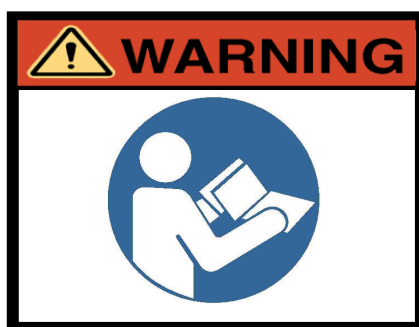


Digital Torque Tester

UDT-25

INSTRUCTION MANUAL



“GENERAL SAFETY RULES”

WARNING! Read and understand all instructions.
Failure to follow all instructions listed may result in
electric shock, fire or serious personal injury.

FOLLOW THESE INSTRUCTIONS.

Version 1.9

URYU SEISAKU, LTD.

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1. Outline

UDT-25 has been developed to measure torque of pulse wrenches, US-LT series torque control drivers, and US-LD series direct drive drivers. Also UDT-25 counts up blow numbers of pulse wrenches.

1.1. Features

■ LED red digital panel lamp

UDT-25 gives clear and bright display under dark environment.

■ +/- 0.5% High accuracy

■ Lightweight, compact design, and battery power drive.

Use UDT-25 is portability to the measuring place.

■ Soft and hard joint attachments are standard accessories.

These attachments help you make tools' torque check under close to practical joint condition.

■ RS232C port for data output

UDT-25 outputs torque data via built-in RS232C port.

1.2. Installation place

Install and fix UDT-25 as per the following instructions.

- 1) Within a building where no water no direct rays of the Sun affects UDT-25 because this is not waterproof.
- 2) Place where UDT-25 does not suffer from corrosives, flammable gas, grinding fluid, oil mist, metal powder, and etc.
- 3) Well ventilated with less moisture, dust or waste.
- 4) Less vibration place.

1.3. Environment condition

Item	Conditions
Place	Indoors only
Operation temperature	10~40°C
Ambient humidity	20%-80%RH (No dew)
Preservation temperature	0~40°C
Preservation humidity	10~90%RH (No dew)
Vibration	Less than 5.6 m/s ² (10~55Hz)
Over voltage category	Category III* ¹
Contamination degree	Degree 3

*¹... The above categorization is of the over voltage category (I, II, or III), and contamination level (1, 2, 3) as per IEC664. UDT-25 has been categorized as the over voltage category III and the contamination degree 3.

Note: IEC is International Electric Standard Committee

2. Safety instructions


Do peruse and use this instruction manual before installation, operation, maintenance and inspection of UDT-25. Use UDT-25 only after you master knowledge of this torque tester, safety instructions and all instructions given in this instruction manual. Keep this instruction manual carefully so you can refer to at any time necessary. Take note that this instruction manual classifies the safety instructions into 2 signs, "DANGER" and "WARNING", according to the degree of seriousness and urgency.



: A fatality and/or heavy personal injury is highly possible due to improper operation. Urgent warning is essential in the event of an accident.



: A dangerous situation accompanying mid-slight personal injury and/or property damage is possible due to improper operation.

Yet,  sign also warns the risk of serious consequences depending upon the situation. So, always follow every instruction given in this instruction manual.

Please retain this instruction manual for future reference.

◆ Installation and environment



- Place on a metal or other incombustible component to prevent fire.
- Avoid foreign matters intrusion to prevent fire.
- Fix UDT-25 on the place bearing the weight to avoid personal injury due to accidental drop.
- Keep your working place well lighted, clean and tidy to avoid personal injury.
- Make sure of UDT-25 fixing to avoid personal injury due to installation or fixing in the event of earthquake.



- Before recharging UDT-25, make sure that the battery charger's rated voltage agrees to your power socket to avoid personal injury and fire.

◆Operation



- Never touch any switches of UDT-25 with wet hands to avoid electric shock.
- Do not get UDT-25 connected with battery charger when you do not recharge UDT-25.
- Use UDT-25 genuine battery charger for recharging the battery.
- Remove battery from UDT-25 if you do not use UDT-25 for long time.
- Never apply torque greater than 25Nm which is UDT-25 capacity.



