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**IST-12WA SERIES
BLUETOOTH
DIGITAL TORQUE WRENCH
OPERATION MANUAL**

PLEASE SCAN QR CODE TO
WATCH THE OPERATION
VIDEO OF PRODUCTS.



VIDEO



Attention

- ◆ Don't use the wrench as a hammer.
- ◆ Don't use the wrench in water.
- ◆ Over-torque (105% max. torque range) could cause damage or lose accuracy. If $Er\bar{0}$ is appeared, that means this wrench has ever been applied more than 110% torque of maximum range.
- ◆ The accuracy of the readout is guaranteed from 20% to 100% of maximum range.

Description

① Function features :

Torque wrench:

- Unit: N.m, in.lb, ft.lb, kg.cm
- Clockwise and counter-clockwise operation
- Peak and track working mode
- Can set tolerance with judgement in peak working mode
- 9 target torque values can be set, with audible and visible alarm:
 - Green LED light on and buzzer sounds when torque value is 80%~99.5% of target torque
 - Both green and red LED light on and buzzer sounds when torque value is over 99.5% of target torque
- Power off in 2 minutes automatically
- Non-slip grip handle
- With overload record (once the torque reaches 110% of the maximum range)

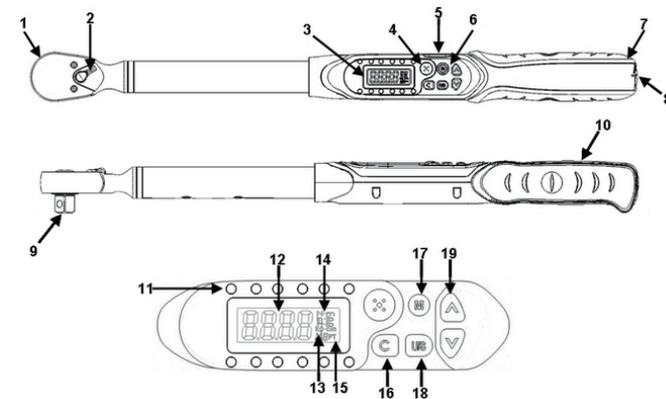
Data transmission:

- Data transmission via bluetooth (bluetooth 4.0)
- Two-way transmission and control
- Transmission distance: 10m (no obstacles, no electromagnetic interference)
- Bluetooth connection and disconnection are displayed by indicator light

Software:

- In Windows10 system version 1709 or above
- Two operation mode:
 - Data transmission mode: wrench transmits actual torque value to software after operation
 - Program guidance mode: firstly set process on software (set sequence of tightening, select wrench and set torque values and tolerances). Then software shows which wrench the operator should use (indicator light of the selected wrench is on) and shows the target torque value, and serial number of the screw to be tightened (shows on the wrench); After the operation is finished, the actual torque value is sent to software.
- Can select whether the wrench only sends qualified data after operation (in accordance with the tolerance)
- Two data transmission modes: automatic or press button to send
- When the wrench is disconnected, data is stored in the wrench and automatically sent to computer after connection via Bluetooth
- The data in software can be printed or exported to Excel

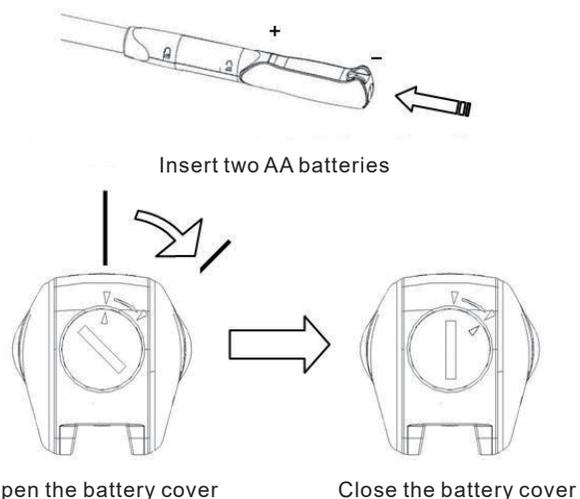
② Structure:



