KILEWS

KILEWS　JAPAN　CO., LTD.

□ KTM - CSH

數位扭力計操作手冊
DIGITAL TORQUE METER INSTRUCTION MANUAL

操作前請閱讀全部說明

## 一. 安全警告 !!

1. 工作場所要保持乾淨。
   ◎ 雜亂的工作區域及臺面容易造成傷害。

2. 注意工作場所的環境。
   ◎ 勿將扭力計置放於雨中或潮濕處。
   ◎ 請在正常室溫下(約 24℃)使用扭力計。
   ◎ 工作場所應照明良好。
   ◎ 勿于有易燃液體或氣體之處所使用扭力計。

3. 勿讓孩童接近。
   ◎ 除操作人員以外應避免他人靠近工作場所。

4. 穿著適宜。
   ◎ 勿穿著太寬鬆的衣物或珠寶，以免操作工具時勾扯拉到。

5. 謹慎操作。
   ◎ 操作扭力計時應小心使用，注意操作方式及工作場所安全。

6. 穩固的固定機身主體。
   ◎ 當測量較大扭力時應使用夾子或虎頭鉗等工具來固定起子，如此會比較安全，同時可用雙手操作起子。

7. 勿測試超過負荷量的扭力。
   ◎ 若測試超過負荷量會使儀器損壞甚至產生意外或傷害。

8. 勿拆卸、撞擊或震動儀器。
   ◎ 自行拆卸儀器或儀器遭過度撞擊、震動，可能導致儀器損壞。

9. 電擊警告!!
   ◎ 勿以潮濕的手碰觸電源插座以免電擊。

10. 使用專用的充電器充電。
    ◎ 使用非專用的充電器可能會損壞儀器，更可能引起火災意外。

11. 適當的充電。
    ◎ 請依指示電壓充電。勿使用直流供電機或發電機充電，如此會產生高熱引發火災。
    ◎ 充電時間不要超過 8 小時，過量充電會引起爆炸、過熱和電池漏液，引起火災。

12. 絕不可將電池(嵌裝於扭力計內)丟棄火中。
    ◎ 如此會導致爆炸或釋放有毒物質。(丟棄電池的程式應依當地法律規定妥善處理或送到專門的回收處)

