



# Omega Series Counting Scale





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# AMENDMENT RECORD

## Omega Series Counting Scale Document 51277

### Service Manual

Manufactured by **Fairbanks Scales Inc.**

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# Section 1: General Information

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## 1.1. INTRODUCTION

The Omega Counting Scale is designed for both light capacity weighing applications and with a remote scale attached, applications up to 10,000 pounds. It is also designed for quick accurate counting of large quantities of like objects.

## 1.2. DESCRIPTION

The self-contained, weighing platform and instrument, Omega Counting Scale is designed in a rugged ABS plastic enclosure with a stainless-steel weighing platform, perfect for almost any counting scale application. The extremely large 9.64" x 13.97" weighing platform can easily accommodate most parts counting needs. The Omega Counting Scale comes with a lead-acid rechargeable battery, remote scale connection, and dual RS232C serial ports. Serial port 2 is dedicated to barcode readers. Capacities range from 6 to 100 pounds.

## 1.3. TECHNICAL SPECIFICATIONS

### 1.3.1. Basic Specification

<b>Digital Display</b>	LCD, height 0.6 in (14.5 mm) 6/7/7(Weight / Piece Weight / Total Pieces)
<b>Platter Size</b>	(W x H) 9.64 x 13.97 in (245 x 355 mm)
<b>Dimensions</b>	(W x L x H) 15.24 x 14.37 x 4.61 in (387 x 365 x 117 mm)
<b>Net Weight (kg)</b>	8.16 lbs (3.7 kg)
<b>Operating Temperature</b>	30°F to +104°F (0°C to +40°C)
<b>Relative Humidity</b>	Less than 85%
<b>Power</b>	9V / 500mA, AC adapter; Built in 6V Rechargeable Battery <ul style="list-style-type: none"><li>•15-20 hours continuous</li><li>• 7-10 hours continuous with an external platform</li><li>•14-16 hours recharge time</li></ul>
<b>Interface</b>	RS-232C, Serial 1 and Serial 2

### 1.3.2. Omega Series Scale Specifications

Model	Omega Counting Scales				
Max. Capacity	6 lb / 3 kg	15 lb / 6 kg	30 lb / 15 kg	60 lb / 30 kg	100 lb / 50 kg
d =	0.0002 lb / 0.1 g	0.0005 lb / 0.2 g	0.001 lb / 0.5 g	0.002 lb / 1 g	0.002 lb / 1 g
Accuracy	1/30000	1/30000	1/30000	1/30000	1/50000

## 1.4. ACCESSORIES

Product No.	Description
31701	Bar code scanner (Symbol) with hands-free stand
31789	Dust cover (Qty. 5)
24482	GC420d series label printer
20483	GC420d printer cable (required when a GC420d printer is ordered.)
34052	PLU Manager Database Software (CD)



External Scale Input



Battery Access Underneath



Serial 1

Serial 2

Power Connection Underneath

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## Section 2: Company Service Information

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### 2.1. GENERAL SERVICE POLICY

Prior to installation, ***always*** verify that the equipment satisfies the customer's requirements as supplied, and as described in this manual.

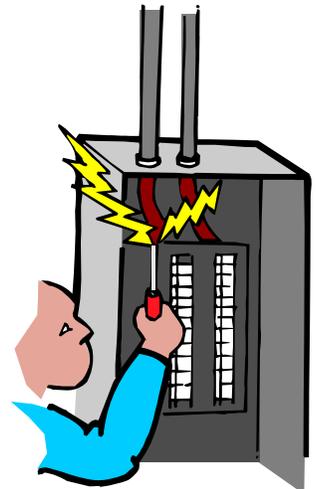


If the equipment cannot satisfy the application and the application cannot be modified to meet the design parameters of the equipment, **the installation should *NOT* be attempted.**

It is **the customer/operator's responsibility** to ensure the equipment provided by Fairbanks is operated within the parameters of the equipment's specifications and protected from accidental or malicious damage.

### ★ ★ IMPORTANT INSTALLATION NOTICE ★ ★

- All load cells, load cell cables and interconnecting cables used to connect all scale components shall be located **a minimum of thirty-six (36") inches distance away** from all single and multiple phase high energy circuits and electric current carrying conductors.



# WARNING!

**Absolutely NO physical, electrical or program modifications** other than selection of standard options and accessories can be made by customers to this equipment

Repairs are performed by Fairbanks Scales Service Technicians and Authorized Distributor Personnel ONLY!

*Failure to comply with this policy voids all implied and/or written warranties*

- This includes digital weight indicators, junction boxes, and power supplies.
- This includes any peripheral devices, such as printers, remote displays, and auxiliary data entry devices.
- Also included is the scale components themselves, such as 120 volt AC, 240 volt AC, 480 volt AC and electric supply of higher voltage wiring runs and stations, AC power transformers, overhead or buried cables, electric distribution panels, electric motors, florescent and high intensity lighting which utilize ballast assemblies, electric heating equipment, traffic light wiring and power, and relay boxes.
- All scale components, including digital weight indicators and peripheral devices are not designed to operate on internal combustion engine driven electric generators and other similar equipment.

✓ ***Electric arc welding can severely damage scale components such as digital weight indicators, junction boxes, power supplies, and load cells.***

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**NOTE:** For additional information, please contact a **Fairbanks Scales Service Representative.**

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## 2.2. SERVICE TECHNICIAN'S RESPONSIBILITIES

All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications are part of the original installation.

- They are included in the installation charge.
- Only those charges which are incurred as a result of the equipment's inability to be adjusted or calibrated to performance specifications may be charged to warranty.



The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures, and must be replaced as units.

- Replacement of individual components is not allowed.
- The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.

## 2.3. USER'S RESPONSIBILITY

- ✓ **Absolutely no physical, electrical or program modifications other than selection of standard options and accessories are to be made to this equipment.**



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## **Section 3: Installation**

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### **3.1. PRE-INSTALLATION CHECKOUT**

1. Check that all components and accessories are on hand, and agree with the customer's order.
2. Remove all components from their packing material, checking to make certain that all parts are accounted for and no parts are damaged. Advise the shipper immediately, if damage has occurred. Order any parts necessary to replace those which have been damaged. Keep the shipping container and packing material for future use. Check the packing list.
3. Collect all necessary installation manuals or CD's for the instrument and accessories.
4. Open the Instrument and perform an inspection, making certain that all hardware, electrical connections, and PCB assemblies are secure. Do not reinstall cover if final installation is to be performed after the pre-installation checkout.

### **3.2. EQUIPMENT LOCATION**

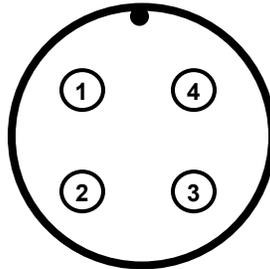
The Instrument should be positioned away from direct sunlight. Keep the scale platform away from air drafts as this will effect the accuracy of the count.

### **3.3. SAFETY**

As is the case with any material handling equipment, certain safety precautions should be observed during operation:

1. Never load the platform beyond its rated capacity. Refer to the rating on the serial number plate if in doubt.
2. Ensure that any structure which supports the platform can withstand the weight of the platform plus its rated capacity load.
3. Do not load the platform if there is any evidence of damage to the platform.

### 3.4. REMOTE PLATFORM WIRING



*Instrument Connector*

Pin	Description
1	EXC+
2	EXC-
3	SIG+
4	SIG-

## WARNING!

***Never perform any wiring with the instrument turned on!  
Damage to system components can occur.***

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# Section 4: Programming Configuration

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## 4.1. INTRODUCTION

The Omega series scales are configured through internal programming parameters and settings. Although accessible, the calibration parameters are restricted to qualified service personnel. Changes to the calibration parameters can affect the scales weighing and counting accuracy.

## 4.2. FACTORY DEFAULTS

The factory defaults are recommended to be loaded upon a catastrophic failure or instrument repair. To load the factory defaults, perform the following:

1. Press and hold any key (other than the On and Off keys) while powering on the scale.
2. The display will indicate SETUP
3. Press “1978” using the numeric keypad
4. The display will indicate SAve, followed by a double beep, then the scale will return to the weighing mode.

## 4.3. PROGRAMMING PARAMETERS

1. To access the programming parameters, press and hold any key while turning the scale ON, SETUP is shown on the display.
2. Press  key to toggle among the SETUP, Prt, Con-F, rE.CAL, and CAL menus. Use the  to enter selected menu.

Menu	Function
SETUP	General Settings menu.
Prt	Printing Settings menu.
Con-F	Configuration Settings menu.
rE.CAL	External Scale Settings menu.
CAL	Calibration menu

## 4.4. GENERAL SETTINGS (SET.UP)

In the General Settings menu, press  to toggle among the options and  to confirm or save the selection.

### 1. SLEEP– Auto Off Setting

Display		Descriptions
SLEEP	no	Disable auto shutdown function.
SLEEP	5	If there is no operation, the scale will shut down in 5 minutes.
SLEEP	10	If there is no operation, the scale will shut down in 10 minutes.
SLEEP	20	If there is no operation, the scale will shut down in 20 minutes.
SLEEP	30	If there is no operation, the scale will shut down in 30 minutes. (Default)
SLEEP	60	If there is no operation, the scale will shut down in 60 minutes.

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**NOTE:**

*SLEEP will not start count down until the weight is at zero.*

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**Example:**

1. Set **SLEEP** to 5.
2. Power up and verify weight is stable.
3. Use  to reset the scale to zero.
4. Wait for 5 minutes. The Omega Counting Scale will shutdown automatically.

### 2. b.L - Backlight Setting

Display		Descriptions
<b>b.L</b>	<b>no</b>	Disable the backlight function.
<b>b.L</b>	<b>YES</b>	Enable the backlight function.
<b>b.L</b>	<b>Auto</b>	Automatic backlight when there is load on the weighing pan. (Default)

**Example:**

1. Set Backlight as YES.
2. Power up and reset the weight.
3. Backlight is enabled.

### 3. A.tArE - Tare Setting

Display		Descriptions
<b>A.tArE</b>	<b>no</b>	Disable Tare operation
<b>A.tArE</b>	<b>YES</b>	Enable Tare operation. (Default)

**Example:**

1. Set **A.tArE** = YES.
2. Power up and place a 0.1 pound item on scale weighing pan.
3. Press  key to perform a Tare Operation. The weight will change to zero, and **NET** is displayed.
4. Cycle power to the scale and enter the setting again. Set **A.tArE** = no.
5. Press  key to perform a Tare Operation. The scale will make a long beep and no tare will be performed.