1. Reversible Ratchet Head 2. Direction Lever 3. LCD Readout 4. Buzzer
 5. Communication Port 6. Buttons 7. Battery Compartment 8. Battery Cap
 9. Ratchet Drive 10. Anti-slip Handle 11. LED Indicator 12. Torque Value
 13. Pre-setting number 14. Units 15. P(Peak Hold)/T(Track) Mode 16. Power On/Clear Button 17. Pre-setting number Selection Button 18. Unit/Setting Button 19. Up/Down Button

Operation

1 Inserting the batteries:



2 Turn on and initialize:

- ◆ Set the wrench horizontally on a level surface and let it sit without touching it, then gently press **C** to power on the digital torque wrench.
- ◆ After power on, auto zero-reset will be processed. In torque mode, it does zero-reset on torque measurements.

Note: When turning on and initializing the wrench, don't exert force.

3 Reset the wrench:

If the wrench working abnormal, press **C** setting the wrench.

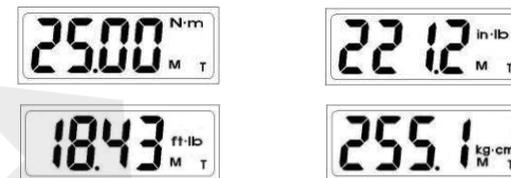
4 Low battery indicator:

When the battery is low, the screen displaying the sign as shown and it will power off in a few seconds.



5 Select the unit:

In the initial interface, press **U/S** to select the unit.



6 Set torque value:

In the initial interface, press **M** to select the target torque value, press up and down button to adjust the value.



Note: Target torque value can be set, with audible and visible alarm: 8 green LED light on and buzzer sounds when target torque value is approached. 4 red LED light on and buzzer sounds when target torque value is reached.

7 Peak & track mode:

In the initial interface, long press **C** then appearing the following picture.



Press up and down button to select peak or track mode. Peak mode means after used the wrench the screen will display and hold the peak value; Track mode means the screen will display current value.



Peak mode



Track mode

After selected, press **U/S** until back to the initial interface.



8 Set tolerance:

In the initial interface, set the target value, then long press **U/S** to into the menu, and press **U/S** until the interface as shown.



Press up and down button to adjust the upper limit percentage then press **U/S** to adjust the lower limit percentage, and press **U/S** to back the initial interface.

Note: Setting range can be within +20.0% ~ -20.0%, ± 00.0% means no judgement. The "p" on screen means percent. Judgement function is only effective in peak hode mode. when measurement value exceed upper limit, the screen shows **---- and the red LED flash. when measurement value below lower limit, the screen shows **----** and the green LED flash.**

9 Bluetooth data transfer operation

In the initial interface, long press **U/S** to into the menu, and press **U/S** until the interface as shown.



Press the button switch Bluetooth (V2 meter two-way transmission)



Note: If Bluetooth is connected, the wrench will attempt to transfer the measurement to the computer.

Start apply torque. When 80% of the target torque is reached, the green LED will begin to flash and the alarm tone will beep intermittently. When 99.5% of the target torque has been reached, the alarm will change to a steady tone and the green LED will stop flashing and stay on. The red LED will also illuminate.

Measured value over judgement range: Judge NG and show **----**, red LED stays on.

Measured value under judgement range: Judge NG and show **----**, green LED stays on.

Measured value within judgement range: Judge OK and show error percentage, red and green LED stay on.

Maintenance

- 1 Do not shake violently or drop wrench.
- 2 Do not leave this wrench in any place exposed to excessive heat, humidity, dust, sand or direct sunlight.
- 3 Do not use organic solvents, such as alcohol or paint thinner when cleaning the wrench.
- 4 When the wrench is not used for an extended period of time, remove the battery, apply antirust oil on the exposed metal part, put the wrench in box for storing.

