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EXACTA 1350-TD SERIES DIGITAL TORQUE AND ANGLE DRIVER
Operating Instructions

The Exacta 1350-TD Series Digital Torque and Angle Drivers are designed to work with the Global 400 and Global 400mp process monitors. These wireless tools are designed for industrial assembly use. The tool is dependent on the Global 400/400mp for directions and torque results reporting. This tool meets or exceeds the requirements of ASME B107.300 and ISO 6789.

These tools are designed for ease of use. Operators simply apply torque to green, there are no buttons to push. The tool provides the operator with visual, auditory, and kinesthetic guidance. The light band, display, audible beep, and vibration signal to the operator the status for each fastening. The light band turns yellow when approaching minimum torque. Exceeding maximum torque causes the light bands to turn red and the audible beep changes to one long tone.

Details on programming the tool through the Global 400/400mp process monitors are found in the process monitor manual. There are "how to" programming videos at www.srtorque.com. The Exacta 1350-TD does not communicate with the Global 8.

Establishing RF Communication With Sturtevant Richmont Process Monitors

The transceiver in the process monitor and the one in the tool each have radio identification numbers. When communication between the two is first established, the numbers are exchanged and stored in memory. The process monitor and tool will thereafter ignore communications from other radios until the number stored in memory is replaced with a different identification number.

Under all conditions, the process monitor and the tool must be on the same radio channel. If the channel on the process monitor is changed and the channel on the tool is not, they will not communicate or will cease communicating if they have previously been associated with each other. To establish communication with the process monitor, it is necessary to follow the instructions included with the specific process monitor to be used. Refer to the Global 400 or Global 400mp user manual for details.

Radio Communications - 2.4 GHz Communication Overview

These tools use the 2.4GHz band for communication with the process monitor. As with all radio communications, there are limits on the distance at which reliable bidirectional communication may be obtained. Physical barriers such as steel framing, sheet metal and other objects that impede radio waves can significantly reduce the reliable communication distance. Another factor affecting the reliability and distance is the radio environment in which the unit will be used. The process monitor and tool may operate on up to 15 channels.

The radio modules in the process monitors and tools used with them comply with the IEEE 802.15.4 standard. The channel numbers loosely match the channels used by the IEEE 802.11b/g WLAN standard. The channels used have a much smaller footprint than WLAN. Also, the one WLAN channel radiates energy onto several of the adjacent WLAN and process monitor channels. For the most reliable communication between the Sturtevant Richmont process monitor and the tool in an 802.11b/g LAN environment, it is usually best to choose a channel for the process monitor and tool that is separated from the channel of the LAN. Refer to the process monitor user manual for the specific frequencies being used.

Features

Bidirectional Measurement
Traceable Results with Global 400 and Global 400mp
Three Modes of Operation: Torque to Angle (T2A), Torque with Angle Monitoring (TAM), and Peak
Backlit Dot Matrix LCD

▲	Press ▲ to increase the displayed value or scroll up
▼	Press ▼ to decrease the displayed value or scroll down
↵	Press ↵ to go to next screen in sequence or select the highlighted line
◎	Showing target torque and angle, as opposed to actual
	Clockwise target or current torque direction
	Counterclockwise target or current torque direction
	Both target direction
	Keypad locked
	Battery charge level

Status indicators – LEDs, buzzer, handle vibration
6-Button Keypad
Drive Types: ¼" Hex Female, ¼" Square Male

Accuracy

- Clockwise Torque: +/-2% of the indicated value from 20% to 100% of rated capacity, +/-4% of the indicated value from 5% to 19% of rated capacity
- Counterclockwise Torque: +/-4% of the indicated value from 20% to 100% of rated capacity, +/-6% of the indicated value from 5% to 19% of rated capacity
- Angle: +/-1° at angular velocity > 10°/sec < 180°/sec.

Environmental Conditions

This tool is intended for indoor use.
Operating/Storage Temperature: 0°F to 130°F (-18°C to 54°C)
Operating/Storage Maximum Relative Humidity: 90% non-condensing
Maximum Altitude: 2000 meters

Electrical Ratings

Tool Input: 1.2 V ⎓ 1 A Max.

Battery and Battery Replacement

This tool is designed to operate on a single rechargeable AA NiMH battery, 1.2V nominal voltage. Always respect polarity requirements for the tool. To replace the battery:

1. Unscrew the battery holder counterclockwise.
2. Replace the discharged battery with a fully charged battery in the holder.
3. Screw in the battery holder clockwise until snug. Do not overtighten.
4. Recharge the discharged battery.