#### 4. Hi.bP – High Beep Setting

Display	Explanation
Hi.bP      no	Disable Hi alarm sound.
Hi.bP      SHort	Set Hi alarm to sound as continual short beeps.
Hi.bP      LonG	Set Hi alarm to sound as continual long beeps. (Default)

**Example:**

1. Set **Hi.bP** = SHort.
2. Do the example in **More Operations** of **Alarm function**. The scale will emit short beeps and the alarm indicator will flash.
3. Cycle power to the scale and change the **Hi.bP** setting. Change the **Hi.bP** = no.
4. Do the example in **More Operations** of **Alarm function**. The alarm indicator will flash without any alarm sound.

#### 5. Lo.bP – Low Beep Setting

Display	Descriptions
Lo.bP      oFF	Disable Lo alarm sound.
Lo.bP      SHort	Sets Lo alarm to sound as continual short beeps. (Default)
Lo.bP      LonG	Sets Lo alarm to sound as continual long beeps.

**Example:**

1. Set **Lo.bP** = SHort.
2. Do the example in **More Operations** of **Alarm function**. The scale will emit short beeps and the alarm indicator will flash.
3. Cycle power to the scale and change the **Lo.bP** setting. Set the **Lo.bP** = no.
5. Do the example in **More Operations** of **Alarm function**. The alarm indicator will flash without any alarm sound.

## 6. bEEP – Audible Keystroke Setting

Display	Descriptions
<b>bEEP</b> <b>no</b>	Turns the keystroke audible beep off
<b>bEEP</b> <b>YES</b>	Turns the keystroke audible beep on. (Default)

**Example:**

1. Set **bEEP** = no.
2. Press the enter key. The scale will confirm without any sound.
3. Power cycle the Omega scale and enter setting again. Set **bEEP** = YES.
4. Press the ENTER key. The scale will emit a short beep.

## 7. A.SLUtC – Auto Switching Setting (Scale A/B)

Display	Descriptions
<b>A.SLUtC</b> <b>no</b>	While sampling, <b>do not</b> switch from external scale to main scale.
<b>A.SLUtC</b> <b>YES</b>	While sampling, switch from external scale to main scale. (Default)

**Example:**

1. Set **A.SLUtC** = YES. External scale must be calibrated before this is performed.
2. Press  to switch to external scale. The scale indicator will switch to the B scale.
3. Press  key to do sample process. The scale will switch to the Main Scale and wait for a stable weight. **Do not** put the sampling item on the scale right now.
4. After Main Scale has a stable weight and the '**SANPLE**' is blinking on the second row of the display, input on the desired sample count and place the sample items on Main Scale pan. Wait for a stable weight again, and the sampling operation is done.
5. After the **Sampling operation** complete, the scale will switch back to the external scale.
6. Cycle power to the scale and enter to the **A.SLUtC** setting. Set **A.SLUtC** = no.
7. When the scale is ready, press  to switch to the external scale.
8. Press  key to perform a sample process. The scale will perform a **Sampling operation** with the external scale.

### 8. rE.SAnP - Auto Re-sample Setting.

Display		Descriptions
rE.SAnP	no	Disable auto re-sample operation.
rE.SAnP	YES	Enable auto re-sample operation. (Default)

**Example:**

1. Set **rE.SAnP** = YES.
2. Press  to into sample mode.
3. Press   to set the item number as 50. It is shown on the third line.
4. Place 5 lb item on scale weighing pan.
5. Wait for 5 seconds until the weight is stable. The piece weight shows 0.1 and piece count shows 50.
6. Place 1 lb item on scale weighing pan.
7. At a stable weight, the scale will emit a short beep sound. Perform a re-sample once. The Piece Weight will update.
8. Cycle power to the scale and enter the **rE.SAnP** setting again, change the **rE.SAnP** = no.
9. Repeat steps 2 to 6.
10. At a stable weight, the scale will continue normal operation without a resample process occurring.

### 9. tiNE - Time Setting.

Display		Descriptions
tiNe	no	Do not change time setting.
tiNe	YES	Change time setting.

**NOTE:**

*The time setting parameter always reverts back to “no”. When “YES” is selected, the following parameters are available YEAR, NontH, dAY, hour, Nin, and SEC.*



Display		Descriptions
YEAr	0-99	Year setting

Use numeric keys to enter the appropriate 2-digit number, then press the “Enter” key to accept.

Display		Descriptions
NOnth	1-12	Month setting.

Use numeric keys to enter the appropriate 2-digit number, then press the “Enter” key to accept.

Display		Descriptions
dAY	1-31	Day setting.

Use numeric keys to enter the appropriate 2-digit number, then press the “Enter” key to accept.

Display		Descriptions
Hour	0-23	Hour setting.

Use numeric keys to enter the appropriate 2-digit number, then press the “Enter” key to accept.

Display		Descriptions
Nin	0-59	Minute Setting.

Use numeric keys to enter the appropriate 2-digit number, then press the “Enter” key to accept.

Display		Descriptions
SEC	0-59	Second setting.

Use numeric keys to enter the appropriate 2-digit number, then press the “Enter” key to accept.

**Example:**

1. Set **tiNE** = no and press enter.
2. The scale time setting is skipped.
3. Cycle power and set **tinE** = YES.
4. Enter the Year, Month, Day, Hour, Minute and Second values.

\*\*This completes the General Settings (**SEtUP**). SAve is displayed briefly before the scale cycles power and returns to the weigh mode. \*\*

## 4.5. PRINT SETTINGS (PRT)

Press  to toggle among the options and press  to confirm.

**1. Serial 1 - Output Method** - Changes the method to initiate data information output.

Display	Descriptions
SEr.1 PrESS	Initiates data transmission when the PRINT key is pressed. (Default)
SEr.1 Auto	Initiates data transmission when scale weight is stable. Scale weight must return to zero before the next print will occur.
SEr.1 rEn.dS	Remote display Output. This programs the serial 1 output as fixed remote display output which is configured using 19200 as baud rate, 8 characters, No parity, and 1 stop bit. These settings cannot be changed.
SEr.1 Poll	Initiates data transmission when a <CR> is received

**2. Serial 1 - Weight Output** - Changes the weight output data of serial 1.  
Print net only or print Gross, Tare, and Net.

Display	Descriptions
SEr.1 Pr.nEt nEt	Outputs only the Net weight.
SEr.1 Pr.nEt G.t.nEt	Outputs Gross, Tare, and Net weights. (Default)

**3. Serial 1 – Baud Rate** - Changes the baud rate of serial 1.

Display	Descriptions
SEr.1 bAUd 2400	Sets the baud rate to 2400
SEr.1 bAUd 4800	Sets the baud rate to 4800
SEr.1 bAUd 9600	Sets the baud rate to 9600. (Default)
SEr.1 bAUd 19200	Sets the baud rate to 19200

**4. Serial 1 - Parity** - Changes the data transfer protocol of serial 1.

Display	Descriptions
SEr.1 PArit 7-E-1	Sets the parity to 7-E-1
SEr.1 PArit 7-o-1	Sets the parity to 7-o-1
SEr.1 PArit 7-n-2	Sets the parity to 7-n-2
SEr.1 PArit 8-n-1	Sets the parity to 8-n-1. (Default)

**4. Serial 1 – Parity, continued**

Display	Descriptions
SEr.1 PArit 8-E-1	Sets the parity to 8-E-1
SEr.1 PArit 8-o-1	Sets the parity to 8-o-1
SEr.1 PArit 7-o-2	Sets the parity to 7-o-2

**Example:**

To print net weight only:

1. Open a hyper terminal session and set connection as 9600 8-n-1.
2. Set Serial 1 as **PrESS**, weight output as print net, baud rate as 9600 and parity as 8-n-1, and others parameters are set to No.
3. After the scale boot, press the  key. Data on Hyper terminal will show:  
**0.0000 lb NT**
4. Cycle power to the scale and change serial 1 settings to **Auto**. Change the weight output to print Gross, Tare and Net. Change the baud rate to 19200 and parity as 7-n-2 , and all others parameters are set to No.
5. Close hyper terminal and modify its connection as 19200 7-n-2.
6. After the scale reboot, put 1 pound item on scale pan.
7. The scale will output data when the weight is stable. The Data output will be as show below:

**1.0000 lb GR**

**0.0000 lb TA**

**1.0000 lb NT**

### 5. Serial 1 – Weight Print

Display	Descriptions
SEr.1 LUGT no	Data prints <b>without</b> weight information.
SEr.1 LUGT YES	Data prints <b>with</b> weight information. (Default)

### 6. Serial 1 - PLU Print

Display	Descriptions
SEr.1 PLU no	Data prints <b>without</b> PLU information. (Default)
SEr.1 PLU YES	Data prints <b>with</b> PLU information.

### 7. Serial 1 - Description Print

Display	Descriptions
SEr.1 dESC YES	Data prints <b>with</b> PLU description.
SEr.1 dESC NO	Data prints <b>without</b> PLU description (Default).

### 8. Serial 1 - Time and Date Print

Display	Descriptions
SEr.1 tidt no	Data prints <b>without</b> time and data. (Default)
SEr.1 tidt YES	Data prints time and date.

### 9. Serial 1 - Pieces Information Print

Display	Descriptions
SEr.1 PCS no	Data prints <b>without</b> PCS information. (Default)
SEr.1 PCS YES	Data prints <b>with</b> PCS information.

### 10. Serial 1 - Piece Weight Print

Display	Descriptions
SEr.1 PC.LUGt no	Data prints <b>without</b> the Piece weight. (Default)
SEr.1 PC.LUGt YES	Data prints <b>with</b> the Piece weight.

### 11. Serial 1 - Accumulation Information Print

Display	Descriptions
SEr.1 ACC no	Data prints <b>without</b> the total number of accumulations. (Default)
SEr.1 ACC YES	Data prints <b>with</b> the total number of accumulations.

### 12. Serial 1 – Pieces Accumulation

Display	Descriptions
SEr.1 PCS ACC no	Data prints <b>without</b> the total number of pieces accumulated. (Default)
SEr.1 PCS ACC YES	Data prints <b>with</b> the total number of pieces accumulated.

### 13. Serial 1 - Accumulation Weight Information Print

Display	Descriptions
SEr.1 ACC.LUGt no	Data prints <b>without</b> the total accumulated weight. (Default)
SEr.1 ACC.LUGt YES	Data prints <b>with</b> the total accumulated weight.

