overload prevention screw — Reverse load prevention screw

DLC60CN-G Stopper plate
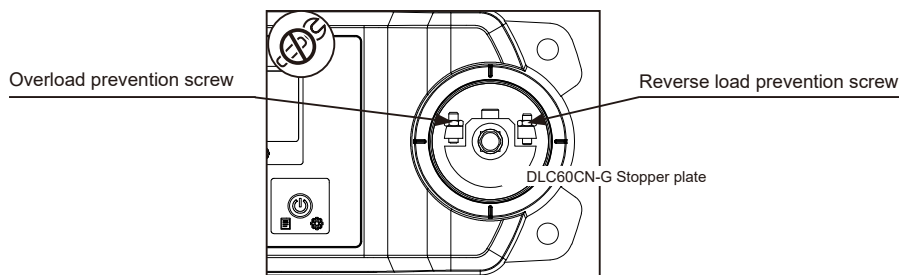
8. This product is designed exclusively for Tohnichi signal type torque drivers.
   This product cannot be used to measure powered drivers or direct reading drivers.

Precautions for Use

1. The power supply voltage cannot be used other than AC100 to 240V±10% as specified in this instruction manual.
2. Please use the included AC adapter and USB cable for the power supply.
3. Do not subject this measuring instrument to vibration or shock.
4. Do not use this measuring device in any environment other than the one specified in the instruction manual.
5. Please perform a start-up inspection and check the settings before use.
6. Please note that this measuring instrument may malfunction or burn out if it gets wet with water or oil.
7. Please be careful not to drop or hit this measuring instrument as it may cause damage or malfunction.
8. Please use this measuring device within the measurement range specified in the instruction manual.
9. Be sure to regularly inspect this measuring instrument.
10. Be sure to perform zero adjustments before making measurements.
11. The maximum mass of the object to be measured is 5 kg (*5 kg or less if the center of gravity of the object to be measured is not at the center of the table)

In the unlikely event that a strange odor or fire occurs during use, immediately stop using it, unplug the power from the outlet, move the torque meter to a safe location, and contact TOHNICHI Mfg. Co., Ltd.

■ Contents

1 Outline

DLC-G model is Digital Torque Driver Line Checker exclusively for Tohnichi made signal-type torque drivers.

Easy to operate. Ideal for daily inspection of torque drivers at the line side.

Daily inspection of torque drivers can improve quality, prevent error leakage to the outside, and reduce recovery costs.

2 Features

- Easy to operate. Ideal for daily inspection of signal-type torque drivers at the line side. To use DLC-G, simply click the torque driver as usual on it.
- Equipped with a pass/fail judgment function. The judgment result is indicated by the display color (white/blue/red).
- You can see the pass/fail status (OK/NG) of the torque driver at a glance, without having to compare and consider the measured values on the display at the line side.
- Capacity 1000 data memory. USB Type-C terminal is provided for data output.
- It can be connected to a variety of PCs.
- In addition, a Free data input tool called "ExRcv (Excel Receiver)" is available for download from the Tohnichi website.
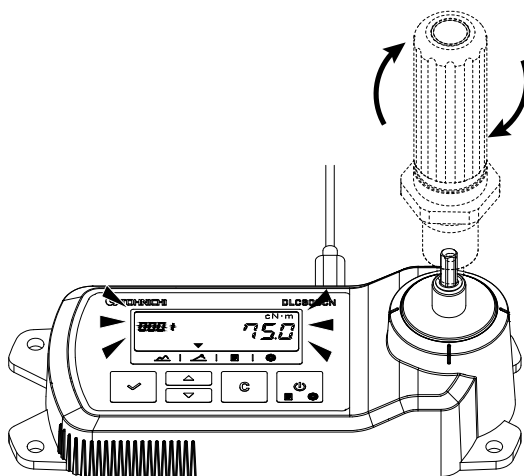
3 Components
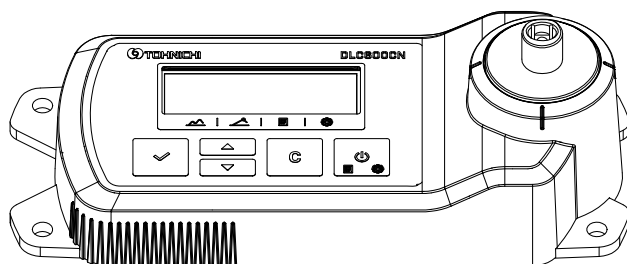
DLC-G main unit: 1 unit

Bit: 1 piece

Hexagon socket head bolt: 1 piece

Rubber sheets: 4 pieces

Calibration Certificate ········· 1 pc
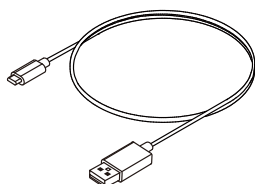
Quick Start ························· 1 pc

USB power cable: 1
*AC adapter not included

4 Specifications

4-1. Common Specifications

Measurement direction	Clockwise
Display	Black mask LCD (white, red, blue)
Data memory	1000 data
Statistical processing	Number of samples, maximum value, minimum value, average value
Measurement mode	RUN mode / PEAK mode
Data output	USB connector (Type-C) compatible serial communication
Reset	Manual/Auto (0.1 to 5.0 seconds, can be set)
Operating temperature range:	0 to 40°C (no condensation)
Main unit power supply	DC5V (USB Type-C terminal) *1 Power consumption 5W or less

*1 AC adapter is not included. A separately sold AC adapter (BA-7) is required.

