



Model E1010 Indicator User's Manual

UNITED STATES

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CANADA

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique que edicté par le ministère de2s Communications du Canada.

EUROPEAN COUNTRIES

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which the user may be required to take adequate measures.



Avery Weigh-Tronix reserves the right to change specifications at any time.

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Power requirements

- 100-240 Volts AC @ 600 mA
- 50/60 Hz
- Internal battery: 23 hours of continuous operation with one weight sensor; 15 hours of continuous operation with four weight sensors
- · Standby mode extends battery life

Excitation

- 5 volts
- Supports up to four 350-ohm weight sensors

Analog signal input range

• +/- 12 mV/V

Analog input sensitivity

- 0.2 μ V/divisions minimum
- 1.0 µV/divisions recommended

Calibration

· 2 to 5 points stored

Operational keys

 Tare, Select, Zero, Print, Units, F1, Clear, Mode, Escape, Enter, On/Off, 0-9 numeric and decimal point

Operational annunciators

- Center of Zero, Motion, Gross, Tare, Net, Battery status
- Under/Target/Over
- Units of measure (LB, KG)
- Peak, Print, OP1, OP2, OP3

Display

- · Seven-digit, seven-segment, 0. 8-inch high
- Lighted STN Transmissive
- Display rate Selectable (1, 2, 5, 10)

Analog to digital conversion rate

• 60 times per second

Unit of measure:

- Three, independently programmable
- · Pounds, Kilograms, Custom

Capacity selections

 999,999 with decimal located from zero to five places

Incremental selections

Multiples and sub-multiples of 1, 2, 5

Programmable selections

Zero range, motion detection, automatic zero tracking, five-point linearization

Time and date / RAM

· Battery backed up real time clock and RAM

Internal resolution

• 41,248,140 counts per mV/V per sec

Standard inputs

• Three logic level inputs for: Zero, Print, Tare, Units, F1

Standard outputs

- · Three cutoff outputs, open collector design
- Serial port RS-232 or 20mA current loop, or RS-422 or RS-485

Serial Command Inputs

 Programmable serial response to ASCII character input, SMA protocol

Self diagnostics

Display, keys, inputs, outputs, serial port,

Circuitry protection

RFI, EMI, and ESD protection

Options

- Trips Interface Unit (TIU3)
- **Operating applications**
 - General weighing, Simple counting, Check weighing,
 - · Peak measurement, Batching, Remote display

Operating temperature

- 14 to 104° F (-10 to 40° C) approved
- -4 to 140° F (-20 to 60° C) non-legal
- 10 to 90% noncondensing humidity

Enclosure

Stainless steel NEMA 6/4X

Dimensions:

- 9.25" W x 9.25" H x4.5 " D (23.5cm W x 23.5cm H x 11.4cm D) (without mounting bracket)
- 9.75" W x 11" H x 7" D (24.8cm W x 28cm H x 17.8cm D) (with mounting bracket)

Weight: 11 lb, 5 kg

Agencies:

- NTEP CC# 04-029
 - Class III/IIIL:10,000 divisions
- OIML Cert. No. R76/1992-GB1-04.09 Class III: 10,000 divisions
- Canadian Weights and Measures pending
- UL/CUL
- CE marked

Introduction

The Model E1010 is an easy to use, uncomplicated indicator for general weighing applications. It is ideal for bench scales, floor scales and tank weighing applications. The display includes a multi-segment fan graph for fast visual awareness for checkweighing. The indicator can perform counting functions, peak weight functions, act as a remote display and operate on battery power. The indicator also has 10 PLU (Product Look Up) memory channels for storing data.

Communication port allows connection to a printer, remote display or computer. The indicator also has three setpoint controls and can accommodate a footswitch for zero, print or tare function.

All this in an NEMA 6/4X rated enclosure.

About This Manual

Major sections of this manual are headed by titles in a black bar like *Introduction* above. Subheadings appear in the left column. Instructions and text appear on the right side of the page. Occasionally notes, tips, and special instructions appear in the left column.

