Revision B
05/20

CHANCE® Torque Indicator with Wireless Smart Device App Connectivity

Operating Instructions Model No. C3031836

For use in installation of screw anchors and piles up to 30,000 ft·lb

NOTICE: Before operating a Chance® Torque Indicator, thoroughly read, understand, and follow these instructions. Keep these instructions with the product for future reference.

Hubbell has a policy of continuous product improvement. Please visit hubbellpowersystems.com to confirm current design specifications.

Guide to Warnings within Manual

The following is a list of warnings used within this manual and should be read in its entirety to ensure safe practices.

⚠ DANGER

A DANGER refers to operating procedures, techniques, etc., that if not followed carefully could RESULT IN DEATH.

⚠ WARNING

A WARNING refers to operating procedures, techniques, etc., that if not followed carefully could RESULT IN INJURIES OR DEATH.

⚠ CAUTION

A CAUTION refers to operating procedures, techniques, etc., that if not followed carefully could RESULT IN DAMAGE TO EQUIPMENT or LOSS OF SERVICE to customers.

NOTICE

A NOTICE refers to information that is considered important but not hazard related.

Product Safety

⚠ WARNING

Ensure that the Torque Indicator and attached Kelly bar adapters, drive tools, and their mounting bolt sets have torque ratings higher than the anchor/pile installation torque. Applying torque in excess of the torque rating of any component can result in failure of the overloaded component. Pieces of failed components can be ejected from the drive train at extremely high speed and can cause severe personal injury or death.

⚠ WARNING

Use only the properly sized CHANCE® bent arm pins and coil locks for Kelly bar adapter and drive tool connection pins. Tests conducted by CHANCE® have shown that bolts and pins using other types of retainers do not reliably remain secure. Loose parts can be ejected from the drive train at extremely high speed and can cause severe personal injury or death.

⚠ WARNING

Monitor the condition of all drive train components and repair or replace them as necessary. Check all fasteners along the drive train frequently to ensure they remain tight and undamaged. Loose or damaged components can fail below their torque rating and can result in severe personal injury or death. Replacement mounting bolts for Kelly bar adapters and drive tools must be the same size, grade, length, and finish as the originals supplied with the Torque Indicator.

⚠ WARNING

Maintain alignment of the drive train and anchor/pile. The additional stress from bending forces due to misalignment can cause failure of components below their torque rating and can result in severe personal injury or death. Excessive bending forces will degrade the accuracy of torque readings.

⚠ WARNING

Loose or broken parts can be ejected from the drive train at extremely high speed and can cause severe personal injury or death. Remain at a safe distance from the drive train whenever torque is being transmitted to minimize the possibility of being struck in the event of a component failure or sudden backlash.

⚠ CAUTION

The equipment covered in this manual must be used and serviced only by competently trained personnel familiar with and following approved work and safety practices. This equipment is for use by such personnel and this manual is not intended as a substitute for adequate training and experience in safe procedures for this type of equipment.

These instructions neither cover all details or situations in equipment use, nor do they provide for every possible contingency to be encountered in relation to installation, operation, or maintenance. Should additional information and details be desired or if situations arise which are not covered adequately for the user's purpose, the specifics should be referred to Hubbell Power Systems.

Function and Design Overview

The CHANCE® C3031836 Torque Indicator with Wireless Smart Device App Connectivity (TI) is designed for use in installation of screw anchors and piles up to 30,000 ft·lb. The TI is a continuous-reading digital indicator equipped with a high-contrast LCD for stand-alone use and a Bluetooth® transmitter for enhanced torque monitoring and logging capabilities with the Torque Indicator Remote Pro app. Apps are available as free downloads for Android and Apple smart devices. Devices utilizing Bluetooth® 4.0 and greater with Bluetooth® Low Energy capability can receive data from the TI.

