TM-45 and TM-65
Fastener Counter Instructions

DETECTOR button toggles between detection displays (screw counts/times).
SET button enters programming mode and scrolls through menu.
LOCK button isolates driver from detecting fastening conditions and allows independent operation.

- The TM-45 System works with AE-2020, AE-4020, AE-4520, and AE-4520ESD Drivers
- The TM-65 System works with AE-7010, AE-7010PS, and AE-8010 Drivers

1. The TM-XX Systems contain a power supply and circuit to accurately count the number of fasteners drive successfully by the tool connected.

2. Setup requires a tool, tool cable, a TM system, and the Work I/P plug attached to the back of the box. The unit is powered by one 110VAC connection to standard grounded U.S. electrical outlets.

3. When in "Detector" mode (in use by an operator), there are two screens that may be selected:

SCREEN #1 shows : + OK: 0 0/1   + = Total number of acceptable complete parts assembled
        – OK: 0 0/1   – = Total number of unacceptable complete parts detected
        0/1   = Number of screws run successfully or not/number of screws in assembly

SCREEN #2 shows : STD: 0.00s + 10%   1
        DET: 0.00s – 10%

       STD = Time that the unit is looking at for the screw to be run and the clutch to shut off
       +   = Percentage of variance that the unit will accept over the STD time
       DET = Actual time that the fastener was run into the part
       –   = Percentage of variance that the unit will accept less than the STD time
       1   = Parameter set that is currently selected

To Enter SET Mode to Program Unit :
Press SET then + + – – SET DETECTOR in that order. 1-1 MEMO RECALL will appear. To go through the menu items below, press the SET key to move past each screen. The menu scrolls incrementally up only then repeats. If you scroll past a desired screen, press the SET key repeatedly to cycle back to the desired selection.

1.1. MEMO RECALL   1 : 0.00 sec. 0 pcs.
This is the screen where previous parameter sets are stored. Hitting the key will sequence through the ten available parameter sets. Pressing the key will take you to the run mode and have selected that parameter set

1-2. MEMO SAVE   1 : 0.00 sec. 0 pcs.
This is the screen where parameter sets are saved for future reference. Once all other parameters have been set, press the + key until the desired parameter set is on screen (i.e. 1, 2, 3, 4, 5, 6, 7, etc.). Then press the – key to store and run that parameter set.

TM-45 and TM-65
Fastener Counter Instructions

2. CLEAR ALL CNT **(+): Yes / (–): No**

Pressing + will erase all run data from the run mode. This will clear the counters back to zero values. It will not clear the current parameter set from the run settings.

3-1. SAMPLE TIMES **10**

This is a screen where it is decided how many samples to run to allow the system to calculate fastener run time. The unit will take a group of readings and then come up with an average for the fastening job. This average will be used to instruct the unit what a "good" fasten is in terms of running time. The more samples that are taken, the more accurate the averaging should become. + key increases this number, – key reduces this number.

3-2. SAMPLES 0/10 **0.0 0s (OK: + / NG: –)**

This screen is where the samples determined in the previous screen are run. After choosing the number of SAMPLES in the previous screen, now they must be run on the application. After each run, the system will ask for a + if the rundown was thought to be correct with no mistakes or an – entry if the rundown was flawed. Once the number of samples previously specified have been run and accepted, the unit will then have determined a number that represents a time that an acceptable fasten will require from the tool.

4-1. RANGE RATE **+10%**

This is a tolerance that is selected to allow for variances in the fastening process. This screen sets the over-time tolerance factor. The + key increases the tolerance and the – key reduces the tolerance.

4-2. RANGE RATE **–10%**

This is a tolerance that is selected to allow for variances in the fastening process. This screen sets the under-time tolerance factor. The + key increases the tolerance and the – key reduces the tolerance.

5. PCS/UNIT **1**

This screen is where the selection is made on the number of screws in each part being assembled. Example: A mirror is being made that has 3 screws per part. The setting on this screen would be 3. The + key increases the setting and the – key decreases it.

6. OK CNT DIR **+**

This screen determines if the counter will count up to a predetermined number of good parts (set in 8-1) or if it will count down from a predetermined number of good parts (set in 8-1). If you set 50 and use the – setting, the unit will count down from 50 to 0 the number of good parts assembled. Once the counter reaches 0 it will alarm the operator that all 50 parts have been done. Reverse the logic for the + setting (0 up to 50 then alarm).

7. CYCLE TIME **0.0**

This screen sets the amount of time between fastening that an operator is allowed to be at rest before an alarm is sounded. If set to 5.0, an alarm would sound (beeping) if the tool was not run for a period of time longer than 5 seconds. The alarm ceases automatically as soon as fastening begins. The + key increases this amount and the – key decreases this amount.

8-1. SET +OK LMT **60000**

This is a setting to count "good" completed fastening cycles up to the preset number. If the number set is 100, an alarm (beeping) will sound as soon as 100 "good" complete parts are registered by the system. + key increases this amount (up to 60000) and the – key decreases this amount.

TM-45 and TM-65
Fastener Counter Instructions

8-1. SET –OK LMT   <u>**60000**</u>

This is a setting to count "good" completed fastening cycles down from the preset number. If the number set is 100, an alarm (beeping) will sound as soon as 100 "good" complete parts are registered by the system. The difference from the previous setting is that the counting will go from the set number to a zero value then recommence. + key increases this amount (up to 60000) and the – key decreases this amount.

8-2. ADJ STD TMR   <u>**0.00 sec.**</u>

This setting allows for a manual adjustment of the time required for a "good" fasten to be counted. If the sampling process has determined that the correct driving cycle should be .87 sec, that number will be automatically displayed here. Using the + key will increase that time and the – key will reduce it. This is a useful screen that can be utilized if the sampling process has generated a time that is consistently not recording the desired results in actual practice outside of the setup process.

8-3. ADJ PASS CNT   <u>**0**</u>

This is a counter that shows how many parts have been passed through the station without the required number of correct fastens. Should an operator pass a part with 3 out of 4 screws detected correctly, the counter would increase by one. This only works when a part present detector is in use.

TO CLEAR ALL PARAMETER SETS:

1. Turn off power.

2. Press + and – keys at the same time and power back up.

3. Hold keys for three (3) seconds and information will be cleared.

ALARMS:

1. One beep - fastening complete and "good".

2. Three beeps - fastening complete and "bad" condition detected.

3. One long beep - forced release required; operator must press – key.