Setup

powered.



Your indicator will be installed by a qualified Avery Weigh-Tronix distributor. They will make the required connections to your scale and peripheral devices.

- 1. With the unit plugged in, see note at left, press and hold the ① switch until the display lights up, then release the key.
- 2. The indicator powers up in normal operation mode.

Charge the battery overnight before using the indicator on

The Model E1010 is battery

The unit can be run on the transformer if the battery is drained or absent.

battery power only.

See Battery Information for more information.

Front Panel



The front panel, shown in Figure 1, consists of the keys and display.

Figure 1 E1010 front panel

The functions of the keys on the front panel are listed below.



Press the **TARE** key to perform a tare function. Also acts as a left arrow key when in the User menu.



Press the **SELECT** key to toggle between Gross, Tare, Net, Count, Gross Accumulator, Net Accumulator, Transaction Counter, Piece Weight, and Peak. This is dependent on the current application. Also acts as an up arrow key when in the User menu.



Press the **ZERO** key to zero the display.



Press the **PRINT** key to send information to a peripheral device through the Comm port. Also acts as a down arrow key when in the User menu.



Press the **UNITS** key to scroll through the available units of measure while in normal operating mode. Also acts as a right arrow key when in the User menu.

Keys

Never press a key with anything but your finger. Damage to the overlay may result if sharp or rough objects are used.



Press the **F1** key to select application specific choices. Press and hold to access the cutoffs (trips) function. Also used to access PLU (Product Look Up) memory channels.



Press the C/CE key to clear entries.



Press the **MODE** key to scroll through the enabled applications. The application name is briefly displayed when key is released.



Press the **ESC** key to escape a function or return to normal operation mode. Press and hold to access the password display for the User menu.



Press the ENTER key to accept displayed choices.

7	8	9
4	5	6
1	2	3
	0	

Use the numeric keypad to enter values. For example:

- ID entry
- Setpoint target entry
- Preset tare entry
- Password entry
- Key in a print format number (#1-9) and press **PRINT** to print a custom format.



To turn the unit on, press and hold the **ON/OFF** key until the display turns on. To turn the unit off, press and hold the **ON/OFF** key until the unit turns off.

Battery Information

When the indicator goes to sleep you must press the **ON/OFF** switch to restart the indicator.

This unit contains a sealed rechargeable 6 volt, 3.0Ah, lead-acid battery. Life expectancy of this battery is 3-5 years in standby use or:

180 charging cycles (approx.) if discharged 100% 400 charging cycles (approx.) if discharged 50% 1200 charging cycles (approx.) if discharged 30%

Battery life is 23 hours with one 350 ohm weight sensor and 15 hours with four 350 ohm weight sensors. Recharge time from complete discharge is 14 hours while powered up and in service (single loadcell). The AC adapter/ charger will charge the battery as it powers the indicator.

The charger has a 12 VDC 800 mA output with center positive connection.

PLU (Product Look Up) Memory Channels

If there are preset tares in the PLUs, you cannot enter a keyboard or pushbutton tare. Preset tares are enabled and entered under the Supervisor menu. See the Service Manual for instructions.

If prest tares are not enabled, any tare you enter by keyboard or pushbutton method will be active for all PLUs. This indicator has 10 channels of memory called PLU or Product Look Up. Each channel can contain the following information:

- Channel # ID# Tare Gross Accum. Net Accum. Total TARGET OP1 TARGET OP2 TARGET OP3 Lower Limit Upper Limit Count Accum. Piece Weight Peak Weight
- 1. To activate or recall a PLU, key in the desired channel number (1-10) and press the **F1** key. . .

The PLU channel is active. Any of the items listed above that have values are activated. Any values that are listed above that change while this PLU is active are stored, ie; accumulator, count, etc.

2. PLU channels can be cleared by using a password protected menu. These instructions are found in the *Service Manual*. You can also print a report of all the PLU channels in the same password protected menu.