4-2. Dimensions

MODEL DLC60CN(-G)

通信USBポート(Type-C)
Communications USB Port(Type-C)

電源USBポート(Type-C)
Power USB Port(Type-C)

型式
Model Name

製造番号
Serial No.

4×φ7

約88
Approx.88

60

190

約212
Approx.212

6.35HEX

30

4.5

69

84

MODEL DLC600CN(-G)

製造番号
Serial No.

6.35HEX

70

85
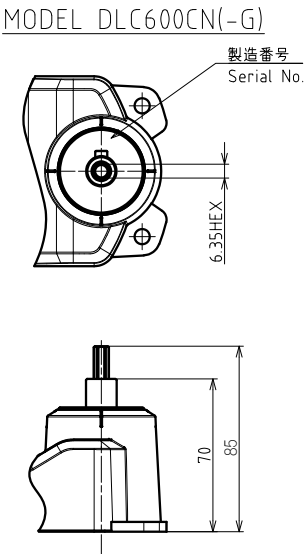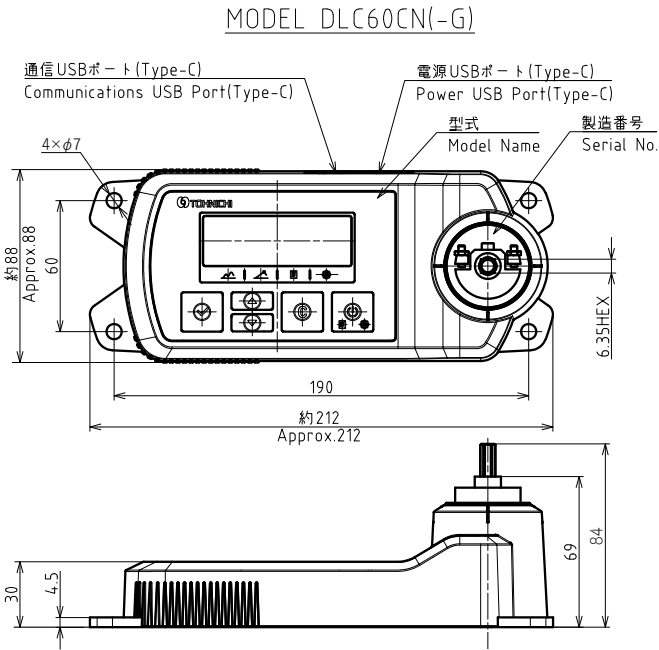
Accuracy:±1% +1digit

Model			DLC60CN-G	DLC600CN-G
Torque Range	**cN · m**	**Min.-Max.**	2 - 60	20 - 600
		1digit	0.02	0.2
	kgf · cm	**Min.-Max.**	0.2 - 6	2 - 60
		1digit	0.002	0.02
	ozf · in	**Min.-Max.**	3- 80	30- 800
		1digit	0.02	0.2
	lbf · in	**Min.-Max.**	0.2- 5	2 - 50
		1digit	0.002	0.02
Square drive			Hexagonal socket size 6.35 Male	
Weight [kg]			approx. 0.9	

5 External View

5-1. Display and Oeration Keys

② Memory counter/upper limit display
③ Lower limit display
⑤ Check key
⑥ Memory counter advance key
⑦ Memory counter return key
⑧ Clear key
Unit Display
① Torque display
④ ▼ mark display
⑨ Power/Data/Settings key
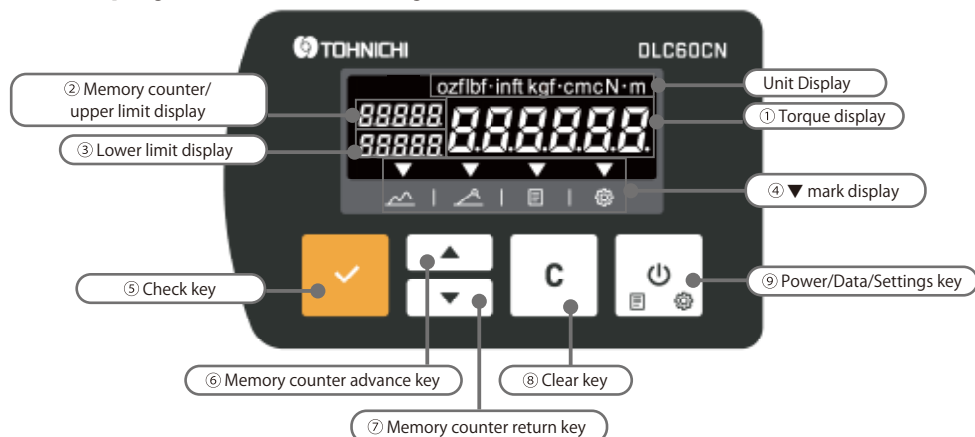
① Torque display
The torque value is displayed. If the pass/fail judgment result is OK, it will be displayed in blue, if it is HI-NG or LO-NG, it will be displayed in red, and if pass/fail judgment is not performed, it will be displayed in white.

② Memory counter/upper limit display section
The memory counter or upper limit value is displayed.

③ Lower limit value display section
The lower limit value is displayed.

