Your Torque Partner
TOHNICHI

DIGITAL TORQUE METER
MODEL: TME3-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.

Safety Precautions

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.

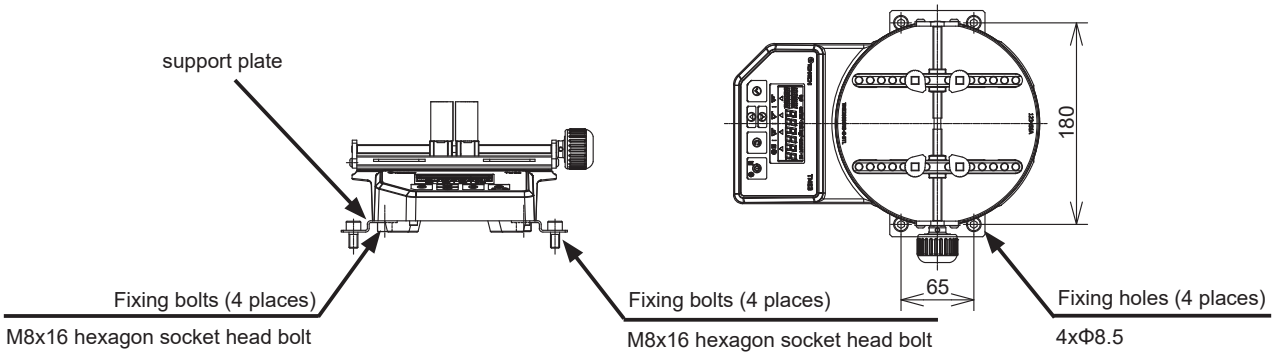
 Warning

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. If the TME3-G main body moves due to the measurement torque during measurement, attach the accessory fixing support plate to the back of the TME3-G main body with fixing bolts (see the figure below), and directly attach the TME3-G main body to a horizontal position with sufficient strength. Please fix it on the stand.
   *The support plate is only included with TME500CN3-G, TME1000CN3-G, and TME2000CN3-G



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

The TME3-G is suitable for measuring rotational resistance, output torque, operating torque, tightening torque, strength testing, etc. of precision equipment.

Primary peak and secondary peak torque can be measured and saved for cap opening torque measurement.

By connecting the TME3-G to a PC, you can measure and save peak torque, and create graphs using waveform output.

2 Features

1. This is a digital torque meter that can be used for multiple purposes, such as measuring the opening and closing torque of can caps, spring force, etc.
2. It is possible to fix from a Φ7mm of objects.
3. Up to 1000 data can be stored in memory. The number of samples, maximum, minimum, average value, variation width, and standard deviation of the memorized data can be displayed.
4. Measurement values can be judged as OK/NG based on the upper and lower limit values registered in advance. OK/NG judgment results are displayed in blue when OK, and red when HI-NG/LO-NG.
5. The standard specification includes a serial communication output terminal that supports a USB connector (C type), making it easy to connect to a PC.
6. Since it has obtained CE marking, it can be used in the EU.

3 Components

1. TME3-G main body ····· 1set
2. AC Adapter (Model: BA-7) ····· 1pc
3. Pole (rubber claw) ····· 1set
4. Power USB Cable ····· 1pc
5. TME 3-G Fixing Support Plate ····· 1pc

   (Includes 8 fixing bolts) only TME500CN3-G, TME1000CN3-G, and TME2000CN3-G
6. Operating Instructions ····· 1pc
7. Calibration Certificate ····· 1pc
8. Quick Start Guide ····· 1pc