13. 如有下列情況應關閉電源。
    ◎ 沒有使用時或進行充電時。
    ◎ 進行修理時。
    ◎ 其他可能招致危險的情況時。

14. 細心保養扭力計。
    ◎ 請經常檢查彈簧座，不要使用變形或壞掉的接頭，以使操作正常安全。
    ◎ 定期檢查電線和延長線，更換有損壞的線材。

15. 不可猛烈拉扯電線。

　　◎　不可搬運懸掛著電線的儀器，也不要拉扯電線來拔開插頭。

　　◎　不可將電線放在高溫、油膩和有銳利邊緣的物品旁。

16. 檢查有無因零件損壞所造成的功能損失。

　　◎　在進一步使用儀器前，仔細檢查有無損壞、能否正常運作。

　　◎　檢查任何有可能會影響運作的零件是否正常。

17. 請由專業的人員來修理儀器。

　　◎　勿改裝此產品。

　　◎　應在購買的經銷商處維修產品，若由非專業人員修理此產品，有可能會無法正常運作，甚至引起意外或傷害。

18. 請使用專用的配件或附件。

　　◎　勿使用本操作手冊指示以外的配件或附件。

19. 不使用時請小心儲放。

　　◎　扭力計應儲放在乾燥且兒童無法接觸之處、或是安全的地方。在運送時可利用此產品原有的包裝盒。

二. 外觀

①Torque Display Part　液晶顯示器	⑨UP Switch　上選鍵
②NG/LOBAT (low battery) lamp NG/LOBAT 顯示燈	⑩DOWN Switch　下選鍵
③ＧＯＯＤLamp　　GOOD 顯示燈	⑪Torque detection part　測試底座
④ON/OFF Key　電源開關	⑫Measurement Mode change switch　測量模式選擇開關
⑤AC/DC Adaptor Terminal　充電孔	⑬SELECT Key　系統功能選擇開關
⑥CLEAR Key　歸零開關	⑭Measurement Unit change switch　單位選擇開關
⑦RS232C Output Connector　數據傳輸埠	⑮Zero Adjusting Knob　歸零調整器
⑧System Reset Switch　系統重置開關	
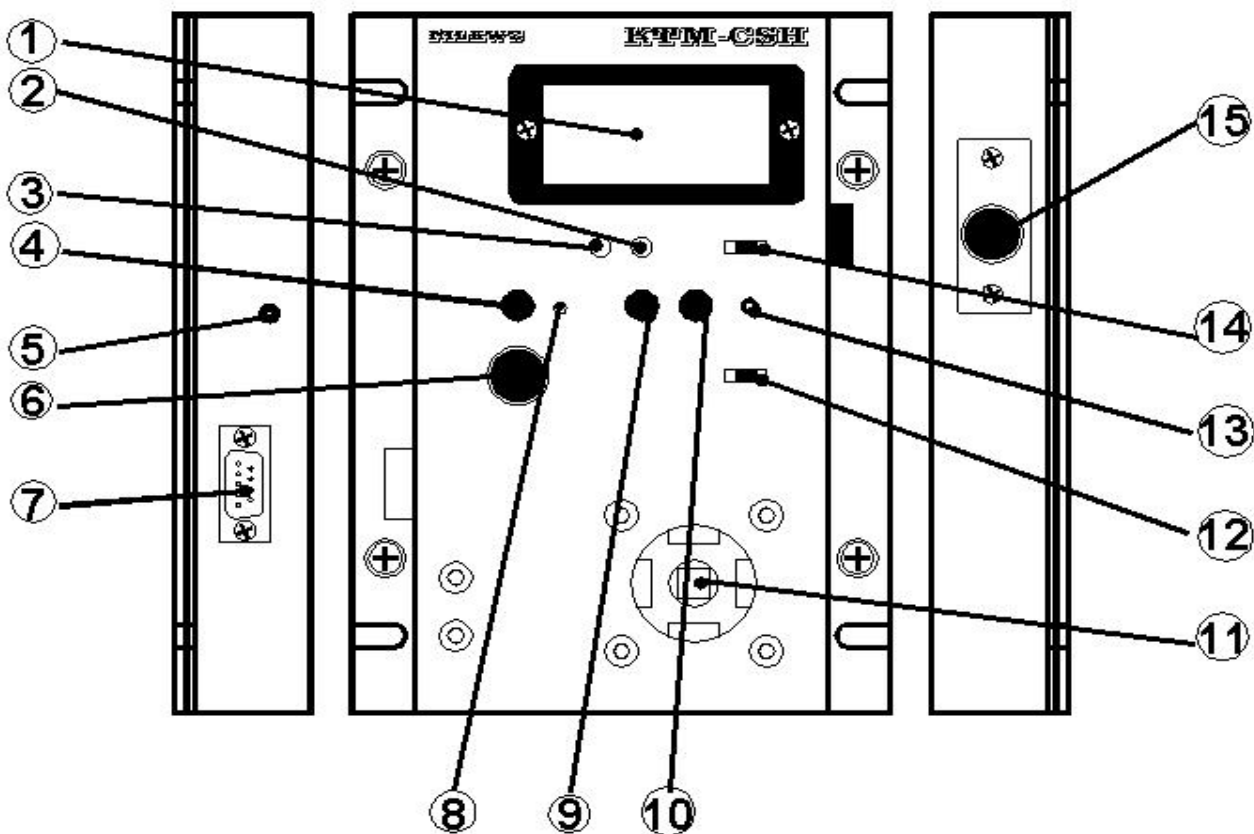
三. 規格

型　　　號	KTM-CSH
測　量　範　圍	30～174 Lbf.in
	30～200 Kgf.cm
	3～20 N.m
正　　確　　度	200～1000 數位顯示為±0.5%
	15～199 數位顯示為±1%
顯　　示　　器	三位元元半 LCD 影像顯示
測　試　方　向	正、反時鐘方向
測量模式	P-P(PEAK) 峰值模式	顯示負荷力最高值
	TRACK 變值模式	顯示負荷力值的變化
	P-D(PEAK DOWN) 初值模式	顯示負荷力最初峰值
數　據　輸　出	RS232 序列輸出 (速率 9600BPS)
數　據　記　憶	400 組
電　池　配　置	6VDC (Ni-Cd 1.2V x5)
使用扭力單位	Lbf.in 、Kgf.cm 、N.m
充　電　時　間	少於 6 小時
連續使用時間	約 12 小時
電　池　壽　命	可充電 300 次以上，視操作情況而定
專　用　充　電　器	輸入:AC 110V or 220V 輸出:DC 7.25V(120mA)
機　體　尺　寸	180(長)x130(寬)x34(高)
重　　　量	約 1.5Kg