**Example 1:**

1. Open a hyper terminal session and connect at 9600 8-n-1.

2. Set Serial 1 to **PrESS**, weight output using print net. Set the baud rate to 9600, 8 characters, No parity, and 1 stop bit.
3. Set **PLU** = YES, **Time and date** = no, **Piece information** = YES, **Piece Weight** = no, **Accumulation information** = YES, and **Accumulation Weight** = no.

4. Press      to set Piece Weight as 0.001 lb.

5. Press    to store current data in PLU 1.

6. Put 1 pound item on scale weighing pan.

7. Press  to record 1 Accumulation data.

8. Press the  key. The data output is shown below:

**1.0000 lb NT**  
**PLU 1**  
**1000 PCS**  
**1 ACC#**

**Example 2:**

1. Open a hyper terminal session and connect at 9600 8-n-1.
2. Set Serial 1 to **PrESS**, weight output using print net. Set the baud rate to 9600, 8 characters, No parity, and 1 stop bit.
3. Set **PLU** = no, **Time and date** = YES, **Piece information** = no, **Piece Weight** = YES, **Accumulation information** = YES, and **Accumulation Weight** = YES.

4. Press      to set Piece Weight as 0.001 lb.

5. Press    to store the current data in PLU 1.

6. Place a 1 pound item on scale weighing pan.

7. Press  to record 1 Accumulation data.

8. Press the  key. The data output is shown below:

**1.0000 lb NT**  
**0.001 lb PW**  
**1.0000 lb NT ACC**  
**05:40 PM**  
**01/01/2010**

**Example 3:**

1. Open a hyper terminal session and connect at 9600 8-n-1.
2. Set Serial 1 to **PrESS**, weight output using print net. Set the baud rate to 9600, 8 characters, No parity, and 1 stop bit.
3. Set **PLU** = Yes, **Time and date** = YES, **Piece information** = no, **Piece Weight** = YES, **Accumulation information** = no, and **Accumulation Weight** = no.
4. Press      to set Piece Weight as 0.001 lb.
5. Press    to store current data in PLU 1.
6. Place a 1 pound item on scale weighing pan.
7. Press  to record 1 Accumulation data.
8. Press the  key. The data output is shown below:

**PLU 1**  
**1000 PCS**  
**0.001 lb PW**  
**05:43 PM**  
**01/01/2010**

#### 14. Serial 2 – Setting

Display		Descriptions
SER.2	no	Serial 2 setting is disabled. (Default)
SER.2	rEAdEr	Enable serial port 2 for a barcode reader.

#### 15. Serial 2 - Baud Rate

Display	Descriptions
SER.2 bAUd 2400	Sets the baud rate to 2400.
SER.2 bAUd 4800	Sets the baud rate to 4800.
SER.2 bAUd	Sets the baud rate to 9600. (Default)



<b>9600</b>	
<b>SER.2 bAUd 19200</b>	Sets the baud rate to 19200.

**16. Serial 2 – Parity**

<b>Display</b>	<b>Descriptions</b>
<b>SER.2 PArit 7-E-1</b>	Sets the parity to 7-E-1
<b>SER.2 PArit 7-o-1</b>	Sets the parity to 7-o-1
<b>SER.2 PArit 7-n-2</b>	Sets the parity to 7-n-2
<b>SER.2 PArit 8-n-1</b>	Sets the parity to 8-n-1. (Default)
<b>SER.2 PArit 8-E-1</b>	Sets the parity to 8-E-1.
<b>SER.2 PArit 8-o-1</b>	Sets the parity to 8-o-1.
<b>SER.2 PArit 7-o-2</b>	Sets the parity to 7o-1.

**16. Serial 2 – Parity, continued**

<b>Example:</b>
-----------------

1. Connect to barcode reader.
2. Scan barcode below:



3. The unit will be set as lb, and Piece Weight will be set as 0.000271.

\*\*This completes the Print Settings (Prt). **SAve** is displayed briefly before the scale cycles power and returns to the weigh mode.\*\*

## 4.6. CONFIGURATION (CON-F)

Press  to browse the menu options. Use the numeric keys to input data and press  to save your settings.

### 1. Basic Unit

Set the basic unit of scale. User can change the output unit by  key, but scale will be calibrated by basic unit.

Display	Descriptions
P.Unit	Set basic unit to lb. (Default) <i>Annunciators on the right side of the display indicate the current setting.</i>
P.Unit	Set basic unit to kg. <i>Annunciators on the right side of the display indicate the current setting.</i>

#### NOTE:

*If this setting is changed, the scale will advance to the calibration procedure.*

### 2. Zero tracking

Sets the zero tracking by number of divisions.

Display		Descriptions
<b>trAcE</b>	<b>no</b>	Zero tracking disabled.
<b>trAcE</b>	<b>0.5d</b>	Zero tracking enabled, tracking set to 0.5d
<b>trAcE</b>	<b>1d</b>	Zero tracking enabled, tracking set to 1d. (Default)
<b>trAcE</b>	<b>2d</b>	Zero tracking enabled, tracking set to 2d
<b>trAcE</b>	<b>3d</b>	Zero tracking enabled, tracking set to 3d

### 3. Display Tolerance

Sets the display tolerance or motion detection value.

Display		Descriptions
<b>no.dEt</b>	<b>no</b>	Display tolerance is disabled.
<b>no.dEt</b>	<b>0.5d</b>	Display tolerance is 0.5d. If the weight changes are under 0.5d, the display will not update and motion is not indicated.
<b>no.dEt</b>	<b>1d</b>	Display tolerance is 1d. If the weight changes are under 1d, the display will not update and motion is not indicated.
<b>no.dEt</b>	<b>2d</b>	Display tolerance is 2d. If the weight changes are under 2d, the display will not update and motion is not indicated.
<b>no.dEt</b>	<b>3d</b>	Display tolerance is 3d. If the weight changes are under 3d, the display will not update and motion is not indicated.

#### 4. Zero range

Display		Descriptions
rAnGE	2	Scale zero range. If the weight is higher than 2% of the scale's capacity, the scale cannot be zeroed.
rAnGE	100	Scale zero range. If the weight is higher than 100% of the scale's capacity, the scale cannot be zeroed.

---

#### NOTE:

*The Zero **rAnGE** setting cannot make the scale exceed its rated capacity. For example, if a 6 lb scale zeroes off a 3 lb weight, the amount of weight applied to the scale cannot exceed 3 lb before the scale reaches its maximum rated capacity.*

---

#### Example:

1. Set Zero range as 2.
2. Place a 1 pounds item on scale weighing pan.
3. Press  key to set current weight to zero. The scale will emit an error beep (long beep) and show Error on the display.
4. Cycle power to the scale and enter the **rAnGE** setting menu.
5. Set Zero range to 100.
6. Press  key to set current weight to zero. Scale will set the current weight to zero. The weight display should indicate 0.

## 5. Filter

The digital filter will assist in minimizing undesirable effects of elements such as vibration and air movement upon the scale weighing pan.

Display		Descriptions
FLtr	2	Filter set to 2 A/D updates a second. Light filtering
FLtr	4	Filter set to 4 A/D updates a second. (Default) Light – Medium filtering
FLtr	8	Filter set to 8 A/D updates a second. Medium filtering
FLtr	16	Filter set to 16 A/D updates a second. Medium-Heavy filtering
FLtr	32	Filter set to 32 A/D updates a second. Heavy filtering

## 6. Sample Piece Default

This setting allows the default sample size to be changed.

Display		Descriptions
SAndEF	10	Sets the default sample size to 10 pieces.
SAndEF	25	Sets the default sample size to 50 pieces.
SAndEF	50	Sets the default sample size to 50 pieces.
SAndEF	100	Sets the default sample size to 100 pieces. (Default)

# Section 5: Calibration

## 5.1. CALIBRATION PROCEDURE (CAL)

In Calibration menu, press  to toggle among the menu options. Use the numeric keys to input data and press  to confirm.

### 1. SEL maximum capacity

Display		Descriptions
Lb	Kg	Max. capacity displayed varies with preset wt unit.
LoAd 6	LoAd 3	Sets maximum capacity to 6 lb / 3 kg.
LoAd 15	LoAd 6	Sets maximum capacity to 15 lb / 6 kg.
LoAd 30	LoAd 15	Sets maximum capacity to 30 lb / 15 kg.
LoAd 60	LoAd 30	Sets maximum capacity to 60 lb / 30 kg.
LoAd 100	LoAd 50	Sets maximum capacity to 100 lb / 50 kg.

### 2. Zero Point Calibration

Display	Descriptions
Pnt. 0 XXXXXX	The first row shows "Pnt. 0", the second row shows the A/D counts.

#### NOTE:

Ensure the scale weighing pan is empty. When the A/D counts are stable, press .

### 3. Setup calibration weight

Display	Descriptions
Pnt.CAL XXXXXX XXXXX	The first row shows “Pnt.CAL”, the second row shows A/D counts, and the third row is the calibration weight (Unit: kg or lb)

**NOTE:**

Use the numeric keys to input the calibration weight. If the basic unit is lb, input weight data unit in lbs. (1lb = 1lb) If the basic unit is kg, input weight data unit in kgs. (1kg = 1kg)

**Example: (The basic unit of this example is lb)**

1. Power up scale and access the CAL menu.
2. Use  to switch to 6 lb and press  key to confirm.
3. Pnt.0 will show on the display. Wait for a stable weight. Press  key to confirm.
4. Place a 6 lb weight on the main scale weighing pan and use numeric key to input 6.
5. Press  key to confirm. The scale will store current calibration data.
6. Cycle power to the scale.

## 5.2. REMOTE SCALE SETTINGS/ CALIBRATION (RE.CAL)

Press  to browse the menu options. Use the numeric keys to input data and press  to save your settings.

### 1. External scale capacity

Display	Descriptions
rE.CAP xxxxxx	Setup the capacity of remote scale. If lb (Basic Unit) is set, the unit of weight data input is lbs. If kg is set, the unit of weight data input is kgs.

