GSE Model 675

PRECISION COUNTING SCALE

USERS GUIDE

Version 1.0

SPX | GSE **scale systems**

Model 675

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Version 1.0

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.

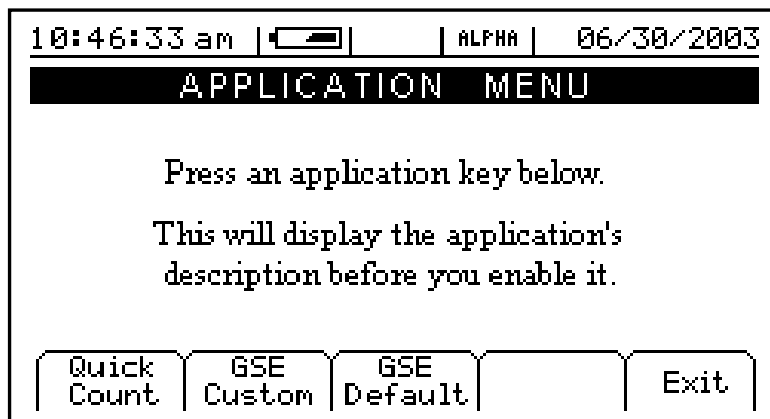Refer to **Chapter 3: Operation** for operating instructions of each method.

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

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 performed.

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).
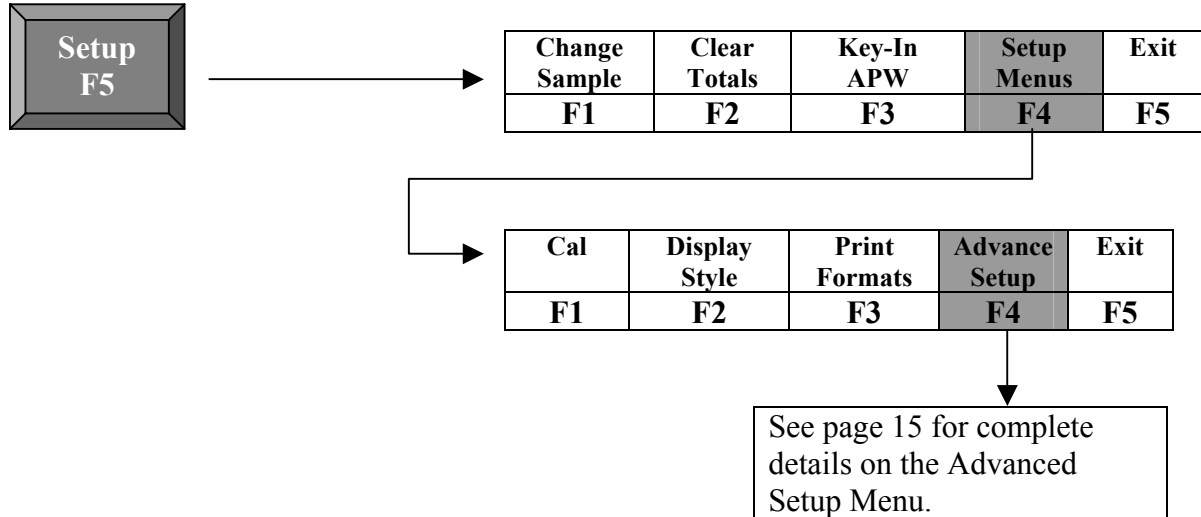
The Model 675 can still be used as a parts counter after it is factory defaulted. Refer to page 35 for more details on simple counting.

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 CLRNO.

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 37 for complete instructions on calibrating the Model 675.

DISPLAY STYLE

Choose one of the display types and press 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 SELECT 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
```
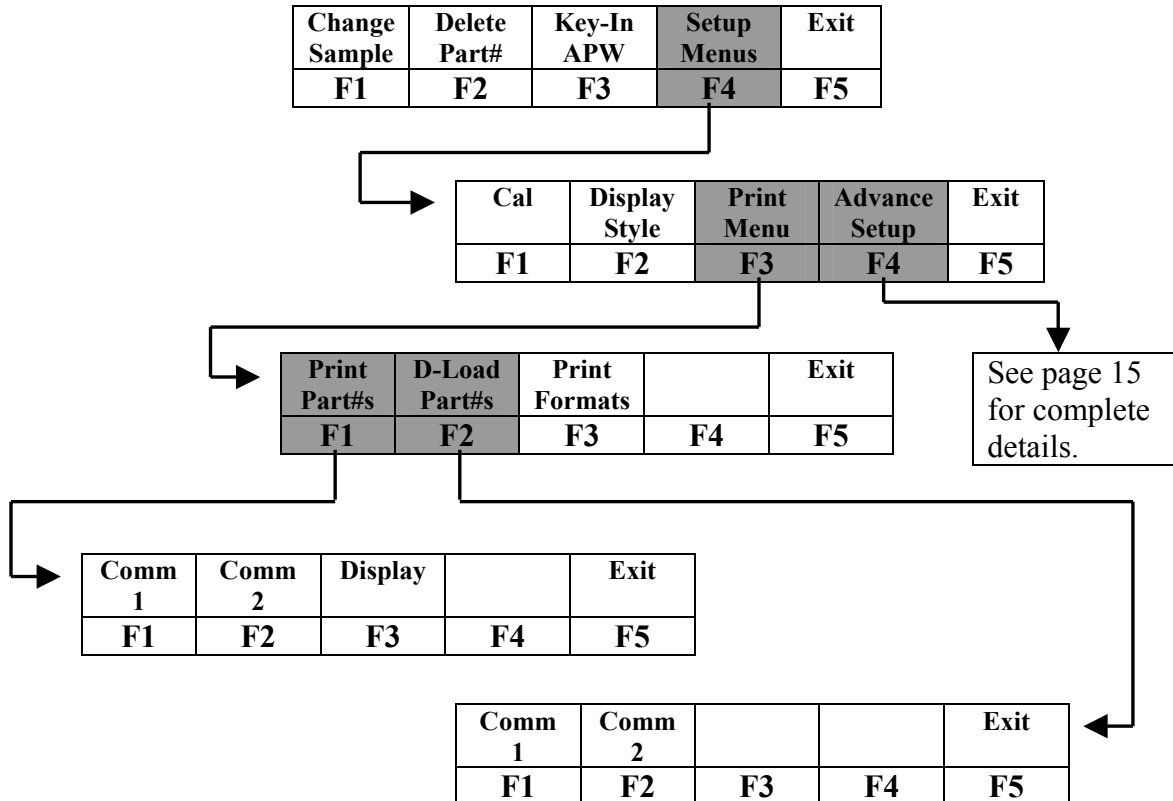
Choice 7

```
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

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 the NO key is ⌨CLR.

