GSE Model 675

Precision Counting Scale

USERS GUIDE

Version 2.0

SPX | GSE scale systems

Model 675

USERS GUIDE
Version 2.0

GSE 675 Precision Parts Counter Quick Reference Guide

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CHAPTER 1: REFERENCE

This chapter describes the function of the keypad. Also tables show the connections for the second scale and comm ports.

Keypad Functions

All of the keys perform different functions. Some keys have more than one function.

F1 F2 F3 F4 F5

Act as soft keys which will perform a specific function. Refer to the text on the display for the function of each soft key.

TARE

Subtracts the weight of the tare from the displayed weight. Commonly used for removing the weight of a container.

ZERO

Performs a gross zero and displays the gross mode.

SAMPLE

Performs a sample for an accurate parts counting and calculates an average piece weight.

UNIT

Toggles the units of measure between lb, kg, g, ounce, etc.

SCALE SELECT

Selects between all enabled scales. Will display current scale number.

PRINT

Print data from a specified communication port.

SELECT MODE

Select among modes such as Gross, Net, Tare, Quantity and Average Piece Weight.

CLR NO

Clear the entry buffer or answer "NO" to a question.

ENTER
YES

Enter data or answer "YES" to a question.

ALPHA
ABC

Enter alpha or numeric characters or a combination of both depending on the ALPHA key parameter configuration..

ON/OFF

Turn the scale on or off.

0 SPACE – 9 WXYZ, . #:,%

Numeric keys used to manually enter a value for tare weight, average piece weight, sample size etc.

Back Panel Connections

Connections for a second scale, Com1 and Com 2 ports are standard with the Model 675. Connector pin outs are provided in the tables below. Refer to *Table 2* below for the pin of Com 3 and Com 4 ports (optional).

Table 1: Scale 2 DB 9 Connector Pin Out

DB9 pin designation	Function	Load Cell Cable
1	+ Signal	4 or 6 wire
2	- Signal	4 or 6 wire
3	+ Sense	4 wire (connect a wire jumper to pin 8)
4	- Sense	4 wire (connect a wire jumper to pin 9)
5	- Excitation	4 or 6 wire
6	+ Excitation	4 or 6 wire
7	Chassis Ground	4 or 6 wire
8	+ Excitation	4 wire (connect a wire jumper to pin 3)
9	- Excitation	4 wire (connect a wire jumper to pin 4)

If a load cell with a 4 wire cable is being used jumpers will need to be installed between the sense and excitation. The jumpers will be installed on the DB9 connector being installed on the load cell cable. Refer to *Table 1* for pin number designation.

Table 2: Communication Ports 1 -4 Pin Out

DB9 pin designation	Function Com 1	Function Com 2	Function Com 3	Function Com 4
1	No connection	TTL	No connection	No connection
2	RXD	RXD	RXD	RXD
3	TXD	TXD	TXD	TXD
4	+ 5V	+ 5V	+ 5V	+ 5V
5	ISO Ground	Ground	Ground	Ground
6	Ground	Ground	Ground	Ground
7	RTS	RTS	No connection	No connection
8	CTS	CTS	CTS	No connection
9	Remote Key 1	Remote Key 2	No connection	No connection

CHAPTER 2: CONFIGURATION

The GSE 675 Precision Counting Scale comes from the factory with the Application Menu enabled. This is where you will choose the preferred method of parts counting. See the explanations of each method below. After each counting method are the instructions for setting up that method.

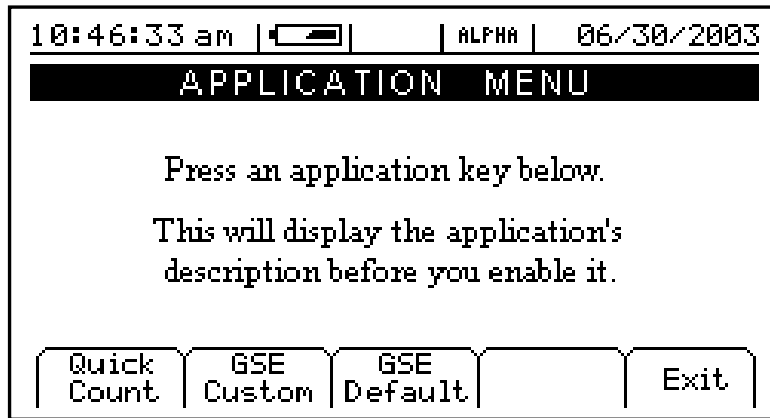Refer to **Chapter 3: Operation** for operating instructions of each method.


```
10:46:33 am |⸦▭▬|        |ALPHA|  06/30/2003
         ▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄
         ░APPLICATION  MENU░

            Press an application key below.

           This will display the application's
           description before you enable it.

        ┌──────┬──────┬──────┬──────┬──────┐
        │Quick │ GSE  │ GSE  │      │      │
        │Count │Custom│Default│     │ Exit │
        └──────┴──────┴──────┴──────┴──────┘
```

Figure 1: Counting Method Choices

F1 Soft Key- Quick Count

The QUICK COUNT mode is designed for performing a quick sample and count. The soft keys are used in secession from left to right to increase speed and ease of parts counting. Basic functionality is offered to simplify operation. Below are the available soft keys and an explanation of their purpose in the QUICK COUNT mode.

F1 **Sample** – Uses default sample size and prompts user to add that many pieces

F2 **Count** – Gives access to the quantity mode.

F3 **Accum** (accumulate) – Maintains a total of quantity accumulations. The current quantity is added to this total each time an accumulation is done.

F4 **Print** – Send specific information to a printer, computer or other peripheral devices.

F5 **Setup** – Access setup menus, see page 7 for further details.

Setup the QUICK COUNT Mode

1. Press ⌊F1⌋ from the APPLICATION MENU. The display will come up with an explanation of the QUICK COUNT menu.

2. At this time you can choose the QUICK COUNT mode by pressing the ⌊ENTER⌋ (YES) or return to the APPLICATION MENU by pressing the ⌊F5⌋ softkey (Exit) or ⌊CLR⌋ (NO).

3. The QUICK COUNT file will load automatically and return to the QUICK COUNT mode.

F2 Soft Key- GSE Custom

Presently APW LOOKUP is the only application offered under GSE Custom. New modes will be added in the near future. Please check out the GSE website gse-inc.com for new updates.

The APW LOOKUP offers the flexibility of storing and recalling part numbers. The average piece weight and part description will be stored and recalled with the part number.

APW LOOKUP

F1   *Sample -* Uses default sample size and prompts user to add that many pieces.

F2   *Store –* Store a part number with average piece weight and description.

F3   *Rec/New –* Add a new part number or recall a part number from the database.

F4   *Desc –* Add a part description.

F5   *Setup -* Access setup menus, see page 10 for further details.

Setup the APW LOOKUP Mode

1. Press the ⌊F2⌋ from the APPLICATION MENU. The display will come up with an explanation of the APW LOOKUP menu.

2. At this time you can choose the APW LOOKUP mode by pressing the ⌊ENTER⌋ (YES) or return to the menu choices by pressing the ⌊F5⌋ softkey (Exit) or ⌊CLR⌋ (NO).

3. The APW LOOKUP file will load and will return to the APW LOOKUP mode.

F3 Soft Key- GSE Default

If the preprogrammed applications are not going to be used, than the Model 675 should be factory defaulted. This mode will reset the Model 675 to GSE factory default status. The preset applications will be lost but can be reestablished at parameter 65002 (See technical reference manual for more details).

