Avery Weigh-Tronix

THE evolution SERIES™

Model E1005 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.

CAUTION

Risk of electrical shock. Do not remove cover.
No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER.
DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE, REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MÊME TYPE OU D'UN TYPE ÉQUIVALENT RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

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

07/13/05 E1005_U.indd PN 43027-0017D e1 Printed in USA

Table of Contents

IMPORTANT

This equipment must be routinely checked for proper operation and calibration. Application and usage will determine the frequency of calibration required for safe operation.

Specifications

Power:	120 VAC, 60 Hz, 800 mA Internal battery - 25 hours of continuous operation with one weight sensor - 15 hours of continuous operation with four weight sensors
Excitation:	5 volts supports up to four 350 ohm weight sensors
Analog Signal Input Range:	±12 mV/V
Analog Signal Sensitivity:	0.2 µV/divisions minimum 1.0 µV/divisions recommended
Operational Keys:	Tare, Select, Zero, Print, Units, F1, On/Off
Operational Annunciators:	Center of Zero, Motion, Gross, Tare, Net, Battery status, Under/Target/Over, Unit of measure (LB, KG), Peak, Print, OP1, OP2, OP3
Display:	Seven digits, seven -segment, 0.75 inch high, LCD
Display Rate:	Selectable (1, 2, 5, 10 times per second)
A to D conversion rate:	60 times per second
Unit of Measure:	Three, independently programmable (pounds, kilograms, custom)
Capacity:	999,999 with decimal located from zero to five places.
Incremental Selections:	Multiples and submultiples 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 are standard
Internal Resolution:	41,248,140 counts per mV/V per sec.
Standard Inputs:	Three configurable logic level inputs for Zero, Print, Tare, Units, and F1
Standard Outputs:	Three cutoff outputs, open collector design Serial port - RS-232 or RS-422 or RS-485 or 20 mA current loop
Serial Command Inputs:	Programmable serial response to ASCII character input, SMA protocol
Self Diagnostics:	Display, keys, inputs, outputs, serial port, A to D converter
Circuitry Protection:	RFI, EMI, and ESD protection
Options:	Trips Interface Unit (TIU3)
Operating Temperature:	14 to 104° F (-10 to 40° C) 10 to 90% non-condensing humidity
Enclosure:	Composite, IP 54
Dimensions:	9" W x 6.25" H x 4.25" D (229mm x 159mm x 108mm) without bracket 9" W x 8.25" H x 4.25" D (229mm x 210mm x 108mm) with bracket
Weight:	8 lb (3.7 kg)
Agencies:	NTEP Class III/IIIL, 10,000 divisions - CC# 04-029 CE Marked OIML 6,000 divisions Canadian Weights and Measures UL CUL CSA } Pending

Introduction

The Model E1005 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. Also, the indicator can perform counting functions, peak weight functions, act as a remote display and operate on battery power.

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 IP54 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.

Unpacking and Setup

Unpack your indicator and check for any shipping damage. If shipping damage is found, save all packing materials and contact the shipping company immediately.

1. Use the included hardware and attach the indicator to the bracket.
2. Connect all necessary cables to the appropriate connector on the back of the indicator. See Figure 1.

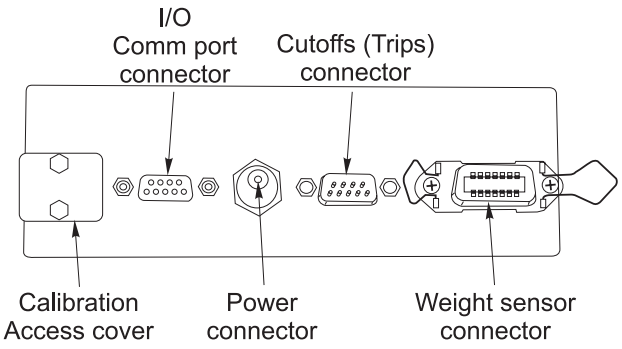


Figure 1
Connection panel on the E1005
(Caution: connections may be reversed based on viewpoint)

Attention

The Model E1005 is battery powered with an AC wall mount transformer for charging.

Charge the battery overnight before using the indicator on battery power only.