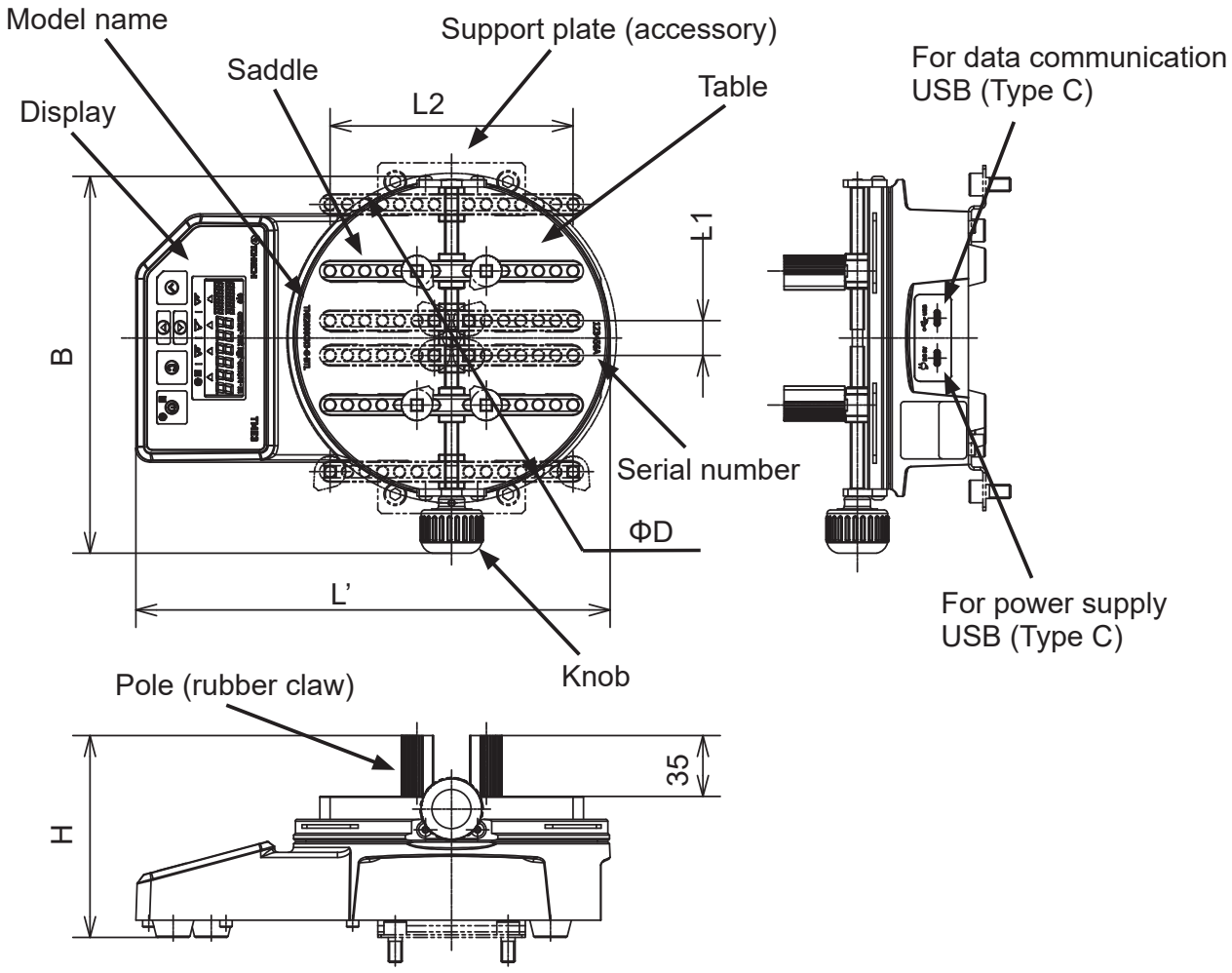
4 Specifications

4-1. Common specifications

Display	Black mask LCD (white, red, blue)
Data memory	1000 data
Statistical processing	Number of samples, maximum value, minimum value, average value, variation range, standard deviation
Measurement mode	RUN / PEAK / DOUBLE PEAK
Data output	USB connector (Type C) compatible serial communication
Reset	Manual/Auto (It can be set from 0.1 to 5.0 seconds arbitrarily)
Continuous data output	Approx. every 20 ms (Waveform capture interval for application software)
Power supply	DC5V 1A
AC adapter supply	AC100 - 240V±10% 50/60Hz
Power consumption	5W or less
Temperature range	0 - 40 ℃ (No condensation)
Measurable weight	less than 5kg