The Model 675 can still be used as a parts counter after it is factory defaulted. Refer to page 21 for more details on simple counting.

Setup the GSE DEFAULT Mode

1. Press ⌊F3⌋ from the APPLICATION MENU prompt. The display will give an explanation of the GSE DEFAULT.

2. Press ⌊ENTER⌋ (YES) to accept the choice of GSE DEFAULT and continue or press ⌊CLR⌋ to cancel the default and return to the APPLICATION MENU.

3. If you chose to continue with the default in step 2 the display will ask *ARE YOU SURE?* Either press ⌊ENTER⌋ (YES) to default the unit or press ⌊CLR⌋ to cancel the default and return to the APPLICATION MENU.

Quick Count Configuration Setup Menu

Use the F5 Setup key from the QUICK COUNT screen to gain access to different menus.

Setup F5

Change Sample	Clear Totals	Key-In APW	Setup Menus	Exit
F1	F2	F3	F4	F5

Cal	Display Style	Print Formats	Advance Setup	Exit
F1	F2	F3	F4	F5

See page 15 for complete details on the Advanced Setup Menu.

SETUP

This menu was designed for accessing the items that will need to be changed the most often. Below is an explanation of the choices in the menu. Follow the instructions on the display for each key.

PARAMETER	DESCRIPTION	DEFAULT SETTING	KEYPRESSES
CHANGE SAMPLE	Change the default sample size	10	Key in new sample size and press *Enter* to accept or *F5* to escape
CLEAR TOTALS	Clears the accumulation registers	Not applicable	Press *Enter* to clear totals or *Clr* to escape
KEY-IN APW	Key in an average piece weight for sample	0	Key in new average piece weight and press *Enter* or *F5* to escape
SETUP MENUS	Continues on to the Setup Menus	Not applicable	

⚠ℹ	The YES key is ⎡ENTER⏎YES⎤ the NO key is ⎡CLR NO⎤.

SETUP MENUS

This is the next level of menus, which offer more advanced setup.

PARAMETER	DESCRIPTION	DEFAULT SETTING	KEYPRESSES
CAL	Calibration any of the enabled scales	Not applicable	Key in access code and press *Enter* or press *F5* to escape
DISPLAY STYLE	Chose how the display will appear	Display Style 2	Press either *F1* or *F2* to chose the desired display style or *F5* to escape
PRINT FORMATS	Chose a preformatted printout	Print Style 1	Use *F3* and *F4* to view print format choices. Press *F5* to save the format
ADVANCE SETUP	Continues on to the Advanced Setup Menu	Not applicable	See page 15

CAL (CALIBRATION)

Refer to *Chapter 4: Calibration* on page 23 for complete instructions on calibrating the Model 675.

DISPLAY STYLE

Choose one of the display types and press $\boxed{F5}$ (EXIT) to save the change and return to the main menu.

STYLE 1 – This is the classic GSE 2x5 display. The weight or quantity will be displayed in larger font while the prompts will be to the right of the weight display.

STYLE 2 – This style incorporates the classic GSE 2x5 display along with two smaller displays which will show other parameters. Press the $\boxed{\text{SELECT} \atop \text{MODE}}$ key from the QUICK COUNT to toggle through the different parameter choices.

Large display	Small Display	Small Display
Gross	Net	Tare
Quantity	Net	Tare
Quantity	Net	Piece Weight
Quantity	Tare	Piece Weight
Quantity	Accuracy	Piece Weight
Quantity	Accuracy	Sample Size
Quantity	Sample Size	Piece Weight
Quantity	Quantity Total	Number of Accums

PRESET PRINTOUTS

The preset print formats are viewable on the LCD display. Use the [F3] left arrow and [F4] right arrow keys to view all transmit styles. Chose the desired format by viewing it on the screen. Press the [F5] (EXIT) key to save the format and return to the main menu.

Choice 1

```
Quantity:          30
APW:         0.1234
Tare:          1.515 lb
```

Choice 2

```
Quantity:          30
APW:         0.1234
Tare:          1.515

10:10:00  07/10/2003
```

Choice 3

```
Quantity:          30
Tare:         1.515

Scale #          2
```

Choice 4

```
Part#:
Quantity  55
APW  0.4481
Tare 1.623
```

Choice 5

```
  10.025 lb Gross
  2.500 lb Tare
  7.525 lb Net
```

Choice 6

```
Quantity:          55
QTY Total:       510
Total Accums:    10
```

Choice 7

```
Part#:
Quantity  55
APW  0.4481
Tare 1.623

10:10:00  07/10/2003
```

APW Lookup Configuration Setup Menu

Use the F5 Setup key from the APW LOOKUP screen to gain access to different menus.

Setup
F5

Change Sample	Delete Part#	Key-In APW	Setup Menus	Exit
F1	F2	F3	F4	F5

Cal	Display Style	Print Menu	Advance Setup	Exit
F1	F2	F3	F4	F5

Print Part#s	D-Load Part#s	Print Formats		Exit
F1	F2	F3	F4	F5

See page 15 for complete details.

Comm 1	Comm 2	Display		Exit
F1	F2	F3	F4	F5

Comm 1	Comm 2			Exit
F1	F2	F3	F4	F5

10

SETUP

This menu was designed for accessing the items that will need to be changed the most often. Below is an explanation of the choices in the menu. Follow the instructions on the display for each key.

PARAMETER	DESCRIPTION	DEFAULT SETTING	KEYPRESSES
CHANGE SAMPLE	Change the default sample size	10	Key in new sample size and press *Enter* to accept or *F5* to escape
DELETE PART #	Delete specified part number	Will not show until a part number is established	Key in part # and press *F3*. Press *F5* to enter the setup. Press *F2* to delete part #.
KEY-IN APW	Key in an average piece weight for sample	0	Key in new average piece weight and press *Enter* or *F5* to escape
SETUP MENUS	Continues on to the Setup Menus	Not applicable	Press *F4* to continue

⚠ The YES key is ⏎ENTER/YES the NO key is CLR/NO.

SETUP MENUS

This is the next level of menus, which offer more advanced setup.

PARAMETER	DESCRIPTION	DEFAULT SETTING	KEYPRESSES
CAL	Calibration any of the enabled scales	Not applicable	Key in access code and press *Enter* or press *F5* to escape
DISPLAY STYLE	Chose how the display will appear	Style 2	Press either *F1 – F4* to chose the desired display style or *F5* to escape
PRINT MENU	Choose what information to print out	Not applicable	Continues on to the Print Menu selections
ADVANCE SETUP	Continues on to the Advanced Setup Menu	Not applicable	See page 15

CAL (CALIBRATION)

Refer to *Chapter 4: Calibration* on page 23 for complete instructions on calibrating the Model 675.

DISPLAY STYLE

Different display styles are offered to help customize the Model 675 parts counter to fit your needs. Choose one of the display types and press [F5] (EXIT) to save the change and return to the main menu. By using the [SELECT MODE] select key several modes can be viewed from the APW LOOKUP screen. See the section on *Set Modes* on page 13.

STYLE 1

The top display will show the weight or quantity in larger font while the second display will show the part number in medium font. Press the [SELECT MODE] key from the APW LOOKUP screen to toggle through the different parameter choices.

Large display	Medium display
Gross	Part #
Net	Part #
Tare	Part #
APW (average piece weight)	Part #
% Accuracy	Part #
Last Sample	Part #
Quantity Total	Part #
# Accumulations	Part #
Quantity	Part #

STYLE 2

This style incorporates the classic GSE 2x5 display and a second display, which will show three other parameters. Press the [SELECT MODE] key from the APW LOOKUP screen to toggle through the different parameter choices.