四. 液晶顯示器顯示說明

		名稱	說明
設置模式	`H 1`	高值	設定扭力顯示值的最高範圍
	`L 0`	低值	設定扭力顯示值的最低範圍
	`PdL0`	PD 初始值	設定 PD 最低開始測量的數值
	`A C`	自動歸零時間	若設定自動歸零開始，測試完成後會在設定秒數內自動清零。若設定 0.0C 則必須手動歸零。
	`-5-`	設定完成	設定完畢後會顯示，表示設定完成
記憶功能	`CLA`	清零	逐個或全部記憶值清除時顯示
	`ALL`	全部清零	所有記憶值全部清除
記憶值輸出	`FA`	開頭位址	選擇欲輸出的記憶值開頭位址
	`LA`	結束位址	選擇欲輸出的記憶值結束位址
	`-P-`	數據輸出	記憶值輸出時會顯示

五. 準備與測量方法

5.1 穩定機身

使用螺釘等固定機身。

5.2 測量單位的設定

測量扭力的單位由單位轉換開關設定，當要改變單位時，需進行歸零調整。

5.3 測量模式的設定

測量模式由模式轉換開關設定。當改變單位時。需進行歸零調整。

5.4 電源的開關

● 打開電源開關（ON/OFF）

如果 LOBAT/NG 等亮起，請立即充電。

● 當關閉電源時，請按下 ON/OFF 按鈕約 1 秒，儀器自動會關機。

歸零調整

1. 將模式開關設爲 TRACK

2. 左右調整歸零調整開關，將顯示器值設定爲零【0.0】

3. 測量模式開關設定爲使用時的模式【PD-TR-PP】

※如果 10 分鐘之內沒有完成按鍵動作，電源將自動關機。

5.5 功能鍵設定

1） 設定最大值

按住 SELECT 鍵再按下 UP 鍵，綠燈發光，顯示 � H1 。設定顯示最大值。扭力的最大值是由 UP-DOWN 鍵設定的。【設定欲顯示的最大值，若顯示器顯示超過最大值，則 N.G 燈紅燈會亮】

2） 設定最小值

再次按下 SELECT 鍵，顯示 ⎣ LO ⎦，設定顯示最小值。扭力的最小值是由 UP-DOWN 鍵設定。如果設定的最大值<最小值，GOOD-N.G 判斷將不會被執行。【最大值>=最小值】

※設定完成後，若扭力低於最小值或扭力高於最大值，則 N.G 紅燈會亮，反之若扭力在設定值範圍之內，GOOD 綠燈會亮。此功能可以設定扭力誤差範圍。

3） 峰值的設定

再次按下 SELECT 鍵，顯示 PdLO ，之後顯示峰值。峰值由 UP-DOWN 開關設定。

（峰值超過設定值和扭力值 15 個數值， 當數值超過時，開始顯示。）※此功能通常不用

4）自動清零設置

再次按下 SELECT 鍵，顯示 AC ，設定顯示自動清零時間。執行自動清零的時間由 UP-DOWN 開關設定。（設定時間在 0.1～3.0 秒【時間間隔爲 0.5】）

設定時間的選擇

0.0C=>0.1C=>0.5C=>1.0C=>1.5=>2.0=>2.5=>3.0=>0.0C 迴圈

如果設定爲 0..0C，爲手動歸零【按 CLEAR 手動歸零】

5）結束設定

如果 SELECT 鍵再次被按下， -5- 顯示，設定結束。

5.6 測量方法

1） 請使用螺釘等固定機身。

2） 請按下 ON/OFF 鍵並打開電源。當電量不足時，LOBAT/NG 燈會閃爍，此時請用原廠充電器充電。

3） 設定各個功能的數值。

4） 歸零調整。當顯示器的值大於零，請進行歸零調整。

5） 在工具扭力測試部分進行測量。當工具有負荷扭力時開始測量。

6） 檢查工具的操作正常完成，測量的扭力值顯示並讀取，測量結束。

7） 測量結束後，按下 CLEAR 鍵，顯示器清零。若設定自動清零功能，在設定時間之後，數值將自動清零。

（測量值會被存儲在內部記憶體內，同時資料會輸出至 RS232C 輸出連接器。此功能只在 PD-PP 被執行）

8） 繼續工作，從 5 開始重複。

如果要結束工作，請按下 ON/OFF 鍵 1 秒，關閉電源。（如果維持一個狀態不動，10 分鐘後電源被關閉）

六. 充電

當顯示器上出現"LOBAT"字樣時表示扭力計電量不足，需進行充電。

請關閉扭力計電源，以隨機配備的充電器，接妥正確電源與扭力計充電孔即可進行充電。

充電時間請勿超過 6 小時，以免造成電池過熱、漏液甚至燃燒等傷害。

七. 資料傳輸(只限 PEAK 模式)