**NOTE:**

*If set to 0, the external scale is disabled. If basic unit is lb, the capacity value must be set between 1 and 20000. If basic unit is set as g, the capacity value must be set between 1 and 10000.*

**2. External scale division size**

Display		Descriptions
re.d	<b>0.0001</b>	Sets the scale division size (d) to 0.0001
re.d	<b>0.0002</b>	Sets the scale division size (d) to 0.0002
re.d	<b>0.0005</b>	Sets the scale division size (d) to 0.0005
re.d	<b>0.001</b>	Sets the scale division size (d) to 0.001
re.d	<b>0.002</b>	Sets the scale division size (d) to 0.002
re.d	<b>0.005</b>	Sets the scale division size (d) to 0.005
re.d	<b>0.01</b>	Sets the scale division size (d) to 0.01
re.d	<b>0.02</b>	Sets the scale division size (d) to 0.02
re.d	<b>0.05</b>	Sets the scale division size (d) to 0.05
re.d	<b>0.1</b>	Sets the scale division size (d) to 0.1
re.d	<b>0.2</b>	Sets the scale division size (d) to 0.2
re.d	<b>0.5</b>	Sets the scale division size (d) to 0.5
re.d	<b>1</b>	Sets the scale division size (d) to 1
re.d	<b>2</b>	Sets the scale division size (d) to 2
re.d	<b>5</b>	Sets the scale division size (d) to 5
re.d	<b>10</b>	Sets the scale division size (d) to 10
re.d	<b>20</b>	Sets the scale division size (d) to 20
re.d	<b>50</b>	Sets the scale division size (d) to 50

### 3. Zero Point Calibration

Display	Descriptions
<b>rE.0.CAL</b> XXXXXX	The first row shows <b>rE.0.CAL</b> . The second row shows A/D counts.

### 4. Setup Calibration Weight

Display	Descriptions
<b>rE.P.CAL</b> XXXXXX XXXXXX	The first row shows <b>re.P.CAL</b> . The second low shows A/D counts, and the third row is the calibration weight (Unit: kilograms or pounds),

**Example: (The basic unit of this example is lb)**

1. Connect to an external scale. Power the scale and access **re.CAL**.
2. Use the numeric keys to input 600 and press  key to confirm.
3. Use  key to select **rE.d = 1**. Press  key to confirm.
4. Wait for the external scale to become stable and press  key to confirm.
5. Place a 6 lb weight on the scale platform and use the numeric keys to input 6.  
 Press  key to confirm.
6. The scale will store current setting. Re-apply power to the scale..
7. Press  key to switch to the external scale.

---

# Section 6: Serial Input / Output

---

## 6.1. INTRODUCTION

The Omega Series Scale has two RS232C ports, Serial 1 and Serial 2. Serial 1 is dedicated for use with printers and Serial 2 is strictly for scanner/readers to input data into the Omega Scale. Serial 1 is located on the rear panel and Serial 2 is located on the right side panel.

## 6.2. GC420D PRINTER SETUP AND PROGRAMMING

The Omega Series scale in conjunction with the GC420d label printer provide templates as a solution to our customers' label printing needs and label printing requirements. The GC420d direct thermal label printer is an intelligent printer and can be programmed to print a variety of different styles and formats.

The GC420d printer has templates for the most popular printing formats for the Omega Series scales. The templates are simply downloaded and installed into the GC420d with one of the many predefined printer label formats, setup the instrument and labels are ready to print. The step-by-step instructions for the GC420d Download Instructions are located on the GC420d Direct Thermal Label printer page along with the label templates and listed below in Section 6.3.

For access to these templates go to Fairbanks' Intranet / Product section / Printers / GC420d Direct Thermal label printer. The templates are located under the Sales / Service tools and are identified by the instrument Omega Counting Scale. Save the .zip file to a familiar location on your computer and extract all. Determine which format works best for the application and download that format to the printer. Follow the simple instrument setup instructions to begin printing bar code labels.

An existing format may be modified which will greatly reduce the amount of work required. Consult the GC420d manual for the label modification instructions.

## 6.3. DOWNLOAD INSTRUCTIONS - PC TO GC420D

1. Select the label format desired and download it to the PC which is going to upload to the GC420d printer. Save it to a location which is easily located, such as the Desktop.
2. Connect the printer to the PC with a DB to DB9 null modem cable (PN 29065). A null modem cable has a male connector on one end and a female connector on the other end. All pins on the DB9 connectors are connected straight through (1-1, 2-2, and etc.)
3. Open a HyperTerminal session. Assign a name to the **Connection Description** and press OK.

## 6.3. Download Instructions - PC to GC420D, CONTINUED

4. Within the **Connect To** dialog box, press the drop down menu arrow inside the **Connect using** data entry box. Select the COM port which is being used on the PC.
5. A COM Properties dialog box will appear. Configure the serial port to **Bits per second (baud): 9600, Data bits: 8, Parity: None, Stop bits: 1, and Flow control: None**. This will match the GC420d printer's default configuration.
6. Select the Properties icon or select File and then choose Properties from the drop down menu. This will display the "File Name which was assigned" Properties Dialog box.
7. Select the **Settings** tab and then select the **ASCII Setup ...** button. In the **ASCII Setup** dialog box, place a check mark next to **Send line ends with line feeds** by pressing the left button on the mouse. Select the OK button on dialog box to close. Again, select the OK button on dialog box to close.
8. Ensure the label printer is loaded with labels and is "powered on" with the feed button illuminated green.
9. In HyperTerminal, select **Transfer** and then select **Send Text File...** from the drop down menu.
10. Navigate to the location to where the label format was saved. (i.e. Desktop) Select the format to download.
11. Select the name of the desired file which will highlight its name. Press the **Open** button and the file will be transmitted to the printer.
12. Upon successful download to the printer, a label will be printed with the following information:  
Line 1: Form information  
Line 2: AUTOFR  
Line 3: Form memory left. NNN.NK. Where N indicates the amount of free space in the printers memory.
13. If the printer prints several labels with incoherent data on them, cycle power to the printer and repeat from step 9 above.
14. This concludes the download procedure for the printer. Cycle power to the printer and it is now ready to connect to the instrument.

---

### NOTE:

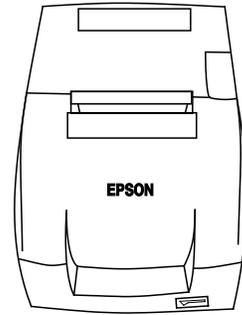
*The standard labels for the GC420d series printer are 2" x 4" dimensionally. All templates are based upon use of this size label.*

---

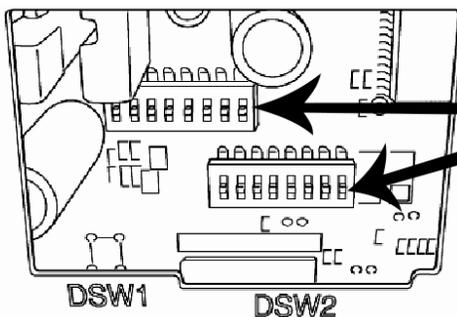
## 6.4. TM-U220 TAPE PRINTER

- This is the TM-U220 Tape Printer (non-DAT, white case).

Transmission	<b>RS232</b>
Baud Rate	<b>9600</b>
Data Bits	<b>8</b>
Stop Bit	<b>1</b>
OUTPUT	<b>“BUTTON” for Print Key</b>



Bottom of TM-U220 Tape Printer



DS1	ON/OFF
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

DS2	ON/OFF
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	OFF

## 6.5. SETTINGS FOR THE OMEGA

### COUNTING SCALE

#### 6.5.1. Cable Requirement

Use cable part number 20483 M-F Null modem cable for the printer interface cable.

#### 6.5.2. Omega Series Label Selection Programming

##### A. OMEGA SETTINGS FOR ALL PRINTERS

###### PRT

Ser.1 = PrESS

bAUd = 9600

PArit = 8-n-1

### 6.5.3. Omega Programming to Produce Specific Label Formats

#### A. Label 1

Pr.nEt = nEt  
 LUGt = no  
 PLU = YES  
 dESC = no  
 tidt = no  
 PCS = no  
 PCLUGt = no  
 ACC = YES  
 PCS.ACC = YES  
 ACC.LUGt = YES



Label 1

#### B. Label 2

Pr.nEt = G.t.nEt  
 LUGt = YES  
 PLU = YES  
 dESC = no  
 tidt = no  
 PCS = YES  
 PCLUGt = YES  
 ACC = no  
 PCS.ACC = no  
 ACC.LUGt = no



Label 2

**C. Label 3**

Pr.nEt = nEt  
 LUGt = YES  
 PLU = YES  
 dESC = no  
 tidt = no  
 PCS = YES  
 PCLUGt = YES  
 ACC = no  
 PCS.ACC = no  
 ACC.LUGt = no



**Label 3**

**D. Label 4**

Pr.nEt = nEt  
 LUGt = no  
 PLU = YES  
 dESC = YES  
 tidt = no  
 PCS = no  
 PCLUGt = no  
 ACC = YES  
 PCS.ACC = YES  
 ACC.LUGt = YES



**Label 4**

**E.Label 5**

Pr.nEt = nEt  
 LUGt = YES  
 PLU = YES  
 dESC = YES  
 tidt = no  
 PCS = YES  
 PCLUGt = YES  
 ACC = no  
 PCS.ACC = no  
 ACC.LUGt = no

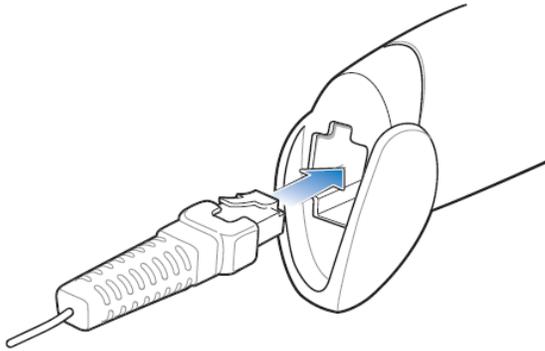


**6.6. SCANNER/READER SETUP**

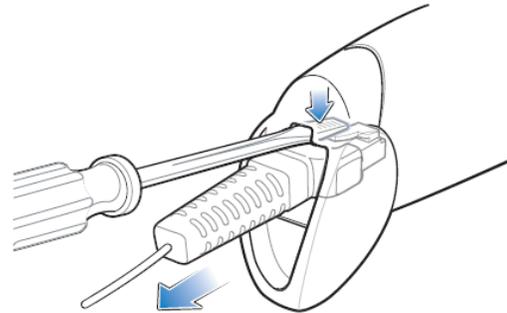
1. Attach the interface cable to the hand held scanner/reader. See below.
2. Connect the interface cable to Serial 2 on the right hand side panel of the OCS.
3. Connect the AC adapter to the bar code scanner.
4. Enable Serial 2 in the OCS for scanner/readers by selecting YES.
5. Use the color **Quick Start Guide** that accompanies the scanner and perform the following steps:
  - a. Scan the “Return to Factory Defaults” bar code on the Quick Start Guide.
  - b. Scan the “Standard RS-232” bar code in Step 3 of the bar code scanner instructions....
  - c. Scan bar codes 1, 2 and 3 in the Add An Enter Key of the bar code scanner instructions.
  - d. Scanner programming is complete. If you do not successfully complete each of these steps, start the entire scanning process from the beginning.