Large display	Small display	Small display	Small Display
Quantity	Part#	APW	Description
Gross	Part#	APW	Description
Net	Part#	APW	Description
Tare	Part#	APW	Description

STYLE 3

This style incorporates the classic GSE 2x5 display along with three smaller displays which will show four other parameters. Press the [SELECT MODE] key from the APW LOOKUP screen to toggle through the different parameter choices.

Large display	Small display	Small display	Small display
Quantity	Gross	Net	Tare
Quantity	Part#	Piece Weight	Tare
Quantity	Net	Tare	Gross Total
Gross	Part#	% Accuracy	Piece Weight
Quantity	Part#	% Accuracy	APW x 100
Quantity	Piece Weight	% Accuracy	Tare

SET MODES

After choosing a display style there are several modes of operation (such as Gross and Quantity) to choose from. These modes are accessible by using the [SELECT MODE] while viewing the APW LOOKUP mode. The ability exists to enable or disable each choice.

1. Press [F4] to access the SET MODES menu.

2. Use the [F1] Next Mode key to toggle through the available modes.

3. Use the [F2] Enable Mode key to enable the mode.

4. Use the [F3] Disable Mode key to disable the mode.

5. Press [F5] to exit back into the APW LOOKUP screen.

PRINT MENU

PARAMETER	DESCRIPTION	DEFAULT SETTING	KEYPRESSES
Print Part#s	Print stored part numbers to printer or computer	Not applicable	Print data to comm. 1, 2 or display. Use *F1, F2 or F3*
D-Load Part#s	Download part number, description, average piece weight and tare weight in comma delimited format	Not applicable	Print data to comm. 1or 2. Use *F1 or F2*
Print Formats	Chose a preformatted printout style	Print Style 1	Use *F3* and *F4* to view print format choices. Press *F5* to save the format

PRESET PRINTOUTS

The preset print formats are viewable on the LCD display. Use the F3 left arrow and F4 right arrow keys to view all transmit styles. Chose the desired format by viewing it on the screen. Press the F5 (EXIT) key to save the format and return to the main menu.

Print# 1

```
P/N:      ABCD123WXYZ
Qty:             30
```

Print# 2

```
P/N:      ABCD123WXYZ
Qty:             30
Tare:          1.02 lb

10:10:00  09/13/2003
```

Print# 3

```
P/N:      ABCD123WXYZ
Qty:             30
Tare:          1.515 lb
10:10:00  09/13/2003
```

Print# 4

```
P/N:      ABCD123WXYZ
Qty:             30
APW:       0.0123456
Tare:          1.515 lb
10:10:00  09/13/2003
```

Print# 5

```
P/N:      ABCD123WXYZ
Qty:             30
APW:       0.0123456
Gross        26.456 lb
Tare:         1.515 lb
Net:         24.941 lb
10:10:00  09/13/2003
```

Print# 6

```
Quantity:       55
#3     Tot:     165
```

Print# 7

```
P/N:      ABCD123WXYZ
Desc:  Red Cable Ties
Qty:             30
10:10:00  09/13/2003
```

Print# 8

```
P/N:      ABCD123WXYZ
Desc:  Red Cable Ties
APW:       0.0123456
Sc#:1  Sampled       2
%Accy          98.555
10:10:00  09/13/2003
```

Print# 9

Reserved for future use.

Custom

CREATE A CUSTOM TRANSMIT FORMAT!

➔ See the Tech Manual for details

➔ Create and load as transmit #130

➔ Your custom transmit will appear in place of this instruction tab.

ADVANCED SETUP MENU

The advanced menu will allow access to the time/date, setup mode and application files. Use the arrow keys to navigate to the desired tab. This is common on the preprogrammed methods of counting such as QUICK COUNT and APW LOOKUP.
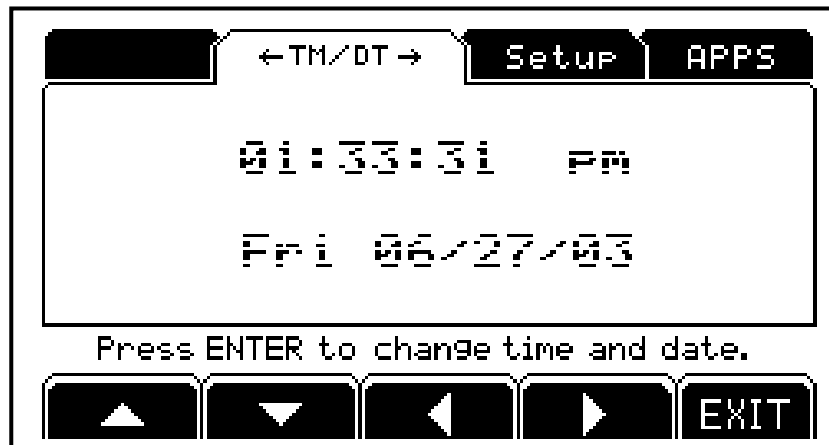
Figure 2: Advanced Setup Menu

TIME/DATE

1. From the time/date tab, press ⏎ to access the configuration screen. The time can be changed with the F1 key. The date can be changed with the F2 key.

2. Key in the time or date by following the format on the display and press ⏎ to accept the entry.

3. Press F5 (EXIT) to return to the main menu.

SETUP MODE ACCESS (SETUP)

This tab allows access to the setup mode to make changes to parameters such as full scale, count accuracy and baud rate etc. Please refer to the 675 Series Technical Reference Manual for details on more advanced setups and configurations. An access code is required to enter the Model 675 setup mode.

CHAPTER 3: OPERATION

This chapter will give detailed operation instructions on how to use each preprogrammed mode.

The Model 675 is designed to operate from the 5 soft keys or the dedicated keys of the keypad. The advantage of using the soft keys is they are placed in succession for easy operation.

TIP	Bypass the GSE splash screen on power up by pressing the $\boxed{\text{CLR}_{\text{NO}}}$ key when the splash screen appears.

Quick Count

Auto Tare Method
1. Sampling Pieces:
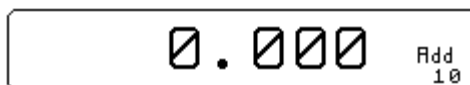
   (a) If a container is used:

   (i) Place an empty container on scale and press the $\boxed{\text{F1}}$ *Sample* or $\boxed{\text{SAMPLE} \diamondsuit}$ key. The scale will automatically tare the container.

   - or -

   (b) If a container is not used:

   (i) Press the $\boxed{\text{F1}}$ *Sample* or $\boxed{\text{SAMPLE} \diamondsuit}$ key without the sample pieces on the scale. The scale will tare to establish a net zero reference.

   $$0.000 \quad \text{Add} \atop \text{10}$$

2. Add the sample pieces and press the $\boxed{\text{F1}}$ *Accept* key to accept the sample.

   $$10 \quad \text{Qty}$$

3. Continue to add pieces to count.

   $$89 \quad \text{Qty}$$

4. Press $\boxed{\text{F3}}$ to accumulate the current quantity to the total quantity.

5. Press $\boxed{\text{F4}}$ to print to a computer, printer or another peripheral device.

Without Auto Tare

1. Sampling pieces:

   (a) If the sample size is known and a container is used:

   (i) Place an empty container on the scale and press ⊞ᵀᴬᴿᴱ key.

   (ii) Place the sample in the container.