4-2. Specifications by model

TME3-G

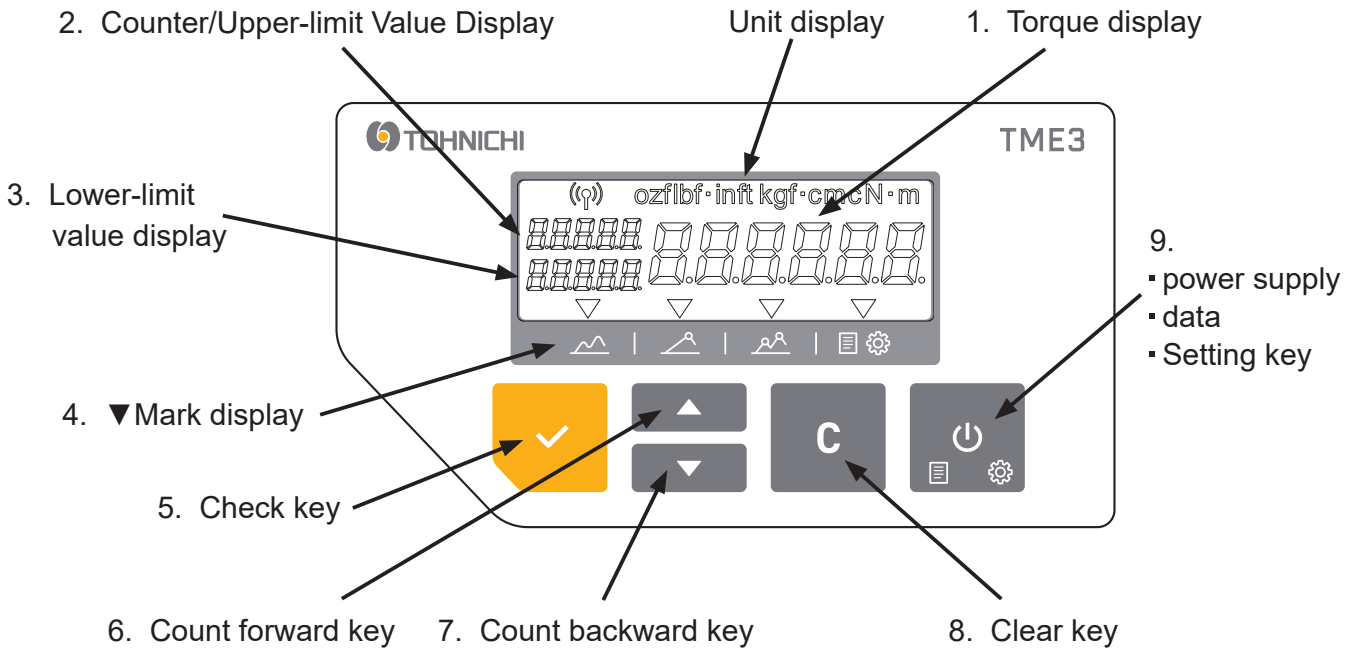


Accuracy ±0.3% F.S.+1digit

MODEL			TME20CN3-G	TME200CN3-G	TME500CN3-G	TME1000CN3-G	TME2000CN3-G
TORQUE RANGE [cN·m]		MIN. - Max.	2 - 20	20 - 200	50 - 500	100 - 1000	200 - 2000
		1digit	0.02	0.2	0.5	1	2
TORQUE RANGE [N·m]		MIN. - Max.	-	0.2 - 2	0.5 - 5	0.1 - 10	2 - 20
		1digit	-	0.002	0.005	0.01	0.02
TORQUE RANGE [gf·cm/ kgf·cm]		MIN. - Max.	gf·cm 200 - 2000	kgf·cm 2 - 20	5 - 50	10 - 100	20 - 200
		1digit	gf·cm 2	kgf·cm 0.02	0.05	0.1	0.2
TORQUE RANGE [ozf·in]		MIN. - Max.	2.84 - 28	28.4 - 280	71 - 700	142 -1400	284 - 2800
		1digit	0.02	0.2	0.5	1	2
TORQUE RANGE [lbf·in]		MIN. - Max.	0.178 - 1.77	1.78 - 17.7	4.4 - 44	8.8 - 88	17.8 - 177
		1digit	0.002	0.02	0.05	0.1	0.2
DIMENSION [mm]	OVERALL LENGTH	L'	273.5				
	WIDTH	B	217				
	HEIGHT	H	116.5				
	CHUCK GRIP	ΦD	Φ7 - 190				
	CHUCK PART	L1	20 - 154				
		L2	20 - 140				
WEIGHT [kg]			3.5				

5 External View

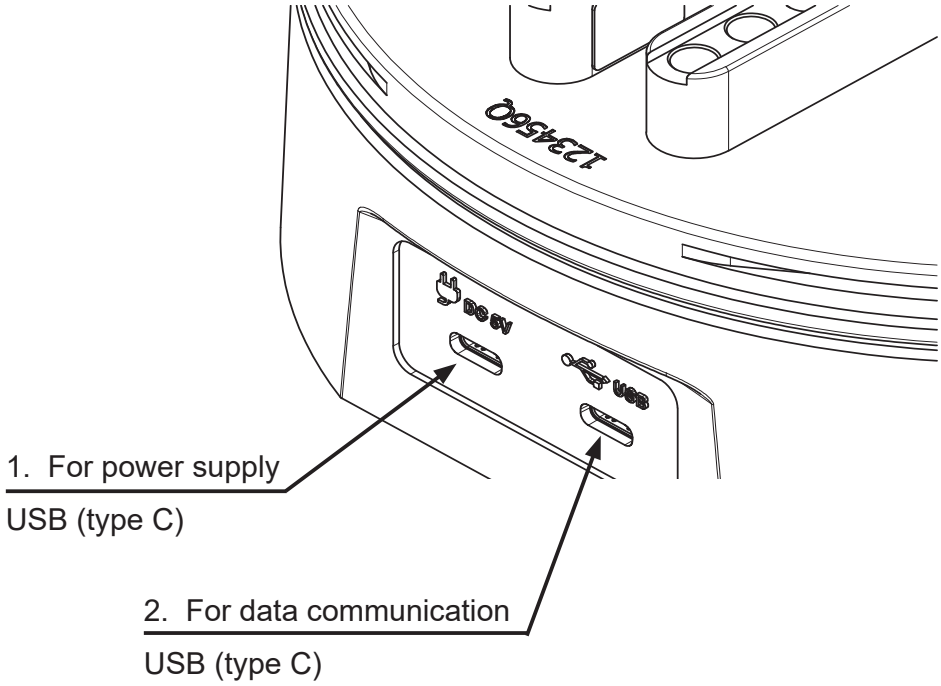
5-1. Display and Operation Keys



1. Torque display
   Displays the torque value. When the OK/NG judgment result is OK, it is displayed in blue, and when it is HI-NG/LO-NG, it is displayed in red. If there is no judgment setting.it is displayed in white.
2. Counter/Upper-limit Value Display
   Displays the memory counter or upper limit value.
3. Lower-limit value display
   Displays the lower limit value.
4. ▼Mark display
   RUN: Displayed when run mode is selected
   PEAK: Displayed when peak mode is selected
   DOUBLE PEAK: Displayed when double peak mode is selected.
   DATA/ SET: Displayed when various parameter setting modes are selected.
5. Check key (key)
   It stores the measurement data, sends one counter, and outputs to external equipment at the same time. Used as a confirmation key on the settings screen.
6. Count forward key key
   Send the counter one or successively and read the measurement data.
7. Count backward key key
   Return the counter one or successively and read the measurement data.
8. Clear key C key
   In the peak torque display state, the peak display value will be reset or clear the memorized measurement data. Auto zero is performed when the run is displayed.
9. Power/Data/Settings key Power key/ Data key/ Settings key
   Power ON/OFF button, reading measurement data and parameter setting. If you press and hold for 2 seconds when the display is on, the display will turn off. When the display is OFF, press this button to turn the display ON.

5-2. Power Source and Output

TME3-G



1. Power supply port: Connect the combination of the included AC adapter (BA-7) and power supply USB cord to the USB port.
2. Data communication port: Connect the communication USB cable (optional) to the USB port.

6 Function and Settings

6-1. Measurement Mode

TME3-G has three measurement modes. Please refer to Chapter 6 for details on how to switch the measurement mode.

1. Continuous display measurement (RUN mode)
   When a torque load is applied, the displayed torque increases, and when the load is removed, the displayed torque returns to 0. ▼ will be displayed above RUN on the front panel.
   It is mainly used when calibrating the TME3-G main unit.
2. Maximum value display measurement (PEAK mode)
   When a torque load is applied, the displayed torque will increase. Once the peak starting torque is exceeded, the displayed torque will remain at the maximum value even if the load is removed.
   ▼ will be displayed above PEAK on the front panel.
3. Two-point maximum value measurement (DOUBLE PEAK mode)
   When a torque load is applied, the displayed torque increases. Once the peak starting torque is exceeded, the displayed torque will remain at the maximum value even if the load is removed.
   If two local maximum values occur, they will be detected and displayed.
   ▼ will be displayed above DOUBLE PEAK on the front panel.