**DO NOT discard** this sheet. It must be used to setup and configure the scanner/reader.

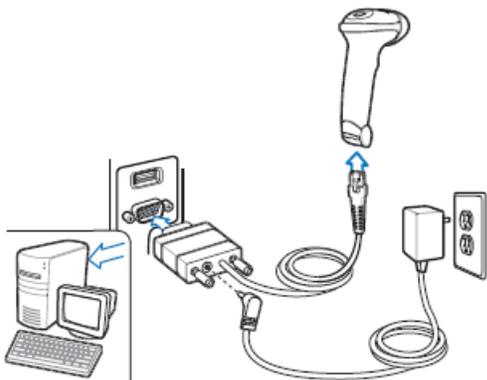
**Attach Cable**



**Remove Cable (to change interface)**



**RS-232**



**LED Indications**

<p><b>Off</b></p> <p>Scanner is on and ready to scan, or no power to scanner</p>	<p><b>Green</b></p> <p>Bar code is successfully decoded</p>	<p><b>Red</b></p> <p>Transmission error</p>
--	---	---

**Beeper Indications**

**Standard Use**

<p><b>Low/medium/high beep</b></p> <p>Power up</p>	<p><b>Short medium beep</b></p> <p>Bar code decoded</p>	<p><b>4 long low beeps</b></p> <p>Transmission error detected, data is ignored</p>
--	---	--

**Parameter Menu Scanning**

<p><b>High/low/high/low beep</b></p> <p>Successful parameter setting</p>	<p><b>High/low beep</b></p> <p>Correct programming sequence performed</p>	<p><b>Low/High beep</b></p> <p>Incorrect programming sequence or "Cancel" bar code scanned</p>
--	---	--

**Troubleshooting**

**Scanner not working**

<p><b>No power to scanner</b></p> <p>Check system power; ensure power supply, if required, is connected</p>	<p><b>Incorrect interface cable used</b></p> <p>Ensure that correct interface cable is used</p>	<p><b>Interface/power cables are loose</b></p> <p>Ensure all cable connections are secure</p>
---	---	---

**Scanned data incorrectly displayed on host**

<p><b>Scanner not programmed for correct host interface</b></p> <p>Scan appropriate host parameter bar codes</p>
--

**Scanner decoding bar code, but data not transmitting to host**

<p><b>Scanner not programmed for correct host interface</b></p> <p>Scan appropriate host parameter bar codes</p>	<p><b>Interface cable is loose</b></p> <p>Ensure all cable connections are secure</p>
--	---

**Scanner not decoding bar code**

<p><b>Scanner not programmed for bar code type</b></p> <p>Ensure scanner is programmed to read type of bar code being scanned</p>	<p><b>Bar code unreadable</b></p> <p>Ensure bar code not defaced; try scanning test bar code of same bar code type</p>	<p><b>Distance between scanner and bar code incorrect</b></p> <p>Move scanner closer to or further from bar code</p>
---	--	--

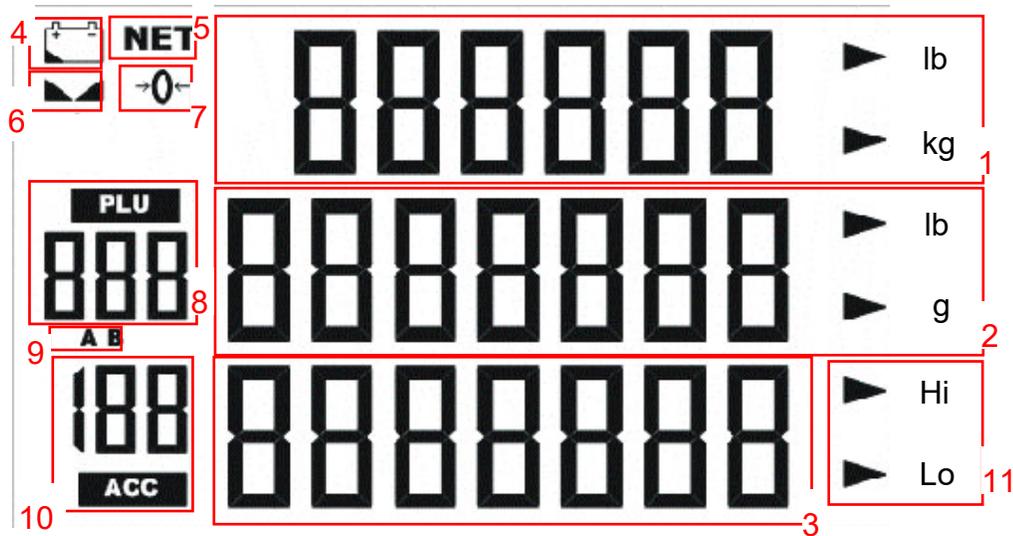
# Section 7: User Operations

## 7.1. INTRODUCTION

The Omega Series Counting Scale is a weighing device that displays the number of similar items in a group based upon the weight of a known sample. The counting feature of this scale calculates the average piece weight for the items by using the total weight of the sample and dividing it by the number of items in the sample. Using this average piece weight, the Omega Series Counting Scale will determine by calculating the number of items in a group by dividing the total weight by the average piece weight. All of these calculations are performed within the Omega Series Counting Scale internal program application which is performed automatically during the weighing process. The Omega Series Counting Scales provide a quick and accurate count of large quantities of similar objects.

## 7.2. FRONT PANEL DISPLAY AND KEY FUNCTIONS

### 7.2.1. LCD Display

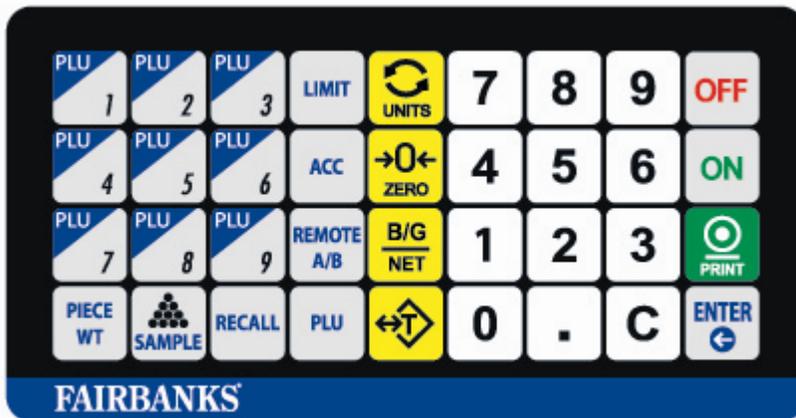


### A. LCD Display Definitions

1.  $\triangleright_{g}^{kg}$  Actual Weight Display.
2.  $\triangleright_{g}^{kg}$  Second row displays Piece Weight. Also used as keypad input display.
3. The third row displays Piece Counts and abbreviated as PCS.
4. Indicates the battery power is low. A battery recharge or battery replacement is required for further operation.
5. **NET** Indicates the first row displays the Net weight after tare

- 6.  Indicates the weight is stable.
- 7.  Indicates the weight is at zero.
- 8.  Displays the PLU number.
- 9. **AB** Indicates the selected scale.
- 10.  Displays the accumulated counting results in memory.
- 11.  Indicates that the upper Limit of piece counts or weight is set.
- 12.  Indicates that the lower Limit of piece counts or weight is set.

**7.2.2. Display and Keypad**



## 7.2.2. Display and Keypad, CONTINUED

### A. Keypad Functions

Key	Function
	Press to switch the scale OFF.
	Press to turn the scale ON.
	Initiates a print cycle. Note: Internal Programming must be activated.
	Press to confirm entry or selection.
	Press the numeric and decimal keys to input data such as piece weight, PLU no., etc.
	Press to change unit of measure. There are two units selections available. Pound (lb) or Kilogram (kg). The current unit selected is displayed on the right hand side of the actual weight display.
	Press to set the scale to zero.
	Press to display select Gross Weight, Net Weight, or Tare Weight.
	Press to enter the actual weight as the tare.
	Press to set the alarm for high and low limits for piece counts and piece weights.
	Press to add piece count and weight.

	Press to switch operation between scale A (main scale) and scale B (remote scale).
	Press to store, load, or modify a preset piece weight.
	PLU ( <u>P</u> art <u>L</u> ook <u>U</u> p) keys. Press to load preset piece weight data from the nine (9) PLU keys.
	Press to recall total piece count and total weight.
	Press to set up sample quantity. (Sample key: multiple sampling methods are available. (See <b><u>Sampling</u></b> .)
	Press to set up piece weight. (See <b><u>Piece Weight Setup</u></b> .)
	Clears the selected data entry.

## 7.3. BASIC OPERATIONAL FUNCTIONS

### 7.3.1. General Weighing

The Omega Series Counting Scale will perform general weighing and counting functions.

#### 1. Tare operation

Tare function is utilized when containers are used to hold the material. When this function is activated, Omega Series Counting Scale will subtract the container weight or Tare weight from the Gross weight and the end result will be the Net weight of the material.

This function is an auto tare operation only.

The Tare function may be enabled or disabled through service programming.

---

#### NOTE:

*Tare weight is cleared by pressing the Tare key. ()*

---

#### 2. Alarm

The Alarm function provides a visual or audible indication of the count limit and weight limit when they are near the preset limit values.

### 3. Unit

There are two (2) available weight units in the Omega Series scales, pound (lb) and kilogram/ gram (kg / g). The operator uses the Units key () to switch between units.

### 4. External Scale

The Omega Series scales may be interfaced to one (1) external scale.

#### 7.3.2. Counting

The Omega Counting Scale can count item piece by weight. If the weight of each item is known, the items are counted and numbered based upon the weight upon the scale. For example, if total weight on the scale is 10 pounds, the piece weight of each item is 0.10 pounds. The scale will perform an internal calculation and display 100 on the third pieces line of the display.