- Secure a safe footing and environment. Unnatural posture operation is dangerous.
- Operate with enough attention. Do not do rash or absurd operation when you are tired, and do not do continuous long time operation because doing so can invite injuries or diseases.

◆Maintenance and inspection



- Do not do maintenance and/or inspection unless authorized. Take off your metallic belongings such as wrist watch or rings before maintenance and/or inspection.
- Anybody other than us and our authorized parties are not allowed to repair by disassembly.
- Just use genuine battery and charger. Do not use any others' make battery or charger doing so shall destroy UDT-25, give you loss and damages.

◆Abandonment



- Abandon UDT-25 as an industrial waste.

◆Others



- Never modify UDT-25 and doing so can cause electric shock, injuries, and fire.
- Stop to use UDT-25 immediately if you feel abnormality.

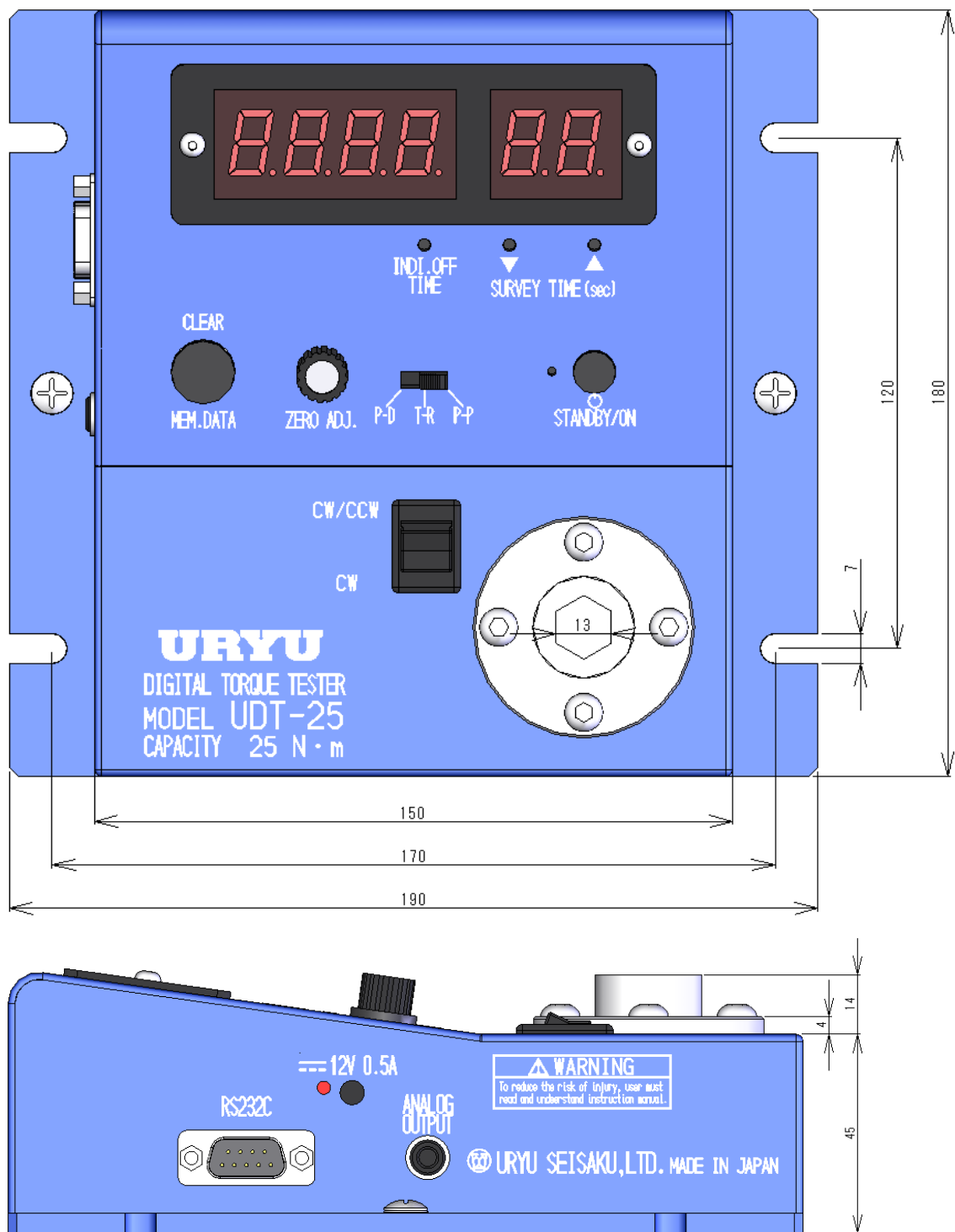
GENERAL WARNING

- Keep other people than operators away from UDT-25.
- Do not use at the place where you can wet UDT-25 because this is not waterproof. Doing so will cause short-circuit inviting fire and electric shock.

DISCLAIMER

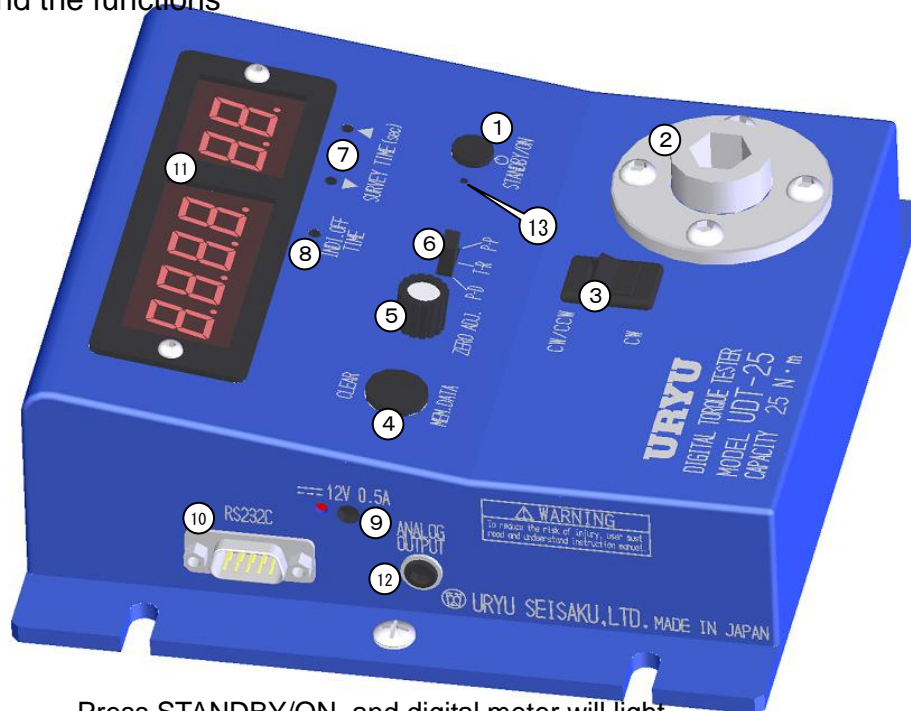
- The contents of this instruction manual are subject to change without prior notice.

3. Dimensions



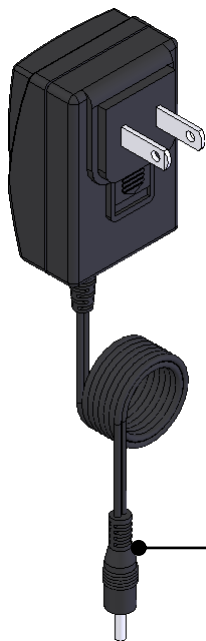
Type	Dimensions (unit: mm)			Weight (kg)
	Width	Depth	Height	
UDT-25	190	180	59	2.3(about)

