WEIGH-TRONIX

PC-820/821 Parts Counter Service Manual

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Table of Contents

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Specifications

Capacities and Resolutions

Capacity	Resolution	Expanded Resolution
10 lb	.001 lb	.00005 lb
50 lb	.005 lb	.0002 lb
100 lb	.01 lb	.0005 lb
5 Kg	.0005 Kg	.00002 Kg
25 Kg	.002 Kg	.0001 Kg
50 Kg	.005 Kg	.0002 Kg

Power

In-line transformer, 115 VAC, 50/60 Hz
Optional 230 VAC, 50/60 Hz

Operational keys

Zero, Tare, Enter, Escape, Clear, 0-9, Decimal Point, Previous, Next, and 5 Softkeys

All keys provide users with tactile and (configurable) audio acknowledgment when they are activated

Annunciators

Display symbols include Stability, Active Tare, Current Base, Center of Zero, Low Battery, Unit of Measure and Display Label

Display

240 x 64 dot matrix LCD display
5" x 1.33" displayable area
PC-820: Cold cathode fluorescent backlit (white on blue)
PC-821: LCD without backlight

Display rate

Selectable update rate: 0.5, 1, 2, or 5 times per second

Units of measure

Pounds, kilograms, grams, ounces, pounds and ounces, and two fully customizable units of measure

Displayed resolution

Up to 1 part in 500,000

Time and date

Battery protected real time clock (Y2K compliant)

Internal resolution

Quartzell: 1 part in 2,000,000
Analog (optional): 1,000,000 counts analog

Harmonizer digital filtering

Fully selectable to ignore noise and vibration

Memory

Capable of storing 1000 records including part number, description, count accumulator, tare, and piece weight. (Database is very flexible and number of records is dependent upon record content and BASIC application.)

Power saving

Scale has 2 power-saving timers; one controls backlight and another has capability of shutting the scale off. Any keypress wakes the scale.

Introduction

About This Manual

This manual covers the information you need to configure and service your PC-820 parts counting scale.

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

PC-820 Description

To increase the contrast of the display, press and hold the **CLEAR** *and* **9** *keys until the desired contrast is reached. To decrease contrast, press and hold the* **CLEAR** *and* **3** *keys.*

Warning

The unit must be plugged into an easily accessible outlet that is earth grounded and of the appropriate voltage.

The PC-820 is a 12” x 14” scale with an attached 5” x 12” display housing. See Figure 1. The scale base is cast aluminum enclosing a Quartzell® weight sensor and electronics package. The scale platter is stainless steel.

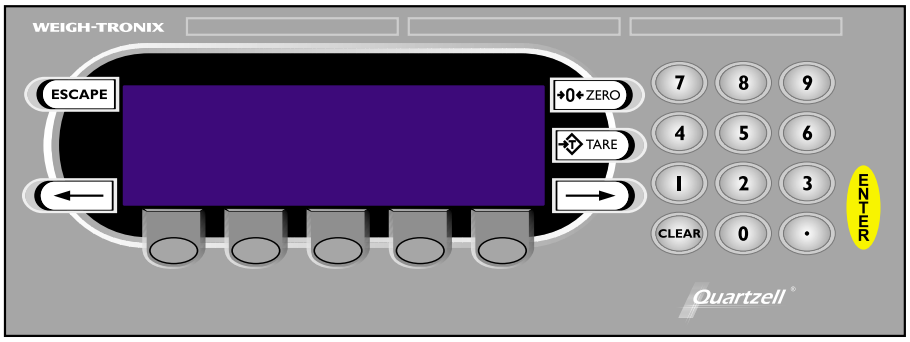


Figure 1
PC-820 front panel

The display is a 64 x 240 dot matrix which allows several lines of text and the ability to display graphics. See *Appendix A: Available PC-820 Displays*.

There are five softkeys located directly below the display, a numeric keypad to the right and six other labeled keys. The keys will be described in the next section.

Built into the PC-820 are two RS-232 serial communication ports (Com1 and Com2). Com1 can also be used as an RS-485 port. See the section *Serial Communication* for information on setting up Com1 as RS-485. Com2 can be a bidirectional RS-232 port or a printer, keyboard and scanner port.

This scale has an internal database and can have the option card to support a remote Quartzell® or analog base. Com3 is the local Quartzell interface.

Front Panel Keys

The keys on the front panel of the PC-820 are of two types; hard keys and softkeys. Hard keys are labeled directly and softkey labels appear on the display. Softkeys function differently at different times and their labels change as needed.

Hard Keys

Below are brief descriptions for each of the hard key functions:

→0← *Center of Zero icon*

Stable scale icon

ESCAPE Press the **ESCAPE** key to back out of menus or cancel a numeric entry without accepting the value.

ZERO Press the **ZERO** key to establish a zero reference. When the scale is at zero, the center-of-zero icon will be displayed. When scale motion ceases, the stability symbol will appear above the center-of-zero icon.

TARE With an empty container on the scale, press the **TARE** key to enter an active tare weight. The display shows net weight.

ENTER Press the **ENTER** key to accept displayed information, whether it is numeric characters you have keyed in or if it is a choice displayed while in the menus.

CLEAR Press the **CLEAR** key to clear a displayed number while in the data entry mode.

0-9 & **.** Use the numeric keys for entering in numbers or a decimal.

Right Arrow Press this key to scroll through extra softkeys available in some applications and to move to the right in the menus.

Left Arrow Press this key to scroll through extra softkeys available in some applications and to move to the left in the menus.

PC-820 Menus

Information about the scale, testing functions, data management, scale configuration, and calibration are accessed through menus, some of which are protected by passwords. The password protected menus appear under **Setup**. The user menu is also protected by a password. It is covered in the *User's Manual*.

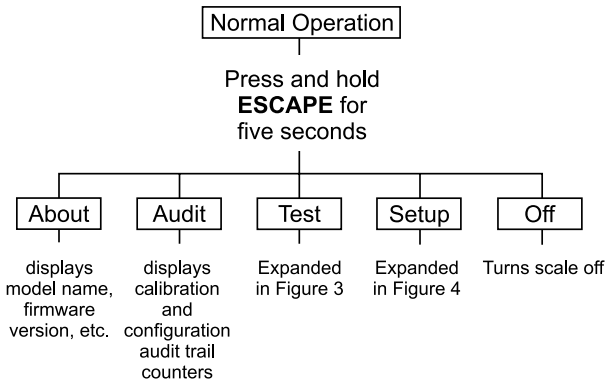


Figure 2
Menu Structure

Entering the Menu

The display will instruct you how to exit from a display screen. Press **ESCAPE** *to back out of most screens. This will cancel any values you've keyed in. Press* **ENTER** *to accept changed values.*

To enter the menu, press and hold the **ESCAPE** key until the unit beeps. The menu structure is pictured in Figure 2. The words in the rectangles represent softkeys you will see on the display.

Upon entering the menu the display shows the following softkeys:

About Press this softkey to see the scale model name, firmware version, license number and licensed company of the downloader program, the file name, download time and date the file was downloaded.

Audit Press this softkey to display the calibration and configuration audit trail counters. The configuration counter increments each time the configuration menu is accessed or when a new configuration file is downloaded. The calibration counter increments each time a base is calibrated. These numbers cannot be erased or changed by the user.

Test Press this softkey to access the test menus for the display, keypad, local or remote Quartzell bases or a remote analog base, serial ports, outputs and inputs. Follow prompts on the display to accomplish these tests. See Figure 3 and the *Test Menu* section below for more information.

Setup Press this softkey to access the password protected menus. The names and passwords for the Setup menus are:

User menu password - 111
Configuration menu password - 2045
Calibration menu password - 30456

See Figure 4 and the *Setup Menu* section below for more information.

Off Press this softkey to turn the PC-820 off. Pressing any key will turn the scale on.

Test Menu

The Test menu, shown in Figure 3, lets you test your scale operation.

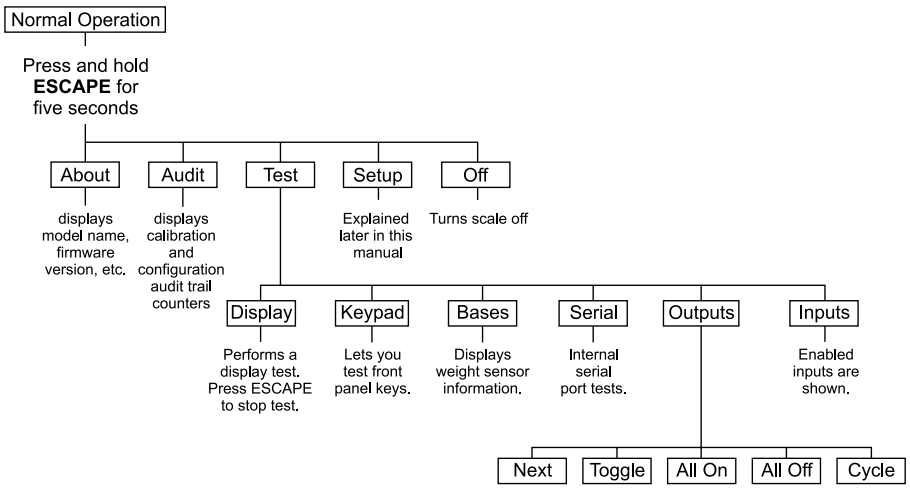


Figure 3
Test Menu

Following are explanations of the tests in this menu.

