OWNER'S MANUAL

Digital Torque Wrench

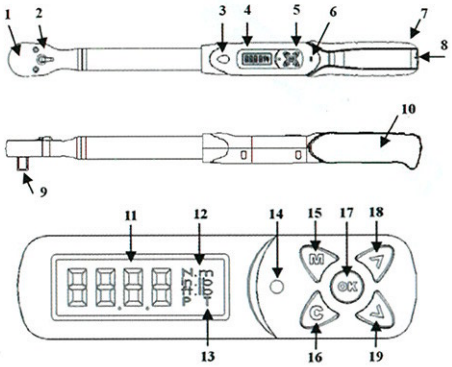
Dear Customers,

Thank you for purchasing this digital torque wrench. This manual will help you to use the many features of your new digital torque wrench. **Before operating the torque wrench, please read this manual completely**, and keep it nearby for future reference.

MAIN FEATURES

- Digital torque value readout
- +/- 1~5% accuracy
- CW and CCW operation
- Peak hold and track mode selectable
- Buzzer and LED indicator for the pre-settable target torque
- Engineering units(ft-lb, in-lb, N-m) selectable
- 30~250 data memory for recall and joint torque auditing
- Communication function
- Auto Sleep after about 5 minutes idle
- Both AA and Rechargeable battery are available

NAMES AND FUNCTIONS OF PARTS



1. Reversible ratchet head
2. Direction lever
3. Communication port
4. LCD readout
5. Buttons
6. Buzzer
7. Battery compartment
8. Battery cover
9. Ratchet drive
10. Handle
11. Torque value
12. Units(N-m, in-lb, ft-lb)
13. P(peak hold mode)
    T(track mode)
14. LED indicator
15. Menu button
16. Cancel button
17. Enter button
18. Up button
19. Down button

SPECIFICATIONS

Model *1	DG2-030AN DG2-030AR DG2-030BN DG2-030BR			
	AN	AR	BN	BR
Accuracy*2	CW : ±1% CCW : ±2%		CW : ±2.5% CCW : ±3.5%	
Max. Operation Range	30 N-m			
Alarm Setting Range	1.5~30 N-m			
Resolution	0.01 N-m/0.1 in-lb / 0.01 ft-lb			
Operation Mode	Peak hold/Track			
Unit Selection	N-m, in-lb, ft-lb			
Length(mm)	390			
Square Drive(inches)	1/4			
Head Type	Lever type Ratchet			
Gear Teeth	36			
Data memory depth	50	250	50	250
Communication *3	No	Yes	No	Yes
Key	5			
Battery	AA X 2			
Battery Life *4 (Continuous operation)	110 hrs.			
Battery Life *4 (Standby)	1 year			
Operating Temperature	-10℃~60℃			
Storage Temperature	-20℃~70℃			
Humidity	Up to 90% non-condensing			
Drop Test	1 m			
Vibration Test *5	10G			
Life time *6	10000 cycle			
Environmental test*7	Pass			
Electromagnetic compatibility test *8	Pass			

Note:

*1: Product name selection guide

DG[X]-[Y Y Y][Z][W]

[X] : 2--- Square drive 2/8(1/4) inches
3 3/8
4 4/8(1/2)

[YYY] : 030--- Max. operation range 30N-m
135 135
200 200
340 340

[Z] : A--- Accuracy 1%(CW) 2%(CCW)
B 2.5% 3.5%

[W] : R--- Support RS232 communication
N None

*2: The accuracy of reading value is guaranteed from 20% to 100% of maximum range pulsing /misusing one least increment. The torque accuracy is a typical value. Calibration point is at the middle line of the five anti-grip lines on the rubber handle. For keeping the accuracy, calibrate the wrench for a constant period time (1 year).

*3: Use a special designed RS232 cable (accessory) to upload record data to PC.

*4: Use two AA batteries (Test condition: Toshiba carbon-zinc R6UG battery)

*5: Horizontal and vertical test

*6: One cycle means swing the torque wrench from 0 N-m to maximum range and back to 0 N-m.