④ ▼ mark display area
RUN: Displayed when run mode is selected   DATA: Data mode selection display
PEAK: Displayed when peak mode is selected   SET: Setting mode selection display

⑤ Check key
"It stores the measurement data and count up the memory counter by one.
It is used as the confirmation key on the setting screen."

⑥ Memory counter advance key
The memory counter is advanced one by one or continuously to recall the measurement data.

⑦ Memory counter return key
The memory counter is reset one by one or continuously to recall the measurement data.

⑧ Clear key
In peak torque display mode, it resets the peak display value or clears the memorized measurement data. In run display mode, it performs auto zero.

⑨ Power/Data/Settings key
Turns the power on/off, recalls measurement data, and recalls parameter settings. When the display is on, press and hold for 2 seconds to turn the display off. When the display is off, press to turn the display on.

5-2. Power Source and Output

1. Power port
USB Type-C

2. Data communication port
USB Type-C
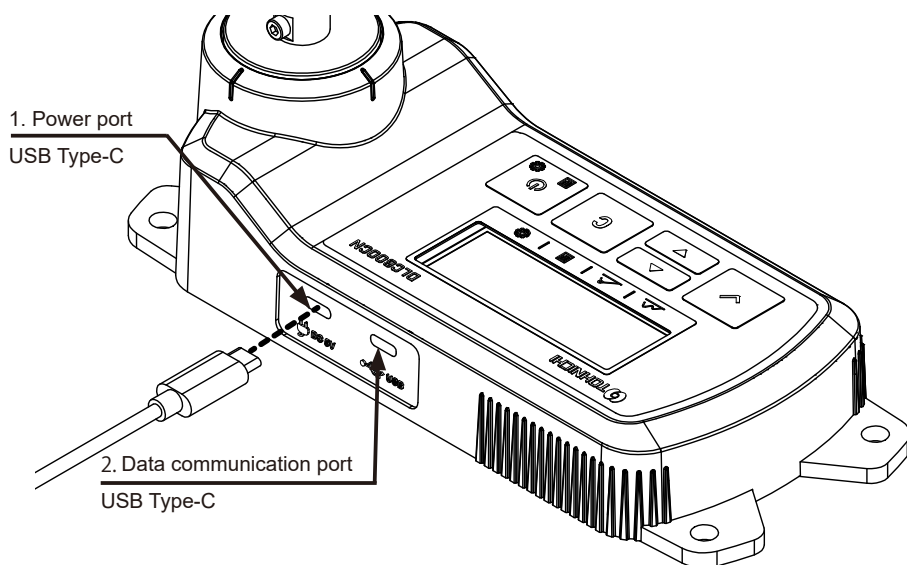
1. Power port

Connect the included power USB cable and AC adapter (sold separately) to the USB port.

2. Data communication port

Connect a USB cable (sold separately) for communication to the USB port.

6 Functions and Settings

● Measurement Mode

The DLC-G has two measurement modes.

1 Continuous display measurement   (RUN mode)

"When a torque load is applied, the displayed torque increases, and when the load is released the displayed torque returns to 0.

▼ mark above RUN on the front panel is displayed. This is mainly used when calibrating the DLC-G main unit."

2 Maximum value display measurement (PEAK mode)

When a torque load is applied, the displayed torque increases. Even if the load is released, the displayed torque remains at the maximum value.   ▼ mark above PEAK on the front panel is displayed.

*For information on how to switch measurement modes, please refer to "7-2. Parameter Settings."

● Pass/fail judgement and data memory

When you press the ✓ key after a measurement in PEAK mode or when the auto memory reset is activated, a pass/fail judgment is made and up to 1000 measurement values are stored in the memory.

If the result of the pass/fail judgment is OK, it will be displayed in blue for about 0.5 seconds, and if it is HI-NG or LO-NG, it will be displayed in red for about 1 second. If the upper and lower limits are 0, no pass/fail judgment will be performed.

The pass/fail judgment will be based on the following conditions:

HI-NG: Upper limit value < measured torque

OK: Lower limit Upper limit of measured torque

LO-NG: Measured torque < Lower limit
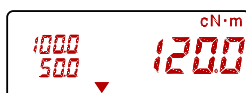
cN·m 1000 500 ▼ 75.0	cN·m 1000 500 ▼ 120.0
OK: Blue display	**HI-NG, LO-NG: Red display**

*For how to switch the upper and lower limits, please refer to "7-2. Parameter settings."

● Auto Memory Reset

The measured value is held at its peak, and when the load is released, a pass/fail judgment is made 0.1 to 5.0 seconds later (can be set as desired), the measured value is memorized, and the memory counter value is incremented and reset.

The measured value is held at its peak, and when the load is released, a pass/fail judgment is made 0.1 to 5.0 seconds later (can be set as desired), the measured value is memorized, and the memory counter value is incremented and reset.

*For how to switch between auto memory reset and reset, please refer to "7-2. Parameter Settings."

● Statistical processing function (number of samples, maximum value, minimum value, average value)

① Use the ▲ ▼ keys to display the final memory counter value for the range you want to process statistically.

② Press the ▤ key once to display "dAtA".
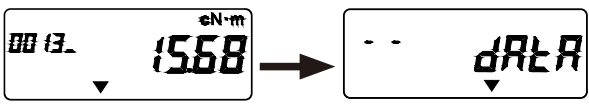
③ Press the ✓ key to display "StArt".