Display Softkey	**Display**	This test continuously cycles the display through various patterns.
Keypad Softkey	**Keypad**	This test lets you check each front panel key for proper operation.
Bases Softkey	**Bases**	This key allows you to view the output from the selected base. (**Local**, **Remote 1** and **Remote 2**, if connected). For Quartzell bases you will see a screen similar to this: **Quartzell Base S/N 735769** **Raw Counts: 81654** **Ft 47253.301 Fc 47212.416** **D-30Kg/10000d vD.A** **LOCAL Press ESCAPE to return** This screen shows you: • the serial number of the Quartzell in the currently selected base • the raw counts from the cell (which should be stable ±200 counts and increase when weight is applied) • the tension frequency (Ft) and compression frequency (Fc) (Both should be approximately 50,000 counts and stable ±200 counts and within 2000 counts of each other. As weight increases the tension count should increase and the compression count should decrease. • Cell size (30Kg for example)/Display resolution for maximum efficiency (10000 is shown) • Software version of the cell (vD.A in this example) For analog bases you are shown: • a raw count value and its equivalent mV/V value. (These values should be positive and increase as weight is applied.
Serial Softkey	**Serial**	Use this to test your ports. Select Port #1, 2, or 3 then short the TX and RX on the selected port. The display will change from NO LOOP to LOOP indicating the port is good. Port 1 is Comm1, a 9-pin connector. Short pins 2 and 3 for Loop/No Loop test. Short pins 7 and 8 for Ready/Busy test. Port 2 is Comm2, a 15 pin connector. Short pins 3 and 5 for Loop/No Loop test on RS-232-A. Short pins 2 and 5 for Loop/No Loop test on RS-232-B. Port 3 is the local Quartzell. Use the local base test to verify current cell communication.
Outputs Softkey	**Outputs**	Allows you to Activate/Deactivate any output setpoints you are using on the SSCU8 to verify correct hardware operation during installation or for troubleshooting purposes.
Inputs Softkey	**Inputs**	The same as Outputs except you are activating an input setpoint device such as a switch or contact closure remotely and monitoring it with this menu.

Setup Menus

This section covers the User, Configuration, and Calibration menus shown in Figure 4a and 4b.

User Menu (password is 111)

The user menu is explained below. Refer to Figure 4. Access this menu by following these steps:

1. Press and hold the **ESCAPE** key until the scale beeps and new softkeys appear.
2. Press the **SETUP** softkey. . . — Scale prompts for a password.
3. Key in 111 and press **ENTER**. . . — New softkeys appear: **Set**, **Select** and **BASIC**. Each of these are discussed below.

Set Softkey

Press **Set**:

The following softkeys are displayed:

Clock Follow the prompts on the screen to set the time and date.

Tare Prompts you to enter a tare value. Use this when you want to set a long term tare value for all scales. If you set this tare you should disable the **TARE** key. See the Service Manual.

Pc. Wt. Prompts you to enter a piece weight value. Use this when you want to set a long term piece weight value. If you set this tare you should disable the **SAMPLE** softkey. See the Service Manual.

Peaks Prompts if you want to clear the minimum and maximum peak values in memory. Display gives you **YES** and **NO** softkeys.

Accum. Prompts if you want to clear all accumulators. Display gives you **YES** and **NO** softkeys. You are then asked if you want to enable or disable count subtracting. Choose from **YES** or **NO**.

Graph Prompts you to key in values for each of the following values used when in checkweigher display:

Min for minimum value
Under for lowest acceptable target weight
Over for highest acceptable target weight
Max for maximum value
Basis select the basis from this list of values:

0 = Gross
1 = Net
2 = Tare
3 = Min
4 = Max
5 = ROC
6 = Gross total
7 = Net total
8 = Count total
9 = Transaction total
10 = Count
11 = Variable
12 = Piece weight
13 = ADC