Important User Information

The user shall consult this documentation in all cases where this caution symbol ⚠ is marked. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Safety

- ALWAYS wear safety glasses and all other required safety equipment when operating this tool.
- Do NOT exceed the rated capacity of the tool.
- Do NOT use this tool for any purpose other than that for which it was designed and manufactured.
- Never immerse the tool in liquids.

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The tool is powered on by screwing the battery holder into the rear of the tool. The tool will begin a startup routine and display:

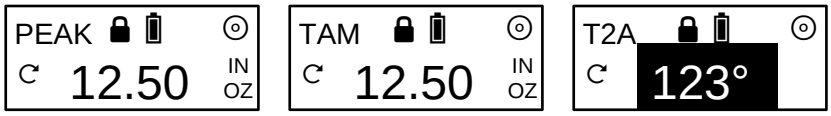
ZEROING ANGLE DO NOT MOVE TOOL	Zeroing angle. (For best results, set the tool on a hard surface to allow the angle sensor to zero.)
COPYRIGHT 2022 SR	Copyright screen.
Sturtevant Richmont®	Sturtevant Richmont logo.
TD1350-100 V1.00	Identification screen displaying the model and firmware version.
RADIO ID: 1234	Radio ID will appear if the tool begins communication with a Global.
TOOL DISABLED	At this point, if the tool has not been learned into a process monitor or a parameter has not been selected for it, this screen will be displayed. Otherwise, the sequence will continue as follows.
TAM 12.50 IN OZ	An idle screen similar to this will be displayed. The information displayed is different for each mode of operation.

Three phases of operation are repeated for each joint:

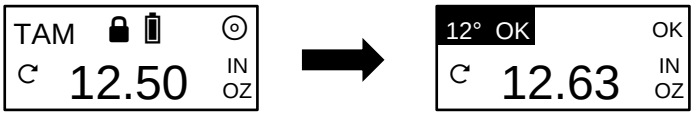
1. Idle: showing the measurement mode and target; waiting for torque.
2. Torque Applied: showing the Measurement Screen.
3. Torque Released: showing the Measurement Screen and waiting to clear.

Idle Screen

As shown below, the Idle Screen is somewhat different for each mode. The target angle, not torque, is shown for T2A mode. Angle values are shown white-on-black.



Measurement Screen



- When torque is applied, the Measurement Screen replaces the Idle Screen.
- The large digits show the current peak torque or angle depending on the mode.
- The current angle of rotation is shown white-on-black.
- Status is shown for torque and for angle – OK, HI, or LO. (The target icon disappears.)
- Direction of measured torque is shown (clockwise or counterclockwise arrow).
- When torque is released, the digits show the final torque and angle measured. At the auto-clear timeout, the Idle Screen is shown again or “TOOL DISABLED” will be displayed if the batch is complete and lock on batch is active.

Modes of Operation

The meaning of some settings may change depending on mode.

Peak Mode

Peak mode shows the current peak torque on the tool until torque is released. Torque display begins at 4% of full scale torque capacity. The yellow LED lights up as minimum torque is approached.

- Target Torque – Apply torque to this value to get a green LED.
- Minimum Torque – This is the minimum acceptable torque for the joint. The light band will be yellow and status OK when this value is met. If torque is between the minimum and maximum settings, it will turn green when torque is released and the dwell timer has expired.
- Maximum Torque – The light band will turn red and status HI if the peak value exceeds this setting.

Torque To Angle (T2A) Mode

In T2A mode, a joint is tightened to a prescribed target torque. Then the fastener is turned through an additional angle, intended to stretch the fastener and thus apply clamp load by an amount proportional to the angle.

The tool will display the target angle in the Idle state. As torque is applied, the measured torque is displayed in large digits, with an angle of 0°. When the Target Torque is reached, the display changes to angle in large digits, starting at 0°. The yellow LED lights up as the angle approaches its target.

- Target Torque – Apply torque to this value to start counting angle. This is typically set to the snug point on the joint (the point at which the head of the fastener has bottomed out).
- Minimum Torque – This is the minimum acceptable torque for the joint.
- Target Angle – This is the minimum acceptable angle. The light band will turn green and status OK when minimum torque and target angle are met.
- Maximum Angle – This is the maximum acceptable angle. The light band will turn red and status HI if angle exceeds this setting.
- Maximum Torque – This is the maximum acceptable torque for the joint. While final angle is of primary interest, a check on final torque may be warranted as well (e.g., to detect a fastener that is too hard to stretch). The light band will turn red and status HI if the peak value exceeds this setting. Final torque must fall between the minimum and maximum torque settings to be acceptable.