④ Use the ▲ ▼ keys to display the first memory counter value in the range you want to process statistically.
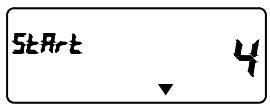
⑤ Press the ✓ key to display the number of samples in the specified range "n", the maximum value "HI", the minimum value "Lo", and the average value "Av" in that order.
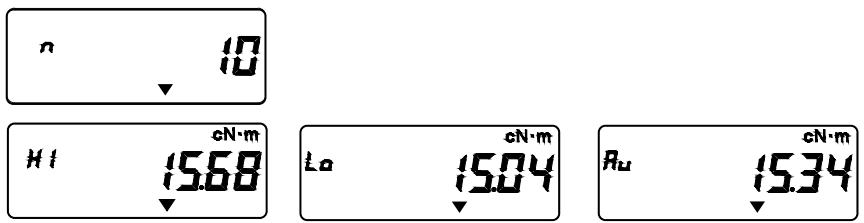
⑥ Press the Ⓒ key to return to the measurement screen.

● Reading Data

"After measurement, press the ▲ ▼ keys to read out the memorized data.
In PEAK mode, the memory counter value and measured value are displayed."
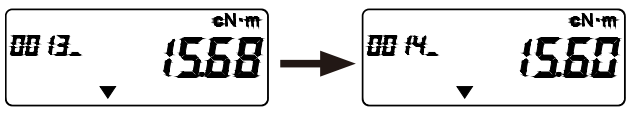
● Data output _ sequential output

After measurement and after reading data with (▲) (▼) key, press (✓) key to output the data.

Data is also output when the auto memory reset is activated.

● Data output _ bulk output

① When the final memory counter value of the output range is displayed and the (☰) key is pressed, "dAtA" is displayed.

② Press the (✓) key to display "StArt".

③ Set with the (▲) (▼) keys to the first memory counter value in the range to be output.

④ Press the (✓) key five times to display "oUt-n".

⑤ Use the (▲) (▼) to switch to "oUt-y" and press the (✓) key to output all the measurement data for the selected range at once.
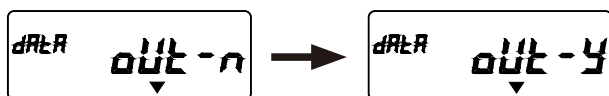
⑥ Press the (C) key to return to the measurement screen.

● Clearing Data _1 Clearing Data

After reading the data with the (▲) (▼) keys, pressing the (C) key will erase the data.
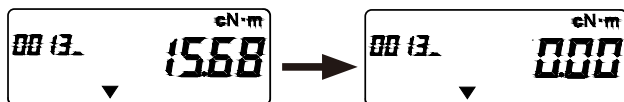
● Data deletion _ bulk deletion

① When the final memory counter value of the output range is displayed and the (☰) key is pressed, "dAtA" is displayed.

② Press the (✓) key to display "StArt".

③ Use the (▲) (▼) keys to select the first memory counter value in the range to be erased.

④ Press the (✓) key six times to display "CLr-n".

⑤ Use the (▲) (▼) keys to switch to "CLr-y" and press the (✓) key to erase all the measurement data in the selected range at once.
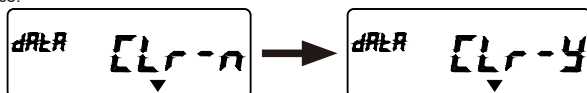
⑥ After all data has been erased, the measurement screen will return.

13

● Auto Zero Adjustment

If the Ⓒ is pressed without peak hold, the auto zero function will be activated. At this time, make sure to release the torque load.

If the torque load exceeds 5% of the maximum range, "Err9" is displayed.

If Err9 is displayed:

◎ Press the Ⓒ key while the unit is unloaded.
  • If the Err9 message disappears, the unit can be used normally.

◎ If Err9 does not disappear, turn the power switch OFF and then ON again.

  • If Err9 does not disappear, there may be an error in the torque sensor or board circuit.

● Over torque alarm

If the maximum measurement range is exceeded, the displayed value will flash to protect the measuring instrument. Immediately release the load.

● Reverse Load Alarm

If a load in the opposite direction to the measurement direction is detected, the displayed value will flash to protect the instrument. Remove the load immediately.

● Auto Power Off

"If there is no key operation or communication for the set time, the display will turn off and the instrument will enter power-saving mode. Press the ⏻ key to turn the display on and start measuring."

*For information on how to switch the auto power off, please refer to "7-2. Parameter Settings."

● Error display message

The DLC-G has a self-diagnosis function that displays error messages Err1-9 when a malfunction occurs.

For a list of error messages, please refer to "Chapter 11. Error Message List."

7 Various Settings

This section explains the functions and operation methods of each setting.

For information on how to set up via communication from an external device, please refer to "9-3. Setting up from an external device."