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 37 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 $\boxed{F3}$ left arrow and $\boxed{F4}$ right arrow keys to view all transmit styles. Chose the desired format by viewing it on the screen. Press the $\boxed{F5}$ (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.
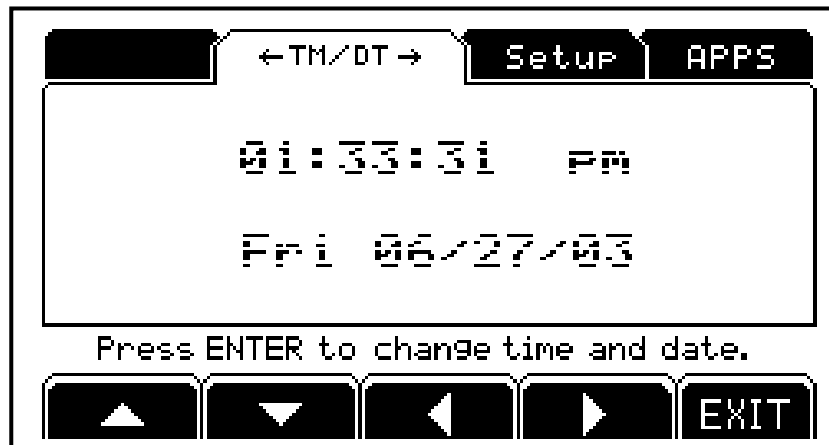

Figure 2: Advanced Setup Menu

TIME/DATE

1. From the time/date tab, press [ENTER] 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 [ENTER] 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 60 Series Technical Reference Manual for details on more advanced setups and configurations. The Model 675 Technical Reference Manual will be released in September 2003. An access code is required to enter the Model 675 setup mode.

NAVIGATING SETUP PARAMETERS

Once you have entered the setup mode you can move freely through all parameters to view and/or change any parameter's configuration.

Advancing Through Parameters

Press [SELECT/MODE] to advance sequentially through all parameters. Multiple-instance parameters will be repeated for each enabled instance.

Press [SCALE SELECT] or [•] [SELECT/MODE] to move back one parameter.

Accessing A Specific Parameter

Key in a parameter number and press [SELECT] to access that parameter directly. For example,

[3][0][0][SELECT]

will take you directly to P300 from any other parameter.

PARAMETER TYPES

There are three types of setup parameters – parameters that require a value to be keyed in, parameters that require a numeric entry representing one selection from a list of choices and parameters that require the entry of an operating parameter.

Key-In Value Parameters

A key-in value parameter requires a number or name to be entered. The entry will

```
P110.          F.S.0
               100.0
```

appear as the new parameter value exactly as it was keyed in.

To change the value of a key in parameter, simply key in the desired value and press **[ENTER]**. For example,

[1] [0 SPACE] [0 SPACE] [0 SPACE] [ENTER ←| YES]

will change the full scale capacity to 1000.

Selectable Value Parameters

A selectable value parameter requires the entry of a numeric value that corresponds to a selection from a list of choices. The number entered will be displayed to the right of the parameter number and the lower portion of the prompting display will show the text equivalent of the selection. Examples of selectable value parameters are units (P131), baud rate (P200) and beeper volume (P460).

Access the parameter that you want to change. In this example we will use parameter 200.

```
P200.02        Baud0
               9600
```

If you know the number of the selection it can be keyed in. For example you want the baud rate to be 57600 and we know the selection number is 11. Key in 11 and then press [ENTER ←| YES].

[1] [1] [ENTER ←| YES]
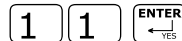
The baud rate will change to 57600. If you don't know the selection number you can press [ENTER ←| YES] to scroll sequentially through all selections.

```
P200.11    Baud⬛
           57600
```
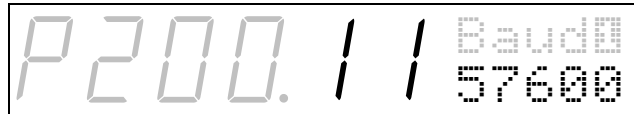
CLEARING AN OPERATING PARAMETER

If you wish to clear an operating parameter rather than enter a new one, key in
[9 WXYZ] [9 WXYZ] [ENTER ←YES] as the operating parameter selection. The display will show
None! as the operating parameter name.

EXITING THE PARAMETER SETUP MODE

You can exit the setup mode from any parameter by pressing [ZERO >0<] to initiate the
exit routine. When exiting you are given the opportunity to calibrate and save or
undo all changes you made while in the setup mode.

Exit and Save Changes
The most common procedure for exit the setup mode is pressing
[ZERO >0<] [CLR NO] [ENTER ←YES] [ENTER ←YES]

to exit and save all changes without calibrating the scale. With each keystroke
you are prompted through the exit sequence (see example: *Exiting & Saving
Changes*).

Exit and Undo Changes
You can exit the setup mode without saving any parameter changes by pressing
[CLR NO] at the **ENTER=SAVE** prompt. The display will then show

```
SEtUP      ENTER
           =UNDO
```
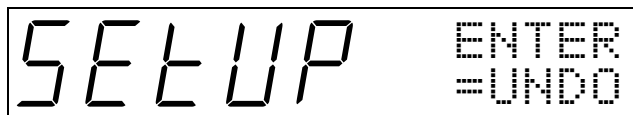
at which point you can press [ENTER ←YES] to undo all changes and **[ENTER]** again
at the **ENTER=EXIT** prompt to exit without saving.

Cancel Exit

Pressing [SELECT MODE] at any time while exiting the setup mode will cancel the exit routine
and revert to the last parameter accessed. If changes were already saved,
returning the setup mode before exiting will not undo changes.

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SETUP PARAMETER MAP

Table 3 lists all setup mode parameters for the 60 Series Instrumentation. Parameters and selections apply to all 60 Series Instruments except as otherwise noted.