There are two ways to set the piece weight. One is **setup piece weight by keypad input**. The other is **setup piece weight by sampling**. (Reference to Sample operation)

The ACC key on keypad is used for save current data. It provides a convenient function to record the weight and piece data into memory. **After any record is saved, the scale weighing pan must be cleared to ensure the weight is at zero for the next record.**

#### 7.3.3. PLU

PLU (Part Look Up) is a memory lookup number comprised of the Piece Weight and Tare Weight. The scale can store up to 999 PLU's into memory. When you activate any PLU, the scale will replace the current Piece Weight and Tare Weight with the PLU selected from memory.

## 7.4. TARE OPERATIONS

### 7.4.1. Tare Entry with a Known Weight

1. In the normal weighing mode, place the item to tare on the scale pan.
2. Press the  key, and the tare weight has been stored.
3. **NET** is indicated on display.

#### Example □

1. Place 1 lb on the scale weighing pan.
2. Press  key. **NET** is indicated on the display and the displayed weight changes to 0.

**NOTE:**

*The Tare weight cannot be set when the **displayed** weight is under or less than zero.*

**7.4.2. Manual Tare Entry Via The keypad**

1. In the normal weighing mode, press the numeric keys to input the tare weight. (If the unit indicated is kg, the tare entry is in kg. If the unit indicated is lb, the tare entry is in lb.)
2. Press , and the tare weight has been stored. (The Tare data will be cleared in 10 seconds if  is not pressed.)
3. **NET** is indicated on the display.

**Example**

1.   Enters the tare weight as 0.5 lb.
2. Press  key. **NET** is indicated on the display and the weight will display a minus (-) 0.5 lb.

**NOTE:**

*A tare weight cannot be entered which is greater than the scale capacity.*

**7.5. SAMPLING OPERATION**
**7.5.1. Enter piece weight by direct keypad input**

1. In the normal weighing mode, press the numeric and decimal keys (, , ...) to input the piece weight.
2. Press the PIECE WT  key, and the piece weight has been stored. The piece weight data will be cleared in 10 seconds if the PIECE WT  key is not pressed.
3. The piece weight may be cleared by pressing the  key.

**Example**

1. Press the   keys, to enter piece weight as 0.5 lb.
2. Press  and 0.5 shows on the second line.
3. The piece weight may be cleared by pressing the  key if an entry error was made. Repeat the process to correct.

**7.5.2. Setup piece weight by sampling (quick set)**

1. Put certain pieces of objects onto the scale pan.
2. In weighing mode, press the numeric and decimal keys (, , ...) to enter the piece count.
3. Press  to calculate the piece weight. The input data will be cleared in 10 seconds if  is not pressed.
4. The piece weight may be cleared by pressing the  key.

**Example**

1. Place 1 lb on the scale weighing pan.
2. Press  to set item number as 5. Its shows on the second line.
3. Press  and the Omega Counting Scale will show the piece weight on the second line and the item count on the third line.
4. The piece weight may be cleared by pressing the  key if an entry error was made. Repeat the process to correct.

**7.5.3. Setup piece weight by sampling (place item)**

1. Make sure the piece weight is empty. The Omega Counting Scale will calculate the piece weight by the weight added and piece count number as listed below.
2. Press , the second row of LCD shows **SAMPLE** and the third row of LCD shows default value as 100.
3. Press the numeric and decimal keys to enter the new sampling quantity.
4. Place objects of desired piece counts on the weighing pan. The piece weight will be calculated automatically in approximately 3 seconds or press the  key to calculate immediately.

- The piece weight may be cleared by pressing the  key.

**Example**

- Press  to enter the sample mode.
- Press  to set the manual entered piece count number as 5. It is displayed on the third line.
- Place 1 lb on the scale weighing pan.
- Wait 5 seconds after the weight is stable and the piece weight is displayed as 0.2 and the piece count is displayed as 5.

**NOTE:**

*If weighing is performed on external scale, after the  is pressed, the sampling job will be continued on main scale automatically when the auto switch is configured in the scale counting parameter setting.*

**7.5.4. Setup piece weight by sampling (remove item)**

- Make sure the piece weight on the display is zero.
- Place a item on the weighing pan. The Omega Counting Scale will calculate the piece weight based upon the change in weight..
- Press , the second row of LCD displays **SAMPLE** and the third row of LCD displays the default value as 100.
- Press the numeric keys to enter the new sampling quantity.
- Remove the items to obtain the desired piece counts value from the weighing pan. The piece weight will be calculated automatically.
- The piece weight may be cleared by pressing the  key.

**Example**

- Place 5 lbs on the scale weighing pan.
- Press  to into sample mode.
- Press  to set item number as 5. It is displayed on the third line.
- Remove the 1 lb item on scale weighing pan.
- Wait for 5 seconds after the weight is stable. The piece weight displays 0.2 and piece count displays 25.

**NOTE:**

If weighing is performed on external scale, after the  is pressed, the sampling job will be continued on main scale automatically when auto switch is configured in the scale counting parameter setting.

**7.5.5. Setup piece weight by sampling (re-sample)**

If the piece weight and weight has not been cleared, you may add or remove weight and press  to calculate the piece weight again.

**Example**

1. Place 1 lb on the scale weighing pan.
2. Press  to set the item number as 5. It is displayed on the second line.
3. Press  and to display the piece weight on the second line and the piece count on the third line.
4. Press  again to use piece count number 5 to sample again.

**7.5.6. Auto re-sample operation**

After a successful sampling operation, the scale will automatically sample again on the main scale for any new small weight. Placing new weight onto the scale weighing pan will automatically sample again.

**Example**

1. Press  to into sample mode.
2. Press   to set item number as 50. It is displayed on the third line.
3. Place 5 lb item on scale weighing pan.
4. Wait for 5 seconds until the weight stable. The piece weight displays 0.1 and piece count displays 50.
5. Place 1 lb item on scale pan.
6. Upon a stable weight, the scale will re-sample.

**NOTE:**

The new small weight should be less than half of the sampling weight. The item change must be greater than 5. If the weight change is larger than half of the sampling weight, auto re-sample will stop.

**NOTE:**

*Auto Re-sample function can be disabled in Setup settings menu.*

## 7.6. PLU (PART LOOK UP) OPERATION

PLU is a preset Piece Weight and Tare value. The scale can save up to 999 PLU items.

### 7.6.1. Setting PLU

#### A. Steps in setting PLU keys 1~9

1. Set up piece weight as in **Sampling Operation** section 7.5.
2. Press , and **PLU** will begin flashing.
3. Select your desired PLU number from the direct PLU keys.
4. Press  to save your setting. **PLU** will stop flashing.
5. rEPLAC and YES is displayed. Press the  key to accept the change or press  key to display rEPLAC and No. Press the  key to disregard the changes.

#### Example □

1. Press    to enter piece weight as 0.5 gram.
2. Press  key, now **PLU** is flashing on the display.
3. Press  key, PLU indicator shows 3, and  now flashing.
4. Press  key, after the beep, the piece weight for PLU 3 is now set as 0.5 gram.
5. rEPLAC and YES is displayed. Press the  key to accept the change or press  key to display rEPLAC and No. Press the  key to disregard the changes.

**NOTE:**

*If there is no data input in 30 seconds, the scale will exit the PLU setting mode and returns to the normal weighing mode.*

### 7.6.1. Setting PLU, continued

#### A. Steps in setting PLU no.0~999

1. Set up the piece weight as in **Sampling Operation** section 7.5.
2. Press  and **PLU** will begin flashing on the display.
3. Press the numeric keys to select PLU number.
4. Press  to save your setting, **PLU** will stop flashing on the display.
5. rEPLAC and YES is displayed. Press the  key to accept the change or press  key to display rEPLAC and No. Press the  key to disregard the changes.

#### Example

1. Press    to enter piece weight as 0.5 gram.
2. Press  key, now **PLU** is flashing on the display.
3. Press    key. PLU indicator shows 555, and **PLU** is flashing.
4. Press  key, after the beep, the piece weight for PLU 555 is stored as 0.5 gram.
5. rEPLAC and YES is displayed. Press the  key to accept the change or press  key to display rEPLAC and No. Press the  key to disregard the changes.

#### Note:

*If there is no data input in 30 seconds, the scale exits the PLU setting mode and returns to normal weighing mode.*

## 7.6.2. Loading PLU

### A. Steps in loading PLU no.1-9

1. In weighing mode, press any key from the direct PLU keys to access the PLU memory of the key's lower-right set.

#### Example:

Press  one time, the 3<sup>rd</sup> PLU is loaded. The LCD shows 3 below the  indicator.

### B. Steps in loading PLU no.0-999

1. In weighing mode, press and hold  until it emits a double beep then release.
2. Use the numeric keys to input the desired PLU number and press  to load the reference PLU.

#### Example:

1. Press and hold  key until double beep.
2. PLU indicator shows 000. PLU indicator flashing now.
3. Press    key. PLU indicator shows 555. PLU indicator flashing now.
4. The Piece Weight and Tare Weight of PLU 555 will load to OCS.
5. Press PLU key to complete PLU loading process.

---

### NOTE:

*If there is no data input in 30 seconds, scale exits the PLU setting mode and returns to normal weighing mode.*

---

## 7.6.3. Modify PLU

1. When  is shown on the display, press  and the piece weight starts flashing.
2. Set up piece weight according to the previous section and press .
3. The Tare weight starts flashing.
4. Setup the Tare weight according to the previous section, if applicable, then press .

### 7.6.3 Modify PLU, continued

- rEPLAC is displayed on the Piece Weight line making sure you want to overwrite the previously stored value. Press  key to change from Yes to No. Press the  key to overwrite.

#### Example:

- Press  key to access the third PLU.
- Press  key to access the PLU modify mode. Piece Weight is flashing now.
- Press   key. The Piece Weight 0.5.
- Press  key to complete PLU modify process.
- The Tare weight blinks. Enter the new Tare weight.
- Press  key to save the Tare weight.
- rEPLACE and YES are displayed, press the  key to accept changes or press the  key to display no, then the  key to disregard changes.

## 7.7. MORE OPERATIONS

### 7.7.1. Accumulation

- When there is a load on the scale weighing pan and piece weight has been input.
- Press  key. When you hear a beep,  lights up on the LCD, indicating a data has been recorded.
- Clear the load and put another load on the scale weighing pan. Set up the piece weight again.
- Press  key. After a beep sound,  lights up, indicating second data has been recorded.