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

See Battery Information *for more information.*

3. Plug the power transformer into an appropriate wall outlet. See note at left.
4. Press and hold the ⏻ switch for one second to turn the indicator on.
5. The indicator powers up in normal operation mode.

ON/OFF switch

Front Panel

The front panel, shown in Figure 2, consists of the keys and display.

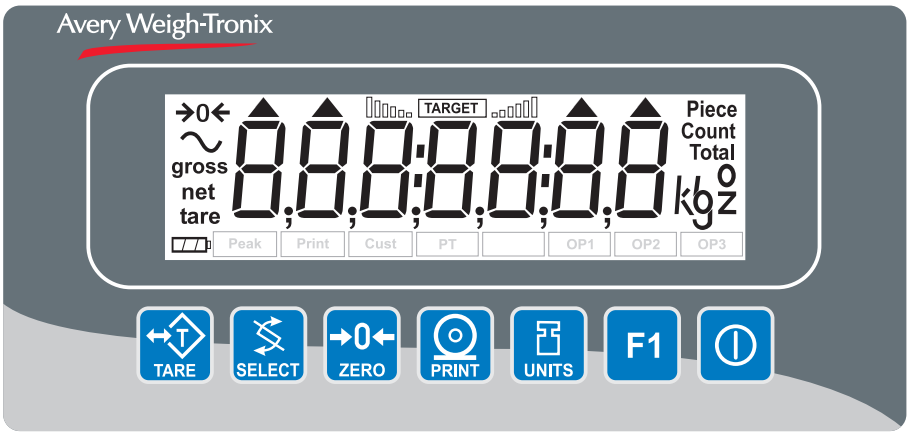


Figure 2
E1005 front panel

Keys

There are seven keys on the front panel. Their functions are listed below.

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

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. 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. Also acts as an Escape key when in the User menu.

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.

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

Press the **F1** key to select application specific choices. Also acts as an ENTER key in the User menu

Press and hold the ON/OFF switch for one second to turn the indicator on. Press and hold the key until the unit turns off. The unit must be in normal weigh mode to turn off.

Numeric Entry Procedure

Some keys have alternate functions when you need to enter numbers. See Figure 3.

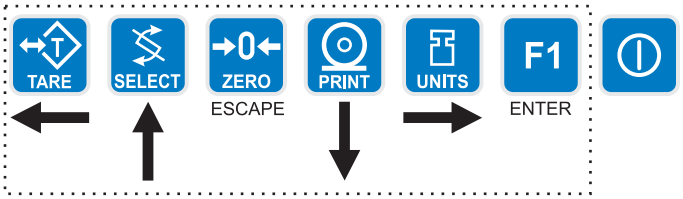


Figure 3
Alternate key functions

Press the **ZERO** *key to terminate a value entry and leave the previous value, if any, active*

In screens where numeric entry is possible, choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry. Press the **F1** key to accept an entry. Below is an example:

Example: To key in the number 507-

Press the **SELECT** or **PRINT** key until 5 appears on the display.

Press the **UNITS** key once to move cursor one space to the right.

Press the **SELECT** or **PRINT** key until 0 appears on the display.

Press the **UNITS** key once to move cursor one space to the right.

Press the **SELECT** or **PRINT** key until 7 appears on the display.

Press the **F1** key to enter the value.

You can move the entry function one digit to the left with a press of the **TARE** key. This effectively deletes the current value in that position and allows you to enter a new value in that position.

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 25 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.

Menu Mode

The E1005 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 **ZERO** key for 3-5 seconds.

   PASS_ is displayed.

User menu password is 111. You must key in the password within 10 seconds or the display returns to normal operation mode.

2. Use the numeric entry procedure to scroll in the User menu password = 111. See note at left. Figure 4 shows a flowchart of the User menu items. Use the keys shown in the dotted box in Figure 4 to navigate through the menu and choose the items you want.

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.