6-2. Peak starting torque

In PEAK mode or DOUBLE PEAK mode, peak hold is performed when the peak starting torque is exceeded.
If auto-memory reset is set, auto-memory reset will be activated when the value falls below the peak hold.
It is set to 7% of the maximum measurement range as a default.

6-3. 1st and 2nd peak detection

If you select DOUBLE PEAK mode and set the drop range, the 1st peak and 2nd peak can be detected.
If the torque load drops below the drop range after peak hold, the peak torque up to that point will be detected as the 1st peak. If the torque increases again, the subsequent peak value will be detected as a 2nd peak.
If the drop range is not set appropriately, the 1st and 2nd peaks may not be detected.
The drop range is set to 10% of the maximum measurement range as a default. Please refer to the waveform output when deciding.

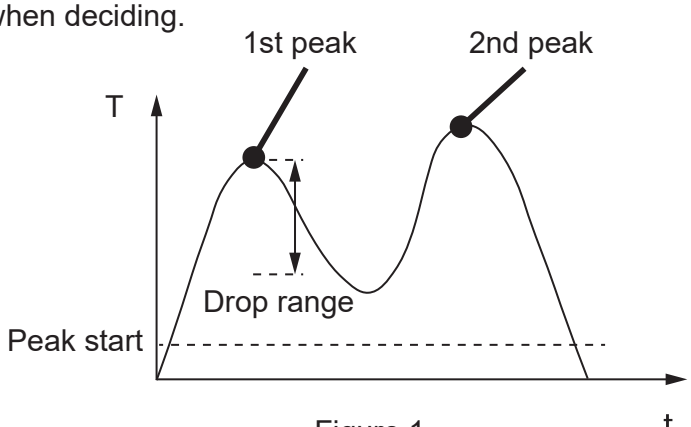


Figure 1

6-4. ± Display Selection:

± display for the load direction using the polarity display setting can be selected. The right load is displayed as “+” and the left load is displayed as “-” as a default. Depending on the settings, the polarity display can be reversed, or the absolute value displayed.

6-5. OK/NG Judgment and Data Memory.

When the ✓ key is pressed after measurement in PEAK mode or DOUBLE PEAK mode, or when auto memory reset is activated, OK/NG judgment is made and up to 1000 measured values are stored in memory. When the judgment result is OK, it is displayed in blue for about 0.5 seconds, and when it is HI-NG/LO-NG, it is displayed in red for about 1 second. If the upper and lower limits are 0, OK/NG judgment is not performed.

OK/NG judgment will be made under the following conditions. HI-NG: Upper limit value < measured torque, OK: lower limit value ≦ measured torque ≦ upper limit value, LO-NG: measured torque < lower limit value. This is done using absolute values.

Even in the case of DOUBLE PEAK mode, OK/NG judgment is made based on the maximum value.

In DOUBLE PEAK mode, a detection error (DN) is determined when the primary and secondary peaks cannot be detected.

6-6. Auto Memory/Reset

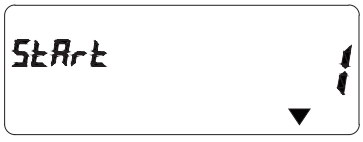
If the measured value is held at the peak and the load is released to less than the peak starting torque, OK/NG judgment will be made after 0.1 to 5.0 seconds (can be set arbitrarily), the measured value will be memorized, and the counter value will be reset by one.

When the result is OK, it will be displayed in blue for about 0.5 seconds, and when the result is HI-NG/LO-NG, it will be displayed in red for about 1 second. If the upper and lower limits are 0, OK/NG judgment is not performed.

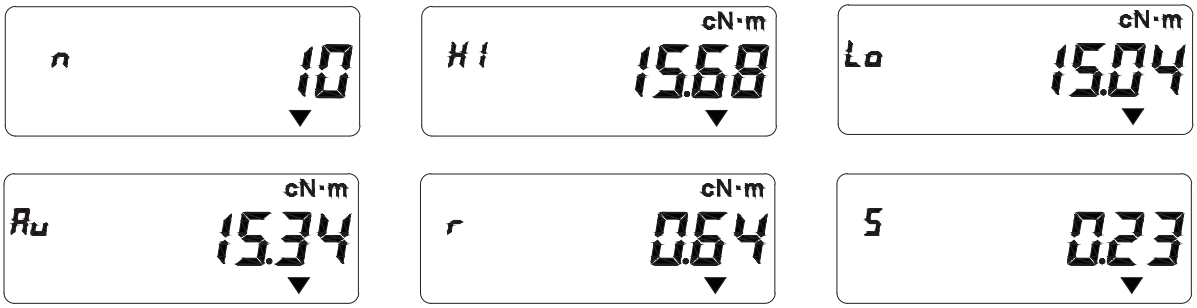
6-7. Statistical Processing Function (sampling number, maximum value, minimum value, average value,)

1. Use ▲ ▼ keys and show the last result of the section for statistical processing.
2. Press the ⚙ key to display “dAtA”.

3. Press the ✓ key to display “StArt”.
4. Use ▲ ▼ keys to show the first result of the section.



5. Press the ✓ key to display the sampling of samples in the specified range “n”, the maximum value “HI”, the minimum value “Lo”, the average value “Av”, the variation width “r”, and the standard deviation “S” in order.



6. Press the C key to return to the measurement screen.

*If the measured value is less than the peak start torque, the peak will not be held and will be excluded from data processing.

Data is processed in absolute value.

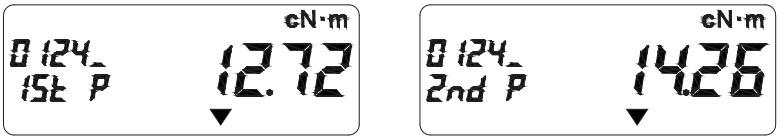
*In DOUBLE PEAK mode, data is processed at the maximum value.