4. Parts names and the functions



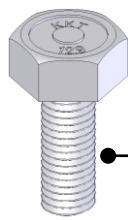
- ①Power switch: Press STANDBY/ON, and digital meter will light.
- ②Socket: Apply standard accessory attachment to have torque measuring object engaged with UDT-25.
- ③CW/CCW Switch: UDT-25 measures torque either clockwise or counterclockwise. UDT-25 measures just clockwise torque with CW (clockwise) setting. Use CW, and UDT-25 will not measure CCW (counterclockwise) torque opening soft joint attachment fastened by pulse tools.
- ④CLEAR MEM.DATA: Use this switch to clear torque display, handle memorized data, or data output via RS232C port. Press this switch when memory function is off, and the digital meter will be back to 0.00 after torque measurement.
- ⑤ZERO ADJ: Operate this knob either clockwise or counterclockwise to adjust ZERO point volume.
- ⑥PEAK switch: Operate this switch to change measuring mode.
- ⑦SURVEY TIME button: This is time setting how long (seconds) UDT-25 to count pulse numbers.
- ⑧INDI.OFF TIME: Adjust torque display time.
- ⑨Charge Jack: Use genuine battery charger for recharge. Red lamp on the left side of this jack lights while recharging, and goes off as the recharge is over. This red lamp does not light when the battery voltage went too low to restart.
- ⑩RS232C: Data output port of RS232C.
- ⑪Digital meter: This is red LED lamp digital meter displaying torque value, display time setting value, or blow numbers.
- ⑫ANALOG OUTPUT: This output jack provides analog signal torque waveform.
Insert plug of your recorder in this ANALOG OUTPUT jack.
- ⑬SYSTEM RESET button: This switch is in the hole available on the left side of power switch.
Press this button switch by point of a ballpoint pen or by the similar, and UDT-25 will initialize the setting to the original status or erase memorized data .

4. 1. Standard accessories



Genuine charger for 100V/115V use (AC adapter with flat blades)
(910-950-0)

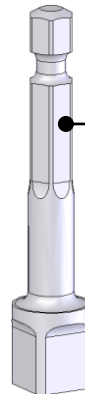
*for 230V use (AC adapter with round blades) (910-951-0)



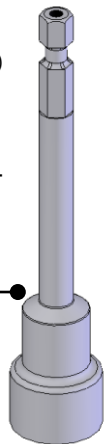
HEX BOLT (HARD)
M8 x 20
(946-928-0)



SQUARE SOCKET ADAPTER
3/8
(830-520-6)



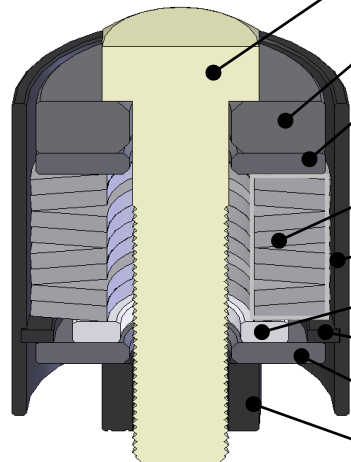
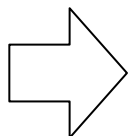
3/8-SQUARE POINT BIT
TX-C46E-75
(919-700-0 DRIVER ADAPTER)



HEXAGON SOCKET BIT
13 x 100 (6.35 Hex)
(918-223-0)



SOFT JOINT ATTACHMENT CP
(830-890-6)



HEXAGON BOLT M8 x 35
(946-930-0)

SPRING HOLDER SPACER (830-166-6)

SPRING RETAINER (836-165-3)

BELLEVILLE SPRING (STRONG) 8PCS.
(962-601-0)

BUSHING (BLACK) (830-175-6)

SPACER (408-483-0)

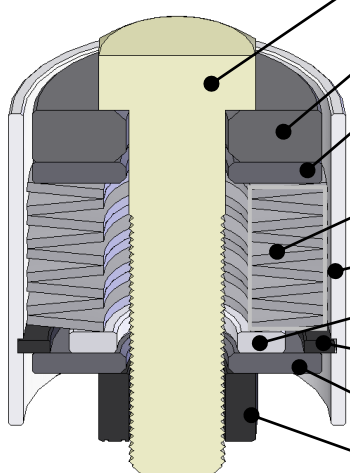
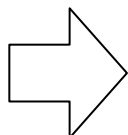
INNER SNAP RING IRTW-25 (979-325-0)