*7: Environmental test:
a. Dry heat
b. Cold
c. Damp heat
d. Change of temperature
e. Impact (shock)
f. Vibration
g. Drop

*8: Electromagnetic compatibility test:
a. Electrostatic discharge immunity (ESD)
b. Radiated susceptibility
c. Radiated emission

Model *1	DG3-135AN DG3-135AR DG3-135BN DG3-135BR			
	AN	AR	BN	BR
Accuracy*2	CW : ±1% CCW : ±2%		CW : ±2.5% CCW : ±3.5%	
Max. Operation Range	135 N-m			
Alarm Setting Range	6.8-135 N-m			
Resolution	0.1 N-m/1 in-lb / 0.1 ft-lb			
Operation Mode	Peak hold/Track			
Unit Selection	N-m, in-lb, ft-lb			
Length(mm)	415			
Square Drive(inches)	3/8			
Head Type	Lever type Ratchet			
Gear Teeth	36			
Data memory depth	50	250	50	250
Communication *3	No	Yes	No	Yes
Key	5			
Battery	AA X 2			
Battery Life *4 (Continuous operation)	110 hrs.			
Battery Life *4 (Standby)	1 year			
Operating Temperature	-10℃~60℃			
Storage Temperature	-20℃~70℃			
Humidity	Up to 90% non-condensing			
Drop Test	1 m			
Vibration Test *5	10G			
Life time *6	10000 cycle			
Environmental test*7	Pass			
Electromagnetic compatibility test *8	Pass			

Model *1	DG4-135AN DG4-135AR DG4-135BN DG4-135BR			
	AN	AR	BN	BR
Accuracy*2	CW : ±1% CCW : ±2%		CW : ±2.5% CCW : ±3.5%	
Max. Operation Range	135 N-m			
Alarm Setting Range	6.8-135 N-m			
Resolution	0.1 N-m/1 in-lb / 0.1 ft-lb			
Operation Mode	Peak hold/Track			
Unit Selection	N-m, in-lb, ft-lb			
Length(mm)	445			
Square Drive(inches)	1/2			
Head Type	Lever type Ratchet			
Gear Teeth	36			
Data memory depth	50	250	50	250
Communication *3	No	Yes	No	Yes
Key	5			
Battery	AA X 2			
Battery Life *4 (Continuous operation)	110 hrs.			
Battery Life *4 (Standby)	1 year			
Operating Temperature	-10℃~60℃			
Storage Temperature	-20℃~70℃			
Humidity	Up to 90% non-condensing			
Drop Test	1 m			
Vibration Test *5	10G			
Life time *6	10000 cycle			
Environmental test*7	Pass			
Electromagnetic compatibility test *8	Pass			

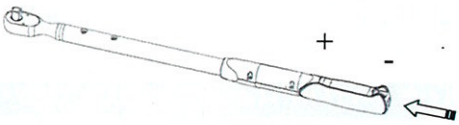
Model *1	DG4-200AN DG4-200AR DG4-200BN DG4-200BR			
	AN	AR	BN	BR
Accuracy*2	CW : ±1% CCW : ±2%		CW : ±2.5% CCW : ±3.5%	
Max. Operation Range	200 N-m			
Alarm Setting Range	10-200 N-m			
Resolution	0.1 N-m/1 in-lb / 0.1 ft-lb			
Operation Mode	Peak hold/Track			
Unit Selection	N-m, in-lb, ft-lb			
Length(mm)	530			
Square Drive(inches)	1/2			
Head Type	Lever type Ratchet			
Gear Teeth	36			
Data memory depth	50	250	50	250
Communication *3	No	Yes	No	Yes
Key	5			
Battery	AA X 2			
Battery Life *4 (Continuous operation)	110 hrs.			
Battery Life *4 (Standby)	1 year			
Operating Temperature	-10℃~60℃			
Storage Temperature	-20℃~70℃			
Humidity	Up to 90% non-condensing			
Drop Test	1 m			
Vibration Test *5	10G			
Life time *6	10000 cycle			
Environmental test*7	Pass			
Electromagnetic compatibility test *8	Pass			

Model *1	DG4-340AN DG4-340AR DG4-340BN DG4-340BR			
	AN	AR	BN	BR
Accuracy*2	CW : ±1% CCW : ±2%		CW : ±2.5% CCW : ±3.5%	
Max. Operation Range	340 N-m			
Alarm Setting Range	17-340 N-m			
Resolution	0.1 N-m/1 in-lb / 0.1 ft-lb			
Operation Mode	Peak hold/Track			
Unit Selection	N-m, in-lb, ft-lb			
Length(mm)	650			
Square Drive(inches)	1/2			
Head Type	Lever type Ratchet			
Gear Teeth	36			
Data memory depth	50	250	50	250
Communication *3	No	Yes	No	Yes
Key	5			
Battery	AA X 2			
Battery Life *4 (Continuous operation)	110 hrs.			
Battery Life *4 (Standby)	1 year			
Operating Temperature	-10℃~60℃			
Storage Temperature	-20℃~70℃			
Humidity	Up to 90% non-condensing			
Drop Test	1 m			
Vibration Test *5	10G			
Life time *6	10000 cycle			
Environmental test*7	Pass			
Electromagnetic compatibility test *8	Pass			

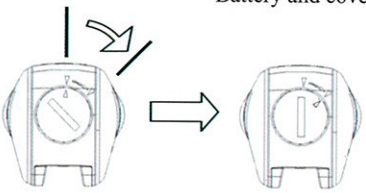
BEFORE USING THE WRENCH

LOADING THE BATTERY

- Remove the battery Cover.
- Insert two R03/AA batteries matching the -/+ polarities of the battery to the battery compartment.
- Put on the battery cover and rotate it tightly according to the following figures.