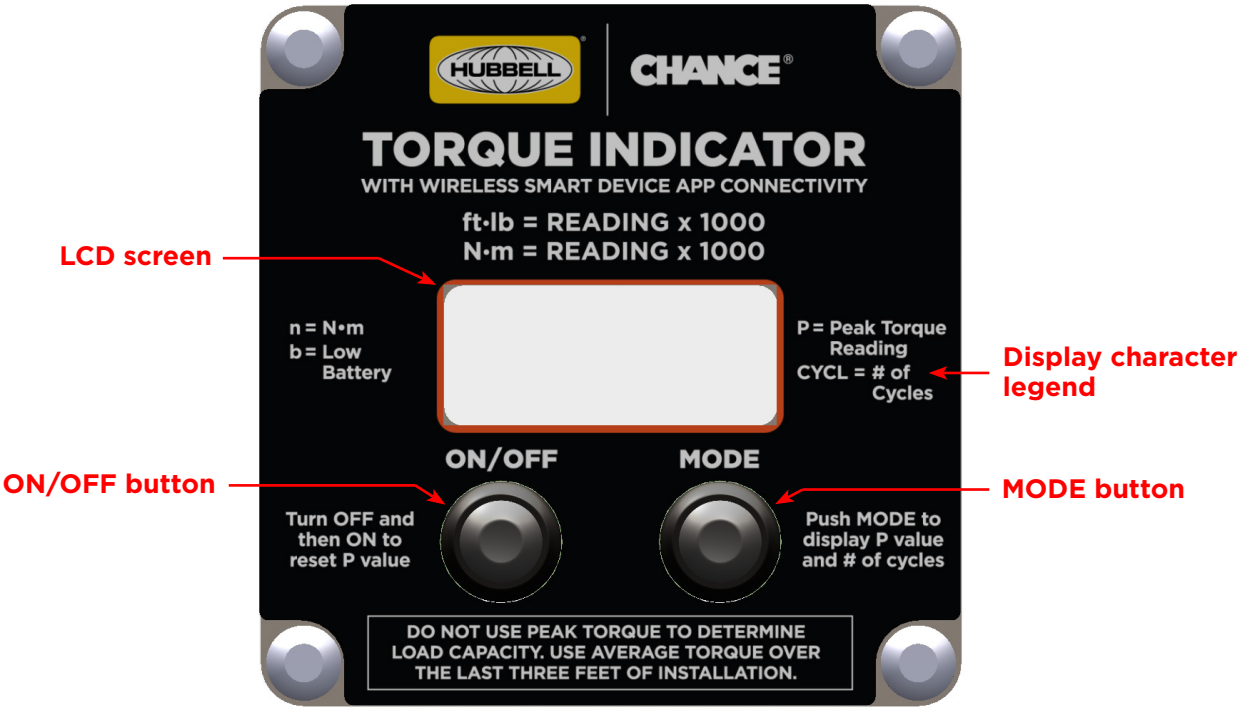
NOTICE

Hubbell Power Systems cannot guarantee that all devices with Bluetooth® connectivity will be compatible with the Torque Indicator. The Torque Indicator is not compatible with the Wireless Torque Display or Wireless Torque Data Logger sold with the previous generation Wireless Torque Indicator (C3031689).

Features

- Integral high-visibility LCD screen displays torque from 500 ft·lb to 30,000 ft·lb in 100 ft·lb increments
- TI can be set to display and transmit data in N·m
- Bluetooth® connection to smart devices for remote monitoring and logging of torque data
- Bluetooth® communication range of at least 50 ft (with clear line of sight)
- Transmits data to multiple smart devices simultaneously
- Equipped with two mounting bolt circles (5-1/4" and 7-5/8") in top and bottom flanges for compatibility with a wide selection of Kelly bar adapters and drive tools
- Complete sets of mounting bolts and lock washers for both bolt circles supplied with TI
- Durable components are shock and vibration resistant
- Sealed for weather resistance
- Wide operating temperature range of -22 °F (-30 °C) to 158 °F (70 °C)
- Integral temperature sensor (temperature readings are transmitted with torque readings)
- Large ON/OFF and MODE push buttons on front face are easy to press while wearing gloves
- MODE button displays peak torque measured since TI last turned on and cumulative number of torque cycles since last calibration
- Extended run time when using two 9V batteries (will operate with one 9V battery)
- Low battery warning: "b" displays on left side of TI screen; app includes battery monitor
- Auto power-off: TI shuts off after 30 minutes if torque load remains unchanged

Front Panel Information



Installing the Torque Indicator

The TI is used in conjunction with a wide selection of CHANCE® Kelly bar adapters and drive tools with 5-1/4" or 7-5/8" mounting bolt circles. This modular system enables users to easily reconfigure the TI/tooling assembly for use with various types of installation machinery and anchors/piles. Be sure to use the appropriate Kelly bar adapter and drive tool for the maximum installation torque to be transmitted. All CHANCE® adapters and tools are torque rated.