SPRING RETAINER (836-165-3)

HEXAGON NUT (1-M8) (960-050-0)



SOFT JOINT ATTACHMENT CP
(WEAK)
(830-890-7)



HEXAGON BOLT M8 x 35
(946-930-0)

SPRING HOLDERSPACER (830-166-6)

SPRING RETAINER (836-165-3)

BELLEVILLE SPRING (WEAK) 9 PCS.
(962-600-0)

BUSHING (SILVER) (836-175-4)

SPACER (408-483-0)

INNER SNAP RING IRTW-25 (979-325-0)

SPRING RETAINER (836-165-3)

HEXAGON NUT (1-M8) (960-050-0)

4. 2. Specifications

TYPE		UDT-25		
Capacity (Nm)		0.30~25.0		
Accuracy		+/- 0.5% R.O.		
Display		Red LED 4-digit display for torque, and 2-digit display for blow numbers		
Measure direction		Bidirectional (CW and CCW), or one way (CW) by CW/CCW-CW switch		
Unite		Nm		
Data output		RS232C (baud rate 9600bps)		
Analog output		0V-1.6V (when rated torque is applied) Plug size: JIS C6560 Φ3.5		
Power		Built-in Nickel-Hydrogen Battery (rechargeable about 300 times) <ul style="list-style-type: none"> • Use genuine battery charger only. • Do not use UDT-25 while recharging is in process. • Recharge the battery regularly if you do not use UDT-25 for more than 3-6 months. • Keep the battery and UDT-25 separately when you do not use UDT-25 for a long time. 		
Charger specifications	Power	AC100V 50/60Hz		
	Output	DC 12V 0.5A		
Recharge time		About 4 hours		
Operation time		About 14 hours		
Memory function		Maximum 250 datas		
Standard accessories		Parts names	Qt.	Code numbers
		Carrying case (UDT-25)	1	910-952-0
		Exclusive charger for 100V/115V use (AC adapter with flat blades)	1	910-950-0
		Exclusive charger for 230V use (AD adapter with round blades)	1	910-951-0
		Square socket adapter 3/8	1	830-520-6
		Hexagon socket bit 13x100 (6.35 Hex)	1	918-223-0
		3/8-Square point bit TX-C46E-75	1	919-700-0
		Soft joint attachment CP	1	830-890-6
		Soft joint attachment CP (WEAK)	1	830-890-7
		Hexagon bolt (HARD) M8x20	1	946-928-0

830-890-6 Soft joint attachment CP consists of these parts	Hexagon bolt M8x35	1	946-930-0
	Spring holder spacer	1	830-166-6
	Spring retainer	2	836-165-3
	Belleville spring (STRONG) 25x12.2x1.5	8	962-601-0
	Spacer	1	408-483-0
	Inner snap ring IRTW-25	1	979-325-0
	Bushing (BLACK)	1	830-175-6
	Hexagon nut (1-M8)	1	960-050-0
830-890-7 Soft Joint Attachment CP (WEAK) consists of these parts	Hexagon bolt M8x35	1	946-930-0
	Spring holder spacer	1	830-166-6
	Spring retainer	2	836-165-3
	Belleville spring (WEAK) 25x12.2x0.9	9	962-600-0
	Spacer	1	408-483-0
	Inner Snap Ring IRTW-25	1	979-325-0
	Bushing (SILVER)	1	836-175-4
	Hexagon Nut (1-M8)	1	960-050-0
Battery	Nickel-Hydrogen Battery Ni-MH(UDT-25) part code: 910-953-0		