6-8. Reading data

After measurement, press ▲▼ key to read the stored data.

In PEAK mode, the counter value and measured value are displayed.

In DOUBLE PEAK mode, primary peaks and secondary peaks are displayed in order.



6-9. Date output

1. Progressive output

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

Alternatively, data is output when auto memory reset is activated.

2. Batch output

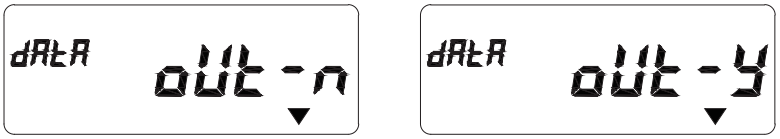
Display the final memory counter value of the output range and press the ⚙ key to display “dAtA”.

Press the ✓ key to display “StArt”.

Set to the first memory counter value in the range to be output with the ▲▼ key.

Press the ✓ key 7 times and “oUt-n” will be displayed.

Switch to “oUt-y” with the ▲▼ key and press the ✓ key to output the measurement data of the selected range all at once.



Press the C key to return to the measurement screen.

6-10. Data Deletion

1. 1 Data Deletion

After reading data, with the ▲▼ key, press the C key to delete the data.

2. Bulk deletion

Display the final memory counter value of the output range and press the ⚙ key to display “dAtA”.
Press the ✓ key to display “StArt”.
Set the value to the first memory counter value in the range to be deleted using the ▲▼ key.
Press the ✓ key 8 times and “cLr-n” will be displayed.
Switch to “cLr-y” using the ▲▼ key, and press the ✓ key to delete the measurement data in the selected range all at once.
Press the C key to return to the measurement screen.

Press the ✓ key 8 times and “cLr-n” will be displayed.

6-11. Auto zero adjustment

Auto zero function will work by pressing the C key without peak hold and torque load.
If the torque load exceeds 20% of the maximum range, “Err9” will be displayed.

《 If Err9 is displayed 》

◎Press the C key in no-load condition.

- If the Err9 display disappears, it can be used normally.

◎ If the Err9 display does not disappear, turn off the power switch and then turn it on again.

- If the Err9 display does not disappear, there may be a problem with the torque sensor or board circuit.

6-12. Over-torque Alarm

If the value exceeds 110% of the maximum measurement range, the displayed value will flash to protect the measuring device.

6-13. Auto Power Off

If there is no key operation or communication, the display will turn off and enter power- saving mode after the set time has elapsed.

Press the ⏻ key to turn on the display and take measurements.

6-14. Error Display

TME3-G has a self-diagnosis function, and when a malfunction occurs, it will display error messages from Err1 to 9.

For any other error messages, refer to “Section #10. Error Message”

7 Various Settings

Explaining the functions and operation methods of various settings

Please refer to Chapter 9. for the setting method using communication from an external device.

7-1. Setting items

	Item	Top left display	Main display	
			Default	Selected items
1	Setting item selection	— —	dAtA	SEt
2	Measurement mode	SEL	PEAK	dPEAK / rUn
3	Measurement unit settings	USEL	cN·m	Unit notation
4	Upper limit setting	HI	00.00	00.00 - Maximum measurement value
5	Lower limit setting	Lo	00.00	00.00 - Maximum measurement value
6	Peak starting torque	PEAK	7% of maximum measurement range	00.00 - Maximum measurement value
7	Drop range	droP	10% of maximum measurement range	00.00 - Maximum measurement value
8	±Display settings	Sign	rIgHt	LEFt / BotH
9	Auto memory reset setting	Ar	0.0	0.1/ 0.2/ 0.3/ 0.4/ 0.5 / 1.0/ 2.0/ 3.0/ 4.0/ 5.0
10	Auto power off setting	P_oFF	10	10/30/60/nonE
11	Key sound operation settings	bU	on	oFF
12	Baud rate setting	bPS	115.2K	9600/19200
	Data settings	d_LEn	8bIt	7bIt
	Parity setting	Prty	nonE	odd / EvEn
	USB output format	Formt	dF-1	dF-2
13	Setting value default	dFLt	no	yES

7-2. Parameter Settings

●Reading the settings screen

Pressing the ⚙ key in a no-load state, the item selection screen will appear.

●Selection of setting items

Select data processing or other parameter settings.

"SEt" is displayed in RUN mode.

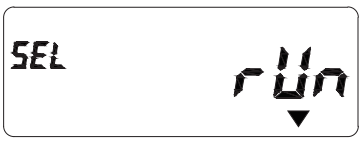
Select "SEt" using the ▲▼ keys, and press the setting key or the ✓ key to proceed to the next item.

Press the C key to return to measurement display.

●Measurement mode setting (default: PEAK)

Set the measurement mode.

Use the ▲▼ keys to select PEAK measurement mode "PEAK" / DOUBLE PEAK measurement mode "dPEAK" / RUN measurement mode "rUn" and press the ✓ key to display the data clear confirmation screen. Press the ⚙ key to proceed to the next step without making any settings. Press the C key to return to the measurement display.



*When changing the measurement mode, the measurement data memory will be cleared.

Press the ✓ key to switch the measurement mode, clear the memory data, and proceed to the next step.

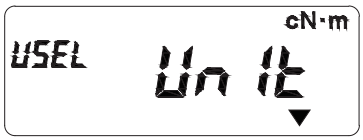
Press the C key to return to the display before switching.

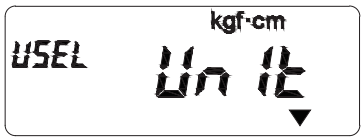
Data clear confirmation screen

●Measurement unit setting (default: cN・m)

cN・m → N・m → gf・cm → kgf・cm → ozf・in → lbf・in

*Selectable units vary depending on the model.