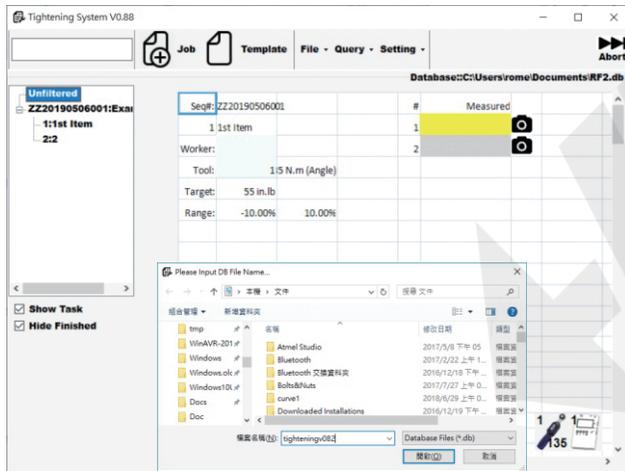
Software Installation

- Bluetooth 4.0 support in Windows 10 revised largely since version 1709, please install this App in Windows 10 above version 1709. There is another build only supports RF communication which requires Windows 7.
- Please install App refers following steps.

1. Click Tightening SetupRF.exe or Tightening SetupBT.exe to install software.
2. Click Install button.
3. Click Close button

Launch Application

1. Tap Windows Search
2. Input [Tightening]
3. Click [Tightening]
4. Application Main Screen look like following:



5. To change language, please click [Setting], [Operation Setting] menu, and change [Language] setting.
6. In the 1st launch, The App will create a new database file; Users are asked to provide a database file name.

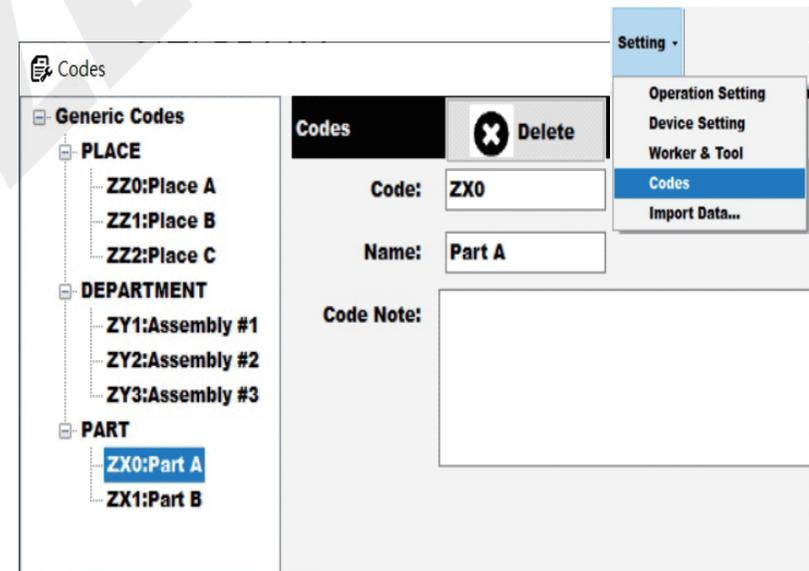
Basic Setting

1 Database:

Create Database: tap on [File], [New Database] menu popup file dialog, and naming [File Name], then click [Open] to create new database.

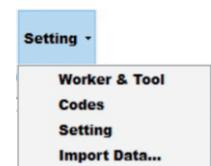
2 Codes:

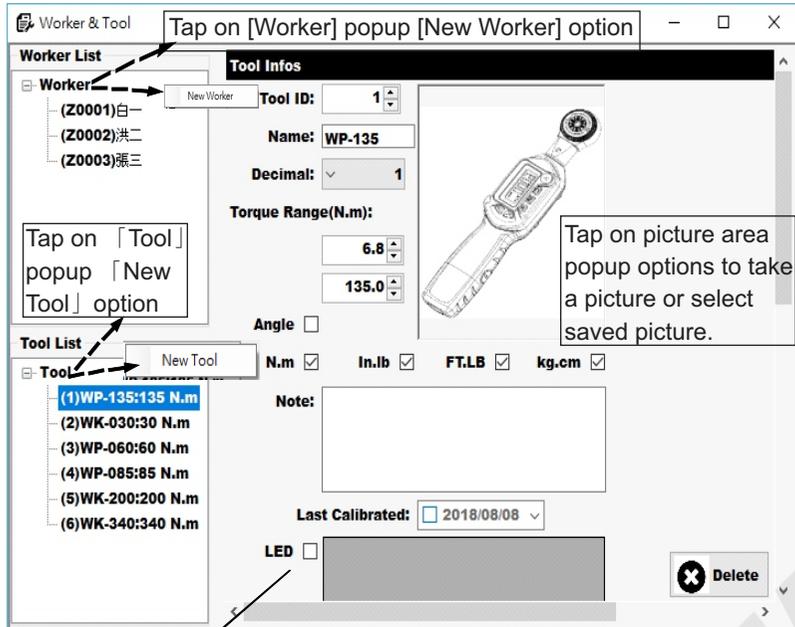
1. Tap [Setting], [Codes] Menu to enter codes screen:
2. Click on [Node] to expand or collapse group of codes.
3. Click on 「Code Group」 popup 「New Code」 for adding new code.
4. Click on [Code] display detail information in the right side.



3 Worker & Tool:

Tap on [Setting], [Worker Tool] shows as follows:





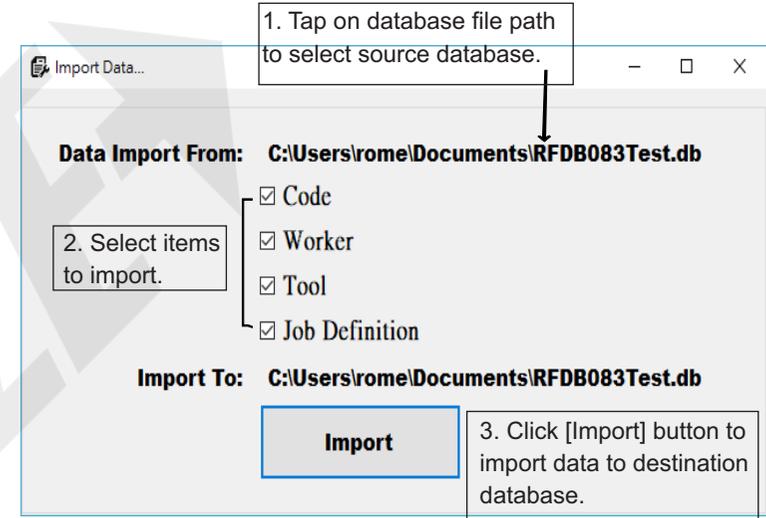
LED	LED	%	v	=	^
<input checked="" type="checkbox"/>	1	800	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2	850	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	3	900	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	4	950	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	5	975	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	6	995	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Tap on [Tool] or [Worker] item, the detail information displayed in the right side. All the wrenches needed in job need to be enrolled here before start to work..

When LED Control enabled, LED will be configured (and saved) during registering (connect to system).
 「%」 column store the per mill of target, LED ignited when reached, disabled when set to 0.
 「v」 column set the LED on when under tolerance.
 「=」 column set the LED on when inside tolerance.
 「^」 column set the LED on when above tolerance.
 LED were layout from right to left in wrench.tabase file; Users are asked to provide a database file name.

4 Import Data:

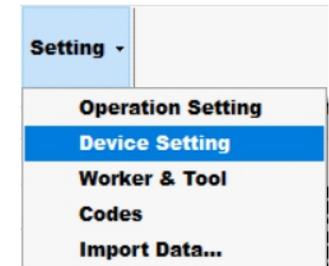
Tap on [Setting], [Import Data...] to open import dialog, please follows the steps below to import data to new database .



Device Setting

Note: The device setting function is used for production side debugging, and the user does not need to operate.