   (iii) Key in the sample size and then press the F1 *Sample* or ◇ᔆᴬᴹᴾᴸᴱ

   key. The scale will accept the current weights as a sample and will display the quantity.

   -or-

   (b) If the sample size is known and no container is used:

   (i) Place the sample on the scale.

   (ii) Key in the sample size and then press the F1 *Sample* or ◇ᔆᴬᴹᴾᴸᴱ

   key. The scale will accept the current weights as a sample and will display the quantity.

   Example: 5ᴶᴷᴸ 0ˢᴾᴬᶜᴱ F1 or ◇ᔆᴬᴹᴾᴸᴱ

   ┌─────────────────────────┐
   │   │
   │   50   Qty   │
   │   │
   └─────────────────────────┘

   ⚠ℹ   Use the ᔆᴱᴸᴱᶜᵀ/ᴹᴼᴰᴱ key to check other modes such as the Tare weight and Average Piece Weight. The F2 (Count) can be pressed to return to the count mode at any time.

   ⚠ℹ   After accumulating, the weight must return to zero before another accumulation will be added. The display will show CLEAR WGHT! if the weight is not within the zero threshold. Remove weight and try again. This feature is necessary to avoid double accumulations.

APW Lookup

Follow the steps below to perform a sample and count parts.

SAMPLE AND COUNT

Auto Tare Method

1. Sampling Pieces:
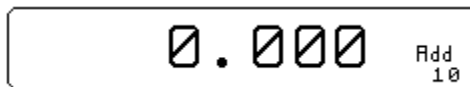
    (a) If a container is used:

    (i) Place container on scale and press the F1 *Sample* or ☐ key. The scale will automatically tare the container.

    - or -

    (b) If a container is not used:

    (i) Press the F1 *Sample* or ☐ key without the sample pieces on the scale. The scale will tare to establish a net zero reference.

    ```
     0.000   Add
                10
    ```

2. Add the sample pieces and press the F1 *Accept* key to accept the sample.

    ```
        10   Qty
    ```

3. Continue to add pieces to count.

    ```
        89   Qty
    ```

Without Auto Tare

1) If the sample size is known and a container is used:

a. Place an empty container on the scale and press ☐ key.

b. Place the sample in the container.

c. Key in the sample size and then press the F1 *Sample* or ☐ key. The scale will accept the current weights as a sample and will display the quantity.

-or-

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1) If the sample size is known and no container is used:

    a. Place the sample on the scale.

    b. Key in the sample size and then press the ⬚F1 *Sample* or ⬚ key. The scale will accept the current weights as a sample and will display the quantity.

<p align="center">Example: ⑤ ⓪ ⬚F1 or ⬚</p>

<p align="center">
┌─────────────────────────────┐
│   50   Qty │
└─────────────────────────────┘
</p>

STORE A NEW PART NUMBER

Part numbers can be stored in a database and can be recalled later with necessary data such as the average piece weight and description.

1. Key in the new part number and press the ⬚F3 (Rec/New) key. The other data fields will be cleared.
2. Follow the directions for sample and count above.
3. If you want to add a part description key in the description and press ⬚F4 (Desc.). Skip this step if the description is not necessary.
4. Press ⬚F2 to store the part number, APW, and description.

UPDATE A PART NUMBER

It is possible to update the data that is stored with a part number.

1. While viewing the part number and data press ⬚F2 (Store). The data will be updated in the database.

RECALL A PART NUMBER

A part number that was stored previously can be recalled to count parts without having to sample the part.

1. Key in the part number to recall and press ⬚F3 (Rec/New).
2. Place pieces on the platform to count.

DELETE A PART NUMBER

Any part number that is stored may be deleted.

1. Recall the part number to be deleted by keying in the part number and pressing [F3] (Rec/New). The part number does not have to be recalled if it already being viewed.

2. Press [F5] (Setup).

3. Press [F2] (Delete Part#). You will be prompted with the part number to be deleted and the choice of deleting the part number or aborting the process. This key will not appear if a part number has not been recalled.

4. Press [CLR NO] to cancel and return to the APW LOOKUP screen or [ENTER ← YES] to continue deleting the part number.

Simple Keypad Sample

Auto Tare Method

1. Sampling Pieces:

   (a) If a container is used - Place container on scale and press the [SAMPLE ◇] key. The scale will automatically tare the container.

   - or -

   (b) If a container is not used - Press the [SAMPLE ◇] key without the sample pieces on the scale. The scale will tare to establish a net zero reference.

$$0.000 \quad \text{Add} \atop \text{10}$$
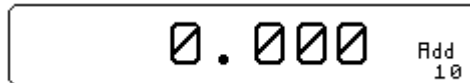
2. Add the sample pieces and press the [SAMPLE ◇] key to accept the sample.

$$10 \quad \text{Qty}$$

3. Continue to add pieces to count.

$$89 \quad \text{Qty}$$

Without Auto Tare

1) If the sample size is known and a container is used:

   a. Place an empty container on the scale and press ⊞ key.

   b. Place the sample in the container.

   c. Key in the sample size and then press the ◇ key. The scale will accept the current weights as a sample and will display the quantity.

<div align="center">-or-</div>

1) If the sample size is known and no container is used:

   a. Place the sample on the scale.

   b. Key in the sample size and then press the ◇ key. The scale will accept the current weights as a sample and will display the quantity.

<div align="center">

Example: 5 0 ◇

</div>

<div align="center">

┌─────────────────────────┐
│   │
│   **50**   Qty   │
│   │
└─────────────────────────┘

</div>

CHAPTER 4: CALIBRATION

The calibration mode is accessible through the configuration menu or from the weigh mode.

Access Calibration from the configuration menu

1. From the main menu press the [F5] (Setup) key.

2. Press [F4] (Setup Menus) key.

3. Press [F1] (CAL) key.

4. Enter the access code and press [ENTER ← YES]

Calibration Methods

There are six methods of calibration. Press [SELECT MODE] to select a calibration method. Press [ENTER ← YES] to begin the calibration method selected. Refer to the appropriate section for calibration instructions.

- **New Zero** - Establishes a new zero (no load) and span (test load) calibration reference.

- **Last Zero** - Performs a span re-calibration without removing the test load. *(This selection is not available with linearization enabled.)*

- **Temp Zero** - Performs a calibration without removing the current gross weight. The zero reference determined during the last calibration is maintained. *(This selection is not available with linearization enabled.)*

- **Only Zero** - Establishes a new zero reference without affecting span.

- **Cal Reset** - Adjusts the zero and gain factors of the A/D amplifier to default values for maximum sensitivity.

- **Known LCOut** - Calibrates without the use of test weights. The mV/V value and full scale capacity of each load cell must be known.

GENERAL NOTES ON CALIBRATION

- Pressing [CLR NO] at any point in the calibration routine moves back one step.

- Pressing [CLR NO] at the New Zero? prompt exits calibration mode.

- A calibration weight can be applied before or after entering the calibration weight value. The display prompts you to Keyin CalWt (key in calibration weight) or Add CalWT (add calibration weight) at the appropriate time.

- The digital filter is automatically set to 4 seconds during calibration.

- A motion delay is enforced during zero and span calibration.

- New calibration values are not permanently saved until the calibration mode is exited and changes are saved by pressing ⏎ at the ENTER=SAVE prompt. If power is lost during calibration, the previously saved calibration values will be in effect when power is restored.

- If replacing one indicator with another, it is possible to set the total gain value (P61108) of the new indicator with that of the original. This will optimize the coarse and fine gain values, greatly increasing the likelihood of a successful calibration on the first attempt.