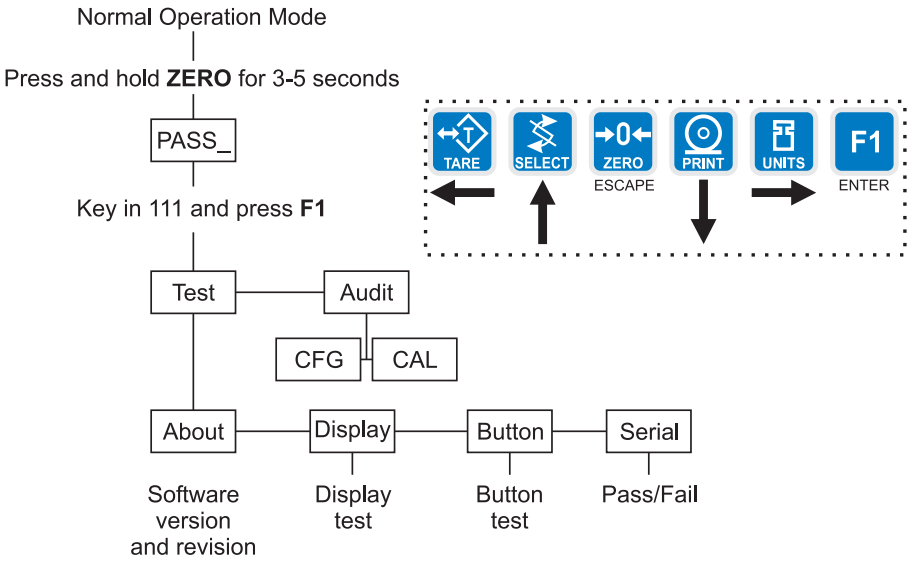


Figure 4
User menu flowchart

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.

The E1005 comes equipped with several weighing applications;

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

These different applications are activated using a password protected Service menu. See the Service Manual for instructions on changing 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:

1. Empty the scale and press **ZERO** key to zero the display. . .
   0 is displayed and gross and center of zero annunciators are lit.
2. 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. . .
   0 is displayed and gross and center of zero annunciators are lit.
2. Place item to be tared on the scale. . .
   Weight is displayed.
3. Press the **TARE** key. . .
   0 is displayed and net annunciator is lit.
4. Place material to be weighed on the scale. . .
   Net weight of material is displayed and net annunciator is lit.
5. Press the **SELECT** key to scroll through gross, tare, and net modes. Remove the weight from the scale and press **TARE** to return to gross mode.

Accumulator Weighing

The Accumulator application comes as the default active application in the E1005.

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:

1. Empty the scale and press **ZERO** key to zero the display. . .

   0 is displayed and gross and center of zero annunciators are lit.

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

2. Place item on the scale. . .

   Weight is displayed.

3. 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. . .

All weight must be removed from the scale and the display must be at zero before you can review these values.

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.

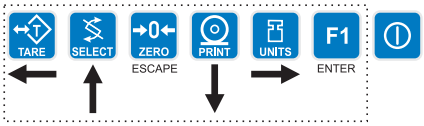
Using Cutoffs

You can use the cutoff (batching 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.

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



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

   Use the numeric entry procedure to key in a value, see note at left, 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 **ZERO** key to return to normal operation with the ingredients active.

Checkweighing

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 5.

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.

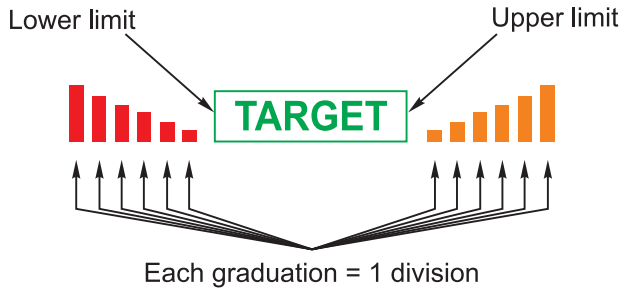


Figure 5
Limit mode

Sample Mode Place a correct weight "product" on the scale and press the F1 key. The indicator will use this weight to run the display. Upper and lower limits will automatically be 1 division above and below the target weight respectively. Figure 6 shows how the graphic display works in Sample mode. Each graduation is equal to 1 scale division. The TARGET light stays lit if weight is ±1 division of the target weight.