Click [Setting], [Device Setting] menu to enter, blank screen if there is no device connected



Job Template

One tightening job may contains one or more task, and one task composed of several bolts with same tightening preset. Tap on [Template] define tightening job template.

1 Job Header:

Annotations in the screenshot:

- Tap on [Jobs] popup [New Job] Menu.
- Tap on picture popup picture options.
- Tap on [Job] popup [New Task] Menu

Off-line Operation:
 Enable this will cause system to send all tightening presets to Wrench. While works without wireless, all results will stored in Wrench. When wireless available again, all the stored results will send to system in batch by press M in Wrench.

[Import Excel] imports specific formatted excel job template, and displayed as it imported during working. Import any not well formatted Excel file will cause unpredictable results.

2 Task

One tightening job contains one or more task, and one task composed of several bolts with same tightening preset.

OPMode	Description (Supports of [OP Mode] depends on Wrench's capability)
PEAK	Measure the Peak Torque.
ANGLE	Measure both Torque and Angle, Angle cumulate from 10% of Wrench's maximum torque.
ONESTEP	Measure both Torque and Angle, Angle cumulate from specified torque.
PAL	Measure both Torque and Angle, Angle cumulate from 10% of Wrench's maximum torque. When target torque reached, but angle less than specified angle, judged as fail due to that screw maybe tightened already.
QC	Measure the torque of the moment that screw start to rotate.
QCt	Measure the torque of the specified angle reached.

3 Wrench Option

Hold	<input checked="" type="checkbox"/> Checked	During several force cycles, wrench keep peak across cycles.
	<input type="checkbox"/> Unchecked	During several force cycles, wrench keep peak of last one.
Auto Send	<input checked="" type="checkbox"/> Checked	Qualified tightening send to PC Automatically
	<input type="checkbox"/> Unchecked	Qualified tightening send to PC manually (Press[M]).
NG GO	<input checked="" type="checkbox"/> Checked	Unqualified tightening allowed to send.
	<input type="checkbox"/> Unchecked	Unqualified tightening not allowed to send.
UP GO	<input checked="" type="checkbox"/> Checked	Over tolerant tightening allowed to send.
	<input type="checkbox"/> Unchecked	Over tolerant tightening not allowed to send.
No Cancel	<input checked="" type="checkbox"/> Checked	[C] button allowed to cancel previous tightening.
	<input type="checkbox"/> Unchecked	[C] button not allowed to cancel previous tightening.
NG Auto	<input checked="" type="checkbox"/> Checked	Send unqualified tightening to PC automatically.
	<input type="checkbox"/> Unchecked	Send unqualified tightening to PC manually.

4 Import Template from Fixed Formatted

Excel File: Fixed Formatted: (Attached AS10.xlsx)
 Summary Sheet: Excel2007 file 1st sheet, formats as follows:
 Dotted fields are fillable while working.

NO	Name	Place	BackTrack	Points	OK_points	NG Points	BackTracked
Tightening Audit Form							
Job#	Type#	OK Rate	Staff				
Date	Assembly	Count	Measured			NG Points	
Wrench#							

Task Sheet: Sheets after summary sheet of Excel2007 file, formatted as follows.
 Dotted fields are fillable during working.

During import, it will prompt:
 Wrench Options (Please refer to Wrench Option).
 Enable [Backtracking]? This is only used in Quality Control.
 Please do not enable it for production!

5 Import Template from Customized Format

Excel file: (attached wheel4x4.xlsx)

In such formatted Excel 2007 file, each sheet represent one task; the field definitions stored in T column(T1~T50), using Excel [COUNTIF()] formula to store [Cell Range] and [variable].

- T Column Cell content: [=COUNTIF(Cell Range] , [Variable])]
 - [Cell Range] Could be single cell or a range of cells such like [D12:D15]
 - [Variable] specified the variable, and its value stored in [Cell Range] .

- Variable Name:
 - [UI_] prefixed represent fillable during working.
 - [UD_] prefixed represent user predefined, not fillable during

working.