7-1. Setting Items

	Item	Top left deisplay	Main display	
			Default	Selection item
1	Setting item selection	ー ー	dAtA	SEt
2	Measurement Mode	SEL	PEAK	rUn
3	Unit Settings	USEL	cN·m	kgf·cm / ozf·in / lbf·in
4	Upper limit setting	HI	00.00	00.00 to the Maximum
5	Maximum Measurement Value	Lo	00.00	00.00 to the maximum
6	Auto Memory Reset Settings	Ar	0.0	0.1/ 0.2/ 0.3/ 0.4/ 0.5 / 1.0/ 2.0/ 3.0/ 4.0/ 5.0
7	Auto power off setting	P_oFF	10	30/60/nonE
8	Key operation sound setting	bU	on	oFF
9	Baud rate setting	bPS	115.2K	9600/19200
	Data length setting	d_LEn	8blt	7blt
	Parity Settings	Prty	nonE	odd / EvEn
	Output Format	Formt	dF-1	dF-2/dF-3
10	Setting value default	dFLt	no	yES

7-2. Parameter Settings

● Read the setting screen

When no load is applied, pressing the ⚙ key will take you to the item selection screen.
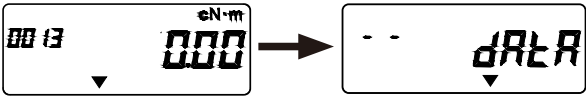
● Setting item selection

"Select data processing ""dAtA"" or parameter setting ""SEt"".

* ""SEt"" is displayed in RUN mode."

- Use the ▲ ▼ key to select "SEt" and press the ✓ key or ⚙ key to proceed to parameter setting.

- Press the Ⓒ key to return to the measurement display.
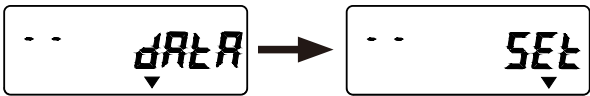

● Measurement mode setting (factory setting: PEAK mode)

Set the measurement mode.

- Use the ▲ ▼ keys to select PEAK measurement mode "PEAK" or RUN measurement mode "rUn".

- When you press the ✓ key, the data clear confirmation screen will appear.

- Pressing the ⚙ key will proceed to the next step without setting.

- Press the Ⓒ key to return to the measurement display.

*When the measurement mode is changed, the measurement data memory is cleared.

- Pressing the ✓ key switches the measurement mode, clears the memory data, and proceeds to the next mode.

- Press the Ⓒ key to return to the previous display.
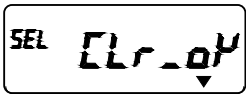
Data clear confirmation screen

● Unit setting (factory setting: cN·m)

Set the units.

- Use the ⬆️ ⬇️ keys to select "cN.m" / "kgf.cm" / "ozf.in" / "lbf.in".
- Press the ✅ key to set and proceed to the next step.
- Pressing the ⚙️ key will proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without making any settings.
- Upper limit registration (factory setting: 0 cN·m)

```
                cN·m
USEL   Un It
                 ▼
```
```
                lbf·in
USEL   Un It
                 ▼
```
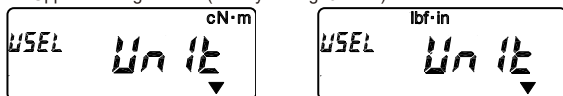
● Upper limit registration (factory setting: 0 cN·m)

Register the upper limit for pass/fail judgment.

- Use the ⬆️ key to select a digit and use the ⬇️ key to adjust the value.
- Press the ✅ key to set and proceed to the next step.
- Pressing the ⚙️ key will proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without making any settings.
- ※ If you attempt to register a value that exceeds the measurement range, "SEtErr" will be displayed and you will be prompted to register the upper limit value again.
- ※ Please set the upper limit value higher than the lower limit value.

```
                cN·m
H I   00.00
                 ▼
```
```
                cN·m
H I   15.00
                 ▼
```

● Lower limit registration (factory setting: 0 cN·m)

Register the lower limit for pass/fail judgment.

- Use the ⬆️ key to select a digit and use the ⬇️ key to adjust the value.
- Press the ✅ key to set and proceed to the next step.
- Pressing the ⚙️ key will proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without making any settings.
- ※ If you attempt to register a value that exceeds the measurement range, "SEtErr" will be displayed and you will be prompted to register the upper limit value again.
- ※ Please set the upper limit value higher than the lower limit value.

```
                cN·m
Lo   00.00
                 ▼
```
```
                cN·m
Lo   09.00
                 ▼
```
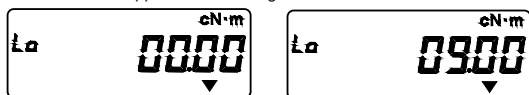
● Auto memory reset setting (factory setting: 0.0 seconds)

Sets the auto memory reset time.

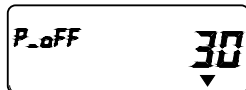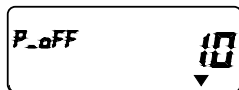- Use the ⬆️ ⬇️ keys to return to the measurement display without setting.
  ※ If set to "0.0", auto reset will not function.
- Press the ✅ key to set and proceed to the next step.
- Press the ⚙️ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

```
Ar      0.0
                 ▼
```
```
Ar      50_
                 ▼
```

● Auto power off setting (factory setting: 10 minutes)

Sets the auto poeer off time.

- Use the ▲ ▼ keys to select 10 minutes ("10"), 30 minutes ("30"), 60 minutes ("60"), or none ("nonE").
- Press the ✓ key to set and proceed to the next step.
- Press the ⚙ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

```
P_oFF      10        P_oFF      30
           ▼                    ▼
```

● Key operation sound setting (factory setting: on)

Sets whether or not the key operation sound is sounded. Even if set to "oFF", the overtorque alarm will sound.