⚠ WARNING

Ensure that the Torque Indicator and attached Kelly bar adapters, drive tools, and their mounting bolt sets have torque ratings higher than the anchor/pile installation torque. Applying torque in excess of the torque rating of any component can result in failure of the overloaded component. Pieces of failed components can be ejected from the drive train at extremely high speed and can cause severe personal injury or death.

Use the bolts and lock washers provided with the TI to mount the appropriate adapter and tool for the application. To prevent binding and possible damage to the bolts, follow these procedures when installing or removing a Kelly bar adapter or drive tool:

- When installing, thread in all the bolts until they are snug against the lock washers then tighten them to the torque specified in the table below.
- When removing, loosen all the bolts about 1 turn to relieve the lock washer force then remove the bolts.

⚠ CAUTION

Failure to follow the proper procedure for installation or removal of the bolts may result in damage to the bolts and render them unusable.

Replace bolts or lock washers if they become worn or damaged after extended use. Replacement bolts must be the same size, grade, length, and finish as the originals. Catalog number C3031757 is available as a complete package of all bolts and lock washers. Mounting bolts and bolt tightening torques for anchor/pile installation torque ranges are shown below:

Maximum Torque (ft·lb)	Bolt Circle Diameter (in)	Bolts with Lock Washers			
		Total Required	Bolt Size (in)	SAE J429 Grade	Bolt Torque (ft·lb)
10,000	5-1/4	12	1/2	5	75
30,000	7-5/8	24	5/8	5	95

Installing the Torque Indicator (cont.)