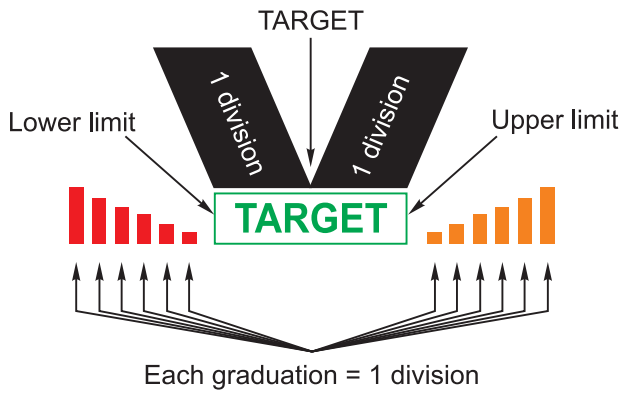
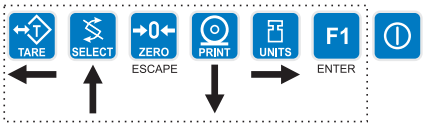


Figure 6
Sample mode

Directions for each mode follows.

Limit Mode: Entering Upper and Lower Limits

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



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

1. Press the **F1** key. . .

   Hi is displayed followed by an underscore cursor.

2. Key in the upper weight limit using the numeric entry procedure. See note at left. Press the **F1** key. . .

   Lo is displayed.

3. Key in the lower weight limit using the numeric entry procedure. 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.

Sample Mode: Using Product to Set Target Weight

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”:

1. Place a sample, of the correct weight, on the scale. . .

   Weight is displayed.

2. Press the **F1** key.

   The target weight is captured, the display reads ***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.

Performing a Checkweighing Weighment

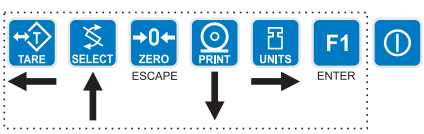
1. With your target weight set, as described in one of the previous two sections, place your item on the scale. . .

   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.

Using Cutoffs

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



You can use the cutoff (batching) function if so desired while in the checkweigher 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. . .

   Use the numeric entry procedure to key in a value, see note at left, 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.

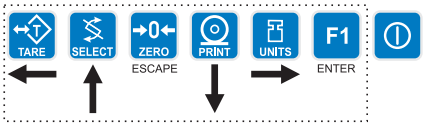
3. Press the **UNITS** key. . .

   OP2 is displayed.

4. Repeat steps 2 and 3 for each output. Press **ZERO** key to return to normal operation with the ingredients active.

Counting

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



This section applies if your indicator has the counting application active. Applications are activated through a password protected menu. See the *Service Manual* for instructions.

Follow these steps to perform a counting function with the E1005:

1. In gross weight mode, press the **F1** key. . .

   PCS is displayed followed by an underscore cursor.

2. Enter the sample size you desire (see note at left) and press **F1**. . .

   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 **F1** key. ***BUSY*** is briefly displayed, followed by one of two possible displays:

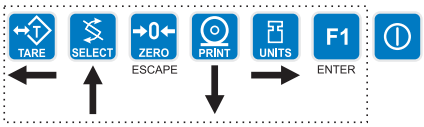
   a. If the sample met the minimum sample requirements, the display will show the correct number of parts on the scale.

   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 **F1** again. The display will read the correct number of parts on the scale.

4. Place the parts on the scale to be counted.

Using Cutoffs

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



You can use the cutoff (batching) function if so desired while in the counting 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, see note at left, 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 **ZERO** key to return to normal operation with the ingredients active.

Batch Weighing

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.