- Use the ▲ ▼ keys to select "on" or "oFF".
- Press the ✓ key to set and proceed to the next step.
- Press the ⚙ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

```
bU              bU
       on               oFF
        ▼                 ▼
```
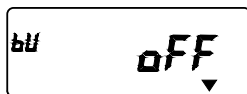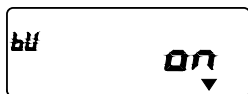
● Baud rate setting (factory setting: 115.2Kbps)

Set the communication baud rate.

- Use the ▲ ▼ keys to select "115.2K" / "9600" / "19200".
- Press the ✓ key to set and proceed to the next step.
- Press the ⚙ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

```
bPS              bPS              bPS
     115.2K           19200            9600
         ▼                ▼                ▼
```

● Data length setting (factory setting: 8bIt)

Set the communication data length.

- Use the ▲ ▼ keys to select "8bIt" or "7bIt"
- Press the ✓ key to set and proceed to the next step.
- Press the ⚙ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

```
d_LEn    8bIt      d_LEn    7bIt
           ▼                   ▼
```
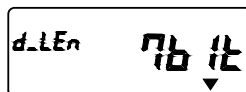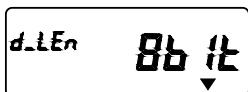
● Parity setting (factory setting default: none)

Sets the communication parity.

- Use the ⬆ ⬇ keys to select none (nonE), even (EvEn), or odd (odd).
- Press the ✓ key to set and proceed to the next step.
- Press the ⚙ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

PrtY nonE	PrtY EuEn	PrtY odd
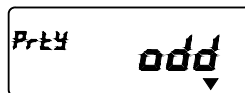
● Output format setting (factory setting: dF-1)

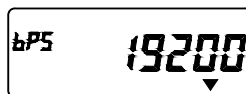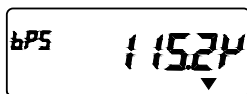Set the output format. For details, refer to "9-2. Output format".

- Use the ⬆ ⬇ keys to select "dF-1" / "dF-2" / "dF-3".
- Press the ✓ key to set and proceed to the next step.
- Press the ⚙ key to proceed to the next step without setting.
- Press the Ⓒ key to return to the measurement display without setting.

Fornt dF-1	Fornt dF-2	Fornt dF-3
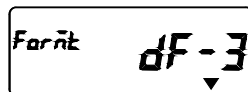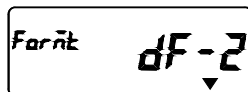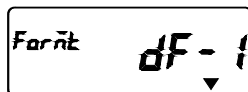
● Setting defaults

Returns the settings to the factory defaults.

- Select "yES" with the ⬆ ⬇ keys and press the ✓ key to erase all measurement data and reset all settings to their factory defaults.
- Press the ⚙ or Ⓒ key to return to the measurement display.

dFLt no	dFLt YES
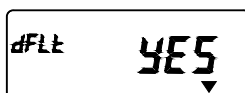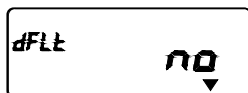
8 Measurement

8-1. Preparation for Measurement

① Place the DLC-G on a level surface.

　※ If the installation location is slippery, secure the DLC-G base to the DLC-G installation location with screws and nuts, or attach a rubber sheet to the back of the base.
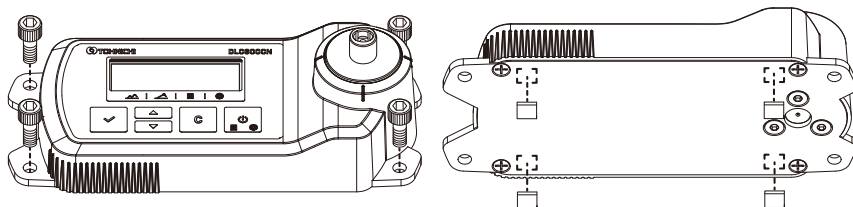
② Attach the included bit to the DLC-G main unit and secure it with the included hexagonal screw.
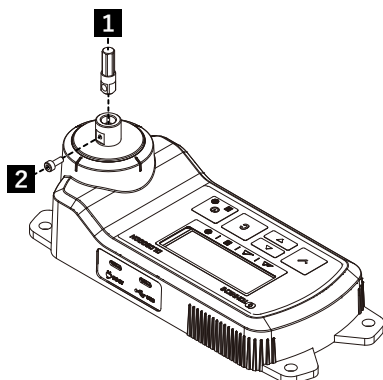
③ Connect the included USB power cable to the USB power port on the side of the DLC-G main unit, and connect the AC adapter (sold separately) to an outlet. (Leave the unit for at least 30 minutes after turning on the power.)

④ Select the measurement mode to "PEAK mode."

⑤ Set various settings such as upper and lower limits, auto memory reset settings, and communication settings.
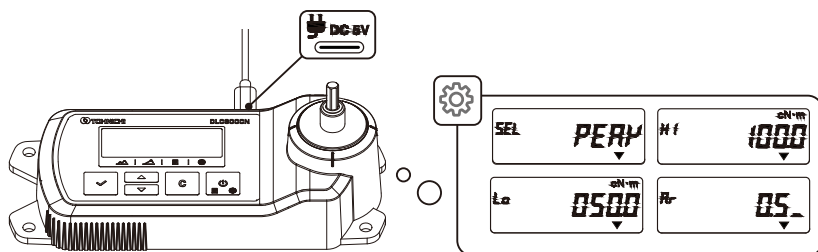
8-2. Measurement Object Installation

The measurement operation is explained with reference to the following setting example.