Battery and cover



POWER ON AND RESET THE WRENCH

- Press to power on the digital torque wrench.
- Usually press to reset the digital torque wrench before using it.

CAUTIONS:

1. If an external force is applied to the torque wrench during power-on/reset or wake up period, an initial torque offset will exist in the memory.
2. The "N.m" and "T" are loaded from the EEPROM. Once user sets the unit and peak hold/track mode, they will be stored into the EEPROM permanently.

WAKE UP THE WRENCH DURING SLEEP MODE

- The wrench will auto sleep after about 5 minutes idle for power saving. Press to wake up the wrench during the sleep mode.

CAUTIONS:

During communication period (send appears), the sleep function is disabled.

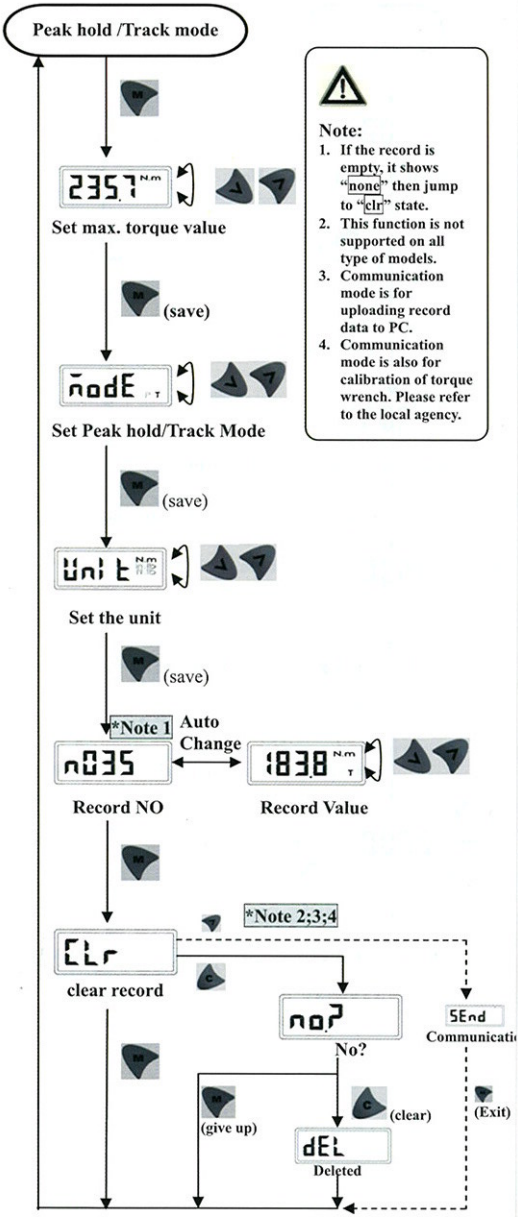
RESET THE WRENCH

- Press together will reset the wrench.
- If the wrench works not properly, press together to reset the wrench.

LOW BATTERY VOLTAGE PROTECTION

- If the battery serial voltage is under 2.3 Volts, the wrench will display a battery symbol and then turn off after a while.