5. How to use

4. 3. Preparation

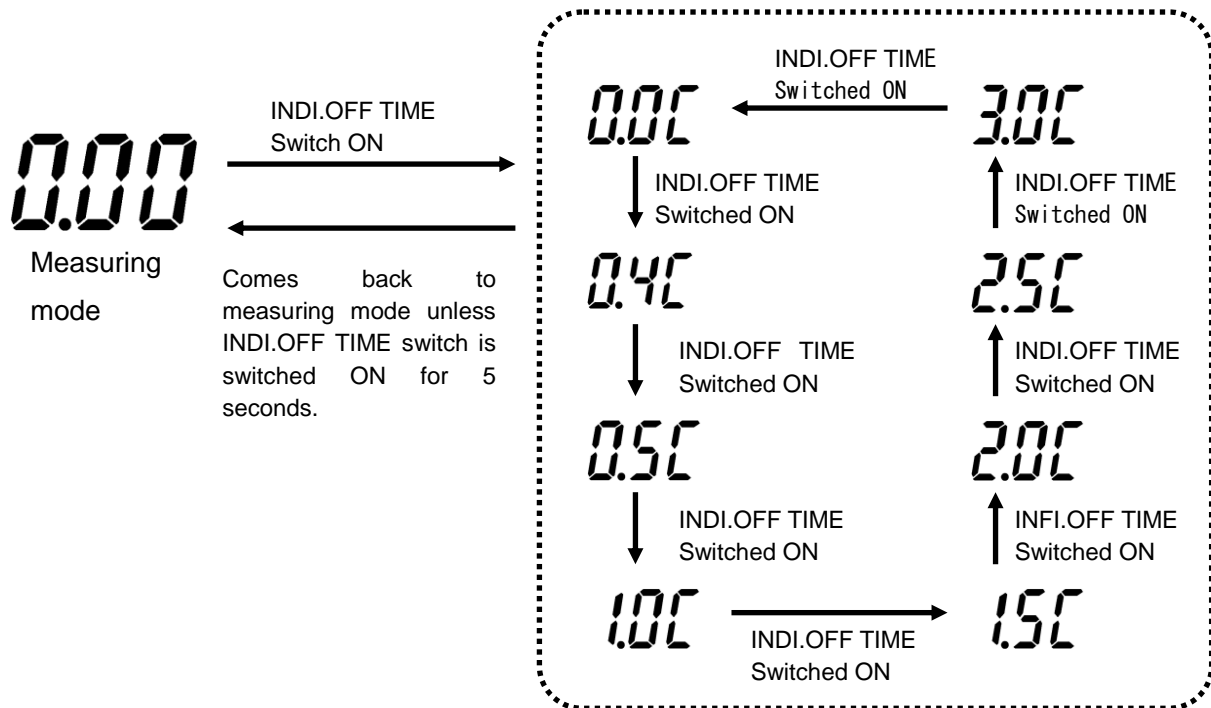
- Fix UDT-25 on a horizontal plate by bolts (use carpenter's level).
- Press STANDBY/ON switch to turn on UDT-25. Switch off and recharge UDT-25 by genuine charger if your see [-L---] display or decimal point flashing on digital meter.
- ZERO point adjustment
If digital meter displays number greater than 0 under no torque application, make ZERO adjustment as follows. Set CW/CCW-CW switch to CW/CCW, set PEAK switch to T-R, and turn ZERO ADJ knob clockwise or counter clockwise until digital meter display becomes close to 0.
- Attach necessary attachment to UDT-25, and make fastening with your tool to measure torque. Set CW/CCW-CW switch to CW, and UDT-25 will just to display clockwise torque on digital meter without displaying counter clockwise torque opening the fastened attachment.



4. 4. INDI.OFF TIME (Torque display timer) function and the setting

Use this timer when you use UDT-25 under [P-P] or [P-D] setting, and the digital meter will maintain torque display just for the preset time. The original setting is 0.0C maintaining torque display until CLEAR button is pressed. Shift PEAK switch to T-R either from P-D or P-P to reset measured torque if MEMORY function (page 11) is in use and 0.0C is selected for this timer. Shift PEAK switch back either to P-D or P-P after measured torque disappears. CLEAR MEM.DATA button does not work

while MEMORY function is in use. Press INDI.OFF TIME switch, and digital meter display will change in order of 0.0C, 0.4C, 0.5C, 1.0C, 1.5C, 2.0C, 2.5C, and 3.0C. Unit is second. Do press and stop of this switch until digital meter displays necessary time. If digital meter display comes back to 0.00 instead of adjusted time such as 0.5C, torque display timer setting is over. UDT-25 will display 0.00 (measuring mode) after maintaining measured torque display for the preset time. It takes 5 seconds for UDT-25 to come back to measuring mode after the timer setting.