New Zero

The most common calibration procedure, New Zero establishes a new zero (no load) and span (test load) calibration reference. Use this method for first-time calibration and complete re-calibration.

TO PERFORM A NEW ZERO CALIBRATION:
1. Remove all weight from the scale.
2. Enter calibration as described on page 23.
3. Select the New Zero calibration method as described in *Calibration Methods* on page 23.
4. Press ⏎ at the **New Zero?** prompt to establish the new zero reference.
5. After establishing the zero reference, the default calibration units are displayed momentarily followed by the **Keyin CalWt** prompt.
6. Apply the calibration weight, key in the calibration weight value in terms of the default calibration units and press ⏎ to establish span.

   If the calibration weight value was entered <u>before</u> the weight was applied, the display will prompt **Add CalWT**. Add the calibration weight and press ⏎.

7. After establishing span, **CAL OK?** is displayed suggesting that the calibration is acceptable, or **ReCal???** is displayed suggesting that the calibration procedure should be repeated.
8. Accept the calibration by pressing ⏎ at the **CAL OK?** prompt or ⏎ at the **ReCal???** prompt.

   ~ or ~

   Repeat the calibration by pressing ⏎ at the **CAL OK?** prompt or ⏎ at the **ReCal???** prompt.

9. Once the calibration is accepted in step 6, press ⏎ at the **ENTER=SAVE** prompt and again at the **ENTER=EXIT** prompt to save the new calibration and exit the calibration mode.

    ~ or ~

    To exit the calibration mode <u>without</u> saving the new calibration, press ⏎ at the**ENTER=SAVE** prompt. Then press ⏎ at the **ENTER=UNDO** prompt and again at the **ENTER=EXIT** prompt to exit the calibration mode.

Last Zero

Last Zero allows span re-calibration without removing the applied test weight. The last zero established by pressing ⏎ from the weigh mode will be used as the zero reference. This procedure is especially useful when performing routine tolerance checks on large capacity scales. A scale found to be out-of-tolerance can be easily calibrated without having to remove the test weights to reestablish a zero reference.

<u>TO PERFORM A LAST ZERO CALIBRATION:</u>
1. Remove all weight from the scale.
2. Press ⏎ to zero the scale in the weigh mode.
3. Apply the calibration test weight.
4. Access the calibration mode as described on page 23.
5. Select the Last Zero calibration method as described in *Calibration Methods* on page 23 .
6. Press ⏎ at the **Last Zero?** prompt to display the **Keyin CalWT** prompt.
7. Key in the calibration weight value in terms of the default calibration units and press ⏎ to establish span.
8. After establishing span, **CAL OK?** is displayed suggesting that the calibration is acceptable, or **ReCal???** is displayed suggesting that the calibration procedure should be repeated.
    Accept the calibration by pressing ⏎ at the **CAL OK?** prompt or ⏎ at the **ReCal???** prompt.

    ~ or ~

    Repeat the calibration by pressing ⏎ at the **CAL OK?** prompt or ⏎ at the **ReCal???** prompt.
9. Once the calibration is accepted in step 6, press ⏎ at the **ENTER=SAVE** prompt and again at the **ENTER=EXIT** prompt to save the new calibration and exit the calibration mode.

    ~ or ~

    To exit the calibration mode <u>without</u> saving the new calibration, press ⏎ at the **ENTER=SAVE** prompt. Then press ⏎ at the **ENTER=UNDO** prompt and again at the **ENTER=EXIT** prompt to exit the calibration mode.

⚠	If you choose to "undo" the calibration when exiting the setup mode, you will also undo any unsaved changes made to the setup parameters.

Temporary Zero

Temp Zero is used to calibrate without establishing a new zero. Calibration can be performed without removing the currently applied gross load. A temporary zero is established so that test weights can be added during calibration. The original zero reference determined during the previous calibration is not affected. This procedure is commonly used to calibrate hopper scales where it is impractical to empty the product before calibrating.

TO PERFORM A TEMP ZERO CALIBRATION:

1. Access the calibration mode as described on page 23.
2. Select the Temp Zero calibration method as described in *Calibration Methods* on page 23.
3. Press ⏎ at the **Temp Zero?** prompt to establish a temporary zero reference.
4. After establishing the temporary zero reference, the default calibration units are displayed momentarily followed by the **Keyin CalWT** prompt.
5. Apply the calibration weight, key in the calibration weight value in terms of the default calibration units and press ⏎ to establish span.

   If the calibration weight value was entered <u>before</u> the weight was applied, the display will prompt **Add CalWT**. Add the calibration weight and press ⏎.

6. After establishing span, **CAL OK?** is displayed suggesting that the calibration is acceptable, or **ReCal???** is displayed suggesting that the calibration procedure should be repeated.

   Accept the calibration by pressing ⏎ at the **CAL OK?** prompt or CLR at the **ReCal???** prompt.

   ~ or ~

   Repeat the calibration by pressing CLR at the **CAL OK?** prompt or ⏎ at the **ReCal???** prompt.

7. Once the calibration is accepted in step 6, press ⏎ at the **ENTER=SAVE** prompt and again at the **ENTER=EXIT** prompt to save the new calibration and exit the calibration mode.

   ~ or ~

   To exit the calibration mode <u>without</u> saving the new calibration, press CLR at the **ENTER=SAVE** prompt. Then press ⏎ at the **ENTER=UNDO** prompt and again at the **ENTER=EXIT** prompt to exit the calibration mode.

Only Zero

Only Zero is used for zero calibration only. This calibration procedure is primarily used for the zero reference after changing a scale's dead-load, such as adding safety rails to a scale deck or installing a mixer motor on a hopper scale. Because the full scale capacity is referenced from the last zero calibration, performing a zero calibration helps to ensure that the full scale over-load will not occur prematurely due to the additional dead-load.

TO PERFORM AN ONLY ZERO CALIBRATION:

1. Remove all weight from the scale.
2. Access the calibration mode as described on page 23.
3. Select the Only Zero calibration method as described in *Calibration Methods* on page 23.
4. Press ⏎ at the **Only Zero?** prompt to establish the new zero reference.
5. After establishing zero, **CAL OK?** is displayed suggesting that the calibration is acceptable.
   Accept the calibration by pressing ⏎ at the **CAL OK?** prompt.

   ~ or ~

   Repeat the calibration by pressing ⏎ at the **CAL OK?** prompt.
6. Once the calibration is accepted in step 5, press ⏎ at the **ENTER=SAVE** prompt and again at the **ENTER=EXIT** prompt to save the new calibration and exit the calibration mode.

   ~ or ~

   To exit the calibration mode *without* saving the new calibration, press ⏎ at the **ENTER=SAVE** prompt. Then press ⏎ at the **ENTER=UNDO** prompt and again at the **ENTER=EXIT** prompt to exit the calibration mode.

> ⚠ If you choose to "undo" the calibration when exiting the setup mode, you will also undo any unsaved changes made to the setup parameters.

Calibration Reset

Cal Reset sets the gain factors of the A/D amplifier to minimum values and clears the A/D's zero offset. These gain values are stored in the Information Parameters at P61104 → P61107 (see the *Calibration Parameters* section). A Cal Reset should be performed if calibration is not possible due to an over-load condition, or if the displayed weight value does not change when the test weight is applied.

TO PERFORM A CALIBRATION RESET:

1. Access the calibration mode as described on page 23.
2. Select the Cal Reset calibration method as described in *Calibration Methods* on page23.

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3. Press ⏎ at the `Cal Reset` prompt reset the A/D amplifier.