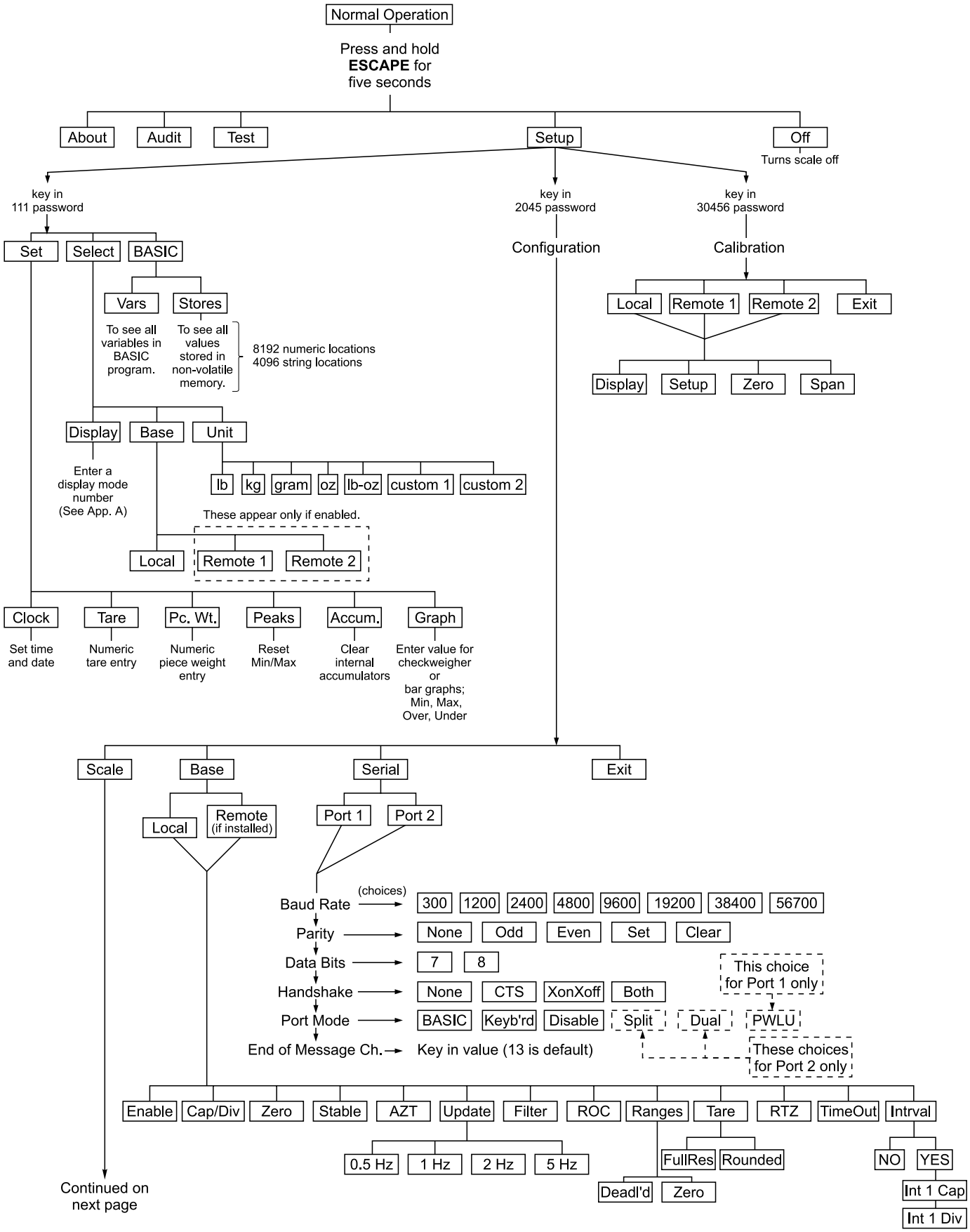


Figure 4a
Setup Menus

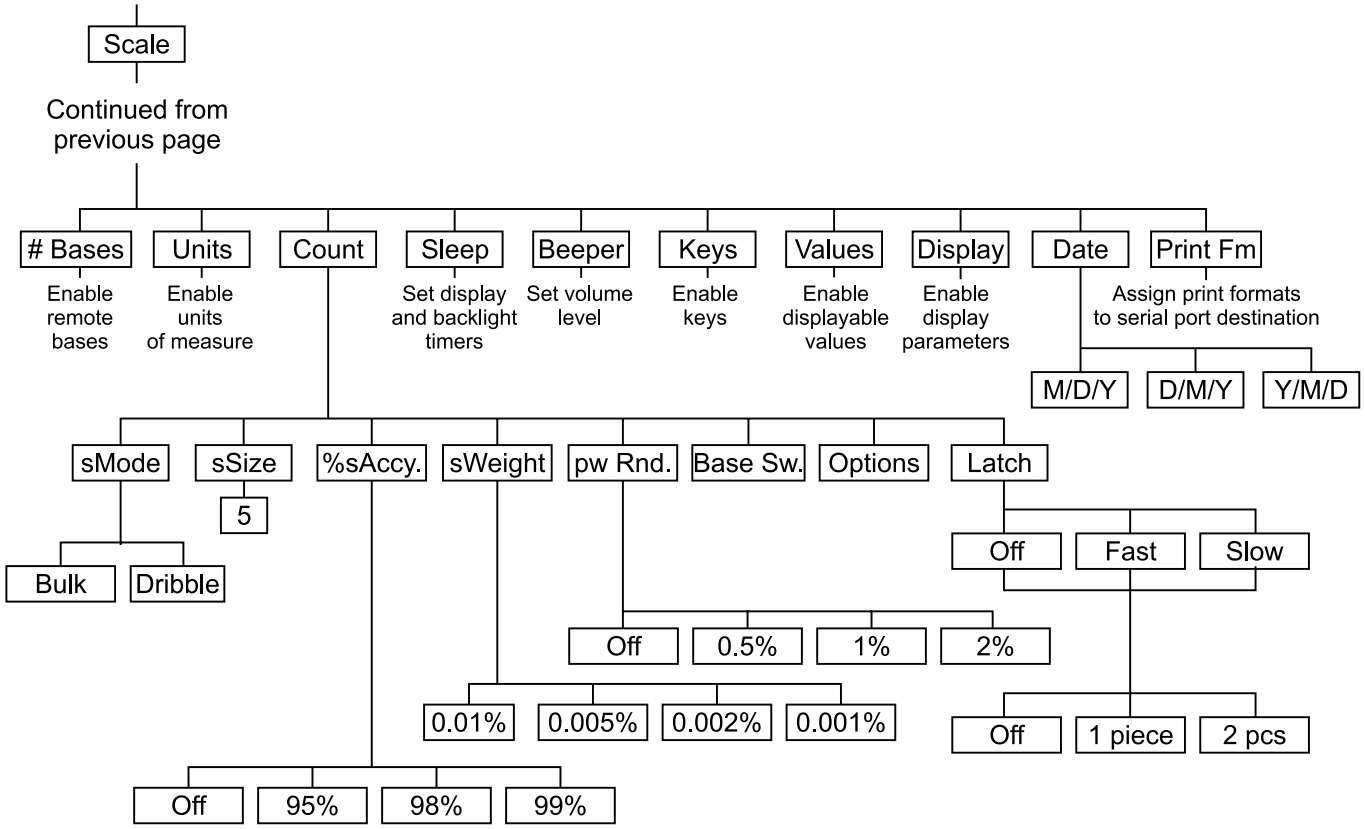


Figure 4b
Setup Menus

Select Softkey

Press **Select**:

The following softkeys are displayed:

Display You are prompted to enter a display mode number (1-20). See *Appendix A: Available PC-820 Displays*.

Base You are asked to pick the active scale base. Only active bases are offered as choices.

Unit You are asked to select the active unit of measure from this list:

lb, kg, gram, oz, lb-oz, custom 1, custom 2

BASIC Softkey

In this selection you can view the values of all the variables in the BASIC program (**Vars**) and all the values stored in nonvolatile memory (**Stores**).

Under **Vars** are softkeys for moving through the list of variable values:

FIRST Moves to the first variable in the list.

NEXT Moves to the next variable in the list.

EXIT Returns to the previous menu.

Under **Stores** there are two types of volatile memory you can choose to see; numerics or strings. Under each you are given these softkey choices:

Prev Moves to the previous indexed location.

Next Moves to the next variable in the list.

Select Lets you enter the index number you want to recall.

Exit Returns to the BASIC menu.

Below are the memory locations for standard and expanded memory:

	Numeric	String
Standard	0-8191	0-4095
Expanded	0-16383	0-8191

Configuration Menu (password is 2045)

The next menu is the configuration menu. See Figure 4. Access this menu by pressing and holding the **ESCAPE** key until the unit beeps. Press **Setup** softkey, then key in 2045 and press **ENTER. The** following softkeys are displayed:

- **Scale**
- **Base**
- **Serial**
- **Exit**

The items found under each of these keys is discussed below.

Scale Softkey

The **Scale** softkey gives you access to items for setting general scale parameters. For example, you set the number of bases attached, count parameters, sleep timer, enable and disable keys, select date format..

 # Bases Softkey

The first softkey under **Scale** is **# Bases**. Press this and you are prompted to key in the number of remote bases (0-2) attached to the PC-820. Remote 1 is Quartzell by default. You can set Remote 1 to work with an analog base. If two remote bases are used, remote 2 must be analog.

Units Softkey

Press the **Units** softkey and you are prompted to enable or disable each of the following units of measure:

lb is the only enabled unit of measure in a new scale.

- lb (only one enabled on first power up)
- kg
- g
- oz
- lb-oz
- Custom 1
- Custom 2

If you enable a custom unit you are asked to key in a multiplication factor, based on the calibration unit of measure, to be used to calculate the custom unit.

Count Softkey

Press the **Count** softkey to set the following counting parameters:

Without a BASIC application you will not be able to do a sample routine.

- **sMode** = Sample Mode:
  Choose from Bulk or Dribble (default is Bulk)

  Bulk mode: Place all of the sample on scale at one time. After motion stops, the count is automatically displayed.

  Dribble mode: Place sample on scale, then press **ENTER**. After motion stops, the count is displayed.

- **sSize** = Sample Size:
  Key in a minimum sample size (default is 5)

- **%sAccy** = Minimum Percentage Sample Accuracy:
  Choose from OFF, 95%, 98% or 99%. (default is 98%)

- **sWeight** = Minimum Sample Weight as percentage of full scale:
  Choose from 0.01%, 0.005%, 0.002%, and 0.001% (default is 0.001%)

Piece weight rounding occurs after the piece weight has been calculated.

- **pw Rnd.** = Piece Weight Rounding:
  Choose from OFF, 0.5%, 1%, and 2%. (default is OFF)

- **Base Sw.** = Base Switching: (You must have selected and configured a remote base for this function to work.)

  Choose to enable or disable auto base switching mode. (default is No)

  Auto base switching lets you perform sampling on one scale (local or remote) and the scale will automatically switch to another scale for counting.

  If you enable this mode you are asked to choose the sampling scale and then the counting scale. The default sampling scale is **Local** and the default counting scale is **Last**. Choose **Last** to return to the scale you were using before you did your sampling.

- **Options** = Sample Parameter Switching Options:
  When the scale is in sampling mode there are several features, functions or modes you can change if they are enabled. If they are not enabled, the configured choices are used. Here is where you can enable or disable those features. The features are:

  Sample Mode Switching - Lets you switch between bulk and dribble sampling while in the sample mode.

  Sample Base Switching - Lets you switch bases for sampling and counting while in the sample mode.

  Minimum Sample Weight Switching - Lets you change the minimum sample weight while in the sample mode.

  Sample Accuracy Switching - Lets you change the sample accuracy while in the sample mode.

- **Latch** = Count filter and sample latching mode:
  Count filter:
  You can choose a count filter of **OFF**, **Fast** or **Slow**. (Default is Fast).

  The count filter, which can also be called count latching,

helps lock onto a count value when piece weights are less than a division size. Choose Fast for some filtering and Slow for more filtering.

Sample Latching: **Off, 1 piece, 2 pcs**
Latching, if enabled, gives the appearance of stability immediately following the sample process. The sample latch is broken when motion is detected or if the calculated count is over two pieces away from the sample size. The latch will not function again until another sample process is completed.

Sleep Softkey

Press the **Sleep** softkey to enable or disable the sleep timer and the backlight timer.

To replace default values, key in a new value and press **ENTER** *to accept it. Remember, you can press the* **CLEAR** *key to erase entered numbers.*

If you enable (default is disabled) the sleep timer you are prompted for a time in minutes (default is 10), then prompted to enable or disable a sleep warning beeper (default is Yes). If no scale activity occurs in this period the scale will turn itself off preceded by a series of warning beeps. Press any key to reactivate the scale.

You are also prompted to enable the backlight timer (default is yes). If you choose **Yes** you are prompted for a time in minutes (default is 5). After no scale activity for the specified time the backlight will turn off. Press any key to reactivate the backlight. Scale motion also turns the backlight on.

The sleep and backlight timers reset when there is motion, a keypress, remote input, or a keypress from a remote keypad. The sleep timer also resets upon a BASIC subroutine call and is disabled when BASIC is running, if the BASIC application is programmed to do so.

Beeper Softkey

Press the Beeper softkey to choose a beeper volume. Choices are **OFF**, **Low**, **Medium**, and **High**. Default is medium.

Keys Softkey

Press the **Keys** softkey to enable the following keys:

TARE; **ZERO**; **Print** softkey; **Select** softkey; **Recall** softkey; **DBase** softkey; **Accum** softkeys; **Base** softkey; **OFF** softkey; **Clear** softkey; **Units** softkey.

All these keys can be enabled by the firmware in the PC-820, but the BASIC application in the PC-820 will need additional code for these keys to function.

Values Softkey

Press the **Values** softkey to enable the viewing of the following values when you press the **Select** softkey. (This assumes you have the **Select** softkey enabled.)