4. 5. PEAK switch

- P-P: UDT-25 measures and displays the highest torque measured from the start to the end. Use UDT-25 with P-P setting to measure pulse wrenches or drivers, and the digital meter will maintain torque display then come back to measuring mode after INDI.OFF TIME is over.
- P-D: UDT-25 measures and displays the highest torque when the dynamic torque declines. Use UDT-25 with P-D setting to measure torque pre-set type wrenches (click wrenches) for calibration. The digital meter will maintain torque display just the same as P-P setting.
- T-R: Use this mode to do ZERO adjustment, or to have measured torque cancelled under INDI.OFF timer 0.0C setting.

4. 6. BLOW COUNTER

UDT-25 displays not only torque but also blow numbers counted in a period of time by SURVEY TIME preliminary set 0.1~9.9 seconds. Display of maximum number is 99. Input of 100 or greater number will restart the display from 0. This function works only under P-P mode. Press SURVEY TIME switch ▲ (increase) or ▼ (decrease) to adjust time, and UDT-25 will count blow numbers that pulse tools generates in the SURVEY TIME.

5. How to use BLOW COUNTER

Function	How to
Option of use or not use	Press STANDBY/ON switch just for a moment while pressing CLEAR MEM.DATA button, and the digital meter will display either On or OFF. Begin this action when UDT-25 is switched off status. Press CLEAR MEM.DATA button, and digital meter will change the display On or OFF. It takes 5 seconds for UDT-25 to come back to measuring mode after On or OFF option was displayed.
Memory line feed	Press CLEAR MEM.DATA button once, and UDT-25 will suffix hour and time to torque data, and start a new line (1 memory capacity decreases).
Delete memory data	Keep pressing CLEAR MEM.DATA for longer than 3 seconds, and the digital meter will display ALL. Press CLEAR MEM.DATA button once again, and digital meter will display CLR confirming all data delete.
Memory output	Press CLEAR MEM.DATA button twice, and UDT-25 will output memory data via RS232C port. The digital meter will display P. while UDT-25 outputs data.

6.1. Communication specifications

6.2. Output contents

①	②	③	④	⑤
---	---	---	---	---

Example: Torque value 13.21, and Blow numbers 16 pieces

13

(2) Output memorized data (fastening data)

①	②	③	④	⑤
---	---	---	---	---

- ①18H [CAN]: 1 byte
 ②Torque value + unit[Nm]: 9 bytes
 ③Space: 4 bytes
 ④Blow numbers: 3 bytes
 ⑤0DH [CR] (Control code): 1 byte

Example: Torque value 13.21, and Blow numbers 16 pieces

18H	1	3	.	2	1		N	*	m					1	6	P	0DH
-----	---	---	---	---	---	--	---	---	---	--	--	--	--	---	---	---	-----

(3) Output memorized data (start a new line)

*Press MEM.DATA, and UDT-25 will make line feed (line insert).