4. The display prompts `New Zero?`. Proceed with calibration.

⚠ **If an over-load condition exists at the time of calibration, the calibration method prompts are replaced by an**

Over load! message. Press [CLR] **to proceed directly to the Cal Reset procedure.**

Known Loadcell Output

Known LCOut is used to calibrate without test weights. The exact full scale mV/V rating must be known for each load cell. All load cells must be of the same full scale capacity. This procedure works best for hopper scales where weight is evenly distributed and signal trimming is not required.

TO PERFORM A KNOWN LOADCELL OUTPUT CALIBRATION:
1. Access the calibration mode as described on page 23.
2. Select the Known LCOut calibration method as described in *Calibration Methods* on page 23.
3. Press ⏎ at the `Known LCOut` prompt to display `#of LC`.

   The number of load cells specified during the last calibration will also be displayed. A value of zero (0) indicates that this calibration method has not yet been performed.

4. Key in the number of load cells (8 maximum) and press ⏎.

   ~ or ~

   Press ⏎ to accept the displayed value.

5. The display prompts `LC#x mVv` (where 'x' is the load cell number) and then shows the mV/V value (0.1 → 5.0) last entered for this load cell.

6. Key in the load cell's mV/V value and press ⏎.

   ~ or ~

   Press ⏎ to accept the displayed value.

7. Steps 5-6 will be repeated for as many load cells as specified in step 4.

8. The display prompts `LC FS` showing the value last entered for the load cell full scale.

9. Key in the full scale capacity for the load cell(s) and press ⏎.

   ~ or ~

   Press ⏎ to accept the displayed value.

10. The display briefly shows `Updtg Gains` as it updates the gain values, then prompts `CurWt Zero?`.

11. Press ⏎ to establish the current input signal as the zero reference.

    ~ or ~

Press ⌷ to display `Zero=0mVv?`. Press ⌷ to use a 0mV/V output as the zero reference.

~ or ~

Press ⌷ to display `Keyin CurWt`. Key in the known gross weight already applied to the scale and press ⌷.

~ or ~

Press ⌷ to bypass the zeroing option.

12. The display shows `CAL OK?` suggesting that the calibration is acceptable. Accept the calibration by pressing ⌷ at the `CAL OK?` prompt.

    ~ or ~

    Repeat the calibration by pressing ⌷ at the `CAL OK?` prompt.

13. Once the calibration is accepted in step5, press ⌷ at the `ENTER=SAVE` prompt and again at the `ENTER=EXIT` prompt to save the new calibration and exit the calibration mode.
    ~ or ~
    To exit the calibration mode <u>without</u> saving the new calibration, press ⌷ at the `ENTER=SAVE` prompt. Then press ⌷ at the `ENTER=UNDO` prompt and again at the `ENTER=EXIT` prompt to exit the calibration mode.

Multi - Scale Calibration

When more than one scale is enabled, the prompt `Keyin Scl#` appears before accessing the calibration method selections. Key in the scale number to be calibrated and press ⌷. Proceed with a calibration method as described in *Calibration Methods* on page 23. After completing a calibration, the `Keyin Scl#` appears once again. Enter the next scale number to be calibrated, or press ⌷ to exit the calibration mode and save the new calibration data.

CHAPTER 5: LEGAL FOR TRADE

The Model 675 default parameter setup does not ensure compliance with legal-for-trade installations as mandated by local weights and measures authorities. This chapter contains information on NTEP and OIML regulations, sealing and audit trails, and other requirements.

Since legal-for-trade requirements may vary, you must ensure that the Model 675 installed in accordance with all local regulations.

NTEP Requirements

The National Type Evaluation Program (NTEP) is a widely accepted weights and measures standard in the United States, with most states abiding by some or all of the NTEP requirements. A complete list of these regulations is available in the "Handbook 44" publication distributed by the National Institute of Standards and Technology (NIST). For more information, call (301) 975-3058, or visit http://www.nist.gov.

⚠	The Model 675 NTEP Certificate of Conformance (C.O.C.) is **pending**.

In order to configure the Model 675 to comply with NTEP requirements, parameter P440 (NTEP) must be enabled. This ensures the following:

- Serial data will not be received while in the Setup Mode.
- Weight values that exceed the minimum width specified at P240 will be transmitted as dashes "-------".
- Pressing [TARE] with a gross weight of zero (0) pressing 0 [TARE] will not automatically switch to the net mode.
- Printing using the [PRINT] key is only possible from the gross, net or quantity mode.
- Numeric tare entries cannot be received through the serial port.
- Pressing [TARE] with a gross weight of zero (0) will not automatically switch to the net mode.
- Negative tare values are not accepted regardless of the selection for the "Negative Tare Enable" parameter (P162).
- Tare values are automatically rounded regardless of the selection for the "Tare Rounding Enable" parameter (P163).
- Accumulations using the [.] [ENTER] method can only be performed from the gross, net or quantity mode.

Where applicable, enabling the *restrict* parameter will over-ride the current setting of other parameters.

> ⚠ If the counting feature is enabled, NTEP requires a label on the front of the indicator stating *"The counting feature is not legal for trade"*. See *Other Requirements* on page 35 for other application specific considerations.

NTEP CUSTOM SETUP

The "Custom Setup" parameter, P60205 of the information parameters, displays a list of parameters which, if configured improperly, could facilitate fraud in a legal-for-trade installation. A weights & measures inspector might check this parameter and inquire about the configuration of any parameters that appear in this list.

Accessing the Custom Setup List

DO NOT ATTEMPT TO ACCESS THE CUSTOM SETUP LIST DURING CRITICAL WEIGHT PROCESSING! It is important to note that all functions of the operating mode will be suspended immediately upon accessing the information parameters. This includes suspension of weight conversions, deactivation of all setpoints and cancellation of custom transmits. The "Custom Setup" list may be accessed from the weigh mode as shown in the example – *Accessing the NTEP Custom Setup List*. An access code is not required to view this list.

To access the custom setup list:

1. From the weigh mode, key in `6` `0` `2` `0` `5` `SELECT MODE`.
2. The Custom Setup list begins scrolling through each parameter to check. If there are no parameters to check, **Std. Setup** is displayed.
3. The Custom Setup list may be repeated by pressing `ENTER ← YES` at P60205.
4. Press `ZERO →0←` to return to the weigh mode.

Custom Setup Parameters

A setup parameter that appears in the "Custom Setup" does not imply that it is improperly configured. Consider the application and refer to the following descriptions to determine if the parameter is configured appropriately.

P205 – Receive Mode

If the receive mode is enabled for any of the four communication ports, any device connected to that port should not be used to transmit data to the indicator which could facilitate fraud.

P205 will appear in the "Custom Setup" list for each receive port enabled. For example, if the receive mode is enabled for all four ports, the list will display P205∆, P205∆, P205∆, and P205∆.

P240 – Minimum Transmit Width
A weight value that cannot be displayed due to the 6-digit limitation of the standard VF display may not be printed. To ensure this is not possible, P240 must be set to a width of not greater than 7 (6 digits and a decimal point). NTEP must also be enabled at P440. Any weight value that exceeds the minimum width specified will be printed as dashes "-------".

P440 – NTEP Enable
P440 appears in the "Custom Setup" list if disabled.

P9990 – Macro Instance Selection
P9990 appears in the "Custom Setup" list if at least one macro is configured. Macro operation should be checked to verify its conformance to all regulations.

Additional Conformance Considerations

Several parameters must be considered on an individual basis as their configuration may vary with different applications. These parameters include, but are not limited to those listed in Table 3.

