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Programmable Torque Verifier FM - Generation II

Quick Start Card

This Quick Start Card is designed as a ready reference for the PTVFM - Generation II owner. The PTV-FM Owners Manual provides complete information on the Generation II. The manual is provided in Adobe® Portable Document Format® [PDF] on the PTV-FM Generation II Manual CD-ROM with packed with it. The PDF file is also available in the Technical Information > Instructions section of our website, www.srtorque.com.

Power

120 VAC or 240 VAC, selectable via the Power Entry Module [PEM] on the right side. The current setting is displayed in the cutout window to the front of the power cord receptacle. To change the setting, (1) remove the power cable from the PEM, (2) insert the tip of a flat tip screwdriver into the slot just inside the front of the PEM and (3) twist slightly to unlock the Voltage Selector/Fuse Holder from the PEM. (4) Slide the Voltage Selector/Fuse Holder out of the PEM. The Voltage Selector is a removable/reversible card on rails in the holder. To change the voltage setting, slide the Voltage Selector Card out, invert it and reinsert it by sliding it back into the rails that hold it in place. Finish by reinserting the Voltage Selector/Fuse Holder back into the PEM.

The fuse is replaced by removing the Voltage Selector/Fuse Holder from the PEM as described in the paragraph above. The cylindrical fuse is removed by gently pulling it from the holder. Insert replacement into the same location, then reinsert Voltage Selector/Fuse Holder into the PEM.

PLC Connector and I/O

The PTV-FM Generation II is supplied with a 19-pin PLC Connector on the left side of the case. The pin numbers and purpose for each are given in the manual.

Programming

The PTV-FM is programmed via the five keyswitches on the front panel. To enter the Programming Mode, turn the Gen II unit on, insert the key into the lock, and rotate the key to the "PROG" position. "MENU OPTIONS - -" will scroll from right to left across the LED Display, then the first element in the first menu level will be displayed. Moving within each menu level is via the UP and DOWN keyswitches. The SET Keyswitch is used to enter an element and to set a value. The menu elements are as below.

AUTO LEARN

This function learns a new wrench transmitter, including the channel the FM Switch Wrench is transmitting on. To use: press the SET keyswitch. **CLICK WRENCH** will scroll and the SETUP LED will come on. Click the wrench and hold it in the clicked position until a beep is emitted and the SETUP LED turns off (about 3 seconds), then release pressure and let the wrench reset. **CLICK WRENCH** will again appear. Click the wrench normally. If the wrench was learned, **CH -- N** will be displayed (N is the channel number) briefly, then GOOD will appear. The PTV will return to the elements menu.

MANUAL LEARN

This function learns a new wrench transmitter, but not the channel it is set to. The channel must be set via the CHANNEL SELECT element. The procedure for learning the wrench is that given above once the channel is selected.

CHANNEL SELECT

This element is for selecting the channel of operation for the PTV. To program this element, press the SET keyswitch when **CHANNEL SELECT** scrolls across the

display. Use the UP or DOWN keyswitches to scroll through the channels until the one you wish is displayed. Press the SET keyswitch to select the displayed channel and return to the element menu.

CLEAR WRENCHES

This element clears all wrenches from the Gen II memory. When **CLEAR WRENCHES** scrolls across the display, press the SET keyswitch. If this element is entered in error, press the MODE keyswitch to exit without erasing memory. To erase the memory, press the SET keyswitch again. **////** will be displayed during the erasure (10 sec.), then **DONE** will be displayed and then the GEN II will return to the elements menu.

BATCH

This element is the number of fasteners in the assembly; the number of wrench clicks needed. There may be up to 255 fasteners in a batch. To enter, press the SET keyswitch. The LED Display will show **/001** with the leftmost digit blinking. Press the UP keyswitch to increment. When the desired value is flashing, press the SET keyswitch to lock in the number and move to the next digit. Repeat until all numbers are set. After the last digit is set, the unit will return to the elements menu.

CLEAR TOTAL

Total is the total number of assemblies processed by the unit since it was last cleared. When **CLEAR TOTAL** scrolls across the display, press the SET keyswitch to enter this element. **PRESS SET** will scroll across the display. If the element is entered in error, press the MODE keyswitch to exit without clearing. To clear the total, press the SET keyswitch to reset total to zero and return to elements menu.