Entering an ID Number

You can enter an ID number which is then part of the active PLU channel. To enter an ID, key in a number on the keypad then press the **ENTER** key.

Menu Mode

User menu password is 111. You must key in the password within 10 seconds or the display returns to normal operation mode. The E1010 has a User menu which you can use to do the following:

- Audit the number of configurations and calibrations performed
- See software information
- Display test
- Button test
- Serial port test
- 1. Access the User menu by pressing and holding the **ESC** key for 3-5 seconds.

PASS_ is displayed.

 Key in the User menu password = 111 and press the ENTER key. Figure 2 shows a flowchart of the User menu items. Use the keys shown in the dotted box in Figure 2 to navigate through the menu and choose the items you want.

Normal Operation Mode

Press and hold ESC for 3-5 seconds







Specific instructions on the User menu appear in the section *Indicator Diagnostics* later in the manual.

Indicator Operations

When the indicator goes to sleep you must press the **ON/OFF** switch to restart the indicator.

This indicator has a 10 channel PLU (Product Look Up) memory. To access a memory channel, press a number from 1 to 10, then press the **F1** key.

The E1010 comes equipped with several weighing applications;

- Accumulator weighing (default setting)
- · Batch weighing
- Checkweigher
- Counting
- Peak capture
- Remote display

These applications are enabled using a password protected Service menu. See the Service Manual for instructions on enabling applications and clearing accumulators.

The accumulator application comes as the default application. You can do gross weighments, tare/net weighments and accumulator functions. Below are instructions for each.

Gross Weighing

To change unit of measure, press the **UNITS** *key.*

To perform gross weighing, power up the unit and follow these steps:

- Empty the scale and press ZERO key to zero the display. . .
 0 is displayed and gross and center of zero annunciators are lit.
- Place item to be weighed on the scale. . . Weight is displayed.

Tare/Net Weighing	To perform a net weighment, power up the unit and follow these steps:
	1. Empty the scale and press ZERO key to zero the display
	 Place item to be tared on the scale Weight is displayed
	 Press the TARE key 0 is displayed and net annunciator is lit.
	 Place material to be weighed on the scale Net weight of material is displayed and net annunciator is lit.
	 Repeatedly press the SELECT key to scroll through gross, tare, and net values. Remove the weight from the scale and press TARE to return to gross mode.

Accumulator Weighing

Press the **MODE** key to scroll through the enabled applications.

You can use tare/net weighing with the accumulator application. The accumulator stores both gross and net totals for later recall.

Using Cutoffs

The accumulator is memory that collects individual weighments (gross and net) and stores the totals. These totals can be recalled at any time and the number of weighments included in the totals can be displayed. With the proper password all information can be deleted. See the *Service Manual*.

The accumulator maximum is 999,999. It does not rollover and start over at 0.

To use the accumulator, power up the unit and follow these steps:

- Empty the scale and press the ZERO key to zero the display...
 0 is displayed and gross and center of zero annunciators are lit.
- 2. Place item on the scale. . .

Weight is displayed.

- You can press the **PRINT** or **F1** key to add weight to the accumulator. If you press **PRINT**, the weight is accumulated and the information printed. If you press **F1**, the weight is accumulated. Scale weight must return to zero before another weighment can be accumulated.
- 4. Repeat 2 and 3 for each weighment you want to accumulate.
- 5. To review the accumulator total and the number of weighments, remove all weight from the scale and press the **SELECT** key repeatedly. . .

1st press = Net weight displayed 2nd press = Tare weight displayed 3rd press = Gross total of all weighments is displayed 4th press = Net total of all weighments is displayed

- 5th press = Number of weighments is displayed
- 6th press = Display returns to gross weigh mode

You need the supervisor's password to clear the accumulator. See the *Service Manual* for instructions.

You can use the cutoff (or trips) function if so desired while in the Accumulator application. The output will turn on when weight goes above the target set for that output and will remain on until the weight falls below the target. Follow these steps to set up to three outputs:

1. With the indicator powered up, press and hold the **F1** key until. . .

OP1 is displayed.