資料傳輸(需搭配專用傳輸線與軟體)：在每次測量完畢按歸零開關時(或機器自動歸零時)，扭力計會自動將測得的資料經傳輸裝置輸出到電腦上。

※ 搭配用的傳輸裝置為選購產品;扭力測試儀必須切於 PEAK 模式。

7.1 資料的編輯（僅限 P-P 、P-D 模式）

資料的傳輸是以 RS-232C 為傳輸的依據。故需用適合於 RS-232C 的印表機或電腦等設備來配合資料的傳輸；在每次測量完畢按歸零開關時（或機器自動歸零時），扭力計會自動將測得的數據經傳輸裝置輸出到電腦上。

※搭配用的傳輸裝置為選購產品。

7.2 若測試完成後，資料會資動記錄於記憶體內，不會傳輸至計算機。

7.3 欲調出存於記憶體的資料操作順序如下：

① 按住 SELECT 鍵再按下 CLEAR 鍵則會顯示「FA」，再按 "DOWN" "UP" 鍵來選取希望輸出資料位址開頭。

② 接著按壓 SELECT 鍵 則會顯示「LA」，並選取希望輸出資料位址結尾。

③ 再按壓 SELECT 鍵，則會顯示「--P--」，而 資料就會傳輸。

④ 要中止，按 清除鍵(Clear)。

八. 服務保證

本產品在購買後一年內若有因生產或運送過程瑕疵而產生的故障情況，本公司無條件提供修理服務；但下情況則被排除在外:

◎ 不當使用、修理或重組儀器而導致故障者。

◎ 在購買後因摔落等事故而導致故障者。

◎ 因天然災害、污染和不正常的電壓所導致的故障。

九. 校正服務

本產品於出廠前皆已做過可靠且符合國際標準的準確度校正，但為維持扭力計的精確度，應將扭力計做定期的校驗。本公司另提供專業並符合標準的調修服務，唯保證期間外的校驗服務得另收費用。

如有任何疑問 請與當地代理商聯繫 ！

Operation Menul for Digital Torque Meter
Model: KTM-CSH

1.Caution for safety

1. Keep work area always clean.
   Cluttered areas and benches may invite injuries.
2. Consider work area environment.
   Do not use torque meter in the rain or in the damp or wet place.
   Use the product at a place left at constant temperature(about 24℃).
   Keep work place well lighted.
   Do not use or charge the product in presence of flammable liquids or gases.
3. Keep children away.
   Keep any person other than the operator(s) away from work area.
4. Dress properly.
   Do not wear loose clothing or jewelry, which may be caught in moving parts.
5. Work with the most care.
   When using the product, carefully work, with consideration to how to handle, how to work, work environment, etc.
6. Fix main body firmly.
   When operated for measuring a large torque, use clamps or a vise, etc. ,It is not only more safe than holding by hand but also makes it possible to
   grip the screwdriver by both hands.
7. Do not apply a torque exceeding the permissible load.
   If applied beyond the permissible load, it may cause damage to the detector, resulting in accident or injury.
8. Do not disassembly, shock and vibrate this product.
   Avoid disassembling the product that is a precise instrument. If the torque meter is damaged by excessive shock or vibration, the product may not
   only show the full performance but also result in accident or injury.
9. Caution to electric shock
   Do not touch power plug by wet hand. It may cause electricshock.
10. For charging the battery be sure to use only exclusive charger.
    Using a charger other than specified may cause a fire or injury.
11. Charge properly.
    Charge on the indicated voltage. Do not use DC power or engine generator. It may cause abnormal heat, resulting in a fire.
    Keep the charging time not longer than 8 hours. Overcharge may bursting, overheat and liquid leakage, resulting in a fire or injury.
    Charge in a well-ventilated place. While being charged, do not cover with cloth.
12. Never throw the battery(built-in the torque meter) into fire.
    It may cause burst or give off toxic substance. (The procedure for scrapping the battery shall be followed in accordance with local or regional law
    on waste disposal. If there is no local or regional law on waste disposal, be sure to dispose of the battery at a recycling shop.)
13. In the following cases, turn off the main switch and disconnect the plug from outlet.
    When not used or charged;
    When repaired;
    When any other danger is expected.
14. Maintain torque meter with care.
    For better and safer performance, check screw joints regularly and use ones whose tips are free from deformation and wear down.
    For replacement of accessories follow the instruction manual.
    Inspect cords and extension cords periodically and if damaged, replace them.
15. Do not handle cord violently.
    Do not carry the product hanging by cord or draw out socket from outlet by pulling cord.
    Do not put cord near to a hot, oily or edgy part.
16. Check for absence of damaged parts.
    Before further use of the product, carefully check for no damage, normal operation, or intended functions.
    Check whether or not any other components that may affect its operation are normal.
    Replace parts according to the instruction manual.