- Reserved variables:
 - UD_JOBNO: Display Job no.
 - UD_DATE: Display Date.
 - UI_WORKER/UD_WORKER: Worker ID.
 - UI_DEPT/UD_DEPT: Department.
 - UI_LOC/UD_LOC: Location.
 - UI_PART/UD_PART: Part.
 - UI_WRENCH/UD_WRENCH: Wrench ID.
 - ME_UNIT: Torque Unit (N.m, in.lb, ft.lb, kg.cm, kg.m)
 - ME_TTORQUE: Target Torque
 - ME_TANGLE: Target Angle
 - ME_HIP: Upper tolerant percentage.
 - ME_LOP: Bottom tolerant percentage.
 - ME_TORQUE: Cells to place fill, count depends on its range.
 - ME_ANGLE: Cell range to fill ANGLE, count depends on its

range.

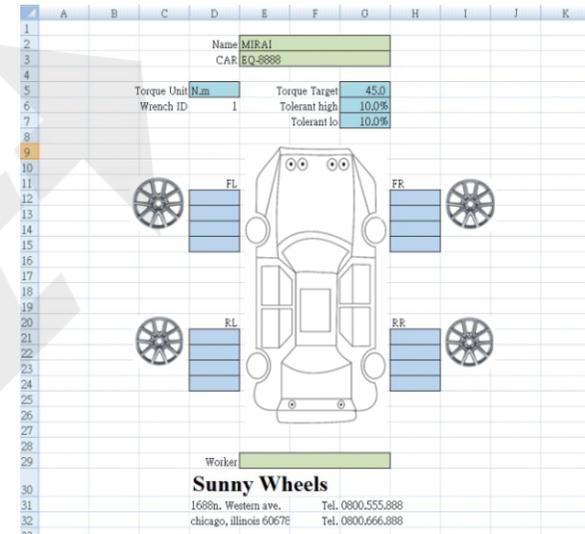
ME_ONESTEP: Cell range to fill ONESTEP, count depends

on its range.

- ME_PAL: Cell range to fill PAL, count depends on its range.
- ME_QC: Cell range to fill QC, count depends on its range.
- ME_QCT: Cell range to fill QCT, count depends on its range.
- UD_TOTALRANGE: total range.

- Other variable acceptable, application will store to database.
- Pictures in Excel sheet is acceptable, should be helpful for worker.

Attached wheel4x4s.xlsx:



T columns detailed as follows:

Excel Cell Content	Cell	Cell Content	Description
=COUNTIF(E2, UI_NAME)	E2	MIRAI	
=COUNTIF(E3, UI_MODEL)	E3	EQ -8888	
=COUNTIF(D5, ME_UNIT)	D5	N.m	N.m, in.lb, ft.lb, kg.cm, kg.m
=COUNTIF(D6, UD_WRENCH)	D6	1	WrenchID : RF:1 ~ 99 Wi - Fi/ BT:1~9999
=COUNTIF(G5, ME_TTORQUE)	G5	15.0	Target torque
=COUNTIF(H6, ME_HIP)	H6	10.0%	Upper tolerant %
=COUNTIF(G6, ME_LOP)	G6	-10.0%	Lower tolerant %
=COUNTIF(E26, UI_WORKER)	E26		Worker ID
=COUNTIF(D12:D15, ME_TORQUE)	D12:D15		Measurements to fill D12:D15(4 screws)
=COUNTIF(D12:D15, ME_TORQUE)	H12:H15		Measurements to fill H12:H15(4 screws)
=COUNTIF(D12:D15, ME_TORQUE)	D21:D24		Measurements to fill D12:D15(4 screws)
=COUNTIF(D12:D15, ME_TORQUE)	H21:H24		Measurements to fill D12:D15(4 screws)
=COUNTIF(A1:K30, UD_TOTALRANGE)	A1:K30		Range

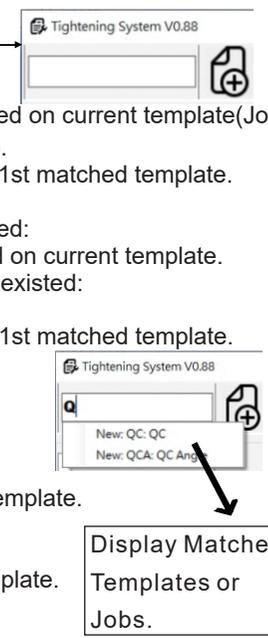
Job arrange

Tightening job could be create on line or create in advance before work.