2. Press the **PRINT** key to set the value for the output. . .

Key in a value and press the **F1** key to accept the value. *OP1* will be displayed.

You can scroll through all three outputs by using the **TARE** and **UNITS** keys.

3. Press the UNITS key. . .

OP2 is displayed.

4. Repeat steps 2 and 3 for each output. Press **ESC** key to return to normal operation with the ingredients active. Indicator will automatically return to normal weighing mode after OP3 value is entered.

Checkweighing

This indicator has a 10 channel PLU (Product Look Up) memory. To access a memory channel, press a number from 1 to 10, then press the **F1** key.

The graph is based off of net weight so if a tare is active only the net weight is considered for checkweighing. If there is no tare, gross weight is used as the basis for the graph. This section applies if your indicator has the checkweighing application active. Applications are activated through a password protected menu. See the *Service Manual* for instructions.

Checkweighing allows a quick, visual check of the acceptability or unacceptability of an item's weight.

You can set your target weight in one of two ways. The mode is set in a password protected menu. See the *Service Manual* for instructions. The two modes are explained below:

Limit Mode

Enter the upper and lower limits for your item and the indicator will use those values to run the display. See Figure 3.



Directions for each mode follows.

Limit Mode: Entering Upper and Lower Limits

	s		→0← ZERO	SELECT		:
•		↓		1	-	:

Sample Mode: Using Product to Set Target Weight

Performing a Checkweighing Weighment

Using Cutoffs



Follow these steps to setup and use the checkweigher function if limit mode is enabled, where you set upper and lower weight limits:

- Press the F1 key...
 Up is displayed followed by an underscore cursor.
- Key in the upper weight limit. Press the F1 key...
 Lo is displayed.
- Key in the lower weight limit. Press the F1 key... The indicator returns to normal weigh mode.
- 4. Place items on the scale and the display will show if the weight is over, under or acceptable based on the limits you have set.

Follow these steps to setup and use the checkweigher function if sample mode is enabled, where you set target weight based on an actual "product":

- Place a sample, of the correct weight, on the scale... Weight is displayed.
- 2. Press the F1 key.

The target weight is captured, the indicator switches to net mode, the display reads $\boldsymbol{0}$ and your indicator is ready to use as a checkweigher. The target weight will be the same as your sample item and the target will stay lit whenever an item's weight is within ±1 division of the target weight.

1. With your target weight set, as described in one of the previous two sections, place your item on the scale. . .

If the weight equals the acceptable value, the TARGET annunciator lights. If the weight varies from the target value, upper or lower segments may be lit and the weight will show a plus or minus weight reading for the deviation from the target weight.

2. Repeat step 1 for all products of this weight.

You can use the cutoff (or trips) function if so desired while in the checkweigher application. Follow these steps to set up to three outputs:

- With the indicator powered up, press and hold the F1 key until...
 OP1 is displayed.
- 2. Press the **PRINT** key to set the value for the output. . .

Key in a value and press the **F1** key to accept the value. *OP1* will be displayed.

You can scroll through all three outputs by using the **TARE** and **UNITS** keys.

3. Press the UNITS key. . .

OP2 is displayed.

4. Repeat steps 2 and 3 for each output. Press **ESC** key to return to normal operation with the ingredients active. Indicator will automatically return to normal weighing mode after OP3 value is entered.

Counting

This indicator has a 10 channel PLU (Product Look Up) memory. To access a memory channel, press a number from 1 to 10, then press the **F1** key.