17. Have the product repaired by the specialized dealer.

   Do not modify this product.

   Repair should be made always by the dealer where you purchased the product. If repaired by any person with no knowledge or skills of repair, it may not only show the full performance but also may cause any accident or injury.

18. Use only the specified accessories and attachments.

   Do not use any accessories and attachments other than ones specified in this instruction manual.

19. Store properly when not in use.

   Store the torque meter in a dry place and in a height out of children's reach, or secured area.

   To transport the product, reuse the packing case with which this product was delivered.

2. Designations and dimensions of the components

①Torque Display Part	⑨UP Switch
②NG/LOBAT (low battery) lamp	⑩DOWN Switch
③ＧＯＯＤLamp	⑪Torque detection part
④ON/OFF Key	⑫Measurement Mode change switch
⑤AC/DC Adaptor Terminal	⑬SELECT Key
⑥CLEAR Key	⑭Measurement Unit change switch
⑦RS232C Output Connector	⑮Zero Adjusting Knob
⑧System Reset Switch	
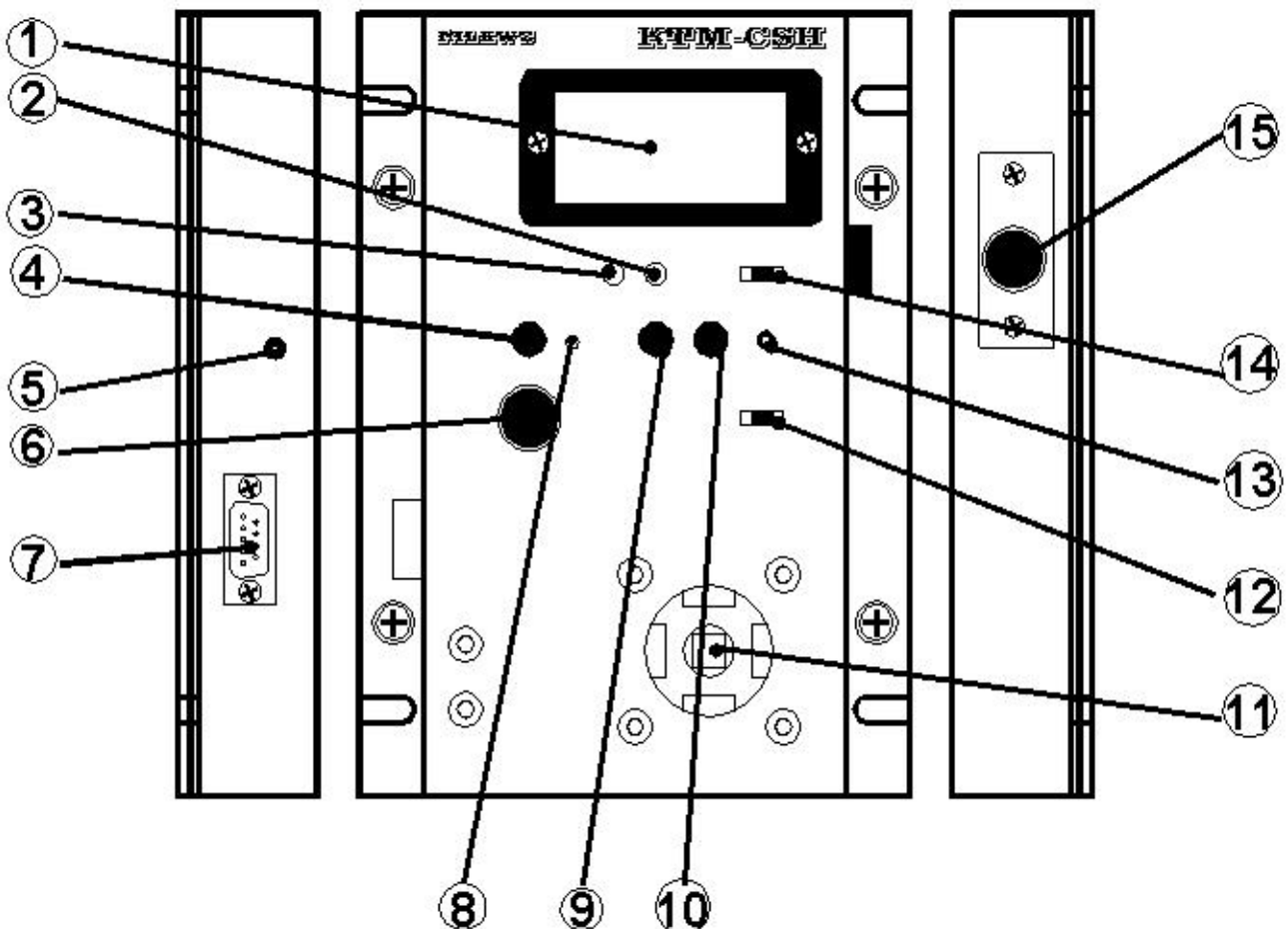
3. Specification