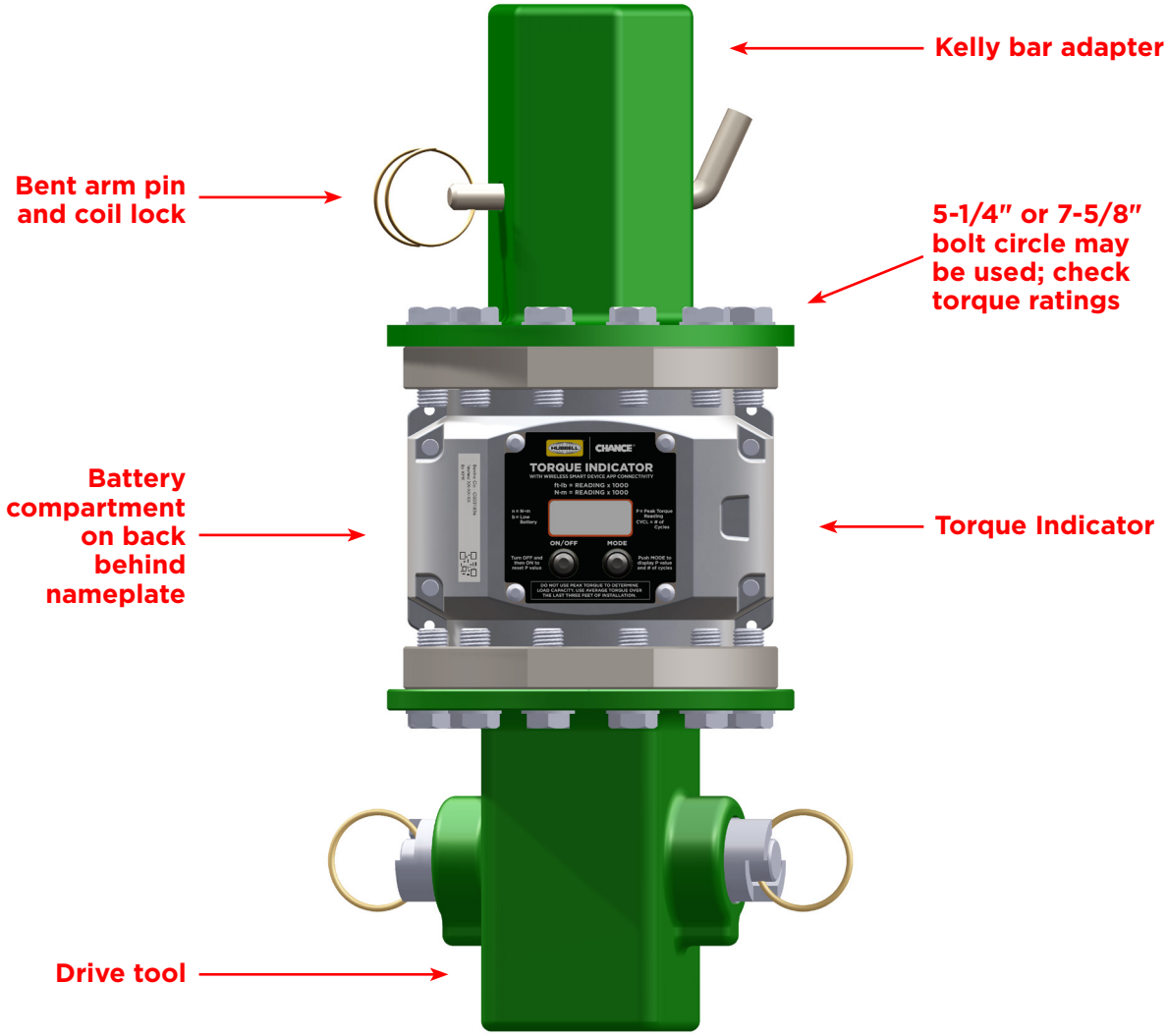
⚠ WARNING

Monitor the condition of all drive train components and repair or replace them as necessary. Check all fasteners along the drive train frequently to ensure they remain tight and undamaged. Loose or damaged components can fail below their torque rating and can result in severe personal injury or death. Replacement mounting bolts for Kelly bar adapters and drive tools must be the same size, grade, length, and finish as the originals supplied with the Torque Indicator.

Attach the Kelly bar adapter and drive tool to the TI as illustrated below. Align the Kelly bar adapter with the Kelly bar so the cross-pin holes match up and slide the Kelly bar adapter onto the Kelly bar. Secure the TI/tooling assembly with the bent arm pin and coil lock provided with the Kelly bar adapter.

⚠ WARNING

Use only the properly sized CHANCE® bent arm pins and coil locks for Kelly bar adapter and drive tool connection pins. Tests conducted by CHANCE® have shown that bolts and pins using other types of retainers do not reliably remain secure. Loose parts can be ejected from the drive train at extremely high speed and can cause severe personal injury or death.



Using the Torque Indicator

The TI can be set to display torque in ft·lb or N·m. It is set to display in ft·lb by default when assembled. To change the units from ft·lb to N·m, begin with the TI off. Press and hold the MODE button then press and release the ON/OFF button to power on the TI. Continue holding the MODE button until "n nn" displays (the LCD cannot produce the "m" character) then release the MODE button. When the TI is set to display in N·m, an "n" is shown at left side of the screen along with the torque reading. The procedure above is also used to change from N·m to ft·lb, except that "Ftlb" is displayed to indicate when to release the MODE button.

Follow standard installation procedures for the appropriate CHANCE® anchor/pile. Before installation begins, be sure to turn on the TI by firmly pressing and releasing the ON/OFF push button located on the front face. The TI will display a 0.0 reading when the torque is less than 500 ft·lb. Monitor torque readings during the entire installation to ensure anchor/pile and tooling torque ratings are not exceeded. Remain at a safe distance from the drive train whenever torque is being transmitted, even when taking readings.

⚠WARNING

Maintain alignment of the drive train and anchor/pile. The additional stress from bending forces due to misalignment can cause failure of components below their torque rating and can result in severe personal injury or death. Excessive bending forces will degrade the accuracy of torque readings.

⚠WARNING

Loose or broken parts can be ejected from the drive train at extremely high speed and can cause severe personal injury or death. Remain at a safe distance from the drive train whenever torque is being transmitted to minimize the possibility of being struck in the event of a component failure or sudden backlash.

The TI stores the peak torque value measured since it was last turned on and the number of torque cycles accumulated since its last calibration. A torque cycle is defined as an increase in torque reading to above 1000 ft·lb and a subsequent return to below 500 ft·lb. Push and release the MODE button on the front of the TI at any time when the device is on to view the peak value and number of cycles. The TI must be turned off to reset the peak value. The number of cycles cannot be reset by the user. Hubbell Power Systems recommends annual verification of the TI calibration or after 5000 torque cycles, whichever is reached first. To predict anchor/pile capacity, use the average torque developed during the last three feet of installation. Do not use the peak torque value. Relieve all loads (axial, torsional, and bending) on the drive train and check bolt tightness after each anchor/pile installation.