●Registration of the upper limit value (default: 0)

Register the upper limit value for OK/NG judgment.

Use the ▲ key to select a digit, use the ▼ key to match the value, and use the ✓ key to register and proceed to the next step.

Press the ⚙ key to proceed to the next step without registering, and press the C key to return to the measurement display without registering.

If a value exceeding the tester's maximum torque range is registered, "SEtErr" message appears on display, and the upper limit value will be registered again.

●Registration of the lower limit value (default: 0)

Register the lower limit value for OK/NG judgment.

Use the ▲ key to select a digit, use the ▼ key to match the value, and use the ✓ key to register and proceed to the next step.

Press the ⚙ key to proceed to the next step without registering, and press the C key to return to the measurement display without registering.

If a value exceeding the tester's maximum torque range or more than the registered upper limit value is registered, "SEtErr" message appears on display, and the upper limit value will be registered again.

●Registration of peak starting torque (default: 7% of maximum measurement range)

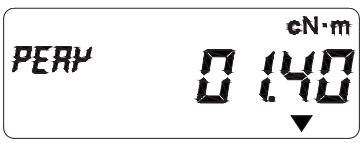
Register the peak start torque for PEAK measurement and DOUBLE PEAK measurement.

Peak hold occurs when the peak starting torque is exceeded. Not used during RUN measurement.

Use the ▲ key to select a digit, use the ▼ key to match the value, and use the ✓ key to register and proceed to the next step.

Press the ⚙ key to proceed to the next step without registering, and press the C key to return to the measurement display without registering.

If a value exceeding the tester's maximum torque range is registered, "SEtErr" message appears on display and returns to the previous display.



●Registration of drop range (default: 10% of maximum measurement range)

Register the drop range for primary and secondary peak torque detection during DOUBLE PEAK measurement.

Primary and secondary peak torque cannot be detected unless appropriate values are entered. (See 6-3)

It is not used for RUN measurement and PEAK measurement.

Use the ▲ key to select a digit, use the ▼ key to match the value, and use the ✓ key to register and proceed to the next step.

Press the ⚙ key to proceed to the next step without registering, and press the C key to return to the measurement display without registering.

If a value exceeding the tester's maximum torque range is registered, "SEtErr" message appears on display and returns to the previous display.

●±Display selection (default: rIgHt)

Select ± display.

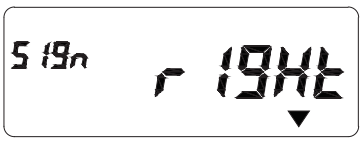
"rIgHt": "+" for clockwise load, "-" for counterclockwise load

"LEFt": "-" for clockwise load, "+" for counterclockwise load

"botH": "+" for both counterclockwise and clockwise loads

Use the ▲▼ key to select "rIgHt" / "LEFt" / "botH" and press the ✓ key to set and proceed to the next step.

Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.



●Auto memory reset setting (default: 0.0)

Set the auto memory reset time.

Select any value between 0.1 and 5.0 seconds using the ▲▼ key, set it using the ✓ key, and proceed to the next step.

If set to “0.0”, auto-reset will not operate.

Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.

●Auto power off setting (default: 10)

Set the auto power off time.

Use the ▲▼ keys to select 10 minutes ``10” / 30 minutes ``30” / 60 minutes ``60” / None ``nonE”, set with the ✓ keys, and proceed to the next step.

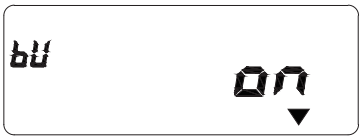
Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.

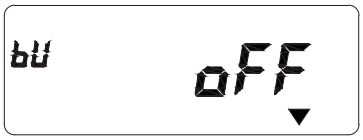
●Key operation sound setting (default: on)

Set whether to play the key operation sound. The over-torque alarm will sound even if set to “oFF”

Use them ▲▼ keys to select “on” or “oFF” and press the ✓ key to set and proceed to the next step.

Press the ⚙ key to proceed to the next step without making any settings, or press the C key to return to the measurement display without making any settings.





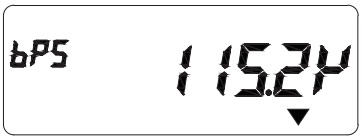
●USB communication settings

1. Baud rate setting (default: 115.2Kbps)

Set the communication baud rate.

Use the ▲▼ keys to select “115.2K” / “9600” / “19200” and press the ✓ key to set and proceed to the next step.

Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.



2. Data length setting (default: 8bIt)

Set the communication data length.

Use the ▲▼ key to select “8bIt”/“7bIt” and press the ✓ key to set and proceed to the next step.

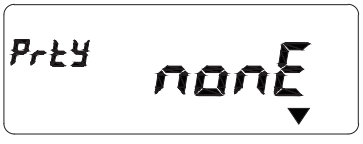
Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.

3. Parity setting (default: none)

Set communication parity.

Use the ▲▼ key to select None “nonE” / Even number “EvEn” / Odd number “odd” and press the ✓ key to set and proceed to the next step.

Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.



4. Output format setting (default: dF-1)

Set the output format when setting up USB communication.

Use the ▲▼ key to select “dF-1”/“dF-2” and press the ✓ key to display the data clear confirmation screen.

Press the ⚙ key to proceed to the next step without making settings, and press the C key to return to the measurement display without making settings.

*If set to “dF-2”, the maximum number of data memories will be 99.

dF-1: TME3 format

dF-2: TME2 compatible format

*If changing the output format, the measurement data memory will be cleared.

Press the ✓ key to switch the output format, clear the memory data, and proceed to the next step.

Press the C key to return to the display before switching.