Model name	KTM-CSH
Measuring range	30～174 lbf・in 30～200 kgf・cm 3～20 N・m (at the time of Track)
Accuracy	±0.5% (or less 499±3digit)
display	4 figures digital display of LCD
The measurement direction	CW-CCW (right and left)
Measurement mode	Track, Peak (from 30 or more digits to a display), Peak-Down (from 30 or more digits to a display)
A success or failure judging function	High and low value are measurement within the limits, and can be set up.
Data output	RS232C conformity (baud rate 9600)
Data memory counts	400 data
Power supply	Ni-Cd chargeable battery 1.2V×5cells 700mAh
Charging time	From empty - 6 hours
Continuous working time	About 12 hours
Accessories (one piece each)	Exclusive charger (input AC120V or 230V 50/60Hz output DC7.5V)
	Result of calibration document Certification on calibration document / Traceability system figure

4. Explanation of the sign displayed on LCD

		Name	Representation
Setting mode	HI	high value	The high value of the success range is set up.
	LO	low value	The low value of the success range is set up.
	PdLO	peak-down opening value	The numerical value as which a peak-down begins to function is set up.
	AC	auto clear time	If the set-up time comes, measurement value will be automatically cleared in 0.0~3.0 seconds (0.5s interval). *(0.0s is manually clearance)
	-5-	setting closure	It displays, when a setup is completed.
Memory	CLA	clearance	It displays at the time of elimination of the each or whole memory.
	ALL	all (clearance)	It displays, when eliminating all memory.
Memory data output	FA	first address	The serial number outputted to the beginning of memory data is set up.
	LA	last address	The serial number outputted to the last of memory data is set up.
	-P-	data output	It is displayed during the output of memory data.

5. Preparation and the method of measurement

5.1 Stabilize the body

Please use a bolt etc. and fix a body firmly.

5.2 Setup in Measurement Unit

The unit of the torque to measure is set up with a measurement unit change switch.

When you change a unit, please carry out zero adjustment.（5.4 zero adjustment）

5.3 Setup in Measurement Mod**e**

The Mode of the torque to measure is set up with a measurement Mode change switch.

When you change a unit, please carry out zero adjustment.（5.4 zero adjustment）

	mode	contents
P-P	peak to peak	The highest value of load is hold-displayed. (This mode is usually used.)
TRACK	track	A display also changes with load change.
P-D	peak down	Load catches and displays the moment included in descent from a rise. (when torque value falls by 15 or more digits exceeding $PdL0$ of setting value) It is performed a additional tightening. (*It may be unable to measure depending on a situation.)

5.4 ON OFF of Power Supply

* Turn on a power-supply switch (ON/OFF),

  Supposing a LOBAT/NG lamp lights up, please charge promptly.

*When you turn off the power, please press the ON/OFF key for about 1 second.

* Check display zero. When the display more than zero has come out,

  Please carry out zero adjustment.

  zero adjustment

  1.Set the Mode Switch at TRACK

  2.Turn the Zero Adjusting Knob to the left and the right to set the displayed value to 0.

  3. Set the Mode Switch at the mode to be used

* If key operation during 10 minutes is not performed, a power supply will be in OFF state automatically.

5.5 Setting Method of Each Functional Numerical Value

1) Change in Setting Mode, and Setup of Maximum Value

   Press the UP Switch, Pressing the SELECT Key.

   Green LED (GOOD lamp) sticks and it is displayed as HI . A maximum value is displayed after that.

   The maximum value of torque measured value is set up by the UP-DOWN Switch.

2) Setup of a Minimum Value

SELECT key is pressed again. $\boxed{\text{LO}}$ Displays. A minimum value is displayed after that.

The minimum value of torque measurement is set up by the UP-DOWN Switch.

If a <u>maximum value < minimum value</u> is set up, a yes-no decision will not be carried out.

(Maximum value ≧ minimum value)

3) Setup of a peak down start value

SELECT key is pressed again. $\boxed{\text{PdLO}}$ Display. A peak down start value is displayed after that.

A peak down start value is set up by the UP-DOWN Switch.