### 7.7.1. Accumulation, continued

**Example:**

1. Clear scale weighing pan. Make sure the weight is 0. If weight is not 0, use zero key to reset.
2. Press    key to set Piece Weight as 0.5 pounds.
3. Put 1 pound item on scale weighing pan and waiting for stable.
4. Press  key. After on beep sound,  lights up.
5. Remove item on scale weighing pan. Make sure the weight is 0 again.
6. Press    key to set Piece Weight as 0.1 pounds.
7. Put 2 pounds item on scale weighing pan and waiting for stable.
8. Press  key. After on beep sound,  lights up.

**NOTE:**

After each recording, if the load on the weighing pan is not cleared, pressing  will result in a long beep and the scale will not be able to record the next weighing result.

**NOTE:**

The stored memory can memorize up to 180 weighing results.

### 7.7.2. Recall

**A. Total mode**

1. In weighing mode, press  and the Weight column will be cleared. The Piece Weight column displays .
2. The PCS column shows the total piece count in memory. The Weight column shows the accumulated weight.
3. The number above “ACC” indicator is the record size.
4. Press  to exit without clearing the data.
5. Press  to clear the data and exit.

**A. Total mode, continued**
**Example:**

1. Clear scale weighing pan. Make sure the weight is 0. If weight is not 0, use zero key to reset.
2. Press    key to set Piece Weight as 0.5 pounds.
3. Put 1 pound item on scale weighing pan and waiting for stable.
4. Press  key. After on beep sound,  lights up.
5. Press  key to into total mode. The Weight shows 1 pound. The Piece shows 2.
6. Press  to back to normal mode. The ACC data still in flash, and  still lights up.
7. Press  key to into total mode again.
8. Press  to clear all flash and back to normal mode. The ACC data is clear, and  is gone.

**B. Record view mode**

1. Enter total mode in **Total mode** of **Recall** section 7.7.2.
2. Press  to enter record view mode. You can review each record in memory by pressing the  to toggle through each of the stored accumulations. If current record is the last record, it will return to total mode.
3. The number shown above the “ACC” indicates the number of current record. Weight, Piece Weight and Piece is the data of current record.
4. Press  to leave and back to normal mode.
5. Press  to clear current record.

**B. Record view mode, continued**
**Example:**

1. Clear scale weighing pan. Make sure the weight is 0. If weight is not 0, use zero key to reset.

2. Press    key to set Piece Weight as 0.5 pounds.

3. Put 1 pound item on the scale weighing pan and wait for a stable weight.

4. Press  key. A beep sound will occur and  is illuminated.

5. Remove item on scale weighing pan. Make sure the weight is 0 again.

6. Press    key to set Piece Weight as 0.1 pounds.

7. Put 2 pounds item on scale weighing pan and wait for a stable weight.

8. Press  key. A beep sound will occur and  is illuminated.

9. Press  key to into total mode again.

10. Press  key again to access the record view mode.

11. Press  key to switch to the second record.

12. Because the second is the last record. Press  key to return to the total mode.

13. Press  key to into record view mode again.

14. Press  to return to normal weigh mode. The ACC data is still in memory, and  is illuminated.

15. Press  key twice to access the record view again.

16. Press  key to clear the first record. The display will show the next record. (The first is removed. The second replaces first one. The number above ACC remains at 1.)

17. Press  key to clear again. The record is not stored. The scale returns to the normal weighing mode.

### 7.7.3. Alarm function

#### A. Piece alarm

1. Press  key. The PCS column displays **PCS, H i**.
2. The piece weight column shows the PCS Upper Limit setting. Configure the PCS Upper Limit with the numeric keys.
3. Press  key again. The PCS column displays **PCS, Lo**. Configure the PCS Lower Limit with the numeric keys.
4. Press  will save the piece lower limit value and enter the weight alarm mode.

**Example:**

1. Press  key to enter the Piece Upper Limit setting. The PCS column displays **PCS, H i**.
2. Input 20 to set the Piece Upper Limit as 20.
3. Press  key to enter the Piece Lower Limit setting. The PCS column displays **PCS, Lo**.
4. Input 10 to set the Piece Lower Limit as 10.
5. Press  three times to complete Piece alarm setting.
6. Press    key to set Piece Weight as 0.5 pounds.
7. Place 1 pound on scale weighing pan. The Piece Weight shows 2, and Lower Limit alarm is indicated. The Lower Limit indicator will be flashing. If the Low Beep sound is enabled, it will sound an audible alarm also.
8. Place 11 pounds on scale weighing pan. The Piece Weight shows 22, and Upper Limit alarm is indicated. The Upper Limit indicator will be flashing. If the High Beep sound is enabled, it will sound an audible alarm also.

## B. Weight alarm

1. After the **Piece alarm** is configured, the scale will enter the Weight alarm setting.
2. The PCS column displays **LoAd Hi**. Set up the Weight Lower Limit with the numeric keys. (If the unit is kg, this unit is in grams. If the unit is lb, this unit is in lb)
3. Press  key again, the PCS column displays **LoAd Lo**. Set up the Weight Lower Limit with the numeric keys. (If the unit is kg, this unit is in grams. If the unit is lb, this unit is in lb)
4. Press  key to save your settings and return to weighing mode.

### Example:

1. Press  key three times to enter Weight Upper Limit setting. The PCS column displays **LoAd Hi**
2. Input 10 to set Weight Upper Limit as 10.
3. Press  key to enter Weight Lower Limit setting. The PCS column displays **LoAd Lo**
4. Input 1 to set Weight Upper Limit as 2.
5. Press  to complete Weight alarm setting.
6. Put 1 pound on scale weighing pan. The Lower Limit alarm is indicated. (Lower Limit indicator begins flashing. If the Low Beep sound is enabled, it will sound an audible alarm.)
7. Put 11 pounds on scale weighing pan. Upper Limit alarm is indicated. (Upper Limit indicator begins flashing. If the High Beep sound is enabled, it will sound an audible alarm.)

---

### NOTE:

1. If the piece count exceeds the upper limit of PCS Upper Limit, or lower than the PCS Lower Limit and it is not zero, the scale will continue to beep for a warning.
  2. If the weight exceeds the upper limit of Weight Upper Limit, or lower than the Weight Lower Limit and is not zero, the scale will continue to beep for a warning.
  3. The beep settings are configured in the SETUP menu.
-

## 7.8. B SCALE SELECTION

1. Press  to switch between main scale and the external scale.
2. The initial zero is the zero setup configured in the calibration procedure. It means any loads on the weighing pan will exactly display after the scale start.

---

**NOTE:**

*If the Omega Counting Scale is connected to any new external scale, calibration must be performed. This procedure is located in the Remote Load Cell Settings.*

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## Section 8: Service & Maintenance

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### 8.1. BASIC CLEANING

The Omega Series scales may be cleaned with a damp cloth and mild detergent. Do not use chemical cleaners or abrasive type scouring pads.

### 8.2. TROUBLESHOOTING

#### 8.2.1. Error Code list

Error	Description
OL1	Weight on the main scale is larger than the maximum scale capacity.
OL2	Weight on the external scale is larger than the maximum scale capacity range.
UL1	Weight on the main scale is out of range below the zero reference.
UL2	Weight on the external scale is out of range below the zero reference.
Error1	Key input error.
Error2	Zero range exceeds the permissible range.
Error3	The scale weight is unstable within the system time limit constraint.
Error4	Scale was attempting to stabilize and timed out. Remove cause of instability and restart scale. If problem persists, contact your service provider.
Error203	Unrecognized barcode. Data not stored in Omega database.
LobAtt	Battery voltage $\leq$ 4.59Vdc. Recharge battery, See <b>Warning!</b> (below)
rEPLAC	Prompt asking user to override existing information.

## WARNING!

If battery has been recharged, a minimum of 16 hours, and the display still reads “LobAtt”, check to make sure the AC power source used to recharge the battery is working. Also, check to make sure the battery connections are clean and well-fitted (both at the battery and on the PC board). If all this is in good, working order, then the rechargeable battery needs replacing.

---

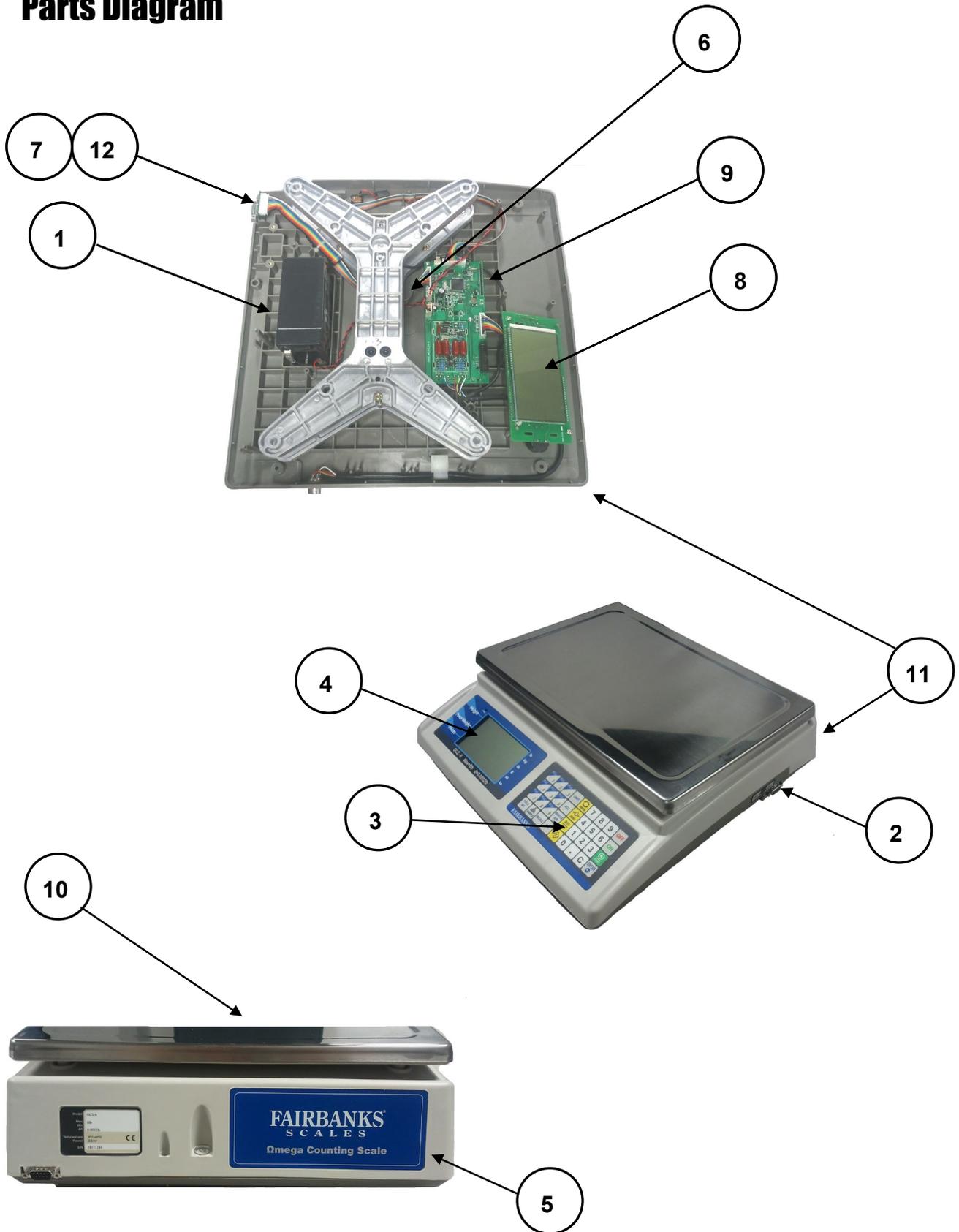
## Section 9: Parts

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### 9.1. OMEGA SERIES PARTS LIST