#0	Gross	(default is Yes)
#1	Net	(default is Yes)
#2	Tare	(default is Yes)
#3	Minimum	(default is No)
#4	Maximum	(default is No)
#5	Rate of Change	(default is No)
#6	Gross Total	(default is No)

#7	Net Total	(default is No)
#8	Count Total	(default is No)
#9	Transaction Total	(default is No)
#10	Count	(default is Yes)
#11	Value	(default is No)
#12	Piece Weight	(default is Yes)
#13	A to D Counts	(default is No)

Display Softkey

Press the **Display** softkey to configure the power-up display mode and other display items shown below. Enter a value or choice and press the **ENTER** key for each.

See Appendix A: Available PC-820 Displays *for examples of each display mode.*

Power-up display mode -	Choose from #1-20. Default is 2.
Power-up display value -	Choose from #0-13. See list above under ***Values Softkey***. Default is 1.
Power-up 2nd display value	Choose from #0-13. See list above under ***Values Softkey***. Default is 10.

When this key is enabled, it allows the display to toggle through all the display modes found in Appendix A.

Enable HIDDEN key display cycle?	Default is No.
Enable lowercase for small text?	Default is Yes.
Enable Low Battery indication?	Default is Yes.

This allows the tare annunciator on the display to distinguish between a semi-automatic tare (SAT is a European term—same as push-button tare in USA) and a preset tare (PST is a European term—same as entered or recalled tare in USA)

Enable Preset Tare annunciator? Default is off.

SAT or push-button Tare annunciator

PST or Preset/Recalled Tare annunciator

Date Softkey

Press the **Date** softkey to choose the date format you want from these choices:

M/D/Y = Month/Day/Year

D/M/Y = Day/Month/Year

Y/M/D = Year/Month/Day

Default is M/D/Y.

Print Fm Softkey

Press the **Print Fm** softkey to configure the port to use for each print format.

First you choose the default print format. Choices are from 0-32. Default is 0.

Next you are shown the current port and what format is assigned to it for formats 1-16. The display is shown like this (format, port):

(1, 1) (2, 1) (3, 1) (4, 1)

(5, 1) (6, 1) (7, 1) (8, 1)

(9, 1) (10, 1) (11, 1) (12, 1)

(13, 1) (14, 1) (15, 1) (16, 1)

The **Edit** softkey lets you change a setting. The **Next** softkey lets you view formats 17-32.

Press **Done** when you are finished.

BASE Softkey

The **Base** softkey gives you access to all the configuration parameters for all enabled bases. (See Scale, # Bases to enable remotes.) You are given the choice of which base to configure; **Local**, **Remote 1** or **Remote 2**. After you make the choice the following softkeys appear.

Enable Softkey

Press the **Enable** softkey to enable or disable the current base. When the base is disabled, the base is not available for selection by the user and the base is ignored on power-up.

Cap/Div Softkey

Press the **Cap/Div** softkey to enter the capacity and division size.

Zero Softkey

Press the **Zero** softkey to enter a zero range (0-100%) for the **ZERO** key. Default is 100%.

Also, you can enable or disable (default is disabled) an automatic zeroing of the scale on power up. If enabled, the scale will power up and zero any weight on the scale. If disabled, the scale will show any weight on the scale at power up.

Stable Softkey (Motion)

Press the **Stable** softkey to set the stability range in divisions and the stability delay in seconds.

For example, if you set the range to three divisions and the delay to one second, if the weight value does not change more than three divisions in one second, the scale is considered stable.

Default is 1 division and 1 second.

AZT Softkey

Press the **AZT** softkey to set Automatic Zero Tracking (AZT) range and delay.

The division size you pick defines a range above and below zero. When scale weight is inside this range for the number of seconds you picked, ½ of the weight will be zeroed. The indicator will repeat removing ½ the weight every X seconds. X being the number of seconds you have picked.

Default is 0.5 division and 1 second. Set division size to zero to disable AZT.

Update Softkey

Press the **Update** softkey to select a display update rate from these choices:

0.5 Hz; 1 Hz; 2 Hz; 5 Hz

Default is 5 hz or five times per second.

Filter Softkey

Press the **Filter** softkey to set up the Harmonizer™ filtering. A full explanation of the Harmonizer™ is given below.

The weight conversion for PC-820 connected bases is:

- Local Quartzell = 50 updates/second
- Remote Quartzell = 6 updates/second
- Remote analog = 60 updates/second

The Harmonizer default is off. Harmonizer filtering is not recommended for parts counting applications using Quartzell bases.

AVG is the number of conversions you want to average. For example, with an analog base, if you pick 30, the unit will average the weight values from the last 30 conversions or ½ second and uses that value for displayed data.

The next choice you have is for turning the Harmonizer filtering on or off. If you turn the Harmonizer filtering on you need to set the Harmonizer Constant. Typical values are between 1 and 8. Set the number low for small vibration problems and higher for more dampening effect.

The purpose of the Harmonizer Threshold is so the indicator will respond quickly to large weight changes. Harmonizer Threshold is the amount of weight change, in calibration units, beyond which the Harmonizer will be temporarily disabled. For example, if you set this to 10 lbs, a weight change over 10 pounds occurring during the sample time (½ second in our example) will disable the Harmonizer until the weight change during the sample time drops below 10 pounds.

ROC Softkey

Press the **ROC** softkey to calculate Rate of Change for time/weight based applications. You are prompted to enter an ROC Samples value. Default is 50. You are then asked to enter an ROC Multiplier value. Default is 50. Explanations for these are given below.

ROC Samples
The number of samples over which the rate of change of weight is determined. The PC-820 samples the Quartzell at 50 times per second (60 times per second for external Quartzells and analog bases). If ROC Samples is set to 50, the PC-820 is determining the rate of weight change over one full second.

ROC Mult
The ROC Multiplier allows you to enter a conversion factor to translate weight to some other unit of measure, such as gallons, piece weight, or some other weight unit based upon the calibration unit of measure.

For example: If you have one part that weighs 8 lbs, you calculate the multiplier using this formula:

$$\frac{\text{Cal Unit}}{\text{Custom Unit Weight in Cal Units}} = \text{Multiplier}$$

So in our example the equation becomes:

$$\frac{1}{8} = 0.125$$

and the multiplier is 0.125.

Ranges Softkey

Press the **Ranges** softkey to set the overload and underload limits.

You can base the range on deadload or zero and then choose an over and under range limit. If you choose deadload as the basis, the overload and underload ranges are based on calibration zero and the ranges are entered as a percent of capacity. Default is deadload and 102.5% of capacity.

If you choose Zero as the basis, the overload and underload ranges are based on current zero and the ranges are entered as a number of divisions over capacity. Default is 9 for both over and under.

Tare Softkey

Press the **Tare** softkey to select between live tare value and recalled or entered tare value . When you have chosen you are then prompted to choose between **FullRes** (full resolution) or **Rounded**. **FullRes** allows the scale to use its maximum internal resolution (2,000,000) to set tare. This allows tare values to be double precision floating decimal point. This is usually used for counting scale applications. Choosing **Rounded** causes rounding to the current division size before calculations are performed.

RTZ Softkey

Press the **RTZ** softkey to set the Print Return to Zero and Accumulate Return to Zero. Set these as a percentage of scale capacity. Enter in an amount from 0-100%. To disable RTZ enter a zero for the percent.

Print Return to Zero means if you press the **PRINT** key with weight above this value a print operation will occur if and when motion stops, then the weight must fall below this percentage of scale capacity before another print operation will be allowed. Default value is 0 which disables RTZ.

Accumulate Return to Zero means if you perform an accumulation with weight above this value an accumulation operation will occur if and when motion stops, then the weight must fall below this percentage of scale capacity before another accumulation operation will be allowed. Default value is 0 which disables RTZ.

TimeOut Softkey

Press the **TimeOut** softkey to set the timeout value, in seconds, for each of the following parameters: (default is 0 for all)

- Print timeout
- Accumulate timeout
- Zero timeout
- Tare timeout
- Sample timeout

Timeout is the amount of time the PC-820 will wait for motion to cease and perform the function after the key is pressed.

For example, if Zero Timeout is set to 3 seconds, when the **ZERO** key is pressed the unit will zero the scale if there is no motion. If there is motion and motion ceases within 3 seconds the unit will zero the scale. If motion doesn't cease the key press is ignored.

Interval Softkey

Press the **Intrval** softkey to set the multi-interval option. The multi-interval option allows you to specify an alternate division size for the first X pounds you place on the scale. X is the interval size which you specify. When multi-interval is enabled, the division used to check for stability, center of zero, and AZT is always the Interval-1 division. Overload and underload is always calculated based on the normal division size.

The displaying and printing division size depends on which interval the scale is in. The active interval is chosen based on net when when a tare weight is active, and gross weight when a tare is not active. When weight (gross or net) is below the Interval-1 capacity, the Interval-1 division size is used. If the weight is above the Interval-1 capacity, the standard division is used.

When tares are configured for Rounded the PC-820 only allows them to be captured or entered up to the Interval-1 capacity. Tares greater than the Interval-1 capacity are rejected.

When gross is displayed or printed (regardless of the tare value) the division size used depends on the interval used.

Choose **YES** to enable or **NO** to disable multi-interval, then press **ENTER**. If you choose **YES** the unit defaults to an interval size of one half of capacity. You can key in any interval size you want. After entering the interval size you are prompted to enter the division size for the interval. Key this in and press **ENTER**.