SEL	Measurement mode setting	PEAK mode
HI	Upper limit setting	100.0 cN·m
Lo	Lower limit setting	50.0 cN·m
Ar	Auto memory reset settin	0.5 seconds

① With no load, perform auto zero adjustment with the Ⓒ key.

② Check the set torque of the torque driver.
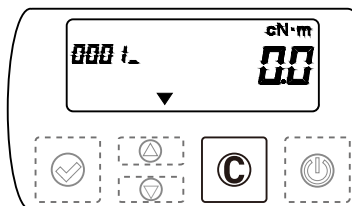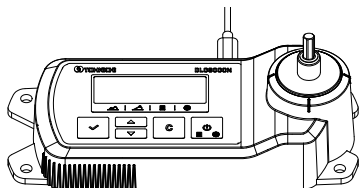
③ Set the torque driver and apply a load until it clicks.

④ After clicking, release the load on the torque driver.

⑤ After 0.5 seconds (set value) after releasing the load, the auto memory reset function will perform a pass/fail judgment.

※ If the auto memory reset setting is 0.0 seconds, pressing the ✅ key will perform a pass/fail judgment.

Upper limit display
Lower limit display
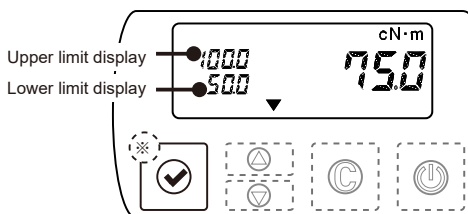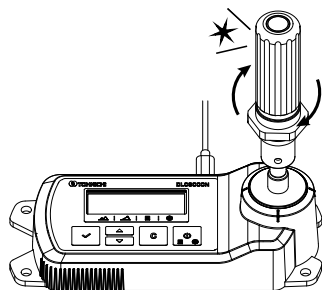
⑥ If the pass/fail result is OK, it will be displayed in blue for approximately 0.5 seconds, and if it is HI-NG or LO-NG, it will be displayed in red for approximately 1 second.

※ If both the upper and lower limits are 0 cN·m, no pass/fail judgment will be made.

⑦ After a pass/fail judgment is made, the data is memorized, the memory counter value is incremented by one, and the peak torque value is reset.

⑧ Repeat steps ③ to ⑥ as many times as required.

Memory counter display

OK: Displayed in blue

NG: Displayed in red
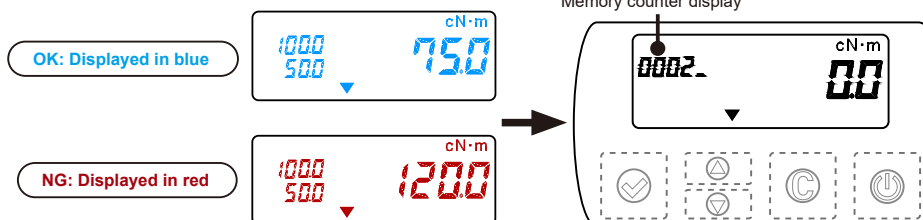
9 External Output Function

9-1. USB Output

• Connect the DLC-G to an external device with a communication cable (catalog No. 586 or No. 587).

• Set the communication settings to match those of the external device. (For setting instructions, refer to "Chapter 7: Various Settings.")

• If you want to communicate using a USB cable, you will need to install a dedicated driver, which can be downloaded from the Tohnichi website.

 (https://www.tohnichi.co.jp/products/detail/304)

For data communication
USB Type-C
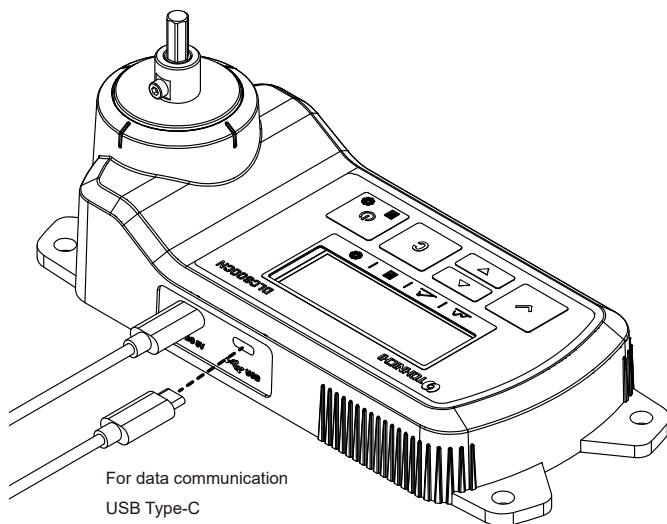
● Communication settings

Data format: RS232C compliant
Transmission method: Asynchronous serial
Baud rate: 115.2K/19200/9600 bps
Data length: 8bit/7bit
Stop bit: 1bit
Parity: None/Even/Odd

9-2. Output Format

When dF-1 is set (TDT3 memory mode 1000 compatible format)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
R	E	,	0	0	0	1	,	SP	0	6	0	0	.	0	,	SP	,	O	K	CR	LF

Header — Memory counter — *1 Polarity — Torque data — *3 Fixed data — *2 Judgment result — Delimiter

*1 Polarity (measurement direction): SP (blank) when measuring on the right, "-" when measuring on the left.

