

AUTHORIZED SNAP-ON REPAIR CENTERS

USA

Eastern Repair Center

6320 Flank Drive
Harrisburg, PA 17112
Phone: 717-652-7914
Fax: 717-652-7123

Northern Repair Center

3011 E. State Rt. 176, Dock A
Crystal Lake, IL 60014
Phone: 815-479-6850
Fax: 815-479-6857

Western Repair Center

2151 Challenger Way
Carson City, NV 89706-0753
Phone: 775-883-8585
Fax: 775-883-8590

CANADA

Western Repair Centre

7403-48 Street SE
Calgary, Alberta
Canada, T2C-4H6
Phone: 403-720-0525
Fax: 403-720-0524

INTERNATIONAL

United Kingdom Repair Center

Telford Way
Telford Way Industrial Estate
Kettering, Northants
NN16 8UN England
Phone: 44-1-536-413855
Fax: 44-1-536-413900

Australia Repair Centre

Snap-on Tools australia PTY.LTD
Unit 6/110 Station Road
Seven Hills, NSW 2147
Australia
Phone: 61-2-8937-9155
Fax: 61-2-9624-2445

Singapore, Repair Center

Snap-on Tools Singapore PTE Ltd
128 Tagore Lane, Blk 4 Singapore
787554 Republic of Singapore
Phone: 011-65-451-5570
Fax: 011-65-451-5574

Japan Repair Center

Snap-on Tools Japan K.K.
3-5-12 Konan
Minato-KU, Tokyo 108
Japan
Phone: 81-3-5463-1280
Fax: 81-3-5463-1284

Snap-on/SUN De Mexico

S.A. De C.V.
Avenida Presidente Juarez No.
2016
Col Los Reyes Zona Industrial
Tlalnepantla Edo De Mexico
CP54070 MEXICO
Phone: 52-55-53903122
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Snap-on Tools Company
Kenosha, WI 53141-1410 USA

Instructions

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Snap-on

TECHANGLE™ ELECTRONIC TORQUE - ANGLE WRENCH



IMPORTANT SAFETY INSTRUCTIONS



WARNING *Risk of flying particles.*

Over-torquing can cause breakage. Force against flex stops on flex head can cause head breakage. An out of calibration angle wrench can cause part or tool breakage. Broken hand tools, sockets or accessories can cause injury. Excess force can cause crowfoot or flare nut wrench slippage.

- ❑ **Read this manual completely** before using the **TECHANGLE™ wrench**.
- ❑ For personal safety and to avoid wrench damage, follow good professional tool practices.
- ❑ Periodic recalibration is necessary to maintain accuracy.
- ❑ **Wear safety goggles, user and bystanders.**
- ❑ Be sure all components, including all adaptors, extensions, drivers and sockets are rated to match or exceed the torque being applied.
- ❑ Observe all equipment, system and manufacturer's warnings, cautions and procedures when using this wrench.
- ❑ Use the correct size socket for the fastener. .
- ❑ Do not use sockets showing wear or cracks.
- ❑ Replace fasteners with rounded corners.
- ❑ **To avoid damaging the wrench:** Never use the wrench with the power off. Always turn ON the wrench so the applied torque is being measured.
 - ❑ Do not press ON/RESET while torque is applied **or while the wrench is in motion**.
 - ❑ Never use this wrench to break fasteners loose.
 - ❑ Do not use extensions, such as a pipe, on the handle of the wrench.
 - ❑ Check that the wrench capacity matches or exceeds each application before proceeding.
- ❑ Make sure the ratchet direction lever is fully engaged in the correct position.
- ❑ Verify the calibration of the wrench if you know or suspect its capacity has been exceeded.
- ❑ Do not force the head of flex head drives against stops.
- ❑ Always pull - do not push - on the wrench handle and adjust your stance to prevent a possible fall should something give.



WARNING *Electrical Shock Hazard.*

Electrical shock can cause injury. Plastic handle is not insulated.

- ❑ Do not use on live electrical circuits.