(A peak down exceeds this setting value and torque values are 15digit(s). When it falls above, it operates (display))

4) Auto clear setup

The SELECT key is pressed again. $\boxed{\text{AC}}$ Display. A time setup of an auto clearance is displayed

after that. Time to carry out the zero clearance of the display is set up by the UP-DOWN Switch.

(A setup is [the whole 0.5] possible in 0.1 - 3.0 seconds)

Setting time selection

0. 0C=>0.1C=>0.5C=>1.0C=>1.5C=>2.0C=>2.5C=>3.0C=>0.0C it returns.

0.0C if it comes out and sets up -- the zero in manual operation -- it becomes clear.

5) End of a setup

If the SELECT key is pressed again, it is displayed as $\boxed{\text{-S-}}$ and is a setting end.

Green LED (GOOD lamp) puts out the light.

(The inside of measurement mode has turned on green LED (GOOD lamp))

* Press the ON-OFF key to end a setup on the way.

$\boxed{\text{-S-}}$ It is displayed and measurement is started.   Green LED (GOOD lamp) puts out the light.

5.6 Measuring Method

1) Please use a bolt etc. and fix a body firmly.
2) Please press the ON/OFF key and switch on a power supply.

Since power resource are insufficient when the LOBAT/NG lamp of a display part is blinking in that case, please charge with the charger of exclusive use.

(Although measurement while charging is possible, use time should not exceed charge 6 hours.)
3) Set up the numerical value of each function. (Refer to above)
4) A display checks zero. When the display more than zero has come out, Please carry out zero adjustment. （5.3）
5) Set a tool to measure in Torque detection part.

Measurement will be started if load torque is applied from a tool.
6) Check that operation of a tool has been completed normally.

The measurement torque value of a display part is read and it becomes a measurement end.

7) After a measurement end, if CLEAR key is pressed, a display will be cleared by zero.
   If the auto clearance is set up by functional setup, a zero clearance will be automatically carried out after setting time.
   (In this case, measured value is saved in an internal memory and data is simultaneously outputted to RS232C Output Connector.)
8) When continuing, repeat from 5).
9) If work is completed, please press the ON/OFF key for about 1 second, and turn OFF a power supply.(Even when it remains as it is, a power supply is shut off after 10 minutes.)
   The memory of the contents of each setting value is carried out.

6. Yes-no decision

The judgment of success or failure is performed only when measurement mode is PP (peak operation mode).   (30 or more digits of measured value)

At the time of PD (peak down mode), if the value of a peak down is detected, you will be told about by green (GOOD) lamp lighting.

Yes-no decision	below low value	in high and low	beyond high value	over-torque
LED	red Blink	green lighting	red Blink	red lighting
Detection check	peak down			
LED	green lighting		-	

7. Memory function and a data output

7.1 Usage of Memory

Data is always saved, whenever it presses the CLEAR key or an auto clearance starts.

We recommend you to carry out an all clearance (7.3 all clearance) before use.

The memory of data is begun from the data number 001.

When data is already memorized, it memorizes from the following memory number.

Preservation of a maximum of 400 data can be performed, and if it exceeds 400 data, it will be overwritten from No. 001.

When required measured value exceeds 400, please save in a personal computer etc.

The data which carried out the memory can be searched with the UP Switch or the DOWN Switch.

If a memory number and a torque value are displayed by turns and button operation is left for 6 seconds, it will move to measurement mode.

7.2 Output Method of Memory Data   (RS232C Output)

1) If the CLEAR key is pressed, pressing the SELECT key – Display [FA] (the first number to output) .A number is chosen by the UP Switch or the DOWN Switch.

2) Press the SELECT key. Display [LA] (the last number). A number is chosen by the UP Switch or the DOWN Switch.

3) SELECT key is pressed again, it will be displayed as [-P-] and data will be outputted.

   After an output finishes, it returns to a measurement state.

4) Press the CLEAR key for 1 second to stop during an output.

7.3 Method of Memory Clearance

* It is, when eliminating all data at once and it continues pressing the CLEAR key for about 2 seconds.
  [ALL] to display. [ALL]should press the DOWN Switch during blink.

* When clearing a memory individually, only one data will be eliminated, if a memory number to eliminate
  by the UP Switch or the DOWN Switch is displayed and the CLEAR key is pressed during the display.

7.4 data output

Whenever data presses the CLEAR key or requires an auto clearance, as soon as a memory memorizes, it
outputs a signal also to a RS232C output and a printer output.

7.5 Data Format

The data output is RS-232C output conformity. Data can be outputted to the printer corresponding to
RS-232C, or a personal computer.

