

Two Controllers in One!

# TCV e<sup>2</sup>

## Programmable Torque Verifier Ethernet 2

In 1999 we helped build the wireless error proofing industry on the back of the I/O driven TCV Controller. It was one box and one tool. Driven by a PLC, the TCV was great for controlling a process and verifying that the work was done.

The TCV was fast and it was simple. It worked with a click wrench and there was no reporting. For many applications that was the perfect approach.

Fast-forward twenty years and we are expanding the TCV by introducing the TCV e2. (TCV Ethernet 2) The Ethernet connection gives you an MES connection capability. The level of sophistication is exponentially expanded.

The TCV e2 doesn't sacrifice a bit of the speed by working with our new TAC, the Digital Torque and Angle click wrench. It also works with our SLTC FM 2.4 GHz click wrench. All the production speed is retained. And two operators can work simultaneously.

Using the new digital torque and angle wrench, the TCV e2 captures the date and time stamped, exact torque and angle values for each fastening. You get all the data you want without sacrificing one millisecond of takt time. Reporting tells you where the wrench clicked and where the operator stopped pulling. This is actionable data that you can use for training.

If you have an indexing line, and torque control matters, you need the TCV e2 and the radio equipped tools

### Key TCV e2 Features:

- Two independent channels so two operators work independently.
- Functions with the new TAC digital torque and angle click wrench as well as the legendary SLTC FM 2.4 GHz click wrench.
- I/O, network, or bar code driven
- Functions with 2 bar code readers
- Comes with a full version of ACOP, PCFS
- Ethernet IP capable
- Learn in up to 10 tools
- Comes with 2 separate 24 VDC I/O ports. Why pay extra for this?
- Complete interface with SR Global Manager software for setting parameters, etc.
- Reports into Global Host or ToolsNet.

**To learn more about how the TCV e2 can error proof your assembly processes, go to [srtorque.com](http://srtorque.com) or contact your local Sturtevant Richmond sales professional.**



**Order the TCV-e2 FM 2.4 GHz using part number 10676.**



### **WARNING**



- Do not exceed rated torque
- Do not use to break fasteners loose
- Periodic recalibration is necessary to maintain accuracy
- See safety precautions at [srtorque.com](http://srtorque.com)

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**Sturtevant Richmond**

[SRTorque.com](http://SRTorque.com)

**Learn More Now: 847-499-2106**

## TAC FM 2.4 GHz Preset Wireless Click Wrench



# TAC (Torque/Angle Control)

## Series

- The speed and access of a click wrench with the accuracy of torque and angle applications. Operator sees OK/NOK LED and the reporting documents date/time stamped attribute data including degree of rotation (angle measurements.)
- Fully compatible traceable torque and angle results with the Global 400, Global 400mp and the all-new TCV-e2.
- Supports simultaneous operation in the Global 400 and TCV-e2 application. Use with Global 400mp for independent tool operation.
- Works with the patented Holding Tool in the Global 400/400mp.
- Torque accuracy of +/- 4% or better of preset value from 20% to 100% of capacity meets or exceeds requirements of ASME B107.300-2010 and ISO 6789. Angle accuracy to within 1°.
- Is equipped with 2 LEDs on the radio case. One LED is Green/Red for OK/NOK. The second LED flashes Blue to indicate tool is selected and turns Blue during use for batch completion.
- Access to well over 200 SR interchangeable heads.
- Audible/tactile pulse when preset torque is achieved.
- Powered by one AAA NiMH rechargeable battery. Shipped with 2 NiMH rechargeable, recyclable batteries. Charger sold separately.
- Error Proofing By Guidance: Provides "OK/NOK" LED on the radio case on the wrench.
  - o When P-Set is activated Blue LED indicates selected tool.
  - o Differentiating sounds for acceptance tone/reject beep comes from the controller
  - o Orange flashing LED: Low battery warning light

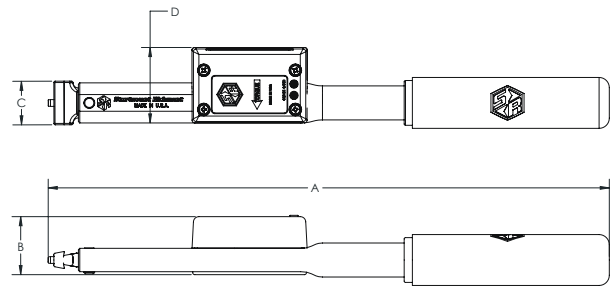
A NiMH rechargeable AAA battery is the mandated power supply because they provide a stable power curve until the very end of the charge. We are also focused on environmental friendliness. Using NiMH AAA with the largest mAh rating you can find will extend time between battery changes.

### Torque and Angle Measurement Terms:

**Click:** Reads where the wrench clicks

**Peak:** Reads the highest applied torque value

**Torque and Angle Monitoring (TAM):** Quickly identifies "double hit" on fasteners. Identifies changing joint conditions for hydraulic connections. Shows both applied torque value and degrees of rotation. Minimum and maximum angle settings are customizable.