1 Create Job On Line:

The [Job Serial] field on main screen could be used to create or show existed job. User scan bar code or key in manually or just tap on it to create or show job based on setting.

- 1.1 [Default Template] not specified:**
- Tap on [Job Serial] → Show Template if templates matched. Tap on [Template]: Create job based on current template (Job Serial generated according serial format). Press Enter, Create job based on 1st matched template.
 - Key in partial Job serial:
 - Display Templates if templates matched: Tap on [Template] create job based on current template.
 - Display Jobs if existed Jobs matched existed: Tap on [Job] show selected job. Press Enter Key create job based on 1st matched template.
 - Key in full Job serial:
 - Display matched existed Job: Tap on [Job] show selected job.
 - Press Enter Key: Show selected Job if job existed. Create job based on 1st matched template.
 - Bar code scanner input in main screen: Show matched Job if Job existed. Create job based on 1st matched template.
- 1.2 [Default Template] specified:**
- Tap on [Job Serial] → Show Default Template: Tap on Template/Press Enter Key: Create job based on default template.
 - Key in partial Job Serial: Display Template if matched [Default Template] Tap on [Template]: Create job based on default template. Display matched Job → Tap on [Job] display selected Job. Press Enter Key: Create job based on Default Template.
 - Key in full Job Serial: Display matched existed Job. Press Enter key: Create job based on Default Template.
 - Bar code scanner input in main screen: Show matched Job if Job existed. Create job based on default template.



2 Create Job in advance before work:

[Job Arrange] used for Job creation in advance, and also modification and deletion of not finished Jobs; Tap on [Job] to enter [Job Arrange].

Annotations for Job Arrange screen:

- Tap on [Jobs] popup [New Job] option.
- Tap on [Code] popup templates
- Tap on [Task], show details of [Task]
- If [Append after finished!] not checked, all the jobs created immediately; otherwise it will create reminder one by one after each job finished.
- Enable this will cause system to send all job details to Wrench. While works without wireless, all measures will stored in Wrench. When wireless available again, all the stored measures will send to system in batch by press M in Wrench.
- If [Cancel] checked, the current task will be skipped.
- Must Fill

Fields and options visible in the screenshot:

- Job: Job Name:
- Code: ZZ Job Seq#: ZZ20190506001
- Jobs: 1
- Start: 2019-05-06 09:19
- Worker:
- Dept:
- Location:
- Part:
- Off-line Operation:
- Note: Canceled
- Tool: 1:135 N.m (Angle) in.lb
- OP Mode: PEAK Range: 10.0 %
- Target: 60 -10.0
- Count: 2
- Options: Hold, Auto, NG GO, UP GO, No Cancel, NG Auto Send

Tightening

After launch, Application will enter [Tightening] screen, if there is job not finished, it will list them on left pan.

Annotations for Tightening screen:

- Tap on [Task] item to switch other task
- Cell in yellow means screw to be tighten; tap on other field, System will instruct wrench to tighten new position with new targets
- Tightening measures filled here
- Device list (connected highlighted).

Fields and options visible in the screenshot:

- Seq#: ZZ20190506001
- 1 1st Item
- Worker:
- Tool: 135 N.m (Angle)
- Target: 60 in.lb
- Range: -10.00% 10.00%
- Options: Show Task, Hide Finished

[Show Task] Checked: Display corresponding Job/Task when tightening result reached. Please disable it when there are more than one job running in parallel.