Table Key:

M   Multiple Instance Parameter
L   Select from List
K   Key-In Parameter
P   Operating Parameter

Table 3: Parameter Map

SETUP PARAMETER	M	L	K	P	DESCRIPTION	SELECTIONS
Scale Configuration						
P 108.01 Scale 1	✓				**Scale Instance Selection** *(Defines instance for P109 → P136)*	Scale: 1 → 4
P 109.02 Scl Enbld	✓	✓			**Scale Enable**	Disabled, Saved, Enabled
P 110. F.S. 100.0	✓		✓		**Full Scale Capacity**	0.01 → 1,000,000
P 111.09 1div .01	✓	✓			**Division Size**	0.00001 → 500
P 112. ZTAr 1.0 d	✓		✓		**Zero Track Divisions**	Off, 0.1d → 20.0d *(Enter as 0 → 200)*
P 113. ZTDl 0.5 s	✓		✓		**Zero Track Delay**	0.05s → 10.0s *(Enter as 0 → 100)*
P 114. Motn 1.0 d	✓		✓		**Motion Divisions**	Off, 0.1d → 20.0d *(Enter as 0 → 200)*
P 115. MtDl 1.0 s	✓		✓		**Motion Delay**	0.05s → 10.0s *(Enter as 0 → 100)*
P 116.09 Fltr 4.0sA	✓	✓			**Digital Filter**	Off, 0.06s → 8.0s
P 117. Rate 0.05s	✓		✓		**Display Update Rate**	0.05s → 20.0s *(Enter as 0 → 200)*
P 118.12 Zrng 100.%	✓	✓			**Zero Range**	0.01% → 100%
P 119.00 Lnrz Disbl	✓	✓			**Linearization**	Disabled, Enabled
P 122.03 RTZ 0.1%	✓	✓			**Return To Zero**	0.01% → 100%
P 123. RMac 191					**Return to Zero Macro**	None, 1 → 250
P 124. QRes 0.000	✓		✓		**Count Resolution** *(P179 must be 'Enabled')*	100.0 → 1,000,000
P 125. EFac 1.000	✓		✓		**Count Adjustment Factor** *(P179 must be 'Enabled')*	0.100 → 20.00
P 131.00 Unit lb	✓	✓			**First Units**	lb = pounds kg = kilograms oz = ounces
P 132.01 Unit kg	✓	✓			**Second Units**	g = grams ton = US tons
P 133.09 Unit NONE	✓	✓			**Third Units**	t = metric tons ????1 = custom unit 1 ????2 = custom unit 2

Setup Parameter	M	L	K	P	Description	Selections
P 134.09 Unit▮ NONE	✓	✓			**Fourth Units**	lb oz = pounds & ounces NONE = disable units 2, 3, 4
P 150.00 UNITS =lb		✓			**Default Units**	Same as P131 → P134
P 151. Unam1 ????1			✓		**Custom Unit1 Name**	Name Entry *(5 characters maximum)*
P 152. Ucon1 1.000			✓		**Custom Unit1 Conversion Factor**	0.000001 → 9,999,999
P 153. Unam2 ????2			✓		**Custom Unit2 Name**	Name Entry *(5 characters maximum)*
P 154. Ucon2 1.000			✓		**Custom Unit2 Conversion Factor**	0.000001 → 9,999,999
Tare Functions						
P 162.00 TrNEG Disbl		✓			**Negative Tare Enable**	Disabled, Enabled
P 163.01 TrRND Enbld		✓			**Tare Rounding Enable**	Disabled, Enabled
P 164.01 NZtrk Enbld		✓			**Net Zero Tracking**	Disabled, Enabled
P 170.01 AnOut 1	✓				**Analog Output Instance Selection** *(Defines instance for P171 → P176)*	Analog Output: 1 → 4
Analog Output *(P171 must be enabled to access P172 → P176)*						
P 171.00 AOut▮ Disbl	✓	✓			**Analog Output Enable**	Disabled, Enabled
P 172.00 Parm▮ Gross	✓			✓	**Output Parameter**	Valid Operating Parameter
P 173.99 F.S.▮ None!	✓			✓	**Full Scale Output**	
P 174.99 Zero▮ None!	✓			✓	**Zero Offset**	
P 175.99 Rnge▮ None!	✓			✓	**Output Signal Range**	
P 176.00 Dflt▮ Max	✓	✓			**Default Output in Setup Mode**	Maximum, Minimum, Same
P 177.00 Type▮ 0-10v	✓	✓			**Output Signal Type**	0-10VDC, 0-20mA, 4-20mA
Counting *(P179 must be enabled to access P180 → P189)*						
P 179.01 Count Enbld		✓			**Count Enable**	Disabled, Enabled
P 180.00 ASmpl off		✓			**Auto Sample Enable**	Off, On
P 181.01 AEnhn on		✓			**Auto Enhance Enable**	Off, On
P 182.10 SmpSz 10			✓		**Default Sample Size**	1 → 9999
P 183. %Accy 98.52			✓		**Required Accuracy**	0, 90% → 99.96%

SETUP PARAMETER	M	L	K	P	DESCRIPTION	SELECTIONS
P 184.00 AcDsp off		✓			**Accuracy Display Enable**	Off, On
P 185.00 PreSm None!		✓			**Pre-Sample Scale**	Scale: None, 1 → 4
P 186.00 AftSm None!		✓			**After-Sample Scale**	Scale: None, 1 → 4
P 187.06 SmpFl 4.0 s		✓			**Sample Filter**	None, 0.13s → 8.0s
P 188.00 AcEnf off		✓			**Enforce Sample Accuracy**	Off, On
P 189.00 SmpMt 0.0 d			✓		**Sample Motion Divisions**	0.0d → 1.5d *(Enter as 0 → 15)*
P 190.00 Prmpt M675	✓	✓			**ample Enhance Prompt**	M675, M574
Communication Ports						
P 199.01 Port☐ 1	✓				**Serial Port Instance Selection** *(Defines instance for P200 → P219)*	Port: 1 → 4
P 200.02 Baud☐ 9600	✓	✓			**Baud Rate**	115K*, 112K*, 57600*, 56200*, 39300, 38400, 19200, 9600, 4800, 2400, 1200, 600, 300, 150 * *Available for comm1 only*
P 201.01 Data☐ 8bits	✓	✓			**Data Bits**	7, 8
P 202.00 Prty☐ none	✓	✓			**Parity**	None, Even, Odd
P 203.00 Stop☐ 1bit	✓	✓			**Stop Bits**	1, 2
P 204.02 Flow☐ Xon	✓	✓			**Handshaking**	None, CTS, Xon, Both
P 205.01 Recv☐ Std	✓		✓		**Receive Mode**	Disabled, standard, Macro 4 → 250
P 206.00 Full☐ delay	✓	✓			**Transmit Mode**	Delay, Abort
P 207. TxBf☐ 512	✓		✓		**Transmit Buffer Size (bytes)**	8 → 16255
P 208. RxBf☐ 1024	✓		✓		**Receive Buffer Size (bytes)**	8 → 16255
P 217. NoNUL Disbl	✓		✓		**NULL Character Enable**	Disabled, Enabled
P 218. RxTrm <LF>	✓		✓		**Receive Termination Character**	0 → 255 *(Enter as .000 → .255)*