Data bit length	Start bit 1+ Data bit 8+ Stop bit 2 + With no parity
Baud rate	9600bps
Connector form	D-Sub-9pin
Connector specification	No. 3 pin : Data output No. 5 pin : GND

	○○○	O E	2 0	±	○○○○ ○	2 0	OF	○○○ ○○○	0 D
CAN	※	S O	Space	Sign	Measured value	Space	S I	Unit	C R

All data 21

C A N ： Cancellation

※ ： In the case of a memory data output, it is a "data number." It becomes a "space" when outputted at the time of
"a clearance."

S O ： Double width expansion printing specification

± ： Measurement sign ⟨+⟩ A direction with a bundle ⟨−⟩ The Return Direction

Measured value: A decimal point is also included. The last is a space when there is no decimal point.

[1][0][.][0][0] ---- 10.00

S I ： Double width expansion printing release

Unit ： In N-m etc., the remainder is a space.

[N][·][m][ ][ ][ ] ---- N·m   ([k][g][f][·][c][m] ---- kgf·cm)

C R ： Carriage return

△ Cautions: An interface cable is used for connection of a computer.

Please prepare a cable according to a computer. Please ask our company a cable.

8. about a system and a power supply

8.1 System Reset Operation

Even if it charges after a nickel-cadmium battery carries out full electric discharge (when not using it for a long period of time), and it switches on a power supply, CPU in equipment may not start.

If it becomes such a situation, please push a system reset button once.

It will be in an initial state (all the contents of a memory are eliminated).

When you use system reset, please do not use it other than the following conditions.

* Even if it connects an AC/DC adaptor and turns on a power supply in the state where cross over a long period of time, and it is not used, when a number does not display on LCD.

* When a measuring instrument stops operating in addition to this.

When system reset is performed, please perform zero adjustment (P7 5.6).

Moreover, since all the contents of a memory are eliminated, please redo a setup once again.

8.2 Power Supply

* If the LOBAT/NG lamp of a display machine blinks, please charge promptly.

* Charge should use the AC/DC adaptor of the exclusive use attached.

* Charge time should not exceed 6 hours by any means.

(It may become the cause of the fire by the burst of a battery, generation of heat, and liquid leak, or an injury by fault charge.)

* If key operation is not performed for 10 minutes, a power supply will be in an OFF state automatically. (Auto-power-off)

* When you turn off the power, please press the ON/OFF key lightly for about 1 second.

9. Calibration trust service

9.1 Periodical calibration

Proofreading is periodically required in order to manage the accuracy of torque meter.

By our company, the proofreading with the high reliability traced to the national standard is performed, and in order to use it within accuracy, I recommend you one proofreading per year.

(Periodical calibration is a charge.)

An inspection report, a proofreading certificate, and traceability system figure attachment

9.2 Guarantee

Although manufactured under sufficient quality control, if the fault which originates in manufacture, transportation, etc. of our company within one year after a purchase should occur, I will fix this machine gratuitously.

In the following case, it becomes a charge within the term of a guarantee.

Failure and damage by the error, and unjust repair and reconstruction on use

Failure and damage by the natural disaster, pollution, unusual voltage, etc.

9.3 When Troubled

The checkpoint when being troubled.   Before judging it as failure

When functional fault arises, please check based on the following table.

By the corresponding processing, when fault is not canceled, please tell repair to our company or a store.

In addition, I am allowed to make a torque tester's term of a guarantee into one year from a purchase.

(However, there may be onerous in the contents of repair.)

Checkpoint when being Troubled

condition	checkpoint	solution
A power supply is not turned on.	Is charge carried out?	Please carry out regular time charge using the exclusive charger attached.
Even if it turns on a power switch, a LOBAT lamp blinks and a power supply is shut off immediately.	Charge is insufficient.	Please carry out regular time charge using the exclusive charger attached.
It does not display, even if it switches on a power supply after charge of regulation time.	If it is not used over a long period of time, an internal battery will carry out full electric discharge.	It will return, if a front system reset button is pushed. After a return, please push a clear button and give an indication zero.
It cannot measure.	Is it the numerical value of each function under setup?	Please end a setup and return to measurement mode.
	When torque is applied, does a numerical value change?	The gauge may be damaged when not changing. Please request repair.
A display disappears immediately.(It does not hold by measurement mode PP/PD)	It is used setting up an auto clearance.	Please check the setting item of an auto clear function again. (An auto clear function will operate with the load torque of 30 or more digits.) When there is no necessity, please set it as 0.0C.

	CEDAR 杉﨑計器株式会社
如有疑問請與經銷商聯繫	奇力速 KILEWS