Table 3: Additional Conformance Parameters

PARAMETER	DESCRIPTION	COMMENT
P110	Full Scale Capacity	Verify proper scale capacity.
P111	Division Size	Verify allowable scale divisions.
P112	Zero Track	Verify required selection.
P114	Motion	Verify required selection.
P118	Zero Range	Verify required selection.
P212	Print Stability	Verify required selection.
P126 → P130	Multi-Range	Verify proper configuration.
P131 → P134	Unit selection	Verify certifiable unit selection. †
P151 → P154	Custom Units	Verify name and conversion factor.
P600 → P646	Rename Parameters	Verify acceptable names.
† Custom units must be site approved. Lb/oz is not approved for legal-for-trade installations.		

Sealing And Audit Trails

Most legal-for-trade installations will require the Model 675 to be sealed. A sealed indicator cannot be accessed for setup or calibration changes without breaking a physical seal or incrementing an event counter, thus providing evidence of tampering.

The Model 675 has two types of sealing provisions, a physical seal and a three event audit trail counter. Check with your local weights and measures authority to determine your requirements.

PHYSICAL SEAL

The most common sealing method is a lead-wire seal. The Model 675 provides an easy means of applying this type of seal as shown in Figure 4.

Before applying a wire seal, move the program jumper to the 'NO' position as shown in Figure 3. This will prevent access to the Setup and Calibration Modes.
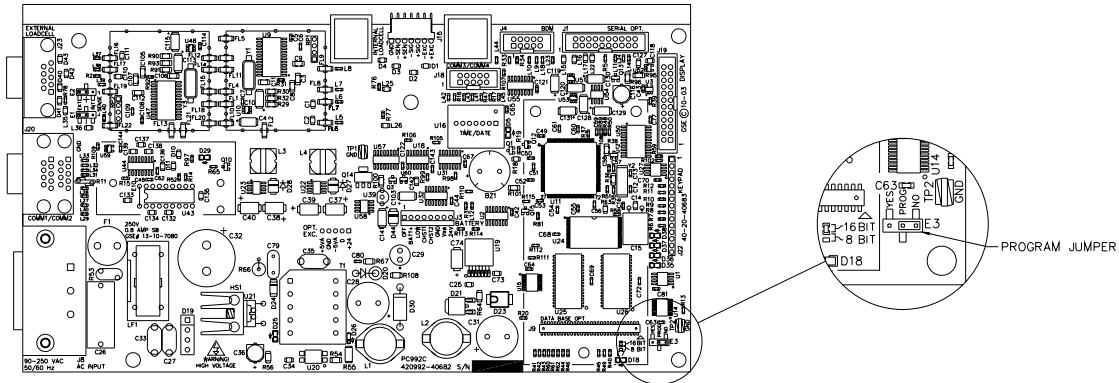
Figure 3: Program Jumper
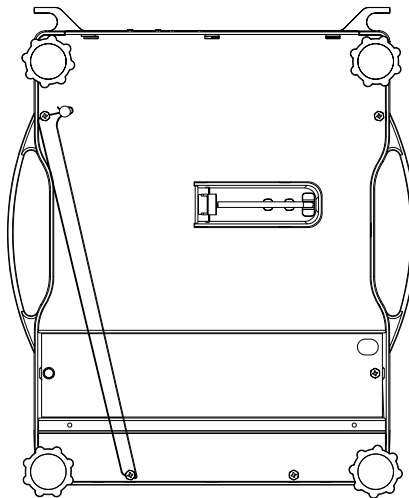
Figure 4: Physical Seal

AUDIT TRAILS

Three separate incrementing, non-resetable audit trail parameters are used by the Model 675 to indicate changes to various parameters, P60201 – OIML, P60203 – Calibration , and P60204 – Setup. An audit trail counter will increment only once upon exiting the Setup Mode and saving changes regardless of how many settings were changed.

OIML Audit Trail

Changes to any of the following parameters will increment the OIML (Euro) audit trail at P60201:

- P109 – P119 (Scale Setup)
- P122 (Return to Zero)
- P131 – P134 (Units)
- P150 – P154 (Calibration and Custom Units)
- P162, P163 (Negative Tare Enable, Tare Rounding Enable)
- P300 – P309 (Selectable Modes)
- P410, P412 (OIML Enable, Preset Enable)
- P420 (Standard VF Display Mode)
- P600 – P646 (Rename Parameters)
- P800 – P820 (Key Functions)
- P989 – P4999 (Custom Transmit)
- P61101 – 61140 (Calibration and Linearization)
- P65001, P65002 (Default All, Default –Cal)

Calibration Audit Trail

Any changes to the existing calibration will increment the Calibration (CAL) audit trail at P60203. This includes any changes to P60101 – P61140 of the information parameters.

Setup Audit Trail

Changes to any of the Setup Mode parameters will increment the setup audit trail at P60204.

Viewing Audit Trail Parameters

Audit trail parameters may be viewed at any time.

To view audit trail parameters:

1. Press ⌑6⌑ ⌑0⌑ ⌑2⌑ ⌑0⌑ ⌑3⌑ ⌑SELECT⌑.

   DISPLAY READS ▶ *Audit ~ Trail~CAL. ~ 00001*

2. Press ⌑SELECT⌑ again to view the Setup Audit Trail parameter.

   DISPLAY READS ▶ *Audit ~ Trail~Setup. ~ 00003*

3. Press ⌑ZERO/>0<⌑ to return to the Weigh Mode.

   DISPLAY READS ▶ *0.00*

OMIL Requirements

The International Organization of Legal Metrology is an inter-governmental body which harmonizes the national metrology regulations of its worldwide members. A list of

regulation publications can be obtained from the Bureau International de Métrologie Légale (BIML) in Paris, France.

In order to configure the indicator to comply with OIML requirements, P410 must be enabled in the setup mode. Doing this will ensure the following:

- An over-load condition will result when the gross weight exceeds nine (9) graduations over the full scale capacity.

- Full scale capacity is always referenced from the last zero calibration reference, not the last zero acquired by pressing ⬜.

- Presettable parameters will give indication that a value has been entered manually

Most NTEP requirements will also apply. See the *NTEP* section of this chapter for additional considerations.

Enabling OIML Operation

See the Model 675 Technical Reference Manual for details on enabling the OIML parameters.

Other Requirements

Several parameters must be considered on an individual basis as their configuration may vary with different applications. These parameters include, but are not limited to:

Parameter	Description	COMMENT
P110	Full Scale Capacity	Verify proper scale capacity.
P111	Division Size	Verify that the maximum allowable number of scale divisions are not exceeded.
P112	Zero Track	Verify required selection.
P114	Stability	Verify required selection.
P118	Zero Range	Verify required selection.
P212	Print Stability	Verify required selection.