SETUP PARAMETER	M	L	K	P	DESCRIPTION	SELECTIONS
Networking (RS-485)						
$P250.00$ NtWrk Disbl		✓			**Network Enable** *(Applies to communication port #1 only)*	Disabled, Enabled
$P251.00$ Addrs Disbl			✓		**Network Address** *(P250 must be 'Enbld', P205 not 'Modbs')*	0=Disable, 4 → 254
LCD Display Setup						
$P420.01$ Bklt ON		✓			**Backlight**	Off, On, Auto
$P423.10$ BriBL 100%		✓			**Backlight Brightness**	10% → 100%
$P430.12$ Contr 12		✓			**LCD Contrast**	0 → 255
Total & Tare Save						
$P660.02$ TotSv Auto		✓			**Total Values Save Method**	No Save, On Request, Auto
$P661.00$ TarSv NoSav		✓			**Tare Value Save Method**	No Save, On Request, Auto
Alpha Key Setup						
$P806.$ IDUse Alpha		✓			**ID Key Function**	0=None, 1=Menu, 2=Dbase, 3=Mn&DB, 4-250=Macro, 251=Alpha
$P840$ Alpha N&U&L		✓			**Alpha Key Function**	N&U&L, U&L, Uonly, Lonely, Nonly, N&U, N&L,
$P841.02$ Atime 1.5 s		✓			**Auto Advance Alfa Timer**	1 sec – 3 sec

PARAMETER DESCRIPTIONS

This section provides a brief description of each setup parameter. Parameters are presented in numeric order. Refer to this section when installing options to ensure proper configuration.

Scale Configuration
The scale configuration parameters provide the basic configuration for each enabled scale.

P108: Scale Instance
Sets the scale# in effect when accessing the remainder of the scale configuration parameters P109 → P145.

P109: Scale Enable
Determines whether the scale in effect at P108 is disabled, saved or enabled.
When a scale is **disabled**, the scale is not accessible from the weigh mode. All of the scale's setup parameters (P110 → P145) are disabled for viewing in the setup mode and any previous configuration for that scale is lost. Calibration data for that scale is also lost along with A/D calibration values. Therefore, do not disable a scale if you intend to re-enable it. Instead select the save option.

A **saved** scale is not accessible from the weigh mode, however all scale configuration including calibration data and A/D calibration values are retained. Thus a saved scale can be re-enabled without having to be reconfigured or re-calibrated.

An **enabled** scale is a fully active scale accessible from the weigh mode for viewing via the ⬚ key. All weight-based operating parameters for the enabled scale will be considered valid instances when using them in macros or when assigning operating parameters to setup parameters.

P110: Full Scale Capacity
Sets the scale's full scale capacity. The capacity is entered in terms of the default units specified at P150. Capacity entries of 100,000 or greater will be displayed with the 'kilo' abbreviation (i.e. 100K).

An overload condition is considered to be 104% of full scale.

P111: Division Size
Selects the scale's division size. Pressing ⬚ will automatically select the nearest division size less than or equal to 10,000 based on the capacity selected at P110.
P112: Zero Track Divisions Selects the number of zero tracking divisions to a resolution of 0.1 divisions. For example, an entry of **35** will be accepted as ±3.5 divisions of zero tracking. If the live weight on the scale remains within the zero tracking range for a period of time specified by the zero track delay (P113), then the weight is tracked to center-of-zero.
Note that when the weight on the scale falls within the zero tracking range, the weight is not displayed providing a visual indication that zero tracking is in effect.

P113: Zero Track Delay
Selects the zero track time delay to a resolution of 0.1 seconds. For example, an entry of 15 will be accepted as 1.5 seconds.

P114: Motion Divisions
Selects the number of motion divisions to a resolution of 0.1 divisions. For example, an entry of **35** will be accepted as ±3.5 divisions of motion. If the live weight on the scale remains within the motion range for a period of time specified by the motion delay (P115), then the weight is considered to be stable.
Note that when the weight on the scale is considered to be in motion, the units will be not visible on the display. The units will be displayed once the scale becomes stable.

P115: Motion Delay
Selects the motion time delay to a resolution of 0.1 seconds. For example, an entry of **25** will be accepted as 2.5 seconds.

P116: Digital Filter
Selects the degree of A/D filtering used in calculating weight-based parameters. The longer the filter duration, the more stable the weight will appear. However, increasing the filter duration will also result in a slower response to rapidly changing weights and may therefore be undesirable in applications that require a prompt and accurate response to weight fluctuations. Auto-filter selections (identified as 'sA') can be used in such

situations to provide a stable reading (heavy filter) when weight changes are small and switch to a light filter when the rate of change in weight increases.

P117: Display Update Rate
Selects the display update time delay to a resolution of 0.1 seconds. For example, an entry of **5** will be accepted as 0.5 seconds. The display update rate does not provide any filtering effects. It can be thought of as a shutter, controlling how often the display is updated to view the current weight value.

P118: Zero Range
Selects the amount of weight as a percentage of full scale that can be zeroed out using the **[ZERO]** key.

P119: Linearization
Enables the five-point linearization feature used during load cell calibration.

P122: Return-to-Zero
Selects a weight threshold as a percentage of full scale below which the gross weight must fall before another accumulation can be performed.

P123: Return-to-Zero Macro
If you want to run a macro after an accumulation and the return to zero condition is met, enter the macro number at this parameter.

P124: Count Resolution
Selects the internal count resolution used in determining the quantity.
Normally this is set to zero (0) which uses the maximum internal resolution when determining the quantity. However, when displaying a very large count of very light pieces, the display may appear unstable. Decreasing the count resolution will increase the count division size, thus making the count appear more stable.