⚠WARNING

Monitor the condition of all drive train components and repair or replace them as necessary. Check all fasteners along the drive train frequently to ensure they remain tight and undamaged. Loose or damaged components can fail below their torque rating and can result in severe personal injury or death. Replacement mounting bolts for Kelly bar adapters and drive tools must be the same size, grade, length, and finish as the originals supplied with the Torque Indicator.

The TI will auto power-off after 30 minutes with no change in torque load. After auto power-off, press the ON/OFF button to restart the TI.

Using the Mobile App

A free app with torque monitoring and logging functionality is available for Android and Apple smart devices. Please visit the app store supported by your device and install the Torque Indicator Remote Pro app. The app requires device permissions for Bluetooth®, location, and storage. Bluetooth® and location services must be active on the device when the app is being used, and it is recommended to activate these services before starting the app.

The torque units setting of the TI also controls the units displayed and logged by the app. When the TI is set to ft·lb, the app displays and logs torque in ft·lb and temperature in °F. When the TI is set to N·m, the app uses units of N·m and °C. See the section above for the procedure to change the units setting of the TI.

An overview of the app functionality is presented below:

Startup Screen

The startup screen is displayed when the app is started if no signal is being received from a TI. A message is displayed to indicate that the app is scanning for a TI signal. When a TI is on and within signal range, the app automatically connects and the startup screen is not shown.

Select Button

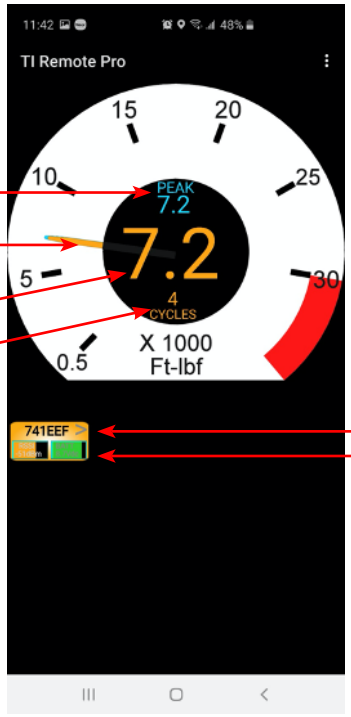
The Select button (see screens below) displays the radio ID and contains signal strength and battery condition monitors for the TI sending the signal to the app. (The last four characters of the TI radio ID are displayed on the TI LCD screen during the startup sequence.) If the app is connected to more than one TI, the lighted Select button indicates the active TI from which data is displayed. Select buttons for inactive TIs are dimmed. Tap the Select button for the desired TI to activate it. The Select button is present in all torque monitor and logging screens, and repeatedly tapping the Select button for the active TI cycles through the screens.

If the app is connected to more than one TI and signal from the active TI is lost, the app will automatically make the secondary TI active. The app will not automatically switch back to the original TI when signal from it is regained. If the active TI switches due to momentary signal loss, the app will still display readings, but they will not be from the desired TI. Insufficient or excessive torque could be applied during installation if the user does not detect the change and manually use the Select button to activate the desired TI again. Only have one TI in use at any given time at a work site to ensure safety.

⚠ WARNING

The app will change automatically to the secondary Torque Indicator if it loses signal from the active Torque Indicator. This can result in users unknowingly referencing torque readings from a Torque Indicator other than the one desired and can lead to inadvertent overloading of the anchor/pile and/or installation tooling. Pieces of failed components can be ejected from the drive train at extremely high speed and can cause severe personal injury or death. Only have one Torque Indicator in use at any given time at a work site.

Using the Mobile App (cont.)