Using Cutoffs

	Th Ap Se	is section applies if your indicator has the counting application active. plications are activated through a password protected menu. See the <i>rvice Manual</i> for instructions.
	Fo	llow these steps to perform a counting function with the E1010:
annel	1.	In gross weight mode, press the F1 key
mory		PCS is displayed followed by an underscore cursor.
key.	2.	Enter the sample size you desire (see note at left) and press ENTER Add X is displayed. X is the sample size you keyed in.
	3.	Place the correct number of parts on the scale and press the ENTER key. BUSY is briefly displayed, followed by one of two possible displays:
		 a. If the sample met the minimum sample requirements, the display will show the correct number of parts on the scale.
		 b. If the sample size was not large enough, the display will tell you how many more parts to add to the scale (For example: 5 might be displayed.) Add the number requested, wait for the scale to stabilize, then press ENTER again. The display will read the correct number of parts on the scale.
	4.	Place the parts on the scale to be counted.
	Yo ap	u can use the cutoff (or trips) function if so desired while in the counting plication. Follow these steps to set up to three outputs:
	1.	With the indicator powered up, press and hold the F1 key until <i>OP1</i> is displayed.
	2.	Press the PRINT key to set the value for the output
		Key in a value and press the F1 key to accept the value. <i>OP1</i> will be displayed.
		You can scroll through all three outputs by using the TARE and UNITS keys.
	3.	Press the UNITS key OP2 is displayed.
	4.	Repeat steps 2 and 3 for each output. Press ESC key to return to normal operation with the ingredients active. Indicator will automatically return to normal weighing mode after OP3 value is entered.

Batch Weighing

This indicator has a 10 channel PLU (Product Look Up) memory. To access a memory channel, press a number from 1 to 10, then press the **F1** key. This section applies if your indicator has the batching application active. The batching application allows you to set three cutoffs or trips based on three progressively larger weights. There are two possible modes of batching; Auto or Manual. Each are explained below.

AUTO

As weight is added to the scale and the first cutoff point is reached, OP1 annunciator lights and Output #1 is activated. When weight reaches the second cutoff, OP2 annunciator lights and Output #2 activates. When weight reaches the third cutoff, OP3 annunciator lights and Output #3 activates.

MANUAL

In manual mode, after you begin the batching process, you must press the **F1** key to activate each subsequent output after each output weight is reached.



Press **ESC** key when done.

Figure 5 Output flowchart

Configuring Outputs	Follow these steps and the flowchart in Figure 5 to setup a recipe with three ingredients:
	 With the indicator powered up, press and hold the F1 key until OP1 is displayed.
<i>If the system cannot accept the value you key in, ABORT will be displayed and display will return to the menu.</i>	 Key in a value for the first output and press the ENTER key to accept the value OP2 is displayed.
	3. Repeat step 2 for OP2 and OP3. Once the last output value is entered, the display returns to normal operation with the ingredients active.

Peak Weighing	This section applies if your indicator has the Peak application active.
	Peak weight is defined as the highest stable weight reached by the scale. Momentary higher weights that do not stabilize are ignored.
	While in Peak mode, the Peak annunciator remains lit.
	Follow these steps to perform a peak weighment:
This indicator has a 10 channel	 Empty the scale and press the ZERO key to zero the display <i>0</i> is displayed.
PLU (Product Look Up) memory. To access a memory channel, press a number from	 Place the item(s) on the scale Weight is displayed.
1 to 10, then press the F1 key.	 After the motion annunciator (~) turns off remove the item(s) from the scale,
	The peak weight is displayed and the center-of-zero annunciator (→0←) lights.
	4. To clear the peak value, press the F1 key0 is displayed.
	5. Repeat steps 2-4 for other weighments.
	Use the SELECT key to scroll through G, T, N and peak values
Using Cutoffs	You can use the cutoff (or trips) function if so desired while in the peak weighing application. Follow these steps to set up to three outputs:
	1. With the indicator powered up, press and hold the F1 key until
	OP1 is displayed.
	2. Press the PRINT key to set the value for the output
	Key in a value and press the F1 key to accept the value. <i>OP1</i> will be displayed.
	You can scroll through all three outputs by using the TARE and UNITS keys.
	 Press the UNITS key OP2 is displayed.
	4. Repeat steps 2 and 3 for each output. Press ESC key to return to normal operation with the ingredients active. Indicator will automatically return to normal weighing mode after OP3 value is entered.