SAVE THESE INSTRUCTIONS

CALIBRATION

Contact your **Snap-on** sales representative for calibration services.

CERTIFICATION

This torque-angle wrench was calibrated at the factory using angular displacement and torque measurement instruments that are traceable to the National Institute of Standards and Technology (N.I.S.T.). Torque parameters comply with ISO 6789-2003 and ASME B107-28-2005. Note: no U.S. or International Standards exist for angle wrenches.

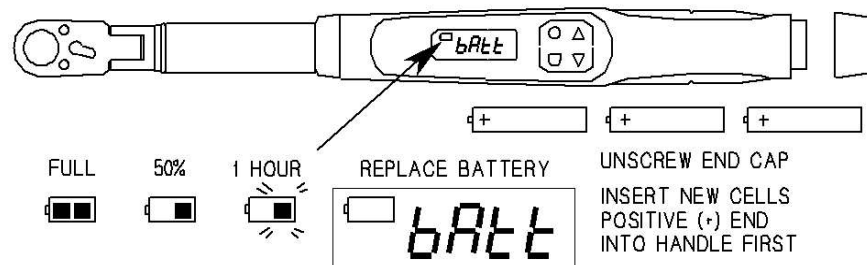
MAINTENANCE / SERVICE

Clean the wrench by wiping with a damp cloth. Do NOT use solvents, thinners or carburetor cleaners. Do NOT immerse in anything. Service, repair and calibration are to be done by Snap-on Service Centers only. Contact your Snap-on Tools representative. Ratchet head repair can be done by Snap-on Representative or user.

- NOTES:
- If the display shows "**Err0**" at power on, the wrench is damaged and must be returned for repair
 - If the display shows "**ErrA**" in the angle mode, fastener rotation speed has exceeded the capacity of the wrench.
 - The wrench must be held still during angle mode reset. Motion is indicated by alternating outside center segments of the display "- -"
 - Remove battery when stored for extended periods.

BATTERY REPLACEMENT

Replace with three "AA" Alkaline cells only. (Available anywhere)

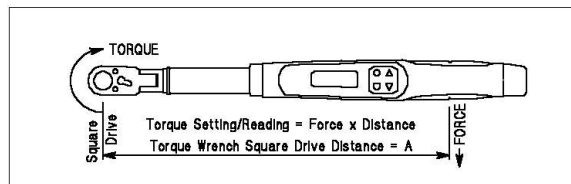


This product is protected by U.S. Patents:
4,958,541 5,589,644 D497,294 and pending.

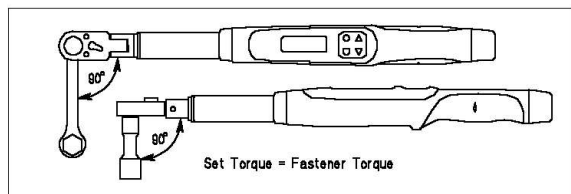
USE OF ADAPTORS, EXTENSIONS AND UNIVERSALS

Anytime an adaptor, extension or universal is used with a torque wrench in such a way that the fastener distance is different than the torque wrench square drive distance, an adjustment to the set torque is required to get proper fastener torque.

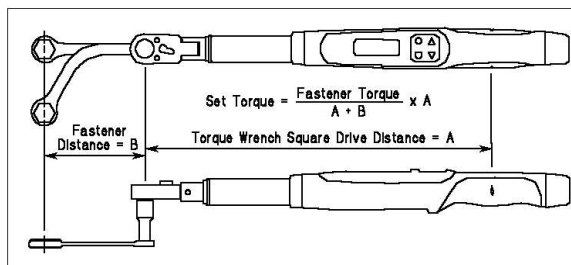
Fastener torque equals torque wrench square drive torque. Wrench setting is equal to desired fastener torque.



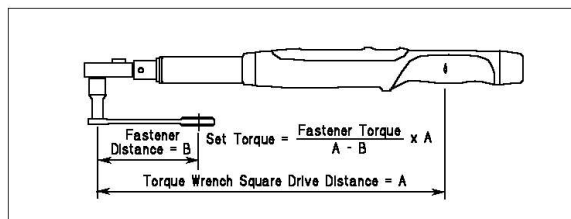
Fastener torque equals torque wrench square drive torque. Wrench setting is equal to desired fastener torque.