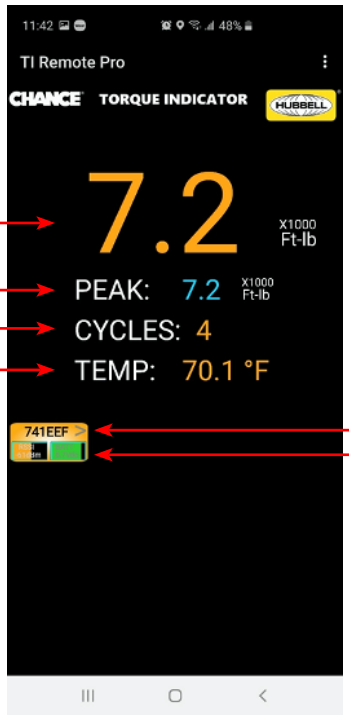


Peak torque
Torque (orange needle)
Peak torque (blue needle)
Torque
Number of cycles

Select button
Signal strength and battery condition monitor

Analog Monitor Screen

This screen provides a hybrid digital and analog-style display for monitoring torque. Tapping the Select button for the active TI while on this screen changes the app to the digital monitor screen.



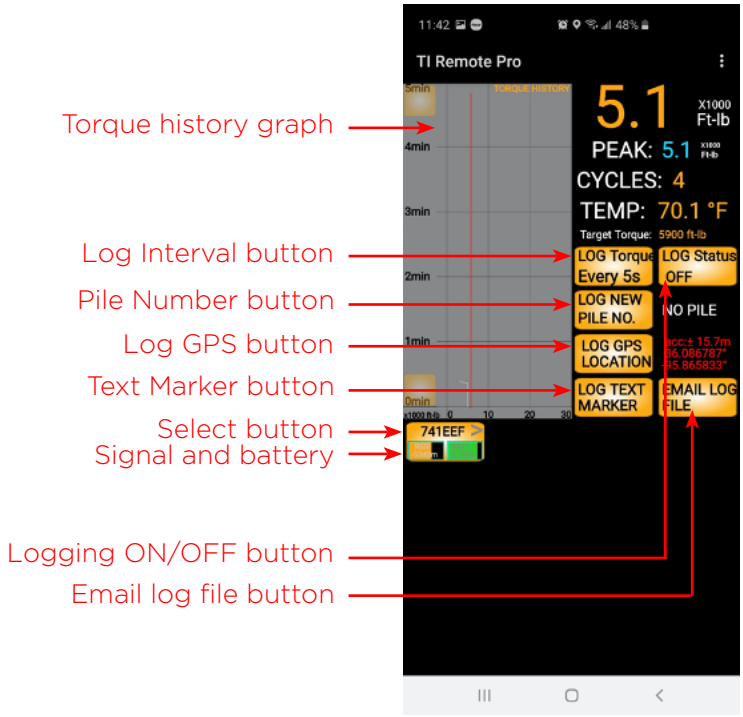
Torque
Peak torque
Number of cycles
Temperature

Select button
Signal strength and battery condition monitor

Digital Monitor Screen

The large digital readout of this screen is easy to monitor at a glance. Tap the Select button for the active TI while on this screen to change to the logging screen.

Using the Mobile App (cont.)



Logging Screen

The logging screen contains a compact version of the digital monitor screen, a torque history graph, and buttons to control the logging settings and function. Tapping the button at the top of the torque history time axis increases the amount of time shown, and tapping the bottom button reduces it. Tapping the Select button for the active TI completes the screen cycle and returns to the analog monitor screen.

A detailed description of the logging settings and function is below:

The logging function generates a CSV log file that is saved in the device's internal storage. The log file contains data collected from the TI and the device running the app. The TI provides torque and temperature readings, the number of cycles, and battery voltage. Time stamps and GPS location are provided by the device. Pile numbers and text marker notes are generated by the user within the app. To log data, ensure the desired TI is active (indicated by the lighted Select button) and tap the Logging ON/OFF button. The button will indicate that logging is on, and rows of data will begin to accumulate at the bottom of the screen.

If the app is connected to more than one TI and signal from the active TI is lost, the app will automatically make the secondary TI active. The app will not automatically switch back to the original TI when signal from it is regained. If the active TI switches due to momentary signal loss while data is being logged, the app will continue logging data, but the data will not be from the desired TI. A large amount of data could be missed if the user does not detect the change and manually activate the desired TI again. It is strongly recommended to only have one TI turned on when logging data.

⚠ CAUTION

The app will change automatically to the secondary Torque Indicator if it loses signal from the active Torque Indicator. This can result in users unknowingly logging data from a Torque Indicator other than the one desired. A large amount of data can be missed if the change is not noticed and corrected. Only have one Torque Indicator turned on when logging data.