Communications and Printing

The default serial port parameters are 9600 baud, 8 databits, no parity and 1 stop bit. The E1010 provides an RS-232 output for data transmission to a peripheral device. Refer to the Service Manual for RS-232 interface connections.

If your indicator has a peripheral device connected, from the gross/net weighing mode press the **PRINT** key to transmit the selected output(s).

The **PRINT** annunciator will illuminate while data is transmitted and the data configured to be printed will be output to the printer.

Print Format #1 for weighing applications

G 1234.56 lb<CR><LF>

Print Format #1 for counting application

Count: 12230

Print Format #1 for peak application 12230lb<CR>

Error Messages

The following are displays you may see if problems occur or if invalid operations are attempted with your indicator:

Display	Description	
	Overrange weight.	
	Underrange weight.	
ERnt	The unit cannot perform a function. Displayed only while key is held down.	
SERLEd	Displayed while a key is pressed when attempting to modify a sealed selection without edit privileges.	

Indicator Diagnostics

Indicator Test Functions	The user menu lets you test various functions of the indicator. The user menu is shown in Figure 6. Instructions for using the Test portion of the menu are found below.		
	Normal Operation Mode		
	Press and hold ESC for 3-5 seconds		
	PASS_ Image: Constraint of the second seco		
	Test Audit CFG CAL		
	About Disp Button Serial Software Display Button Pass/Fail		
	version test test and revision		
	Figure 6 User Menu		
	 Access the User menu by pressing and holding the ESC key for 3-5 seconds. 		
	PASS_ is displayed.		
	 Key in the User menu password = 111 and press ENTER. TEST is displayed. 		
	 Press the PRINT key. ABOUT is displayed. Press the PRINT key then the UNITS key to view the part number and revision level for the software found in your indicator. 		
	Press SELECT key to return to ABOUT.		
	 Press the UNITS key DISP is displayed. This is the display test item. 		
	5. Press the PRINT key to perform a dynamic test of the display.		
	6. Press ESC key to stop the dynamic test.		
	 Press the UNITS key BUTTON is displayed. This is the button test item. 		

8. Press the **PRINT** key to perform a button test. Each key you press will be reflected on the display by a number to confirm the button is functioning correctly. See Table 1. The **ESC** key is excluded from this test. It is used to stop the testing and return to the menu item.

Table 1Key / Number Equivalents

Tare = 1	4 = 12
Select = 2	5 = 13
Zero = 3	6 = 14
Print = 4	1 = 17
Units = 5	2 = 18
F1 = 6	3 = 19
Power = 7	0 = 23
7 = 8	. = 24
8 = 9	C/CE = 20
9 = 10	Mode = 15

9. Press **ESC** key to stop the button test.

BUTTON is displayed.

10. Press the UNITS key. . .

SERIAL is displayed. This is the serial test item. To test the serial port, jumper the TX and RX lines. Continue to step 11.

11. Press the **PRINT** key to access the serial test.

The display will show *FAIL* unless the TX and RX lines are jumpered or there is a problem with the serial port. *PASS* is displayed if the serial port is working properly.

12. Press **SELECT** key to exit the serial test.

SERIAL is displayed.

13. Press the $\ensuremath{\textbf{SELECT}}$ key. . .

TEST is displayed.

- 14. Press the **UNITS** key. . . **AUDIT** is displayed.
- 15. Press the **PRINT** key. . .

CFG is displayed. This stands for the configuration audit counter.

- 16. Press the **PRINT** key to see the number of times the configuration has been altered on this indicator.
- 17. Press the **SELECT** key. . . *CFG* is displayed.
- 18. Press the UNITS key. . .

CAL is displayed. This stands for the calibration audit counter.

Audit counters cannot be reset.

19. Press the **PRINT** key. . .

The number of times the indicator has been calibrated is displayed.

20. Press the **ESC** key twice. . .

The display returns to normal operation mode.

This completes the User menu.

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