Torque With Angle Monitoring (TAM) Mode

TAM mode is an extension of Peak mode, adding the ability to detect cross-threaded fasteners, double hits on a joint, and the like. Primarily, it adds the constraint that a fastener must turn through a minimum angle before minimum torque is reached. TAM mode uses the same settings as Peak mode, plus:

- Snug Torque – This is the torque value at which angle measurement starts. This is typically set to the snug point on the joint (the point at which the head of the fastener has bottomed out).
- Target Angle – This is the minimum angle needed before minimum torque is reached. The light band will turn red and status DH (Double Hit) if minimum torque is reached before minimum angle.
- Maximum Angle – This is the maximum acceptable angle. The light band will turn red and status HI if angle exceeds this setting.

Torque Zeroing

Pressing the ⟲ button will zero the torque reading on the tool. Do not apply torque while zeroing otherwise torque results will be incorrect.

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Menu Options

To access the main menu on the tool, press and hold ↵ for 3 seconds. Use ▲/▼ to highlight a menu selection and press ↵ to select. Main menu selections include:

- SETTINGS – Displays tool settings menu.
- OPTIONS – Displays tool options menu.
- CALIBRATION – Displays calibration menu.
- INFO – Displays information about the tool.
- EXIT – Exit main menu and return to the idle screen.

Settings

- SLEEP TIME defines the interval that the tool enters a power down state following the last applied torque or button press. Interval options include: 2 MINS, 4 MINS, 10 MINS, 30 MINS, 1 HOUR, 2 HOURS, and 8 HOURS.

Options

- The tool is considered to be overloaded when it is loaded beyond 120% of its rated capacity. The OVERLOAD OPTION configures how the tool operates after it is overloaded. Choose from:
  - OVERLOAD CONT – Pressing ↻ will clear the overload warning and allow the tool to be used.
  - OVERLOAD LOCK – Pressing ↻ will display the unlock password screen. The password must be entered to clear the warning and allow the tool to be used. The intention of this option is to require the tool to be checked before putting it back into use.

  NOTE: It is highly recommended that tool accuracy be verified after an overload event.

Calibration

- CAL TORQUE – Starts start the torque calibration process.
- CAL ANGLE – Starts the angle calibration process.
- CAL COUNT – Displays the number of times the tool has been calibrated.
- CHECK TORQUE – Provides a means to check the peak torque with a tester.
- CHECK ANGLE – Provides a means to check the angle output.
- SET CAL DATE – Sets the date of calibration and the next recommended calibration date.

Refer to the Exacta 1350-TD Calibration Manual for additional details on calibrating the tool.

Info

- VER – This displays the tool firmware version.
- OVERLOAD CNT – This displays the number of times the tool was loaded beyond 120% of tool capacity.
- OPERATIONS CNT – This displays the number of operations/cycles the has reported a result to the process monitor.

Troubleshooting

Issue	Possible Cause	Resolution
Tool does not power on	Dead battery	Replace battery with a fully charged one.
Torque reading out of spec	Calibration required	Calibrate the tool.
CHANGE BATTERY	Low battery	Replace battery with a fully charged one.
ZEROING ANGLE DO NOT MOVE TOOL	Tool moving while zeroing	Set the tool on a hard surface to allow the angle sensor to zero.
	Angle sensor not calibrated	Calibrate the angle sensor.
TOOL DISABLED	No connection to Global	Learn the tool to the Global.
		Move the tool within range of Global.
	Tool parameter not selected	Select an appropriate parameter from the Global.
TORQUE OVERLOAD	Tool loaded over 120% of rated capacity	Press ↻ to clear the overload message. Check the tool on a tester to verify accuracy.

Care and Maintenance

This tool should be cleaned with a soft cloth dampened with water. Do not immerse this tool in liquid or use any solvent other than water to clean the tool.

Presetting, Calibration and Repair

Factory presetting and calibration from our ISO 17025 Accredited Calibration Laboratory are available. Calibration and verification are performed using the SR Connect PC application. Contact your SR distributor for details. Parts and factory repair are also available. All repairs are to be performed by factory trained technicians or the factory only.

Additional Information

Additional information is available at ***www.srtorque.com***. You can also call customer service at 1-847-455-8677 or send e-mail to customerservice@srtorque.com.