Data clear confirmation screen

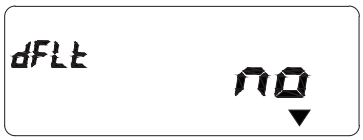
Press the ✓ key to switch the output format, clear the memory data, and proceed to the next step.

*If changing the output format, the measurement data memory will be cleared.

Press the C key to return to the display before switching.

●Default settings

Reset the settings to the factory settings.



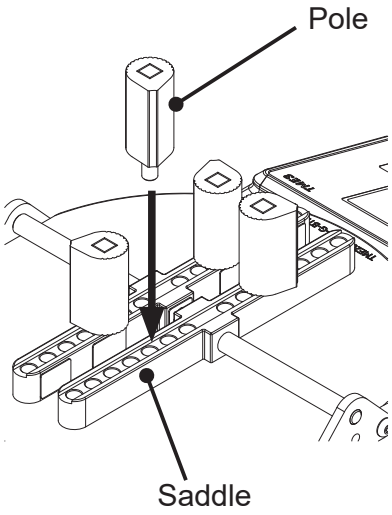
Select “yES” using the ▲▼ key and press the ✓ key to delete all measurement data and return all setting values to their factory defaults.

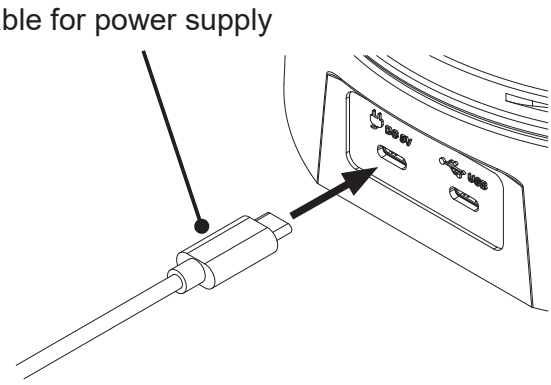
Press the ⚙ key or C key to return to the measurement display.

8 Operation

8-1. Preparation for measurement

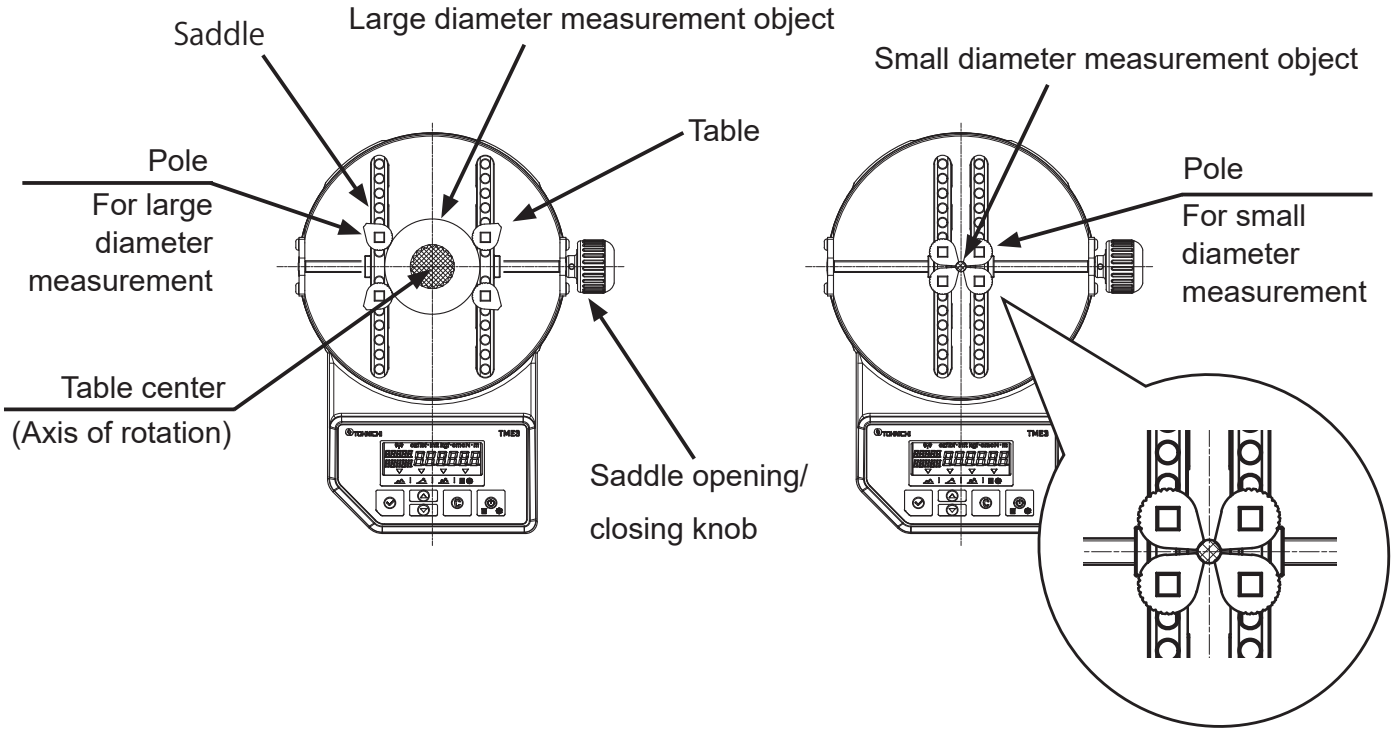
1. Place the TME3-G torque meter on a horizontal place.
2. Insert the four poles (rubber claws) into any holes on the saddle.
3. Connect the included power supply USB cable to the power supply USB port on the back of the TME3-G main unit, and connect the AC adapter to a power outlet.
4. Turn the power switch on. (Please leave it for at least 30 minutes after turning on the power)
5. Perform various settings such as upper and lower limit values, auto memory reset settings, and communication settings.