CHAPTER 6: TROUBLESHOOTING

Operational Errors

MESSAGE	DESCRIPTION
CodE02 Under Load!	Input signal less than negative full scale. If this is due to excessive loading, reduce the load. Otherwise check the load cell connections. If a 4 wire load cell cable is being used, check that the sense jumpers are in place. Verify that the capacity selection **P110** is correct. Use the information parameters, especially **P61103** and **P61104**, to check the setup and input signal.
CodE03 Over-Load!	Input signal is greater than positive full scale. Use same check as for underload.
CodE04 #> Dsply	Number to be displayed will not fit within 6 digits. This will not normally occur for the Gross, Net or Tare Weights but may result while displaying the accumulated totals if the amount exceeds 999,999. Either clear the totals or settle for only being able to transmit the totals.
CodE05 Zero> Max.!	An attempt was made to zero out more than allowed per **P118** selection. Use the ⌷ key for subtracting off container weights or if large dead-load is always to be present, apply this dead-load during the No Load? prompt during calibration to permanently eliminate the offset.
CodE06 Tare> F.S.!	Tare entry was greater than full scale. Most likely the entered tare value was incorrect.
CodE07 Tare< 0!	Negative tare attempted, but not allowed per **P162**. For auto-tares, the GROSS Weight must be greater than zero unless **P162** is changed to allow negative tares.
CodE08 Check Conn	The signal into the A/D is greater than +/- 2 times the expected full scale signal. For example if the full scale capacity at P110 is 100, then the error message will be displayed at +/- 208 taking into consideration the 4% overload. This error usually indicates a defective or incorrectly wired load cell.

Setup Mode Errors

MESSAGE	DESCRIPTION
CodE 10 Entry >Max!	An entry was made which had more characters than allowed. The most likely cause is making an entry for an ID that is longer than the programmed size of that ID.
CodE 11 WRONG CODE!	The incorrect access code was entered, thus preventing changes. In order to access the Setup Mode, either the proper code must be entered or the ENTER key must be pressed alone (to view selections without making changes).
CodE 12 No Mods!	The Setup Mode is being accessed, but changes are prevented.
CodE 13 Outof Range	An entry made for a selection was beyond the range of valid choices. Also, an out of range error will occur during the execution of a macro utilizing the "%m" command. For example, If the command wants to strip out characters 5 through 8 and the string is only set for 2 characters, this error will occur.

MESSAGE	DESCRIPTION
`CodE 14` Must Keyin	The choice for the current parameter must be keyed in.
`CodE 15` Size >Max!	The size of one of the input interpreter, macro or custom transmit tables has exceeded it's limit. Input interpreter size is limited to 198 for 660 Series, 98 for all other products; macro size is limited to 9996; custom transmit size is limited to 3997.
`CodE 16` CHECK JUMPR	A programming operation was attempted when the program jumper is installed. Installation of this jumper will prohibit any programming changes.

Hardware Errors

| MESSAGE	DESCRIPTION
No Macro	An attempt was made to abort a macro when no macros were defined.
Macro error	An error occurred during macro execution. Check for proper syntax. Analyze the macro debug buffer to help determine the cause of the error.
No Start	A serial or A/D database collection command (%' or %*) was executed prior to the "start collection" command.
Must Free	A serial or database start collection command (S%' or S%*) was issued without first freeing memory with the F%' or F%* command.
Wrong Parm	The parameter specified for data collection using the %* command was invalid or not of type float.
`CodE81` Macro Stack	The maximum number of macros pushed onto the stack has been exceeded. This error usually indicates that macros are being invoked faster than they can be executed (for example, macros invoked by continuous, short-interval input setpoints, multiple macro "calls", etc.) The maximum number of macros on the stack is 200.
`CodE82` Macro Abort	A macro was aborted from within a macro via one of the macro abort operations or from the front keypad by pressing $\boxed{\text{CLR}}$ **+** $\boxed{\text{SELECT}}$
`CodE83` Macro UnDef	A call or similar reference to an undefined macro occurred. Make sure the intended macro is configured beginning at P9990.
`CodE84` Math error	An incorrect math operation has been performed. This could be caused by trying to divide by zero or any other non-acceptable algebraic operation. This message will also occur if trying to take the negative or zero modulus of a number.
`CodE85` Syntx Error	An error occurred during macro execution as the result of invalid syntax. Re-check the macro or analyze the macro debug table to find out where the error occurred. Refer to *Chapter 9* for proper macro syntax.
`CodE86` Macro Brace	The number of opening and closing braces within a macro are different. When nesting conditional statements or grouping conditional Boolean statements, make sure the proper use the %{ and %} brace commands.
`CodE87` NoTag Found	An attempt was made to jump to an undefined tag. When using simple jump-tag commands, make sure the intended tag is properly specified and that the tag command is executed **before** the jump. When using macro-independent jump-tag commands, make sure the correct macro number is specified and that the jump text matches that of the tag.

Calibration Errors

MESSAGE		DESCRIPTION
CodE92	✓Stpt Setup	A parameter entry is required for a setpoint's Activation Limit, Deactivation Limit, or Compare parameter. Pressing any key will automatically select the offending parameter and allow you to correct it.
CodE95	SyErr NvRam	The EEPROM size is too small to allocate the database requested.
CodE95	SyErr HSR00	An error occurred at startup or during operation. Contact GSE.
CodE95	SyErr Typ04	An error occurred at startup. Contact GSE.
CodE96	Erase Boot!	An attempt was made to enter an instrument serial number or board serial number with the flash already programmed.
CodE99	Can't Set!	An attempt to enter a value for a parameter which is not field changeable, such as the serial numbers or the audit trail counter results in this message.
P___	Invld Mode!	An attempt was made to access a non-existent parameter. Key in a valid parameter and press [SELECT MODE], or press only [SELECT MODE] or [SCALE SHIFT] to proceed to the nearest lower valid parameter.
	Mode <100!	An attempt was made to access a weigh mode parameter from within the setup mode. Valid setup mode parameters contain three or more digits.
	Press Enter	The [SELECT MODE] key was pressed at a "pick instance" prompt. You must press [ENTER YES] to select an instance, or [CLR NO] to abort the instance entry.
	Okay? #####	This is not an error. Press [ENTER YES] to acknowledge your entry, or [CLR NO] to re-enter.
	Cksum error	Upon each power-up, the indicator tests the integrity of its firmware. If the result is not correct this message is displayed and the indicator is not usable. ReFlash the indicator.
	MdBus Max!	An attempt was made to modify the modbus parameter map past its limit of P6999.

Communication Errors

MESSAGE	DESCRIPTION
prtyX error	The parity of a received character did not match the parity specified in the setup mode at P202. This could also result if the baud rate (P200) or the number of data bits (P201) are incorrect. The 'X' in the error message represents the COMM port number on which the problem occurred.
ovrnX error	An overrun error occurred where additional characters were received while the receive buffer was full. The additional characters will be lost. The 'X' in the error message represents the COMM port number on which the problem occurred.
frmgX error	The stop bit of a received character did not occur when it was expected. This could be the result of an incorrect baud rate (P200), incorrect number of data bits (P201), or incorrect parity setting (P202). The 'X' in the error message represents the COMM port number on which the problem occurred.

MESSAGE	DESCRIPTION
portX error	The indicator did not check its receive data register in time, thus missing a character. To prevent the problem, try reducing the baud rate (P200). The 'X' in the error message represents the COMM port number on which the problem occurred.
NoTxX Allow	Associated with Modbus. This is selected at P205. This message indicates that a transmission out the specified port was attempted. This is not acceptable if the port is set for Modbus. The 'X' in the error message represents the COMM port number on which the problem occurred.
tx on hold	Occurs if a data transmission is held up for two seconds of more due to a deasserted handshake. Refer to the description of parameter P209 for more information.
tx abort	Occurs if the $\boxed{\text{CLR}_{\text{NO}}}$ key is pressed when the tx on hold error message is shown or if P209 is set for abort and the transmit buffer becomes full.
tx Con'd	Appear briefly when the handshake is re-asserted after the tx on hold message occurs.
BadTx Port	Appears briefly after an attempt was made to put a byte in an invalid comm port receive buffer.
Wrong Comm#	An invalid communication port number was specified.

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