P125: Count Adjustment Factor
Assigns a conversion factor to the number of additional pieces that can be added and still ensure the required accuracy is met. For example, if the adjustment factor is 1.0 and the display reports you can add up to 200 additional pieces after performing a sample, changing the adjustment factor to 0.1 would allow you to add up to 2000 pieces – changing the adjustment factor to 10.0 would only allow you to add up to 20 pieces.

P131 – P134: Units
Assigns the units selectable via the ⊞ key from the weigh mode. The units assigned at P131 will become the power-up units for the scale presently specified at P108. Three additional units can be assigned at P132 → P134 for access via the ⊞ key.

The units parameters are used to assign the default units of measure and provide custom unit configuration.

P150: Default Units

Selects the scale's default units of measure. All weight-based parameter values are stored in terms the default units.

P151 – P154: Custom Units

Configures up to two (2) custom units of measure. P151 and P153 are used to assign the name for custom unit 1 and custom unit 2 respectively. P152 and P154 are the conversion factors for custom unit 1 and custom unit 2 respectively. The conversion factor is a conversion from the default units specified at P150.
Tare Functions
The tare functions are used to enable the negative tare and tare rounding features.

P162: Negative Tare

Enables the entry and use of negative tare values.

P163: Tare Rounding

Enables tare rounding. When enabled, the tare value is stored internally to the display resolution. This is done to ensure that the addition of multiple tare and net values will yield the correct sum when compared to the displayed values. When disabled, the tare value is stored to a higher precision and may result in a discrepancy between the accumulation of tare and net values as compared to the displayed values.

P164: Net Zero Tracking

Enables zero tracking in the net mode. If the net weight is withing the zero track range, it will be tracked to zero.
Analog Output
The analog output parameters provide configuration of the analog output modules.

P170: Analog Output Instance

Sets the analog output# in effect when accessing the remainder of the analog output configuration parameters P171 → P177.

P171: Analog Output Enable

Enables the analog output currently specified at P170.

P172: Output Parameter

Assigns the operating parameter that the analog output will track.

P173: Full Scale Output

Assigns the full scale analog output. If set to "*None!*" the full scale capacity assigned at P110 is assumed. To specify a different full scale value, assign a variable to P173. Then, assign the desired full scale value to the assigned variable. It is advisable to configure the variable for auto-save at P684 to ensure the value is retained during power loss.

P174: Zero Offset

Assigns the zero offset for the analog output. If set to "*None!*" the full zero offset is assumed to be zero (0). To specify a different zero offset value, assign a variable to P174. Then, assign the desired zero offset value to the assigned variable. It is advisable to configure the variable for auto-save at P684 to ensure the value is retained during power loss.

P175: Output Signal Range

Assigns the signal range for the analog output. If set to "*None!*" the signal range is assumed to be the maximum allowable output (10V or 20mA). To specify a different signal range value, assign a variable to P175. Then, assign the desired signal range value to the assigned variable. It is advisable to configure the variable for auto-save at P684 to ensure the value is retained during power loss.

If the output signal range is specified to be 5 for a 0-10VDC output, then the maximum output will be linearized between 0 VDC (with no zero offset) and 5 VDC at full scale. If the output signal range is specified to be 16 for a 4-20mA output, then the maximum output will be linearized between 4mA (with no zero offset) and 16mA at full scale.

P176: Default Output in Setup Mode

Selects the analog output signal level when entering the setup mode. When you enter the setup mode, the A/D conversion process and all weight calculations are suspended. Thus the analog output can no longer track the value of a weight-based parameter.
Select **Max** to generate the maximum analog output signal while in the setup mode (10V or 20mA).
Select **Min** to generate the minimum analog output signal while in the setup mode (0V or 0mA or 4mA).
Select **Same** to keep the analog output at the same level it was at immediately prior to entering the setup mode.

P177: Output Signal Type

Selects the analog output signal type (0-10VDC, 0-20mA or 4-20mA).
Counting
The counting parameters provide configuration of the counting feature.

P179: Count Enable

Enables the counting feature and makes P124, P125 and P180 → P189 available for configuration. It also makes all of the counting operating parameters available as valid parameter selections.

P180: Auto Sample Enable

Enables the auto sample feature. When the auto sample feature is in effect, a quantity will be automatically calculated upon stability after adding the sample.

P181: Auto Enhance Enable

Enables the auto enhance feature. When the auto enhance feature is in effect, adding additional pieces will result in a recalculation of the APW upon stability, providing the

number of pieces added did not exceed the accuracy requirement. The APW is continually enhanced based on a larger sample size without the need for counting additional pieces.

P182: Default Sample Size
Sets the default sample size.

P183: Required Accuracy
Selects the accuracy requirement for sampling and auto enhancement.

P184: Accuracy Display Enable
Enables the accuracy display. When enabled, the calculated accuracy of the current sample will be shown on the display.

P185: Pre-Sample Scale
Selects the scale# to be automatically selected every time a sample routine is initiated.

P186: After-Sample Scale
Selects the scale# to be automatically selected after a sample routine is completed.

P187: Sample Filter
Selects the filter setting to be used when performing a sample operation (separate from P116).

P188: Enforce Sample Accuracy
Enables sample accuracy enforcement. If the required accuracy specified at P183 is not achieved during a sample routine, the sample will not be accepted. More pieces will be required to complete the sample routine.

P189: Sample Motion Divisions
Selects the number of motion divisions to be used during a sampling routine (separate from P111) to a resolution of 0.1 divisions. For example, an entry of **15** will be accepted as ±1.5 divisions of motion.

P190: Counting Enhance Prompt
Determines how the enhance prompt is displayed.

- M574 – *AddUp to XXX* and *TakeUp to XXX*
- M675 – *Add 1 to XXX* and *Take 1 to XXX*

Communication Ports
The communication port parameters provide comm port configuration.

P199: Serial Port Instance
Sets the communication port# in effect when accessing the remainder of the serial port configuration parameters P200 → P211.

P200 – P204: Protocol

Selects the comm port's communication protocol. The port's protocol must match that of the connected device.

P205: Receive Mode

Selects the comm port's receive mode.

If the port is **disabled**, all received data is ignored

If the port is set to **standard** receive, all receive characters are processed normally.

If the port is set to **interpret**, all received characters are screened through the input interpreter (P217 → P224) before being used or discarded.