ITEM	PART NO.	DESCRIPTION
--	24157	AC Adapter (TAD41-0900500DU)
1	27391	Lead-acid battery NP4-6
--	31790	Remote Scale connector kit (includes a male and female connector)
2	31791	Adjustable Scale Feet (set of 4)
3	31792	Keypad
4	31793	Display Window Overlay
5	31794	Rear Panel Overlay
6	31795	Single point load cell 6kg (C2G1) 6 lb Omega Scale
6	31796	Single point load cell 10kg (C2G1) 15 lb Omega Scale
6	31797	Single point load cell 20kg (C2G1) 30 lb Omega Scale
6	31798	Single point load cell 35kg (C2G1) 60 lb Omega Scale
6	32723	Single point load cell 40kg (PW6KC3) 100 lb Omega Scale
--	31799	Screw kit (includes all screws for the Omega series scale)
--	31800	Cable kit (includes all pcb cables for the Omega series scale)
7	31801	RS232C cable
8	31802	Display pcb assembly
9	31803	A/D pcb assembly – 60 lb and below
9	37199	A/D pcb assembly – 100 lb capacity
10	31804	Weighing platform (Stainless and plastic)
11	31805	ABS enclosure (top and bottom assemblies)
12	31806	RS232C pcb

# Parts Diagram



## 9.2. OPTIONAL ACCESSORIES

Product No.	Description
*31701	Bar code scanner (Symbol) with hands-free stand
*31789	Dust cover (Qty. 5)
*24482	GC420d series label printer
*20483	GC420d printer cable (required when a GC420d printer is ordered.)
98945	Label Roll 2" x 4" 735 labels / roll
*34052	PLU Manager Database Software (CD)

\* See also section [1.4 Accessories](#)

# APPENDIX I: RS232C Connection:DB9 (Male)

DB9 Male (Pin Side)

```
-----  
 \ 1 2 3 4 5 /  
 \ 6 7 8 9 /  
-----
```

DB9 Female (Pin Side)

```
-----  
 \ 5 4 3 2 1 /  
 \ 9 8 7 6 /  
-----
```

Pin	Description
1	DCD
2	Rx
3	Tx
4	DTR
5	Gnd
6	DSR
7	RTS
8	CTS
9	RI

---

# APPENDIX II: Data Output

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## A. BI-DIRECTIONAL RS232C SETTING

*This section is applicable only for models with RS-232C module.*

### OUTPUT FORMAT

18.143 kg GR (See *Serial 1 weight output* of *Print Settings*)

0.000 kg TA (See *Serial 1 weight output* of *Print Settings*)

18.143 kg NT

PLU 1 (Reference to *PLU print* of *Print Settings*)

80 PCS (Reference to *Piece Information print* of *Print Settings*)

0.226796 kg PW (Reference to *Piece Weight print* of *Print Settings*)

2 ACC# (Reference to *Accumulation Information print* of *Print Settings*)

27.216 kg NT ACC (Reference to *Accumulation Weight Information print* of *Print*

*Settings*)

17:33 PM (Reference to *Time and data print* of *Print Settings*)

01/01/2016 (Reference to *Time and data print* of *Print Settings*)

### Data Output Character Legend (Desc.)

-		Negative, weight polarity (empty if positive)
W		Weight
SP		Space
U		Unit of measure (could be lb, kg or g)
G	R	Gross Weight
T	A	Tare Weight
N	T	NET Weight
X		Text
PW		Part Piece Weight
#		Number (Piece Count, PLU, Accumulations, time & date)
CR		Carriage Return
LF		Line Feed

*Sample Ticket Layout*

```

- 0.001 lb GR
  0.023 lb TA
- 0.024 lb NT
6P Nails 3/4
PLU 2
    0 PCS
  0.02323 lb PW
    3 ACC#
  5.362 lb NT ACC
    231 PCS ACC
18:48 PM
03/20/2016
  
```

\* **Omega Data Output** – This is assuming ALL data outputs are enabled. This will change based on the user’s specific needs, adjust accordingly.

**GTN, Data String**
**Gross Weight**

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Char	-			0	.	0	0	1		l	b		G	R	013	010
Hex	2D	20	20	30	2E	30	30	31	20	6C	62	20	47	52	0D	0A
Desc	-	W	W	W	W	W	W	W	SP	U	U	SP	G	R	CR	LF

**Tare Weight**

Byte	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Char				0	.	0	2	3		l	b		T	A	013	010
Hex	20	20	20	30	2E	30	32	33	20	6C	62	20	54	41	0D	0A
Desc	W	W	W	W	W	W	W	W	SP	U	U	SP	T	A	CR	LF



**NET Weight**

Byte	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
Char	-			0	.	0	2	4		l	b		N	T	013	010	
Hex	2D	20	20	30	2E	30	32	34	20	6C	62	20	4E	54	0D	0A	
Desc	-	W	W	W	W	W	W	W	W	SP	U	U	SP	N	T	CR	LF

Description, Data String

**Description**

Byte	49	50	51	52	53	54	55	56	57	58	59	60	61	62
Char	6	P		N	a	i	l	s		3	/	4	013	010
Hex	36	50	20	4E	61	69	6C	73	20	33	2F	34	0D	0A
Desc	X	X	X	X	X	X	X	X	X	X	X	X	CR	LF

PLU, Data String

**PLU**

Byte	63	64	65	66	67	68	69	70
Char	P	L	U		2		013	010
Hex	50	4C	55	20	32	20	0D	0A
Desc	X	X	X	#	#	#	CR	LF

Piece Count, Data String

**Number of pieces counted**

Byte	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Char								0		P	C	S	013	010
Hex	20	20	20	20	20	20	20	30	20	50	43	53	0D	0A
Desc	#	#	#	#	#	#	#	#	SP	X	X	X	CR	LF



Piece Weight, Data String

Individual piece weight

Byte	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Char		0	.	0	2	3	2	3		l	b		P	W	013	010
Hex	20	30	2E	30	32	33	32	33	20	6C	62	20	50	57	0D	0A
Desc	W	W	W	W	W	W	W	W	SP	U	U	SP	PW	PW	CR	LF

Accumulations, Data String

Number of stored accumulations

Byte	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
Char								3		A	C	C	#	013	010
Hex	20	20	20	20	20	20	20	33	20	41	43	43	23	0D	0A
Desc	#	#	#	#	#	#	#	#	SP	X	X	X	X	CR	LF

NET Accumulations, Data String

Total NET accumulated weight

Byte	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Char				5	.	3	6	2		l	b		N	T		A	C	C	013	010
Hex	20	20	20	35	2E	33	36	32	20	6C	62	20	4E	54	20	41	43	43	0D	0A
Desc	W	W	W	W	W	W	W	W	SP	U	U	SP	N	T	SP	X	X	X	CR	LF

Accumulated Pieces, Data String

Total number of pieces accumulated

Byte	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153
Char						2	3	1		P	C	S		A	C	C	013	010
Hex	20	20	20	30	20	32	33	31	20	50	43	53	20	41	43	43	0D	0A
Desc	#	#	#	#	#	#	#	#	SP	X	X	X	SP	X	X	X	CR	LF

### Time, Data String

#### Time in 24 hour clock

Byte	154	155	156	157	158	159	160	161	162	163
Char	1	8	:	4	8		P	M	013	010
Hex	31	38	3A	34	38	20	50	4D	0D	0A
Desc	#	#	X	#	#	SP	X	X	CR	LF

### Date, Data String

#### Date in month/day/year format

Byte		164	165	166	167	168	169	170	171	172	173	174	175
Char		0	3	/	2	0	/	2	0	1	6	013	010
Hex		30	33	2F	32	30	2F	32	30	31	36	0D	0A
Desc		#	#	X	#	#	X	#	#	#	#	CR	LF

## B. INPUT COMMANDS FORMAT

The scale can be controlled with the following commands.

### Input Commands:

- All commands are terminated by a carriage return (Enter button on PC keyboard) with line feed (if necessary).
- If an illegal command is received or a command cannot be carried out , repeat the command with an addition of the word Error in front of the command request. For example if the command is **Test<CR><LF>** then send back **Error Test<CR><LF>**.

### Basic Commands:

<b>CW</b>	Print the current net weight.
<b>M+</b>	Store current results into accumulation memory.
<b>MC</b>	Clear the accumulation memory.
<b>MR</b>	Recall the accumulation memory values to scale display, same as RECALL key.
<b>PLUxx</b>	Select PLU from scale memory to be used

<b>S123</b>	Enter sample size of 123 parts. Same as pressing  key.
<b>T</b>	Tare current weight value
<b>T123.456</b>	Preset tare value is 123.456 For pound mode, it's 123.456lb. For kg mode, it's 123.456kg.
<b>U123.456</b>	Store unit weight of 123.456 For pound mode, it's 123.456lb. For kg mode, it's 123.456kg.
<b>Z</b>	Zero operation.



Manufactured by Fairbanks Scales, Inc.

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# Omega Series Counting Scale

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**Service Manual**  
**Document 51277**