Serial Softkey

Press the **Serial** softkey to configure the serial port parameters. Choose from Port 1 or Port 2. The choices under each are the same. They are as follows:

Parity

	Stop Bits	Data Bits	Parity
None	1 or 2	7 or 8	None
Odd	1 or 2	7	Odd
Even	1 or 2	7	Even
Set	2	7	None
Clear	1	8	None

Baud Rate: 300, 1200, 2400, 4800, 9600, 19200, 38400, and 56700

Parity: None, Odd, Even, Set, and Clear

Data Bits: 7 or 8

Handshake: NONE, CTS, XonXoff, or Both

Port Mode: BASIC, Keyb'rd, Disable. Port 2 only has Split and Dual. Port 1 only has PWLU. PWLU is for Piece Weight Lookup.

DUAL MODE: "Dual Mode" allows for 2 BASIC CONTROL devices to be connected to Port 2. A "COM2_MESSAGE" event responds to data received on Com 2 REC A, while a "COM2B_MESSAGE" responds to data received on Com 2 REC B.

The only stipulation is that the 2 devices on Com Port 2 cannot send data at the same time. This mode is useful if you have 2 devices which may send data and you need to be able to differentiate the data received from the 2 devices (EX: a bar code scanner and a magnetic strip reader).

SPLIT MODE: "Split Mode" allows for a KEYBOARD and a BASIC CONTROL device to be connected to Port 2. The port works like "BASIC CONTROL MODE" for data received on Com 2 REC A, while also allowing for "KEYBOARD MODE" data to be received on Com 2 REC B. The same stipulation (2 devices on Com Port 2 cannot send data at the same time) applies as in "Dual Mode". This mode is useful if you have a keyboard and 2 other devices which may send data (EX: a keyboard and a bar code scanner on Com Port 2, along with a PC on Com Port 1).

End of Message Character: Key in an ASCII character value. Default is 13, which is a carriage return.

Exit Softkey

Press this key to exit this menu and return to the higher menu level.

Calibration Menu (password is 30456)

The next menu is the Calibration menu. See Figure 4a.

Access this menu by following these steps:

1. Press and hold the **ESCAPE** key until the scale beeps and new softkeys appear.
2. Press the **SETUP** softkey. . . Scale prompts for a password.
3. Key in 30456 and press **ENTER**. . . You are then given the choice of **Local**, **Remote 1** or **Remote 2**.

4. Select the base you want to calibrate. . .

The following softkeys are then displayed:
- **Display**
- **Setup**
- **Zero**
- **Span**
- **Exit**

Each of these keys is discussed below.

Display Softkey

Press the **Display** softkey to see the weight display for the currently selected base. This allows you to see the weight without exiting the calibration menu.

Setup Softkey

Press the **Setup** softkey to enter the capacity and division size of the currently selected scale. If you are using a Quartzell base, the serial number of the Quartzell is displayed.

This is a alternate place for setting the capacity and division size. You can also do this under the BASE section of the Configuration menu. If you change it in one place it automatically changes in the other menu.

If you press the **Remote 1** softkey, you can then choose between analog or Quartzell base. Quartzell is the default setting for Remote 1. Remote 2 is always an analog base if it is used.

Zero Softkey

Press the **Zero** softkey to start the zero part of the calibration process. The display prompts you to remove any load from the scale and press **ENTER**. When you do, the display will show ***Determining Zero. . .*** and then say ***Done. Press any key to continue***. After you press a key, the display returns to the previous softkey selection.

Span Softkey

Press the **Span** softkey to start the span part of the calibration process. The display first prompts you to enter the calibration unit of measure, lbs or kgs. The scale prompts you to key in a span calibration weight and press **ENTER**. Do this and the display prompts you to place that amount of test weight on the scale and press **ENTER**.

When you do, the display will show ***Determining Span. . .*** and then say ***Done. Press any key to continue***. After you press a key, the display returns to the previous softkey selection and the calibration process is complete.

*If the message **Reversed** is displayed, check the connections for reversed Signal and Excitation lines on the analog base.*

Also verify that the scale is empty when capturing the Zero value and that you actually put the test weight on the scale when setting Span.

Serial Communication

Com1 is a 9-pin DE type connector at the rear of the PC-820. The functional pin out is as follows:

PIN NO.	RS-232	QDT
1	No conn.	+7.5 VDC
2	RECV	RECV B (RS485)
3	XMIT	XMIT B (RS485)
4	No conn.	No connection.
5	Sig gnd	Sig gnd
6	+5.0 VDC	No connection.
7	RTS	XMIT A (RS485)
8	CTS	REC A (RS485)
9	No conn.	No connection.

Table 1
Port 1 (Com 1) pin outs

Com 2 is a 15 pin DE type connector at the rear of the PC-820. The functional pin out is as follows:

PIN NO.	SIGNAL NAME	DEVICE USED WITH	SPECIAL NOTES
1	RECV (TTL)	Keyboard: TTL	DATA IN (do not gnd)
2	RECV (RS-232-B)	Magnetic Card Reader, Keyboard: RS-232	DATA IN (do not gnd)
3	RECV (RS-232-A)	Scanner: RS-232	DATA IN (do not gnd)
4	+5.0 VDC	Scanner	(do not gnd)
5	XMIT	Printer, Computer, Remote Display, Modem RF link, IR link: RS-232	DATA OUT
6	SDA	SSCU	EXTERNAL I/O CONTROL
7	SCL	SSCU	EXTERNAL I/O CONTROL
8	INT #	SSCU	EXTERNAL I/O CONTROL
9	+5.0 VDC	Keyboard	
10	GROUND (GND)	Keyboard	
11	GROUND (GND)	Scanner	
12	GROUND (GND) (RS-232)	Printer, Computer, Remote Display, Modem RF link, IR link: RS-232	
13	GROUND (GND)	SSCU	EXTERNAL I/O CONTROL
14	+5.0 VDC	SSCU	EXTERNAL I/O CONTROL
15	RESET #	SSCU	EXTERNAL I/O CONTROL

NOTE: "# " designates "Active Low Signal"

Table 2
Port 2 (Com 2) pin outs

PC and Scanner Interfacing

This section describes command set and protocol for interfacing a personal computer (PC) or a Bar Code Scanner with the PC-820. The BASIC application must support these devices via this command set and protocol.

The computer interface for the PC-820 will support bidirectional communication in a master/slave protocol. The computer (master) will send a command code sequence to the scale (slave) which will respond by returning the requested data or by performing the specified scale function. Commands to the scale will be in uppercase and will be terminated with a carriage return character. Scale responses will begin with the lowercase equivalent of the command code.

COMMAND	RESPONSE	DESCRIPTION
AC<CR>		Accumulate present count/weight
AR<CR>	ar_xxxxx<CR>	Request accumulator count
AW<CR>	aw_x.xx_U<CR>	Request accumulator weight with units
AT<CR>	at_xxx<CR>	Request accumulator transaction count
AZ<CR>		Clear accumulator & transaction counter
CA<CR>		Clear sample
CC<CR>	cc_xxxxxxx<CR>	Request count value
CP<CR>	cp_x.xx_U<CR>	Request piece weight value
DB<CR>		Sound beeper
DC<CR>		Clear description
DD<CR>	dd_sssssss<CR>	Request description
DSssssssss<CR>		Enter description
IC<CR>		Clears invalid information
ID<CR>	id_ssssssss<CR>	Requests stored ID
LT<CR>	lt_xxxxxx<CR>	Requests stored lot number
NM<CR>	nm_sssssss<CR>	Requests stored name
PC<CR>		Clear part number
PD<CR>	pd_sssssss<CR>	Requests part number
PSssssssss<CR>		Enter part number
PWx.xx_U<CR>		Enter piece weight
TD<CR>	td_hh:mm_AP_www_dd._yy	Requests time and date
TR<CR>	tr_x.xx_U<CR>	Request tare value
TZ<CR>		Clear current tare value
Tx.xx_U<CR>		Enter tare value
T<CR>		Tare the scale
U<CR>		Changes unit of measure
WB<CR>	wb_x<CR>	Request base number
WCx<CR>		Switch to base x
WD<CR>	wd_x.xx<CR>	Request net weight
WE<CR>	we_x.xx_U<CR>	Request net weight with units
WG<CR>	wg_x.xx_U<CR>	Request gross weight with units
WR<CR>	wr_x.xx<CR>	Request net weight (unrounded in lbs)
WS<CR>	ws_HML<CR>	Request scale status
WZ<CR>		Zero the scale
W<CR>	w_x.xx_U_HML<CR>	Request net weight with units and status
ZZ<CR>	zz_sss<CR>	Shows software revision
UNRECOGNIZED	<LF>?<CR>	Unrecognized command response

'_' ASCII space character

'U' units of measure characters:
"LB" for pounds
"KG" for kilograms
"GM" for grams

<CR> ASCII carriage return character

HML represents the three bytes of scale status information as described below

x.xx represents a floating point ASCII string value that can have a varying number of digits to the left and right of the decimal point location. Also there may be a leading '-' (minus sign) character to indicate negative polarity.