If the port is set for **Modbus**, all received characters are processed as Modbus protocol. Enabling Modbus at P205 makes P209 → P211 available for configuration.
If the port is set for selection 4 → 250, a received character will invoke macro 4 → 250 respectively.

P206: Transmit Mode

Selects whether or not a transmission will be delayed when the transmit buffer becomes full.

If set to **delay**, the transmission will be put on hold until the transmit buffer empties to the point where handshaking is asserted.

If set to **abort**, the transmission will be immediately aborted once the transmit buffer becomes full. This is not true while downloading the setup mode at P64000-64001. The download will continue uninterrupted.

P207 – P208: Transit / Receive Buffer Size

Sets the size of the transmit and receive buffers at P207 and P208 respectively.

P209: Modbus Address

Selects the Modbus address. P205 must be set for **Modbus** for this parameter to be available.

P210: Modbus Mode

Selects Modbus ASCII or RTU mode. P205 must be set for **Modbus** for this parameter to be available.
Networking (RS-485)
The networking parameters configure an indicator's network address. Remote communication parameters configure communication to a remote display, other indicators used in the remote display mode and other devices requesting display information.

P250: RS-485 Enable
This parameter only affects comm port 1. It enables RS-485. Enabling this parameter detrimental effect on RS-232 operation. Enabling this parameter changes how data is transmitted see the %q macro and RS-485 sections for more details.

P251: RS-485 Network Address
This parameter assigns the RS-485 network address for the indicator (COMM1 only). It has no effect if set to address zero (0). This parameter has no effect if DeviceNet or ModBus are enabled at P205. When an address is specified, the indicator will only respond to messages that begin with an <STX> followed by this address value. Subsequent data is processed by the indicator until an <ETX> is received completing the data packet.

<STX><ADDRESS><DATA><ETX>

Note that the network address is assigned as a single byte value. An entry of '4' refers to an <EOT> control code. If you want the indicator's address to be the number four (4), you would have to enter the address as 52 (the ASCII value of 4).

LCD Display Setup
The LCD display setup parameters define the operation of the standard displays.

P420: Standard VF Display Mode
Controls the backlighting of the LCD.

P423 Display Brightness
Selects the degree of VFD brightness when the display is on (P423) and off (P424).

P430: LCD Contrast
Selects the power-up contrast setting for the LCD display. Pressing ⌷CLR NO⌷ will restore the default contrast setting.

The LCD contrast can also be set at power-up without accessing the setup mode.

Total & Tare Save
The total & tare save parameters are used to enable the tare and accumulation parameter values to be saved in non-volatile memory and restored in the even of power loss.

P660 – P661: Total / Tare Save Method
Selects whether accumulation values and tare values will be written to the EEPROM each time the values change so that the values may be retained and restored in the event of a power loss.

If set to **AUTO**, the values are automatically stored to the EEPROM when changed.

If set to **No Save**, the values are not written to the EEPROM and will be lost during a power failure.

If set to **On Request**, the values can only be written to the EEPROM via the %v macro command.

P806, P840 and P841: Alpha Key Function
The Alpha key is a new key added on the Model 675 only.

Parameter 806 is where the Alpha key function is enabled or disabled. Set P806 to Alpha by keying in ②ᴬᴮᶜ ⑤ᴶᴷᴸ ① ⏎ᴱᴺᵀᴱᴿ.

Parameter 840 is where the function of the Alpha key is set. There are many ways to display and enter alpha characters.

N&U&L = The alpha key will scroll the numeral then the uppercase letter and then the lower case letter displayed on the key pressed.

U & L = The alpha key will scroll the uppercase letter and then the lower case letter displayed on the key pressed.

U only = The alpha key will display the uppercase letter displayed on the key pressed.

L only = The alpha key will display the lowercase letter displayed on the key pressed.

N only = The alpha key will display the numeral displayed on the key pressed.

N & U = The alpha key will display the numeral and then the uppercase letter display on the key pressed.

N & L = The alpha key will display the numeral and then the lowercase letter display on the key pressed.

Parameter 841 defines the delay time before a character is accepted allowing a different character from the same key to be entered.

APPLICATIONS (APPS)

The applications refer to the preprogrammed files that are included with the Model 675. If you choose to reload one of the application files press ⏎ᴱᴺᵀᴱᴿ at the *Apps* tab. An access code must be entered to reinstate the application menu. The main menu will reload where you can choose the desired application.

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:
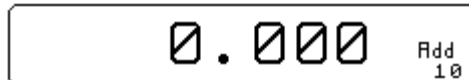
> **(a) If a container is used:**
>
>> (i)   Place an empty container on scale and press the $\boxed{\text{F1}}$ **Sample** or $\boxed{\text{SAMPLE}}$ key. The scale will automatically tare the container.
>>
>> <div align="center">- or -</div>
>
> **(b) If a container is not used:**
>
>> (i) Press the $\boxed{\text{F1}}$ **Sample** or $\boxed{\text{SAMPLE}}$ key without the sample pieces on the scale. The scale will tare to establish a net zero reference.

<div align="center">

`0.000`   Add 10

</div>

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

<div align="center">

`10`   Qty

</div>

3. Continue to add pieces to count.

<div align="center">

`89`   Qty

</div>

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 ⌨ key.

    (ii) Place the sample in the container.

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

    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 ⌨ *Sample* or ◇

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

    Example: 5 0 F1 or ◇

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

⚠	Use the ⌨ 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.

⚠	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 ⟨SAMPLE⟩ key. The scale will automatically tare the container.

   - or -

   (b) If a container is not used:

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

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

2. Add the sample pieces and press the ⌈F1⌉ *Accept* 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 ⟨TARE⟩ key.

   b. Place the sample in the container.

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

-or-

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.

<div align="center">

Example: 5 0 F1 or ◇

</div>

<div align="center">

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

</div>

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. Press the F3 (Rec/New) key. The 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. Key in the part number and 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.

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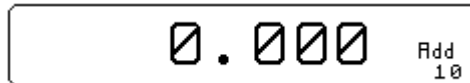
2. Add the sample pieces and press the ⌊SAMPLE⌋ key to accept the sample.

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

3. Continue to add pieces to count.

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

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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 ⊞ [TARE] key.

   b. Place the sample in the container.