*2 Judgment result: "O K" for OK, "H I" for HI-NG, "L O" for LO-NG, "- -" if no judgment is made.

*3 Fixed value: Fixed value due to compatibility format with other products.

When dF-2 is set (LC3 M1000_PC1 compatible format)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
R	E	,	0	0	0	1	,	SP	6	0	0	.	0	,	SP	,	O	K	,

Header — Memory counter — *1 Polarity — Torque data — *3 Fixed data — *2 Judgment result

21	22	23	24	25	26	27	28	29	30	31	32	33
0	0	/	0	0	,	0	0	:	0	0	CR	LF

**3 Fixed data — **3 Fixed data — Delimiter

*1 Polarity (measurement direction): SP (blank) when measuring on the right, "-" when measuring on the left.

*2 Judgment result: "O K" for OK, "H I" for HI-NG, "L O" for LO-NG, "- -" if no judgment is made.

*3 Fixed value: Fixed value due to compatibility format with other products.

When dF-3 is set (Tohnichi standard format)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
R	E	,	0	0	1	,	+	6	0	0	.	0	,	c	n	m	SP	SP	,

Header — *1 Memory counter — *2 Polarity — Torque data — *5 Torque unit

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
SP	0	0	0	,	d	e	g	,	O	-	,	1	2	3	4	5	6	A	,

*4 Fixed data — *4 Fixed data — *3 Judgment result — Serial number

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
0	0	/	0	0	/	0	0	,	0	0	:	0	0	:	0	0	CR	LF

*4 Fixed data — *4 Fixed data — Delimiter

	15	16	17	18	19
cN·m	c	n	m	SP	SP
kgf·cm	k	g	f	c	m
ozf·in	o	z	f	i	n
lbf·in	l	b	f	i	n

*5 Torque unit:
Depending on the unit setting, it will look like the table above.

*1 Memory counter: When the memory counter is 1000, it becomes "000".

*2 Polarity (measurement direction): When measuring to the clockwise, it becomes "+", when measuring to the counter clockwise, it becomes "-".

*3 Judgment result: When OK, it becomes "O-", when HI-NG, it becomes "H-", when LO-NG, it becomes "L-", and when no judgment is made, it becomes "- -".

*4 Fixed value: It is a fixed value because it is a format compatible with other products.

9-3. Setting from an External Equipment

You can change the settings of the DLC-G by inputting commands from an external device.

When changing settings via command communication, be sure to do so with no torque load.

When sending two or more settings in succession, wait at least 200 ms after receiving a response before sending the next command.

When the DLC-G receives a command, it executes it and returns a response command.

Command list

Communication command	Action/content	Remarks
AT037, ＊＊＊＊＊, ＊＊＊＊＊	Registers upper and lower torque limits simultaneously. The * indicates a 5-digit torque value including a decimal point. Send the upper and lower torque limits in that order.	Send a value within the measurement range for the upper torque limit or higher than the lower torque limit. 0 can be set)

* All commands are in ASCII code

* Add CRLF to the end of the command.

Response command	Contents
RE003,OK	Receiving complete
RE004,ERROR	Receiving error. Setting value error
E10	Receiving error. Setting value error *Error when "AT" is not added to the beginning of the transmission command

External connection device																	DLC-G

Upper and lower limit setting command

A	T	0	3	7	,	1	5	.	0	0	,	0	7	.	0	0	CR	LF

Response

R	E	0	0	3	,	O	K	CR	LF
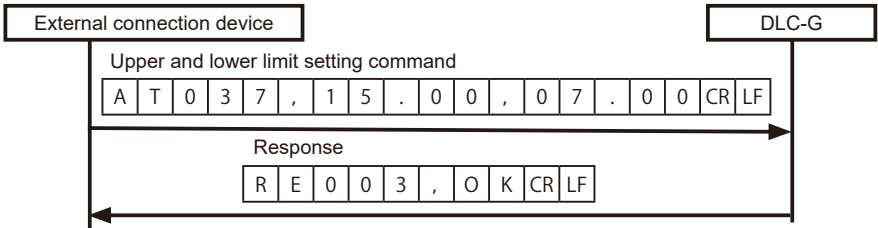
10 Optional Accessories

① USB cable

- Type-C ⇔ Type-C ・・・・ Catalog No.586
- Type-C ⇔ Type-A ・・・・ Catalog No.587

② AC Adapter

- BA-7

③ Calibration kit

- DLCTCL60CN   (Applicable model：DLC60CN-G)
- DLCTCL600CN   (Applicable model：DLC600CN-G)

11 Error Message

Error Message	Indication	Solution
Err1 - 5	Operation key is continuously pushed.	Turn off the power once and turn it on without touching any keys. If Err disappears, it should work properly. If Err does not disappear, it needs to be repaired. Please contact TOHNICHI or your nearest distributor.
Err8	CPU / Memory error	It needs to be repaired. Please contact TOHNICHI or your nearest distributor.
Err9	Torque zero range over Malfunction of the torque sensor or circuit board.	Push C key at no loading condition. If Err 9 disappears, it should work properly. If Err 9 does not disappear, it needs to be repaired. Please contact TOHNICHI or your nearest distributor.

Designs and specifications are subject to change without notice.

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