[Hide Finished]: Hide Finished job from Jobs list. When disable, user can specified date duration to show finished jobs.

- Tap on [Task] item will switch to it; if arranged wrench were also used by other running task, System will alarm user to interrupt running Task and switch to it. System will also looking for empty tightening slot, and send tightening preset to wrench.
- After Wrench received above Preset, wrench will configure itself with received Preset.

- Wrench will display Screw order and Target : 
- Wrench LED will be ignited depends on preset setting.
- Wrench Auto Sleep will be disabled; to turn off Wrench, Hold C button.
- After tightened, tightening result send to System depends on Wrench Option in Task setting, automatically or manually (user press M button on wrench).
- The wireless transmission is very sensitive to battery voltage; if empty battery symbol displayed, please replace battery immediately.

Device and unfiltered

1 Device:

Connected devices were displayed in the bottom-right of main screen:

Bluetooth Wrench:

If a unpaired Bluetooth Wrench detected, App will display grey wrench icon: Please click on it to pair.

If paired Bluetooth Wrench found, it will connect it

automatically and display:

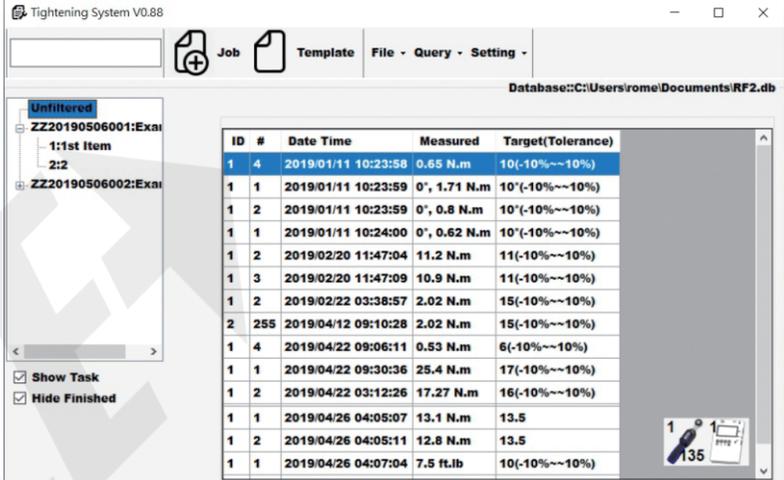
Bluetooth 4.0 Support after Windows 10 version 1709.

Wrench Connection Indication:

If connected, blink 1st LED 3 seconds once.

If not connected, blink 2nd LED half time of above.

If there is records to upload, 3rd LED ignited during above blink.



ID #	Date Time	Measured	Target (Tolerance)
1 4	2019/01/11 10:23:58	0.65 N.m	10(-10%~10%)
1 1	2019/01/11 10:23:59	0°, 1.71 N.m	10(-10%~10%)
1 2	2019/01/11 10:23:59	0°, 0.8 N.m	10(-10%~10%)
1 1	2019/01/11 10:24:00	0°, 0.62 N.m	10(-10%~10%)
1 2	2019/02/20 11:47:04	11.2 N.m	11(-10%~10%)
1 3	2019/02/20 11:47:09	10.9 N.m	11(-10%~10%)
1 2	2019/02/22 03:38:57	2.02 N.m	15(-10%~10%)
2 255	2019/04/12 09:10:28	2.02 N.m	15(-10%~10%)
1 4	2019/04/22 09:06:11	0.53 N.m	6(-10%~10%)
1 1	2019/04/22 09:30:36	25.4 N.m	17(-10%~10%)
1 2	2019/04/22 03:12:26	17.27 N.m	16(-10%~10%)
1 1	2019/04/26 04:05:07	13.1 N.m	13.5
1 2	2019/04/26 04:05:11	12.8 N.m	13.5
1 1	2019/04/26 04:07:04	7.5 ft.lb	10(-10%~10%)

2 Unfiltered:

When the received tightening results could not be regarded to running job, it will be classified as [Unfiltered].