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

<div align="center">

Example: [5 JKL] [0 SPACE] [◇ SAMPLE]

```
┌─────────────────────────┐
│                         │
│              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⌐

Performing Calibration

Example:
Selecting a Calibration Method

```
 0.05  New
       Zero?
```
SELECT
MODE

```
 0.05  Last
       Zero?
```
SELECT
MODE

```
 0.05  Temp
       Zero?
```
SELECT
MODE

```
 0.05  Only
       Zero?
```
SELECT
MODE

```
 0.05  Cal
       Reset
```
SELECT
MODE

```
 0.05  Known
       LCOut
```

There are six methods of calibration. Press ⌐SELECT⌐ to select a calibration method (see example: *Selecting a Calibration Method*). Press ⌐ENTER⌐ 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.

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GENERAL NOTES ON CALIBRATION

- Pressing ⌨ at any point in the calibration routine moves back one step.

- Pressing ⌨ 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 & fine gain values, greatly increasing the likelihood of a successful calibration on the first attempt.

```
 0.05   New
        Zero?
```

[ENTER ←YES]

```
 0.05   Mot'n
        Delay
```

```
 0.05   Units
        =lb
```

```
 0.00   Keyin
        CalWt
```

ADD TEST WEIGHT

[1][0][0][ENTER ←YES]

```
100.00  Mot'n
        Delay
```

```
100.00  CAL
        OK ?
```

[ENTER ←YES]

```
SETUP   Save
        Mods?
```

```
SETUP   ENTER
        =SAVE
```

[ENTER ←YES]

```
SETUP   Exit
        Setup
```

```
SETUP   ENTER
        =EXIT
```

[ENTER ←YES]

```
100.00  lb
        Gross
```

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 37
3. Select the New Zero calibration method as described in *Calibration Methods* on page 37.
4. Press [ENTER] 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 [ENTER] 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 [ENTER].
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 [ENTER] at the **CAL OK?** prompt or [CLR] at the **ReCal???** prompt.

   - or -

   Repeat the calibration by pressing [CLR] at the **CAL OK?** prompt or [ENTER] at the **ReCal???** prompt.
9. Once the calibration is accepted in step 6, press [ENTER] 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 [ENTER] 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.

Example:
Last Zero Calibration

```
      20. lb
          Gross
```

[ZERO ⊙]

```
      00. lb
          Gross
```

ADD 10,000 LB TEST WEIGHT

```
   10040. lb
          Gross
```

ACCESS CALIBRATION MODE

```
   10040. New
          Zero?
```

[SELECT MODE]

```
   10040. Last
          Zero?
```

[ENTER YES]

```
   10040. Units
          =lb
```

```
   10040. Keyin
          CalWt
```

[1][0][0][0][0][ENTER YES]

```
   10000. CAL
          OK ?
```

[ENTER YES]

```
 SETUP Save
          Mods?
```

```
 SETUP ENTER
          =SAVE
```

[ENTER YES]

```
 SETUP Exit
          Setup
```

```
 SETUP ENTER
          =EXIT
```

[ENTER YES]

```
   10000. lb
          Gross
```

LAST ZERO

Last Zero allows span re-calibration without removing the applied test weight. The last zero established by pressing [ENTER] 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.

To perform a Last Zero calibration:

1. Remove all weight from the scale.

2. Press [ZERO] to zero the scale in the weigh mode.

3. Apply the calibration test weight.

4. Access the calibration mode as described on page 37.

5. Select the Last Zero calibration method as described in *Calibration Methods* on page37 .

6. Press [ENTER] 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 [ENTER] 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 [ENTER] at the **CAL OK?** prompt or [CLR NO] at the **ReCal???** prompt.

    - or -

    Repeat the calibration by pressing [CLR NO] at the **CAL OK?** prompt or [ENTER YES] at the **ReCal???** prompt.

9. Once the calibration is accepted in step 6, press [ENTER] 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 NO] at the **ENTER=SAVE** prompt.

    Then press [ENTER] 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.

Example:
Temporary Zero Calibration

```
2 1050. lb
        Gross
```

ACCESS CALIBRATION MODE

```
SEtUP   Quick
          Cal!
```

```
2 1050. New
        Zero?
```

[SELECT MODE] [SELECT MODE]

```
2 1050. Temp
        Zero?
```

[ENTER ←┘ YES]

```
2 1050. Mot'n
        Delay
```

```
2 1050. Units
        =lb
```

```
     00. Keyin
        CalWt
```

ADD TEST WEIGHT

[2 ABC] [0 SPACE] [0 SPACE] [0 SPACE] [ENTER ←┘ YES]

```
20 10. Mot'n
       Delay
```

```
2000. CAL
      OK ?
```

[ENTER ←┘ YES]

```
SEtUP  Save
       Mods?
```

```
SEtUP  ENTER
       =SAVE
```

[ENTER ←┘ YES]

```
2000. lb
      Gross
```

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 37.
2. Select the Temp Zero calibration method as described in *Calibration Methods* on page37.
3. Press [ENTER] 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 [ENTER] 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 [ENTER].
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 [ENTER]**]** at the **CAL OK?** prompt or [CLR NO] at the **ReCal???** prompt.

   - or -

   Repeat the calibration by pressing [CLR NO] at the **CAL OK?** prompt or [ENTER YES] at the **ReCal???** prompt.
7. Once the calibration is accepted in step 6, press [ENTER] 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 NO] at the **ENTER=SAVE** prompt.

   Then press [ENTER]at the **ENTER=UNDO** prompt and again at the **ENTER=EXIT** prompt to exit the calibration mode.

Example:
Only Zero Calibration

```
 95. lb
    Gross
```

ACCESS CALIBRATION MODE

```
SETUP    Keyin
         Code:
```

```
SETUP    Quick
          Cal!
```

```
 95. Only
     Zero?
```
[ENTER YES]

```
 95. Mot'n
     Delay
```

```
 00. CAL
      OK ?
```
[ENTER YES]

```
SETUP    Save
         Mods?
```

```
SETUP    ENTER
         =SAVE
```
[ENTER YES]

```
SETUP    Exit
         Setup
```

```
SETUP    ENTER
         =EXIT
```
[ENTER YES]