RELAYS

Relay outputs may be either momentary or latching. This element controls which **RELAYS** will scroll across the display. Press the SET keyswitch to enter the element. The current setting will scroll across the display. Press the UP or DOWN keyswitch to change, then press the SET keyswitch.

BEEP

There are three options for the audible beep: **ON** beeps on batch accepts and click rejects, **OFF** is off under all circumstances, and **REJECT ONLY** emits a beep only for a rejected wrench cycle. To program, press the SET keyswitch when **BEEP** is displayed. The current setting will be displayed. Use the UP or DOWN keyswitches until the desired option is displayed, then press the SET keyswitch to save the setting and return to elements menu.

TMIN

This is the minimum duration of a wrench click that is acceptable. It must be between 0.0 and 9.8 seconds and less than the TMAX value. To program, press the SET keyswitch when **TMIN** is displayed. The current setting will be displayed and the seconds digit will flash. Use the UP arrow to increment until the desired number of seconds is flashing, then press the SET keyswitch to save and activate the tenths digit. Repeat the process. When the time is set and saved, the GEN II will return to the elements menu.

TMAX

This is the maximum duration of a wrench cycle that is acceptable. It must be between 0.1 and 9.9 seconds, and greater than the TMIN value. To program, press the SET keyswitch when **TMAX** is displayed. The current setting will be displayed and the seconds digit will flash. Use the UP arrow to increment until the desired number of seconds is flashing, then press the SET keyswitch to save and activate the tenths digit. Repeat the process. When the time is set and saved, the GEN II will return to the elements menu. A start point of 0.2 second for TMIN and 0.7 second for TMAX is recommended, with experimentation determining final time setting. Allow 0.5 second minimum for human reaction time.

TBC

This is the minimum acceptable time, in seconds, between wrench cycles (clicks). If not set to zero, a wrench click before expiration causes a reject signal. TBC values may be from 0 through 9999 seconds. To program, press the SET keyswitch when **TBC** is displayed. **0000** will be displayed with the leftmost digit flashing. Use the UP keyswitch to increment to the desired value, then the SET keyswitch to save that value and move to the next digit. Repeat for each digit. The Gen II will return to the elements menu when the last digit is set.

TBB

This is the minimum acceptable time, in seconds, between batches. If not set to zero, a wrench click before expiration causes a reject signal. TBB values may be from 0 through 9999 seconds. To program, press the SET keyswitch when **TBB** is displayed. **0000** will be displayed with the leftmost digit flashing. Use the UP keyswitch to increment to the desired value, then the SET keyswitch to save that value and move to the next digit. Repeat for each digit. The Gen II will return to the elements menu when the last digit is set.

FM Switch Wrench Channel Setting

Channel selection on the FM Switch Wrench is made by installing Jumpers on the Jumper Pins (3 pin pairs) at the end of the battery case inside the Electronics Module on the FM Switch Wrench. The Jumper is a small plastic and metal connector for a pin pair.

When the Jumper is installed, the condition is "ON". A bare pin pair is condition "OFF". When the FM Switch Wrench arrives from the factory, all three Jumpers are installed. The jumpers are numbered 1, 2, and 3, with the innermost (furthest from board edge) pin pair being #3 and the one at the board edge being #1. Jumpers are removed by grasping gently and pulling straight up. To install a jumper on a pin pair, align the holes in the bottom of it with the pins and push straight down until it is seated. The settings for each of the eight channels, numbered 0 - 7, are as given in the table to the right.

Channel	Jumper 1	Jumper 2	Jumper 3
0	OFF	OFF	OFF
1	OFF	OFF	ON
2	OFF	ON	OFF
3	OFF	ON	ON
4	ON	OFF	OFF
5	ON	OFF	ON
6	ON	ON	OFF
7	ON	ON	ON

Operating The PTV-FM Generation II

The Lock must be in the LOCK position for operating mode. The active parameter and fastener count are displayed unless an error message has been occasioned by a timer violation or the FM Switch Wrench has a low battery. Error messages are: **TMIN**, **TMAX**, **TBC**, and **TBB**. A low battery will cause **LOW BATTERY** to scroll across the display. An error message can be cleared by issuing a Batch Reset command via the PLC Connector or by pressing and holding the SET keyswitch until it clears.

Switching among the four parameters can be performed by a command through the PLC Connector or manually via the Parameter Select Switch on the left side of the case.

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All other information on the unit may be found in the PTV-FM Generation II manual supplied on CD with the unit.