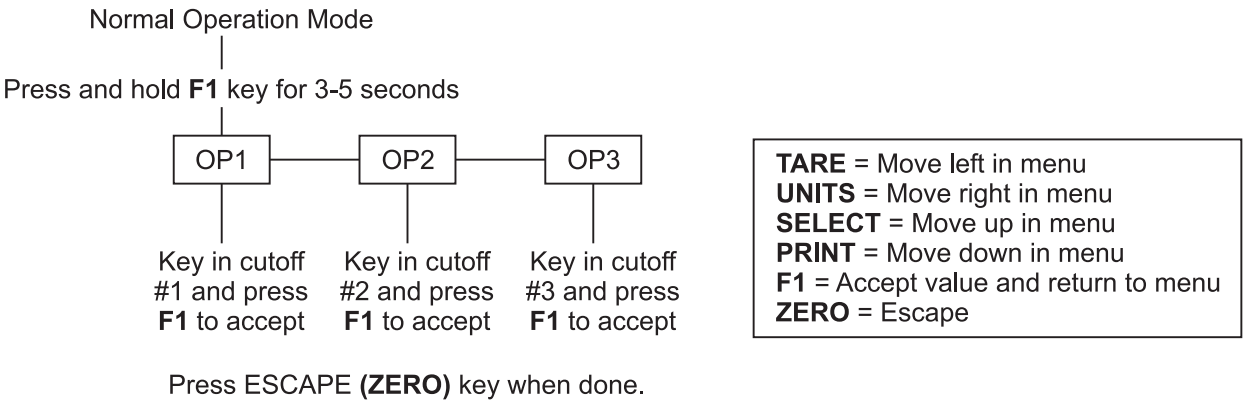
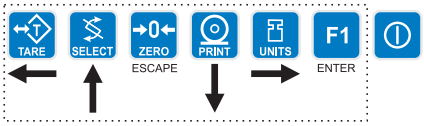


Figure 7
Output flowchart



Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.

*If the system cannot accept the value you key in, **ABORT** will be displayed and display will return to the menu.*

Follow these steps and the flowchart in Figure 7 to setup a recipe with three ingredients:

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, see note at left, 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 **ZERO** key to return 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.

Follow these steps to perform a peak weighment:

1. Empty the scale and press the **ZERO** key to zero the display. . .

   0 is displayed.

2. Place the item(s) on the scale. . .

   Weight is displayed.

3. 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** key. . .

   0 is displayed.

5. Repeat steps 2-4 for other weighments.

Using Cutoffs

You can use the cutoff (batching) 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, see note at left, and press the **F1** key to accept the value. ***OP1*** will be displayed.

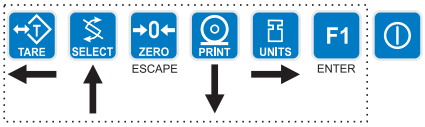
   You can scroll through all three outputs by using the **TARE** and **UNITS** keys.

3. Press the **UNITS** key. . .

   OP2 is displayed.

4. Repeat steps 2 and 3 for each output. Press **ZERO** key to return to normal operation with the ingredients active.

Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.



Communications

The default serial port parameters are 9600 baud, 8 databits, no parity and 1 stop bit.

The E1005 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>

T 34.56 lb<CR><LF>

N 1200.00 lb<CR><LF>

Print Format #1 for counting application

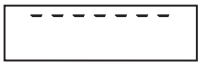
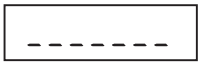
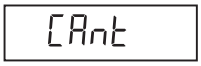
Count: 12230

Print Format #1 for peak application

12230 lb<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.
	The unit cannot perform a function. Displayed only while key is held down.
	Displayed while a key is pressed when attempting to modify a sealed selection without edit privileges.

Indicator Test Functions

The user menu lets you test various functions of the indicator. The user menu is shown in Figure 8. Instructions for using the Test portion of the menu are found below.

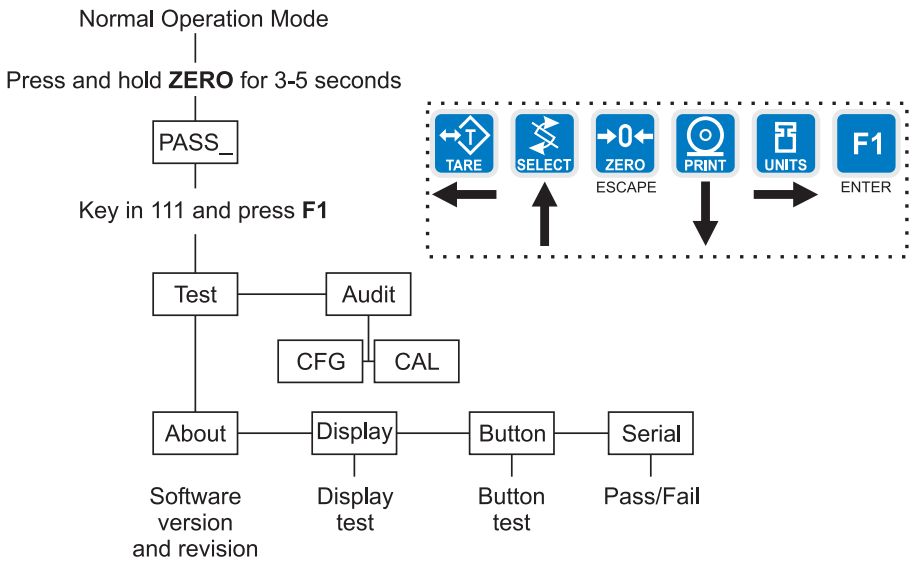
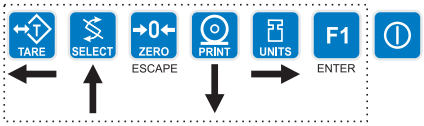