```
 00. lb
     Gross
```

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 37. Select the Only Zero calibration method as described in *Calibration Methods* on page 37.
3. Press [ENTER] at the **Only Zero?** prompt to establish the new zero reference.
4. After establishing zero, **CAL OK?** is displayed suggesting that the calibration is acceptable. Accept the calibration by pressing [ENTER] at the **CAL OK?** prompt.
   - *or* -
   Repeat the calibration by pressing [CLR] at the **CAL OK?** prompt.
5. Once the calibration is accepted in step 5, press [ENTER] 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 [CLR] at the **ENTER=SAVE** prompt. Then press [ENTER] 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 37.
2. Select the Cal Reset calibration method as described in *Calibration Methods* on page 37.
3. Press ⌨ at the `Cal Reset` prompt reset the A/D amplifier.
4. The display prompts `New Zero?`. Proceed with calibration.
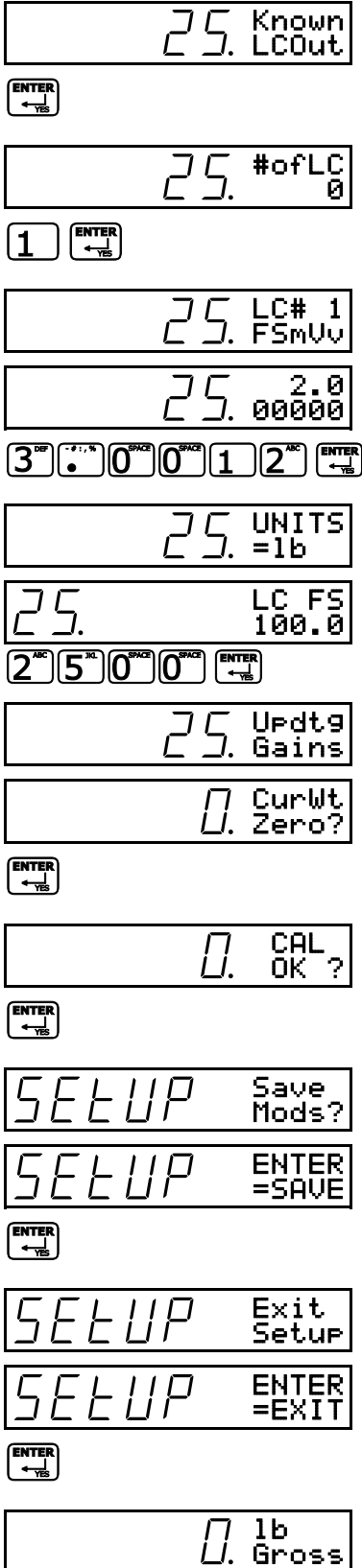
KNOWN LOADCELL OUTPUT

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 37.
2. Select the Known LCOut calibration method as described in *Calibration Methods* on page 37.
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 -

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Example:
Known Loadcell Calibration

```
 25. Known
 25. LCOut
```
[ENTER]

```
 25. #ofLC
 25.      0
```
[1] [ENTER]

```
 25. LC# 1
 25. FSmVv
```

```
 25.    2.0
 25. 00000
```
[3] [.] [0] [0] [1] [2] [ENTER]

```
 25. UNITS
 25. =lb
```

```
 25.  LC FS
 25.  100.0
```
[2] [5] [0] [0] [ENTER]

```
 25. Updtg
 25. Gains
```

```
  0. CurWt
  0. Zero?
```
[ENTER]

```
  0.  CAL
  0.  OK ?
```
[ENTER]

```
SETUP  Save
       Mods?
```

```
SETUP  ENTER
       =SAVE
```
[ENTER]

```
SETUP  Exit
       Setup
```

```
SETUP  ENTER
       =EXIT
```
[ENTER]

```
  0.  lb
  0. Gross
```

Press [ENTER] 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 [ENTER].

   - or -

   Press [ENTER] 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 [ENTER].

   - or -

   Press [ENTER] to accept the displayed value.

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

11. Press [ENTER] to establish the current input signal as the zero reference.

    - or -

    Press [SELECT] to display **Zero=0mVv?**. Press [ENTER] to use a 0mV/V output as the zero reference.

    - or -

    Press [SELECT] to display **Keyin CurWt**. Key in the known gross weight already applied to the scale and press [ENTER].

    - or -

    Press [CLR] to bypass the zeroing option.

12. The display shows **CAL OK?** suggesting that the calibration is acceptable.
    Accept the calibration by pressing [ENTER] at the **CAL OK?** prompt.

    - or -

    Repeat the calibration by pressing [CLR] at the **CAL OK?** prompt.

13. Once the calibration is accepted in step5, press [ENTER] 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 ⌨ENTER 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 ⌨ENTER. Proceed with a calibration method as described in *Calibration Methods* on page 37.

After completing a calibration, the **Keyin Scl#** appears once again. Enter the next scale number to be calibrated, or press ⌨CLR to exit the calibration mode and save the new calibration data.

Calibration Units

It is expected that a calibration weight will be entered in terms of the selected calibration units as determined by P150 in the setup mode. The default calibration units are displayed briefly during calibration just prior to the **Keyin CalWT** prompt.

Alternate units may be used during calibration by pressing the ⌨UNIT key at the **Keyin CalWT** prompt. This will scroll through any units that have been assigned to P131 → P134 of the setup mode for the selected scale.

⚠ **It is not possible to select lb/oz as calibration units.**

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MULTI - POINT LINEARIZATION

Multi-point linearization provides up to five calibration points for each scale input. This allows you to compensate for load cell non-linearity. Multi-point linearization must be enabled in the setup mode at P119. Once enabled, you can define up to five points of linearization in during the calibration routine.

To perform Multi-Point Linearization:

1. Access the calibration mode as described on
2. page 37.
3. Select a calibration method as described in *Calibration Methods* on page 37 and proceed with the calibration routine.
4. Enter the calibration weight value for the first linearization point when prompted to `Keyin CalWT`.
5. Once the first linearization point is established, `Keyin Pnt2` is displayed.
   If there was a significant change in span for the first linearization point, `ReCal???` is displayed suggesting that the calibration procedure must be repeated for the first point.
6. Enter the calibration weight value for the second linearization point.
7. Repeat this process for up to five linearization points. If fewer than five linearization points are specified, press ⌨ without keying in the next weight value to end calibration.
8. After establishing all linearization points, `CAL OK?` is displayed suggesting that the calibration is acceptable.
   Press ⌨ at the `CAL OK?` prompt to accept the calibration and exit.
   - or -
   Press ⌨ at the `CAL OK?` prompt to repeat the calibration.

⚠ **Linearization calibration weights and calibration factors can be viewed at P61130 → P61139 in the information parameters.**

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