Using the Mobile App (cont.)

Logging will be interrupted if the TI Remote Pro app is not continuously active during logging. Logging will not continue if the user navigates to a different app or the device home screen or turns off the device's screen. Events such as phone calls, text messages, and alarms will interrupt logging. Put devices in airplane mode and turn off apps with scheduled actions while logging to prevent data loss from interruptions. It is recommended to have a dedicated device for data logging use and to manually record critical data as a backup record.

⚠CAUTION

Ensure that devices used for data logging are dedicated to that task while data is being logged. Any function caused by the device or another app that takes precedence over the Torque Indicator Remote Pro app will interrupt logging and can result in loss of data. It is recommended to manually record critical data as a backup record.

The data logging interval can be adjusted to values between 1 second and 90 seconds. Tap the Log Interval button repeatedly to cycle through the interval options. The app also includes an option to directly enter the interval value. This option is accessed through the three-dot menu in the top right corner of the screen in the app.

Tap the Pile Number button to enter a brief identification that will be recorded in each row of data logged while the pile number is set. The pile number is limited to 8 characters, so it is important to use short, unique identifiers.

If a more detailed identification is needed for the anchor/pile, use the Text Marker button to enter it. This button can also be used for a variety of other purposes such as tracking depth during installation and entering job site details, anchor/pile type, etc. It is important to note that no torque or other data is recorded with a text marker. Therefore, the Text Marker button can be used to annotate data that has been logged, but it cannot be used to log data at a specific instant. The app logs data in the background at the chosen logging interval while the text marker is being entered. Be sure to set the logging interval to an appropriate value to capture all desired data.

NOTICE

The app logs data only at the interval set by the user. There is no function that logs data at a specific instant chosen by the user. Long logging intervals could result in important data being missed. Set the logging interval to an appropriate value to capture all desired data.

Use the Log GPS button to log coordinates for points of interest such as anchor/pile installation locations. Since GPS data is provided by the device running the app, take the device to the location of interest and give it enough time for the GPS system to establish the coordinates before tapping the Log GPS button. The app displays an estimate of the GPS accuracy (in meters) next to the Log GPS button. GPS accuracy is determined by the device's GPS transceiver accuracy and the GPS signal quality at a specific location. Depending on these factors, accuracy may not be adequate to distinguish among locations in proximity to one another.

Using the Mobile App (cont.)

The Android and Apple operating systems perform file management differently. As a result, there are differences in how log files are created, stored, and transferred. Details are below for each operating system:

Android Details

Android log file names include the TI radio ID, file creation date, and pile number. Due to this format, the app creates a log file for each pile number entered on a given date while logging data from a given TI. If a pile number is used multiple times on a given date with a given TI, all data logged with that pile number set will be appended into a single log file. If the same pile number is used on two different dates, there will be two log files with that pile number (one from each date). Likewise, if the same pile number is used for data gathered from two TIs, there will be a log file with that pile number for each TI.

Log files are stored on Android devices in the device internal storage in a folder called TI. Files can be viewed and edited directly on the device with a spreadsheet app and can be transferred by various methods including Bluetooth® transfer, USB, and email. The Email Log File button in the app logging screen opens a new email draft to which files can be attached.

Apple Details

Apple log file names include the TI radio ID and file creation date. Due to this format, the app creates a log file that includes data for all pile numbers entered on a given date while logging data from a given TI. A separate log file is created for each TI from which data is logged on a given day.

The Apple operating system does not allow users to access the storage location for log files. It is necessary to use the Email Log File button in the app logging screen to send log files via email. This button opens a new email draft with a log file automatically attached. It is not possible to view, open, save, or perform any other action with the attachment before it is sent via email. Once files are received by the email recipient, they can be viewed, edited, and transferred by other methods.

Before tapping the Email Log File button, ensure that the app is connected to the TI associated with the desired log file and that no other TIs are connected. The app and TI must be connected to enable access to the logging screen and Email Log File button. If multiple TIs are connected when the Email Log File button is tapped, the attached log file will be for the TI from which data was most recently logged, even if it is not the active TI. It is best to turn off all TIs except the one associated with the desired log file. This will ensure that the log file for that TI will be attached when the Email Log File button is tapped.