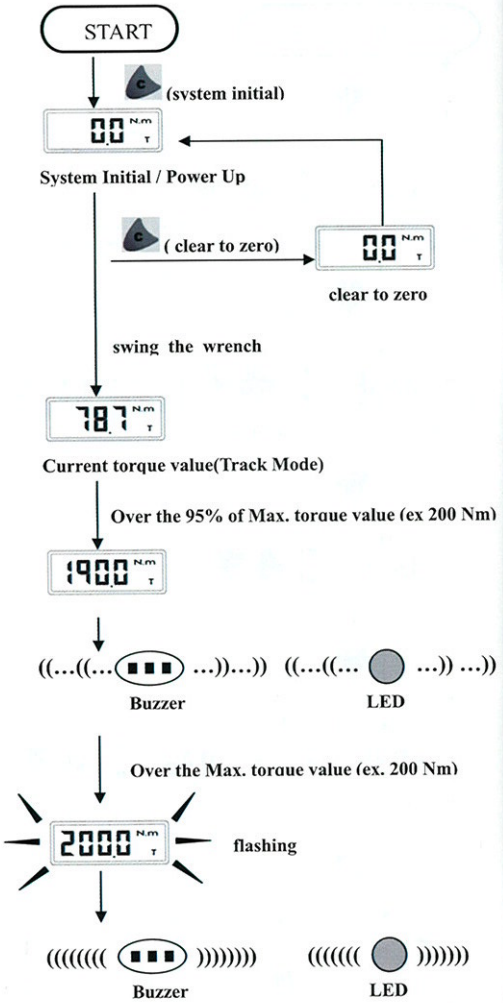
SETUP



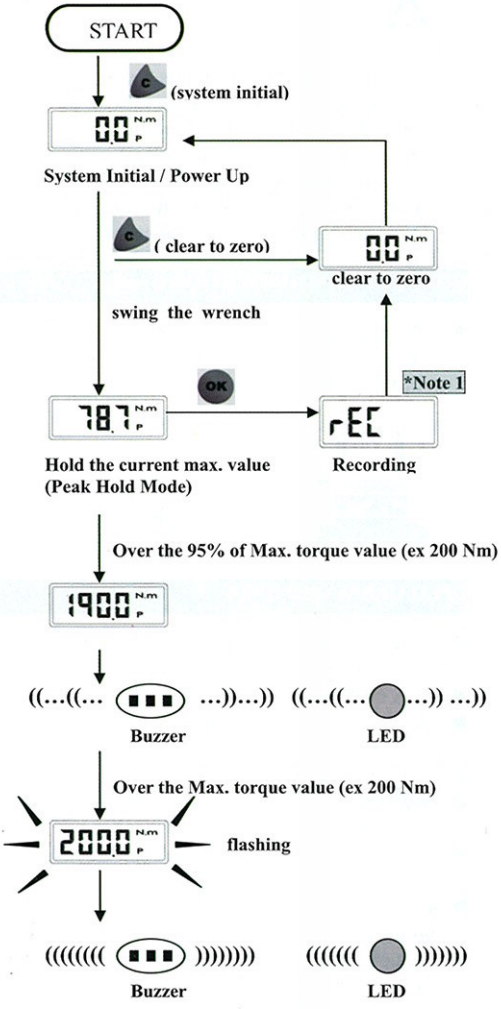
Note:

1. If the record is empty, it shows "none" then jump to "clr" state.
2. This function is not supported on all type of models.
3. Communication mode is for uploading record data to PC.
4. Communication mode is also for calibration of torque wrench. Please refer to the local agency.

TRACK MODE OPERATION



PEAK HOLD MODE OPERATION



Note:

1. Display "full" when the memory is full. Next value cannot be written in. See the "setup" section to clear the memory.

COMMUNICATION

Precaution:

1. **Communication function is only supported on some models. Check the model No. and its specification before using communication function.**
2. **Do not insert the plug of communication cable into torque wrench that does not support communication function.**

CONNECT COMMUNICATION CABLE

- Turn off wrench power and then connect the accessory cable between the RS232 COM port of PC and torque wrench.

UPLOAD RECORD DATA

- Make sure the connection between PC and wrench is already well.
- Press ◀ ▼ together to reset the wrench.
- Change the wrench operation mode to "send". (Refer to "setup" section)
- On PC to start the uploader program.
- In uploader program, first select the correct COM port No.
- Next, select the file path to save the uploaded data.
- At last, press "upload" button to transmit the torque records to PC.
- The uploaded data is then shown on the column and be saved in the *.csv file. Using the Microsoft Excel to view the *.csv file.

CAUTIONS:
Refer to the uploader program user guide for the detail operations.

CARE AND STORAGE

CAUTIONS:

One-year periodic recalibration is necessary to maintain accuracy.

Please refer to the local agency for calibrations.

1. **Over-torque (105% of Max. torque range) could cause breakage or lose accuracy.**
2. Do not shake or shock this wrench violently or drop it to ground.
3. Do not use this wrench as a hammer.
4. Do not leave this wrench in any place exposed to excessive heat, humidity, or direct sunlight.
5. Do not use this apparatus near water.
6. If the wrench gets wet, wipe it with a dry towel as soon as possible. The salt in seawater can be especially damaging.
7. Do not use organic solvents, such as alcohol or paint thinner when cleaning the wrench.
8. Keep this wrench away from magnets.
9. Do not expose this wrench to dust or sand as this could cause serious damage.
10. Do not apply excessive force to the LCD panel.

BATTERY HANDLING

1. When the wrench is not used for an extended period of time, remove the battery.
2. Keep a spare battery on hand when going on a long trip or to a cold area.
3. Do not mix battery types or combine used batteries with new ones.
4. Sweat, oil and so on can prevent a battery's terminal from making electrical contact. To avoid this, wipe both terminals before loading a battery.
5. Dispose of batteries in a designated disposal area. Do not throw batteries into a fire.