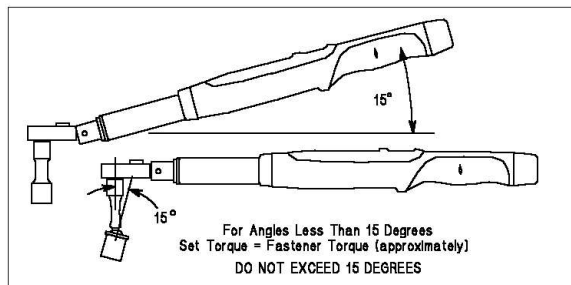
Fastener torque is greater than torque wrench square drive torque. Calculated setting will be lower than desired fastener torque.



Fastener torque is less than torque wrench square drive torque. Calculated setting will be higher than desired fastener torque.



When using wobble extension or a universal, do not exceed more than 15 degrees of offset from perpendicular drive. Do not use a long extension with the flex-drive at full flex.



SPECIFICATIONS

For additional product information see:
www.snapon.com/torque/techangle

Ratchet Head: square drive, 36 teeth, sealed flex

Display 4-digit LCD, torque units, CCW and battery condition flags

Sealed Key Pad

- POWER** - ON/OFF - auto self check - torque zero - angle reset
- UP** - increments torque and angle setting
- DOWN** - decrements torque and angle setting
- UNITS** mode select (Nm, ft-lb, in-lb, °)

Functions **Set** torque and angle - adjustable - audible and tactile Alert
Track - accumulated angular rotation with real time update
Peak Hold - 10 sec. flashing at torque release

Accuracy (72°F)

ANGLE: +/-1% of reading +/-1° @ angular velocity > 10°/sec < 180°/sec

TORQUE:

	CW	CCW
(non-flexed)	+/-2%	+/-3% of reading, 20% to 100% of full scale
ratchet head)	+/-4%	+/-6% of reading, 10% to 19% of full scale
	+/-8%	+/-10% of reading, 5% to 9% of F.S.

Preset Range

ANGLE: 5 to 360° CW or CCW (Display Resolution 1°)

TORQUE: (Display Resolution as shown below)

Model	Square Drive	ft-lb	Nm	in-lb	overload (ft-lb)
ATECH2FR100	3/8 in	5.0-100.0	13.5-135.0	60-1200	125
ATECH3FR250	1/2 in	12.5-250.0	17.5-340.0	150-3000	345

Operating Temperature 5 to 42°C (40 to 110°F)

Storage Temperature -20 to 50°C (-1 to 122°F)

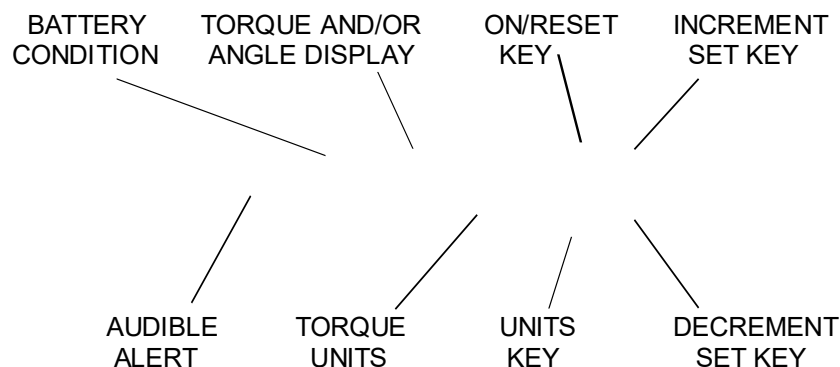
Measurement Drift **ANGLE:** -0.12 Angular Degrees per Degree C
TORQUE: +0.01% of reading per Degree C

Humidity - up to 90% non-condensing

Dimensions -	length	weight
ATECH2FR100	17 in.	2.2 lbs.
ATECH3FR250	26 in.	3.7 lbs.