Log files must be emailed on the date they are created. Any file that is not emailed on its creation date will be permanently inaccessible. If there is no cellular or Wi-Fi signal at the work location, use the Email Log File button as usual. The draft with the attachment will be saved in the Mail app outbox and will be sent when signal is available.

⚠ CAUTION

Log files stored on Apple devices must be emailed using the Email Log File button. Files cannot be viewed, opened, or used in any way until they are received by the email recipient. Email each log file on the date it is created while the app is connected to only the specific Torque Indicator associated with the desired file. Failure to carefully read and follow the instructions in the Apple Details section above can result in permanent data loss.

Battery Replacement

The TI is powered by either one or two 9V batteries and is shipped with two batteries installed. Using two batteries provides extended operating time. A “b” will display on the left side of the TI screen when the batteries are low. Replace the batteries as soon as possible when the low battery warning displays to prevent loss of function. If using two batteries, both must be replaced at the same time. Do not mix different types of batteries or new and old batteries. To access the batteries, remove the four screws indicated in the photo above and remove the nameplate from the back of the TI.

⚠CAUTION

Firmly tighten the nameplate screws when replacing the batteries. To prevent stripping of threads, do not overtighten the screws. Loose, missing, or stripped screws can compromise the case seal and allow moisture to penetrate the case. Moisture inside the case can damage internal parts, can render the Torque Indicator inoperable, and will void the warranty.

Storage

The TI has a sealed case to prevent water ingress during ordinary exposure (i.e., working in rain or snow). The seal will not protect it from long term exposure to the elements or from forced entry of water due to events such as immersion, exposed highway transportation, or pressure washing. It must be stored and transported in such a way that it is protected from water penetration of the case.

The TI can be safely stored at temperatures between -22 °F (-30 °C) and 176 °F (80 °C). To prevent damage to the TI, do not store it at temperatures outside this range.

⚠ CAUTION

Moisture inside the case and/or exposure to temperatures outside the storage range can damage internal parts, can render the Torque Indicator inoperable, and will void the warranty. Protect the Torque Indicator from moisture penetration of the case during storage and transportation and from exposure to temperatures outside the specified storage range.

Repairs and Calibration

Hubbell Power Systems recommends annual verification of the TI calibration or after 5000 torque cycles, whichever is reached first. For Hubbell Power Systems authorized repair or factory calibration, please contact:

BEVINS
Protecting crews since 1957

M.W. Bevins Co.
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Tulsa, OK 74146
(918) 627-1273
(918) 627-1294 (FAX)
www.bevinsco.com

Specifications

Net weight: 52 lb
Shipping weight: 67 lb
Dimensions: 8.75" L X 8.5" W X 8" H
Battery requirements: One or two 9V batteries
Operating temperature range: -22 °F (-30 °C) to 158 °F (70 °C)
Operating humidity range: 5% to 95% RH
Storage recommendation: Store in a dry indoor location
Storage temperature: -22 °F (-30 °C) to 176 °F (80 °C) (recommended storage at 66 °F (19 °C) to 73°F (23 °C))
Storage humidity range: 5% to 95% RH (recommended storage at 45% RH +/- 8% RH)
Communication distance: 50' (clear line of sight)
Mounting interfaces: 5-1/4" and 7-5/8" bolt circles
Mounting hardware: See table on page 6
Measurement units: ft·lb or N·m (power on with the MODE button held to change units)
Low battery indication:
- TI: "b" on left side of screen @ 4.8 V DC, "BATT" @ 4.3 V DC
- App: Flashing alert in battery monitor @ 4.9 V DC

Auto power-off: After 30 minutes of no torque change
Limitations: Do not use if damaged or malfunctioning. Do not exceed maximum torque rating of 30,000 ft·lb. Keep display free of dirt, water, and/or leaking oils.

FCC

Contains FCC ID: T9JRN4020

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Copyright Notice

Bevins Company Warranty

One year warranty. There are no internal field serviceable parts. Warranty is void if improper use, storage, or transportation has occurred or if outer housing or faceplate seal is broken or any internal part removed. For repair or calibration verification, contact Bevins Company.

www.bevinsco.com
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Tulsa, OK 74146

Notes

Notes

Notes

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Hubbell has a policy of continuous product improvement. Please visit hubbellpowersystems.com to confirm current design specifications.

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Rev. B

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