s alphanumeric characters

hh hours

mm minutes

AP AM or PM

www day of week

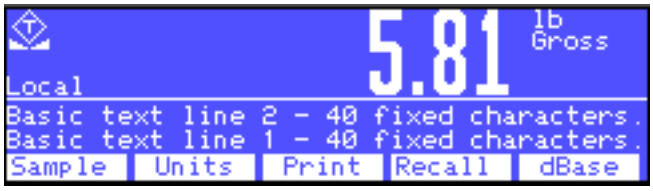
dd day of month

yyy year

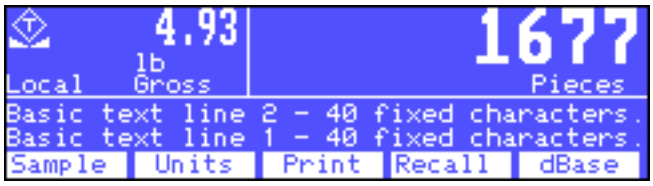
Table 3
Computer commands and responses

Appendix A: Available PC-820 Displays

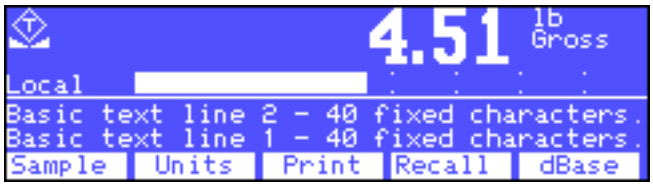
Mode 1



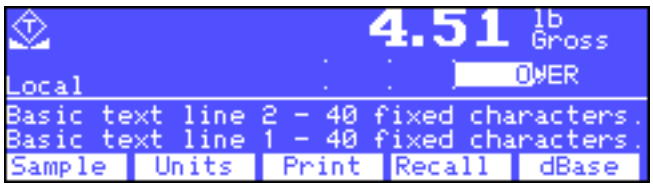
Mode 2



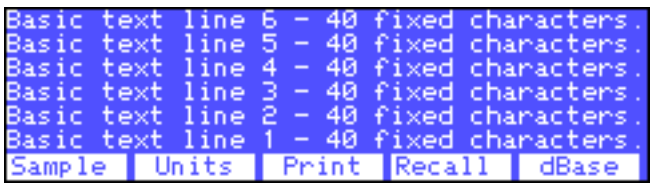
Mode 3



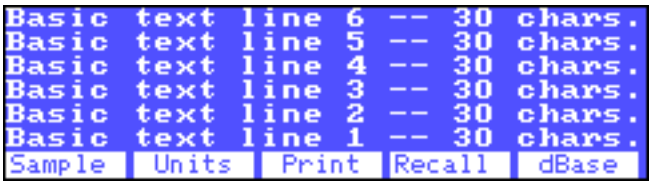
Mode 4



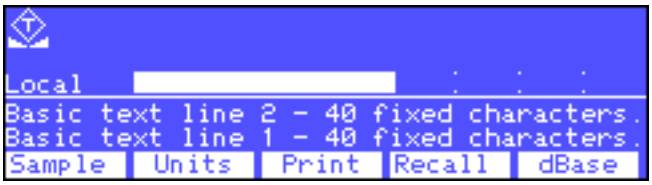
Mode 5



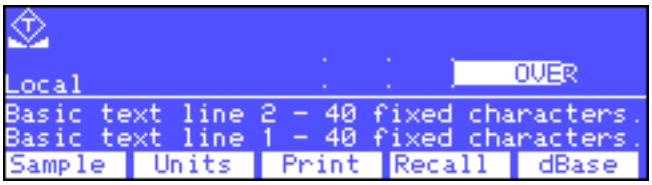
Mode 6



Mode 7



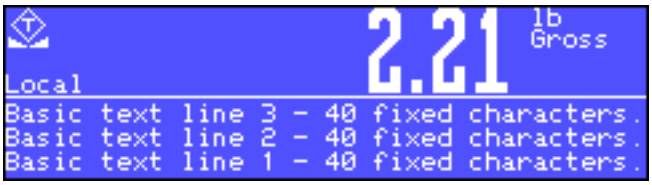
Mode 8



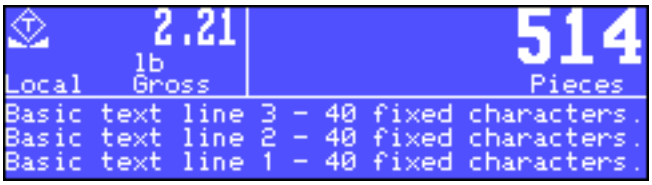
Mode 9

Mode 10

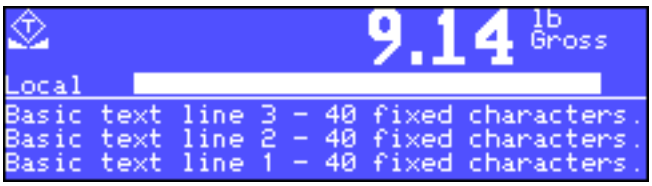
Mode 11



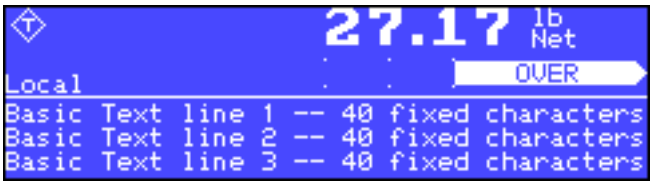
Mode 12



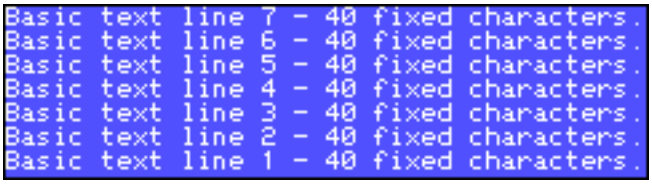
Mode 13



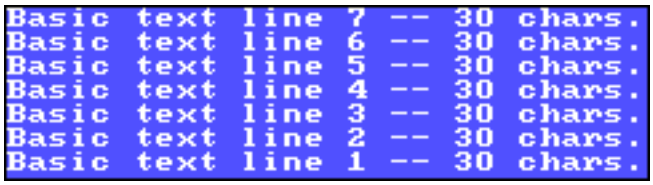
Mode 14



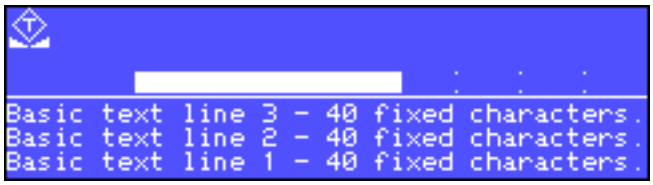
Mode 15



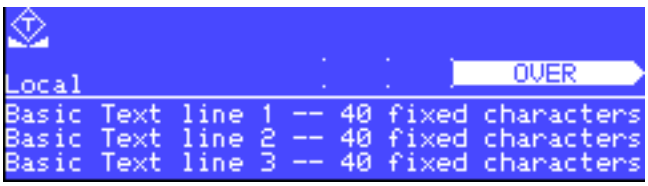
Mode 16



Mode 17



Mode 18



Mode 19

Mode 20

Appendix B: Tips on Using Harmonizer

To find the best settings for your filter needs, follow the steps listed below.

1. **What to Do:** Determine the amount of positive and negative force exerted by the vibration on the scale.

   How to Do It: Set Threshld to 0.0, Constant to OFF, and Samples to Average to 1.0 A-Ds. Return to weigh mode and observe the weight swings. Record the difference between the highest and lowest displayed weight values. Add 30 to 50% to this value. This is a good starting value for the Threshld setting. Do not set your indicator to this value until told to in step 7.

2. Setting the Average to higher values increases the filtering effect.

   What to Do: Set Threshld to 0.0, Constant to OFF and Samples to Average to 15.0 A-Ds. Check the stability of the scale.

   How to Do It: Save changes and exit to normal weight mode. Observe the Center of Zero light. If it is on all the time your scale is stable within ¼ division. If the Center of Zero light blinks more filtering is required. Go to step 3.

3. Repeat step 2 but increase the Samples to Average by 15.0 A-Ds. Keep repeating steps 2 and 3 until the scale is stable or you've tried the entire range of Samples to Average (60 A-Ds). If the scale is still not stable go to step 4.

4. Setting the Constant to higher values increases the filtering effect.

   What to Do: Set Threshld to 0.0, Constant to 1.0 and Samples to Average to 60 A-Ds. Check the stability of the scale.

   How to Do It: Save changes and exit to normal weight mode. Observe the Center of Zero light. If it is on all the time your scale is stable within ¼ division. If the Center of Zero light blinks more filtering is required. Go to step 5.

5. Repeat step 4 but increase the Constant by 1.0. Keep repeating steps 4 and 5 until the scale is stable or you've tried the entire range of Constant (10). If the scale is still not stable, decrease your display update rate and start over at step 1 using the new, slower display rate.

6. After the Constant value is established you may wish to lower the Samples to Average value to improve display response time.