8-2. Measurement Object Installation

1. Loosen the knob on the table.
2. Insert the pole (rubber claw) into the desired hole position of the saddle according to the size and shape of the object to be measured or jig.
3. Set the rotation axis of the object to be measured or jig in the center of the table and turn the knob to fix it.



8-3. Measurement

1. press the C key with no load to activate the auto zero function and set the torque display to 0.
2. When using the device to visually observe changes in measured values depending on the load, measure in “RUN mode.”
3. Set the instrument to “PEAK mode” or “DOUBLE PEAK mode” to hold and record the maximum torque under load.
4. In “PEAK mode” or “DOUBLE PEAK mode”, data is stored by pressing the ✓ key after the measurement is completed.

   Note: Pressing ✓ key overwrites the data even if the torque value has already been recorded. Please take a note of important data or use the external output to save the data to a PC.
5. The maximum number of memory (counter display) is 1000.

9 External Output Function

9-1. USB output

Connect TME3-G and external equipment using a communication cable (Catalog No. 586 or No. 587).

Please match the communication settings with the external device. (See Chapter 7 for setting method)

*In case of communicating by USB cable, a dedicated driver must be installed.

Please download from the Tohnichi website.

●Communication settings

Data format: RS232C compliant

Transmission method: Start-stop synchronous serial

Baud rate: 115.2K / 9600 / 19200 bps

Data length: 8bit/7bit

Stop bit: 1bit

Parity: None/Even/Odd

●PC output format

Output format for USB output.

dF-1Setting

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

Header　Memory counter　Torque data　Primary peak data

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
±	1	0	0	.	0	,	c	n	m			,	O	K	,	1	2	3	4	5	6	A	CR	LF

Secondary peak data　Torque unit　Judgment result　Serial number　Delimiter

*The judgment result will be “OK” when it is OK, “HN” when it is HI-NG, and “LN” when it is LO-NG.

If the primary peak torque or secondary peak torque cannot be detected in DOUBLE PEAK mode, it will be “DN”, and if it cannot be judged, it will be “- -”.

*When measuring in PEAK mode, the primary peak data and secondary peak data are “0”.

*When measured in DOUBLE PEAK mode, the peak data is included in the torque data.

dF-2 (TME2compatible)

1	2	3	4	5	6	7	8	9	10	11	12	13
R	E	,	9	9	,	1	0	0	.	0	CR	LF

Header　Memory counter　Torque data　Delimiter

●Format for continuous output

After receiving the AT223 command from an external device, when the load is applied to the peak starting torque, torque data will be continuously output approximately every 20ms. Continuous output status is canceled when any key operation or AT222 command is received.

1	2	3	4	5	6	7	8
±	1	0	0	.	0	CR	LF

Torque data　Delimiter

●Settings from externally connected devices

The setting values of TME3-G can be changed by inputting commands from an externally connected device.

Be sure to change settings using command communication when there is no torque load.

When sending two or more settings in succession, wait at least 200ms after receiving a response before sending the next command. When TME3-G receives a command, it executes it and returns a response command.

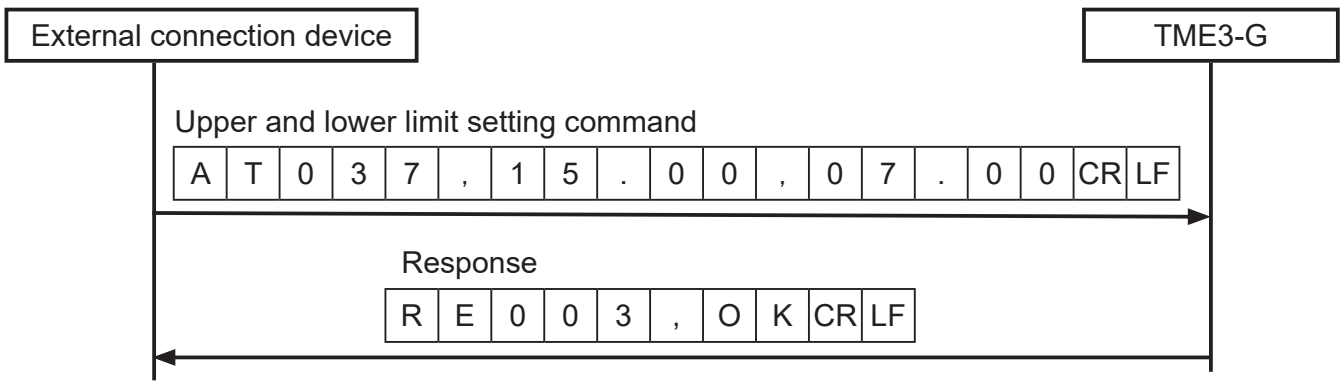
Command list

Communication command	Operation/content	Note
AT037, ＊＊＊＊＊, ＊＊＊＊＊	Register the upper limit torque and lower limit torque at the same time. The * part is the 5-digit torque value including the decimal point. Send in the order of upper limit torque and lower limit torque.	Please send a value that is within the measurement range and that the upper limit torque is greater than the lower limit torque. (0 is configurable)
AT207	Output 1 data.	
AT222	Cancels the state where data is being output continuously.	
AT223	Data is output continuously every 20ms.	Receive AT222 commands or Data continues to be sent until any key operation is performed.

*All commands are in ASCII code.

*Please add CRLF to the end of the command.

Response command	Contents
RE003,OK	Completion of receiving
RE004,ERROR	Receiving error. Setting error
E10	Receiving error. Setting error *Error when “AT” is not added to the beginning of the sending command



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

TMTCL2 (Applicable model: TME3-G)

11 Error Message

Error message	Indication	Solution
Err1 - 5	Operation key is continuously pushed.	Turn off TME3-G 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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