Battery - three "AA" Alkaline cells, up to 40 hours continuous operation.
Auto Shut-off - after 2 minutes idle

OPERATOR INSTRUCTION



Install three fresh “AA” alkaline cells into the handle of the wrench.

- 1 Turn the wrench on by momentarily pushing the **ON/RESET** key. The display will return to the mode of operation and preset values previously set up.
- 2 To change the mode of operation, **TORQUE ONLY** or **TORQUE-ANGLE**, scroll the selections by momentarily pushing the **UNITS** key. The preset values for each mode will be displayed.
- 3 Use the **UP** and **DOWN** keys to change the preset values. (Note: Torque is also measured in **ANGLE** mode and must be preset prior to adjusting the angle preset). Preset the wrench to full scale if no torque specification is given.
- 4 Grasp the center of the handle, (do not pull on the end-cap) and slowly apply torque to the fastener until the audible sounder and handle vibration alerts you to stop.
- 5 Release torque. Note the peak readings flashing on the display for 10 seconds or until the **ON/RESET** key is pushed to clear the display.

INTRODUCTION

The Snap-on **TECHANGLE™** wrenches digitally display and monitor fastener torque and angular rotation (turn).

Display Modes:

Torque only—wrench functions as an adjustable torque wrench.

Torque-angle—wrench functions as an adjustable angle wrench and simultaneously monitors torque to prevent fastener or wrench overload.

Settings – Adjustable torque and angle settings for fastener installation specifications. The preset values are programmable from 5% to 100% of full-scale torque and 5 to 360 degrees of rotation. The scrolling display rolls-over at both ends for convenient and quick setting.

Overload - If the wrench is used beyond 100% torque capacity, the audible tone will pulse rapidly to warn the user to stop.

Zero/Reset - Automatic self-check, torque zero and angle reset at power-on and any time the **ON/RESET** key is pushed. (This is not a calibration check).

FUNCTION DETAILS

To **PRESET** the wrench, select the **UNIT** of measure “Nm, ft-lb, in-lb or degrees (°)” desired. Use the **UP** and **DOWN** keys to set the torque or angle required. A torque value must be set prior to setting the angle mode. This provides a “maximum torque limit” given in some fastener specifications. If no fastener limit is specified then set the torque to the full scale of the wrench.

In the **torque only display mode**, the display shows the torque **PRESET** value until 5% or more of full scale torque is applied. The display then switches to **TRACK** mode showing the applied torque in real time. When applied torque is within 2% of the preset value, the buzzer will sound for 1/2 second and the handle will vibrate continuously until torque is released. At torque release the display shows the **PEAK** value applied flashing for 10 seconds. If torque is re-applied during the 10-seconds the display will immediately switch to **TRACK** mode. If any key is pushed during the 10-seconds the **PEAK** value will be cleared. If wrench full scale torque is exceeded the buzzer will pulse and the handle will vibrate until torque is released. Exceeding 125% of full scale the display will lockup showing “- - -” and the wrench must be reset by pushing the **ON** button.

In the **angle display mode**, the display shows the torque **PRESET** value for one second and then the angle **PRESET** value. Angle measurement is held in reset until 5% of F.S. torque is applied. Rotation (turn) is accumulated in angular degrees. When torque is released, the accumulated torque and angle values will flash alternately for 10 seconds. The display will continue to accumulate if torque is reapplied within the 10 seconds. This allows time for reverse (ratchet) motion. When the accumulated angle equals the angle preset value, the buzzer will sound for one second and the handle will vibrate until torque is released. If torque preset (within 2%) is reached first, the buzzer will pulse and the handle will vibrate until torque is released. As above, after angle preset or torque preset is reached, and torque is released, the total angle accumulation and the **PEAK** torque will be displayed alternating for 10 seconds or until any key is pushed. If angle preset is reached and torque is released, angle accumulation is reset to zero automatically. This allows moving on to the next fastener immediately.