- Do not exceed rated torque
- Do not use to break fasteners loose
- Periodic recalibration is necessary to maintain accuracy
- See safety precautions at [srtorque.com](http://srtorque.com)

Part No.	Model	Torque Capacity*	Head	A (in.)	B (in.)	C (in.)	D (in.)	Weight (lbs.)
810712	TAC-150I	150 in lb / 17 Nm	Dovetail	7 <sup>3</sup> / <sub>32</sub>	1 <sup>21</sup> / <sub>64</sub>	<sup>15</sup> / <sub>16</sub>	1 <sup>47</sup> / <sub>64</sub>	0.5
810713	TAC-300I	300 in lb / 34 Nm	Dovetail	9 <sup>1</sup> / <sub>32</sub>	1 <sup>21</sup> / <sub>64</sub>	<sup>15</sup> / <sub>16</sub>	1 <sup>47</sup> / <sub>64</sub>	0.5
810714	TAC-750I	750 in lb / 85 Nm	Dovetail	12 <sup>59</sup> / <sub>64</sub>	1 <sup>21</sup> / <sub>64</sub>	1	1 <sup>47</sup> / <sub>64</sub>	0.5
810715	TAC-1800I	1800 in lb / 204 Nm	Dovetail	16 <sup>9</sup> / <sub>16</sub>	1 <sup>21</sup> / <sub>64</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>47</sup> / <sub>64</sub>	1.3
810721	TAC-1800I ERGO	1800 in lb / 204 Nm	Dovetail	20 <sup>9</sup> / <sub>16</sub>	1 <sup>21</sup> / <sub>64</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>47</sup> / <sub>64</sub>	1.3
10711	TAC Connect Software (for 1350 Series Exacta and TAC Torque and Angle Wrench tool calibration)							
10710	SR Connect (radio interface for tool calibration)							
10740	4-Slot Battery Charger							
10741	8-Slot Battery Charger							
21970	AAA NiMH Battery							

TAC FM 2.4 GHz Preset Wireless Click Wrench

# TAC (Torque/Angle Control)

Series



## Changing Operator Behavior by Behavior Modification

A click wrench is designed to click at a predetermined point. For this application this value is called Click. An operator should stop pulling when the wrench clicks. This ensures the proper torque application. If operators don't stop pulling when the wrench clicks, the applied torque continues to increase. The question becomes "How much additional torque was applied?"

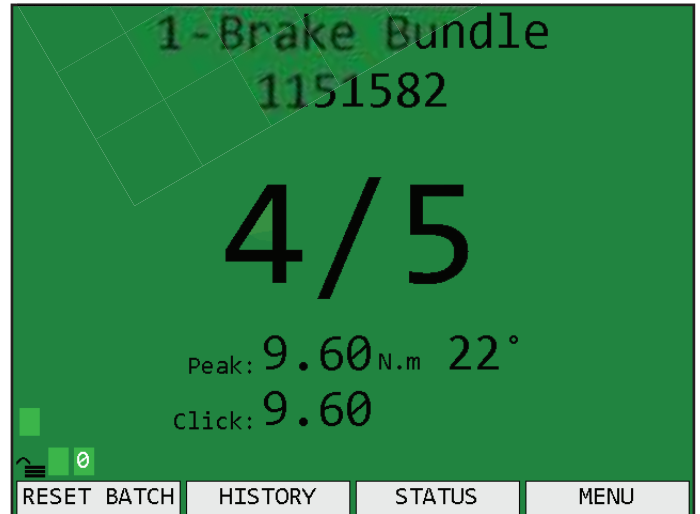
If you measure Click, the measurement is taken at the point where the wrench clicked. The additional torque remains unmeasured. Until now!

The TAC wrench quickly and easily solves this long-standing challenge.

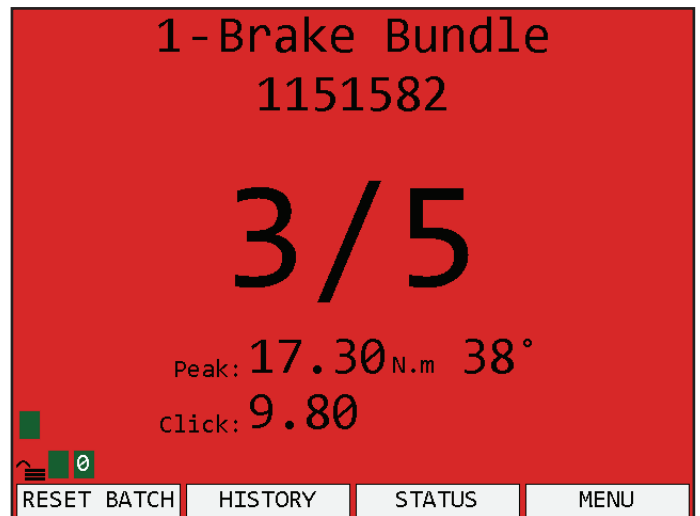
The TAC wrench tracks the Click and the Peak Torque settings. So it tracks and reports the point at which the wrench clicked. It also tracks and reports the final applied torque result with Peak Torque. In addition the wrench reports the degrees of angle rotation for the fastener.

The Click, the Peak Torque and the degrees of rotation are all displayed on the Global 400/400mp screen and in the reporting. Now a supervisor has actionable data that can be used to train the operator. There is now a trackable basis for error proofing by guidance (using light, sound, and tactile stimulation) as well as historical data to change behavior, which is error proofing by behavior modification.

For more information on how this tool can help your assembly process, contact your Sturtevant Richmond sales professional.



*In this application the operator stopped pulling when the wrench clicked. The fastener was not over-torqued, and this correct torque operation is displayed and tracked here.*



*With this fastener the operator continued to pull long after the wrench clicked.*

*The G400 would consider this to be a reject. Now supervisors have concrete evidence to help improve performance and shape behavior*

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