①	②	③	④
---	---	---	---

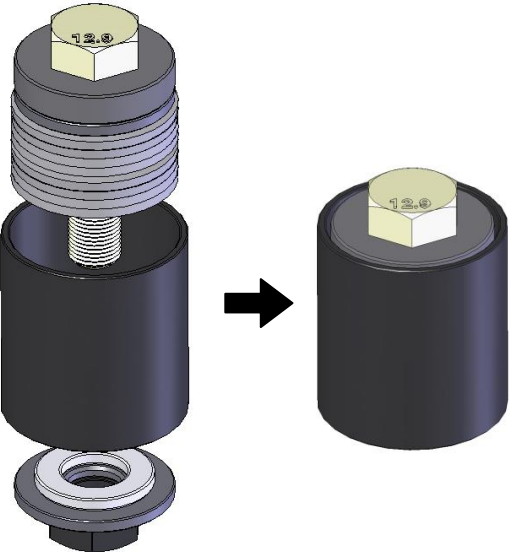
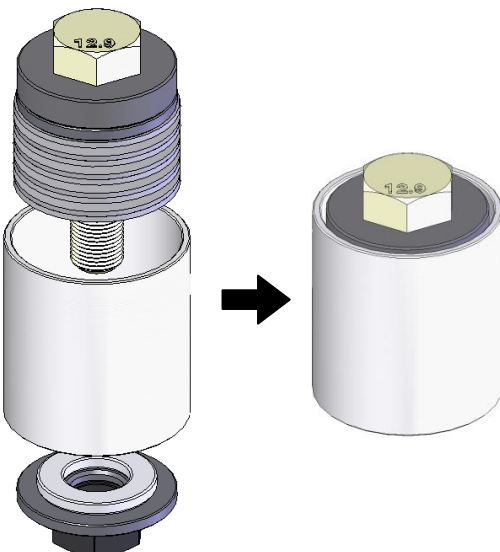
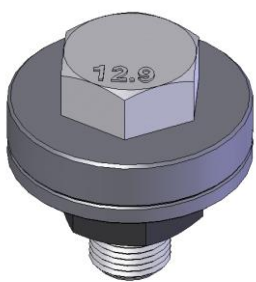
- ①18H [CAN] (Control code): 1 byte
 ②20H Space: 17 bytes
 ③Blow number counting time: 4 bytes
 ④0DH [CR] (Control code): 1 byte

Example: Blow number counting time: 1.0 second

18H																		1	.	0	s	0DH
-----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	---	---	---	-----

7. Attachment

Use attachment appropriate to your fastening conditions.

Soft joint		Hard joint
Pulse tools	Stall torque tools	
 <p>Use soft joint bolt (hexagon head bolt), nut, spring holder spacer, spring retainer, belleville spring (8 pcs.), inner snap ring, and bushing (BLACK).</p>	 <p>Use soft joint bolt (hexagon head bolt), nut, spring holder spacer, spring retainer, belleville spring (9 pcs.), inner snap ring, and bushing (SILVER).</p>	 <p>Use hard joint bolt (hexagon bolt), spring holder spacer, spring retainer and nut.</p>

8. Battery replacement

- ① Open and remove 2 pieces screws available on the right and left side of UDT-25, and back cover plate will be separated d from UDT-25.
- ② Disconnect battery connector from print circuit board, and remove the battery from the battery retainer of the back cover plate.
- ③ Install a new battery in the battery retainer. Confirm connector`s direction, and have the connector and print circuit board connected right.
- ④ Put together UDT-25 and back cover plate, and fasten them by 2 pieces screws.

Battery in use Model name: Ni-MH(UDT-25) Part code: 910-953-0



Recycle or dispose of used battery as stipulated by local regulation.

9. Cleaning

Wipe UDT-25 with a piece of soft cloth wet by water or neutral detergent.

10. Note

Decimal point of digital meter will blink when battery voltage is low. UDT-25 still can use while decimal point of digital meter blinks. Recharge the battery immediately because UDT-25 will be disabled with digital meter display [-L---] if the voltage goes lower. The battery gives self-discharge even if UDT-25 is not switched on. Storage without recharge the battery encourages self-discharge, and UDT-25 will reach an advance stage not possible to display [-L---] (due to storage for 1 to 2 months). Normal 4-hour recharging is not enough to realize full charge if the battery discharge advances so seriously. Storage without recharge for long time (about half a year) can cause disappear of setting value or memorized torque data. Press system reset button when UDT-25 does not restart despite recharging.

Recharge the battery once in 3-6 months for its quality maintenance if you do not use UDT-25 for more than 3-6 months. Storage without recharging may lead deterioration of battery.

MEMO

This image shows a full page of graph paper. The grid consists of small squares formed by horizontal and vertical dashed lines. There are 20 columns and 20 rows of these squares, creating a total of 400 small square units. The lines are evenly spaced and extend across the entire area of the page.



**INSTRUCTION MANUAL
for UDT-25 Digital Torque Testers
Version 1.7**

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