Figure 8
User Menu



Choose the first digit using the UP or DOWN keys. Use the LEFT and RIGHT keys to advance or backspace through the entry.

1. Access the User menu by pressing and holding the **ZERO** key for 3-5 seconds.

   PASS_ is displayed.

2. Use the keys to scroll in the User menu password = 111 and press **F1**. See note at left.

   TEST is displayed.

3. 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***.

4. Press the **UNITS** key. . .

   DISPLAY is displayed. This is the display test item.

5. Press the **PRINT** key to perform a dynamic test of the display.
6. Press **ZERO** key to stop the dynamic test.
7. 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 screen to confirm the button is functioning correctly.
9. Press **ZERO** 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 ***PASS*** if the serial port is working properly. If there is a problem the display will show ***FAIL***.

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

    SERIAL is displayed.

13. Press the **ZERO** key to return to normal operation mode.

Scale Connection

If your indicator uses the modular adapter shown in Figure 9 to connect your scale to the E1005, use Table 1 as the pinout guide.

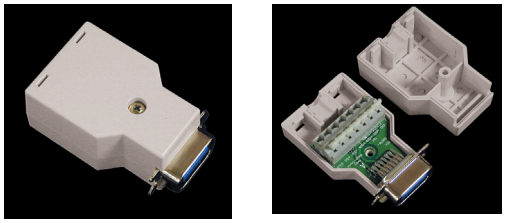


Figure 9
US Modular adapter

Table 1
Adapter wire color chart

Weigh Sensor-to-Weight Sensor Adapter Wire Color Chart							
	+EXC	+SENSE	-EXC	-SENSE	+SIGNAL	SHIELD/GND	-SIGNAL
W-T wire color	GRN	YEL	BLK	BLU	WHT	WHT/ORN	RED
SMA wire color	GRN	BLU	BLK	BRN	WHT	WHT/ORN	RED

Serial Comm Pinouts						
	Pin2 (RED)	Pin 3 (GREEN)	Pin 5 (BLACK)	Pin 7 (BROWN)	Pin 8 (YELLOW)	Pin 9 (ORANGE)
RS-232	XMT	RCV	GND	CTS	RTS	+5VDC
RS-485	TXA	RXA	GND	RXB	TXB	+5VDC
CL	OUT+	IN+	GND	IN-	OUT-	+5VDC

Common Serial Port Connections

RS-232

Indicator	Pins	Computer/Serial device
TX (transmit)	2	RX
RX (receive)	3	TX
CTS (clear to send)	7	RTS
RTS (ready to send)	8	CTS
Signal Ground	5	Signal Ground

RS-422/485

Indicator	Pins	Computer/Serial device
TXA (transmit A)	2	RXA
TXB (transmit B)	8	RXB
RXA (receive A)	3	TXA
RXB (receive B)	7	TXB
Signal Ground	5	Signal Ground (Optional)

Note that the EIA RS-422 Specification labels data lines with an “A” and “B” designator. Some RS-422 equipment uses a “+” and “-“ designator. In almost all cases, the “A” line is the equivalent of the “-“ line and the “B” line is the equivalent of the “+” line.

Current Loop

Indicator	Pins	Computer/Serial device
Out +	2	In +
Out -	8	In –
In +	3	Out +
In -	7	Out -

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