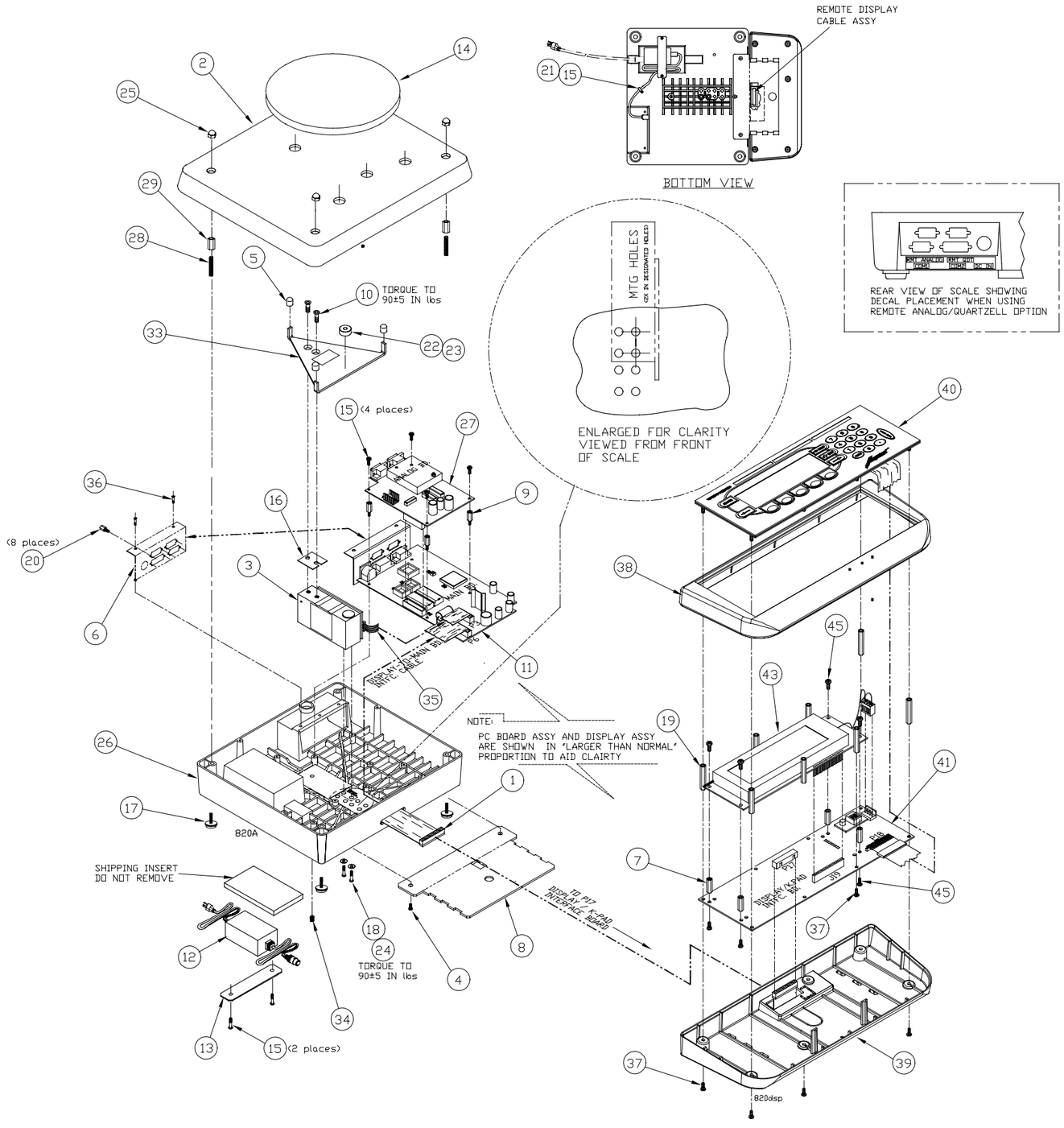
7. After a final value for Constant and Samples to Average has been set, enter the Threshld value established in step 1. If this value is too small your scale will act as if the filtering is off or not working. Increase the Threshld value until your scale stabilizes.

   If the Threshld value is too high your scale will react slowly to weight changes.

   When Harmonizer is properly adjusted the scale will be stable at zero and will rapidly display a stable test weight value.

PC-820/821 COUNTING SCALE

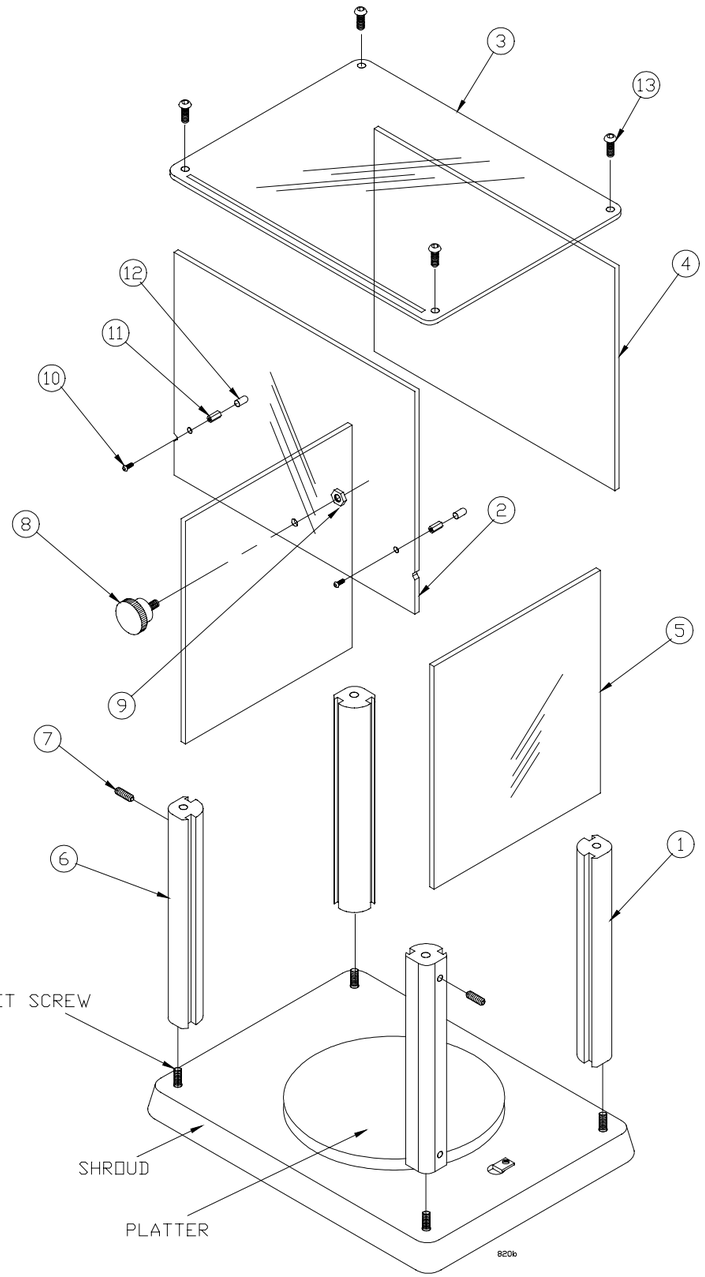
10 lb / 5 kg cap. , 12” x 14” BASE
PARTS AND ASSEMBLY



ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Main Bd.-to- Display, Cable Assy	51751-0012	1
2	Shroud (10 lb.)	1076-16136	1
3	Quartzell Assy	7153-15694-05	1
	Quartzell EPROM, Programmed (not shown)	52036-0017	1
4	Screw, #10-32 x 3/8"L	1006-02039	3
5	Vinyl Cap	1051-13968	3
6	I/O Connector Mtg Bracket	1067-16154	1
7	Standoff, f/f, #6 x ¼" HX x 9/16"L	1044-16184	4
8	Display Mtg Plate	1069-16135	1
9	Standoff, m/f #6 x 1/4"HX x 9/16"L	15437-5000	4
10	Screw, Flat Head, Hex Soc, 1/4-20 X 1.00"L	1018-11594	2
11	Main Computer and I/O Pc Board	50908-0016	1
12	Power Supply,120VAC/14VDC, 0.7 amp	1148-16069	1
	Power Supply,230VAC/14VDC, 0.7 amp	1148-16070	1
13	Pwr Supply Mtg Bracket	1067-15647	1
14	Platter	1076-14702	1
15	Screw, #6 x .38"L	1009-05758	7
16	Aluminum Spacer	1043-13977	1
17	Foot Assy	7075-16213	4
18	Capscrew, 1/4 x .1.00"L	1007-02617	2
19	Standoff,f/f #6 x 1/4 HEX x 1 1/4"L	1044-16185	8
20	Standoff,m/f #4 x 3/16 HEX x 3/16"L	1044-01085	8
21	Cable Clamp	1074-00392	1
22	Level Bubble	1083-00095	1
23	Level Bubble Tape	1045-15177	1
24	Flat Washer, 1/4"	1029-80008	2
25	Acorn Nut, #10	1028-16157	4
26	Base	7069-16183-02	1
27	Remote Analog/QDT PC Board (optional)	52111-0015	1
	Kit for above (Incl. Board,hardware & decal)	52107-0011	1
28	Slotted Stud, 1/4-20 x 2.00"L	1015-14427	4
29	Shroud Spacer	1043-14426	4
33	Loadbridge	1066-16179	1
34	Screw, Locking Hex Socket,	1011-15213	1
35	Cable Assy (Quartzell-to-main)	7140-15668	1
36	Screw,#6-32 x ¼"L	1009-10039	2
37	Screw,#6-32 x 3/8"L	1006-02604	8
38	Display Enclosure, Top	1069-15966	1
39	Display Enclosure, Bottom	1069-15967	1
40	Keypad / Backer Plate Assy	51938-0018	1
41	Display / Keypad Interface.Pc Board Assy (PC-820)	50912-0028	1
	Display / Keypad Interface.Pc Board Assy (PC-821)	50912-0010	1
43	Display Assy, LCD w/ Backlite (PC-820)	48622-1021	1
44	Display Assy, LCD w/o Backlite (PC-821)	48622-1013	1
45	Screw, #6 x ¼"L	1002-01394	8
	Optional items not shown		
	Remote QDT Base cable Assy,10 ft. length	49387-0026	1
	Bar Code Gun w/ cable, (high visibility)	48549-1013	1
	Bar Code Gun w/ cable	48549-1021	1
	Standard Keyboard, alpha-numeric	47853-0017	1
	Tufkey (spill resistant) Keyboard, alpha-numeric	47854-0016	1
	External Battery,BP-25R, 12vdc w/Charger (see system block diagram for connection location)	46839-0018	1
	Interface Cable (to 820/821) for BP-25R, 6 ft long	46850-0012	1
	Internal Battery Kit,12vdc,w/Charger PC. Bd	51799-0016	1
	Cable,9-pin,RS-232(computer or scanner)	51800-0013	1
	Cable,25-pin RS-232 Null Modem (printer)	51800-0021	1
	Cable, 9-pin (SSCU only)	51800-0039	1
	Cable, PC serial keyboards	51800-0047	1
	2-Device Cable, (9-pin Scanner *and* 25-pin Printer)	51800-0054	1
	4-Device Cable, (9-pin Scanner, 25-pin Printer,9-pin SSCU, PC keyboard)	51800-0112	1

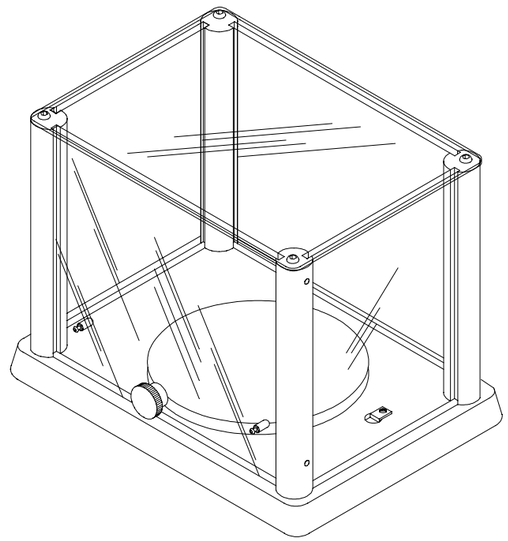
PC-820/821 COUNTING SCALE

DRAFT SHIELD *(optional)* (10 lb./ 5 kg 12” x 14” base only)
PARTS AND ASSEMBLY



NOTES:

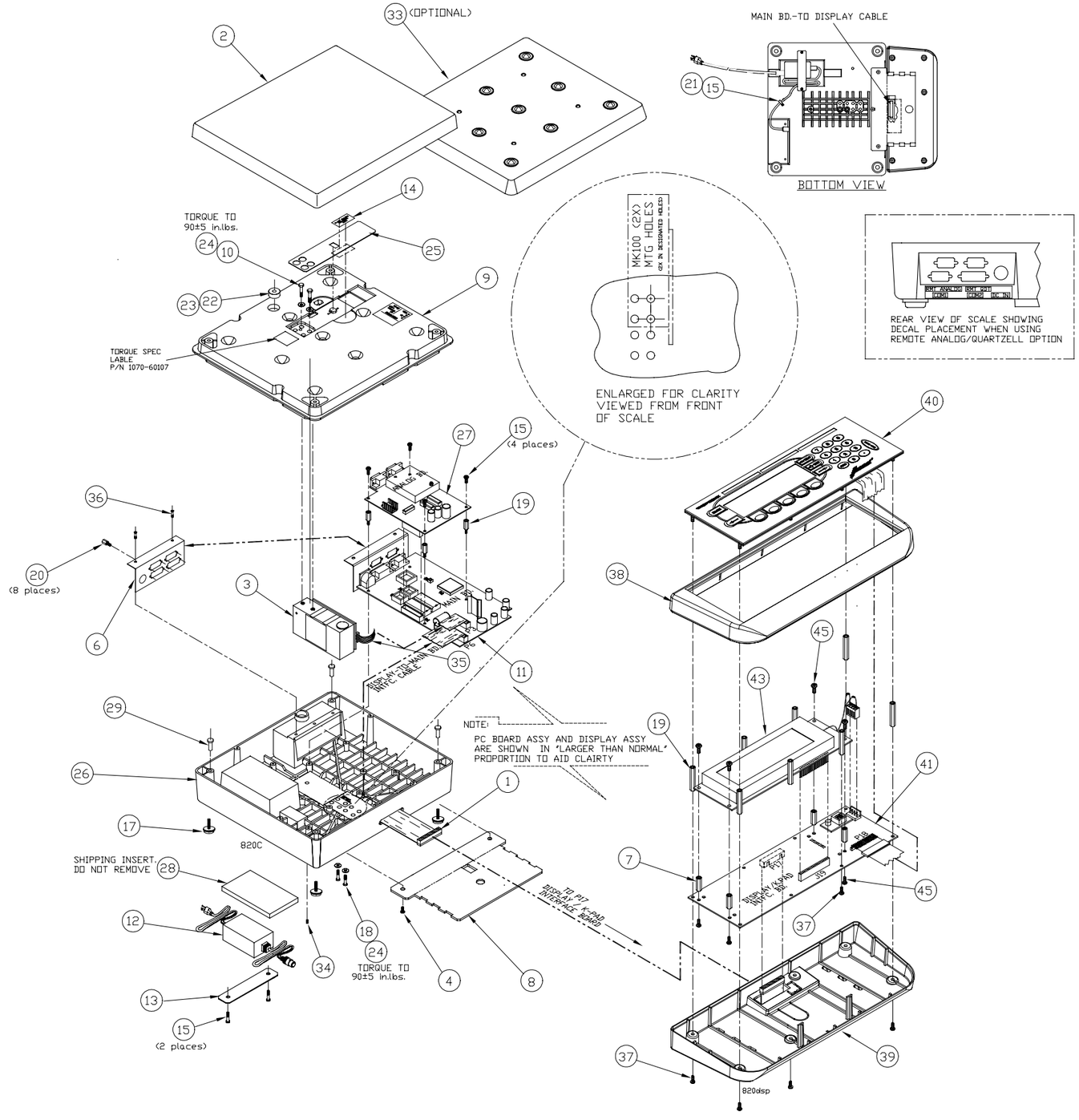
TO INSTALL DRAFT SHIELD, THE HEXNUT AND PLASTIC CAP AT THE CORNERS OF THE SHROUD NEED TO BE REMOVED AND DISCARDED BEFORE ATTACHING CORNER RODS.



ITEM NO.	DESCRIPTION	W-T P/N	QTY	QTY
1	SUPPORT POST	1058-15413	2	2
2	SHIELD DOOR	1069-15404	1	1
3	SHIELD TOP PANEL	1069-15403	1	1
4	SHIELD REAR PANEL	1069-15406	1	1
5	SHIELD SIDE PANEL	1069-14604	2	2
6	SUPPORT POST w/SIDE HOLE	1058-14424	2	2
7	THREADED SPRING / PLUNGER	1068-14610	2	2
8	KNOB	1091-14144	1	1
9	HEX NUT, #10-32	14506-0059	1	1
10	SCREW, #6-32 x .31” LG	1001-13790	2	2
11	STANDOFF, #6-32 x .31” LG	1044-00121	2	2
12	VINYL CAP	1051-13968	2	2
13	SCREW, .25”-20 x .50” LG	1007-00538	4	8

PC-820/821 COUNTING SCALE

50 lb / 25 kg *AND* 100 lb / 50 kg cap. , 12” x 14” Base
PARTS AND ASSEMBLY



ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Main Bd.-to- Display, Cable Assy	51751-0012	1
2	Shroud,Dished (stainless)	1076-14741	1
3	Quartzell Assy (50lb / 25kg cap.)	7153-15694-32	1
	Quartzell Assy (100lb / 50kg cap.)	7153-15694-50	1
	Quartzell EPROM, Programmed (not shown)	52036-0017	1
4	Screw, #10-32 x 3/8"L	1006-02039	2
5	Standoff, m/f #6 x 1/4"HX x 9/16"L	15437-5000	4
6	I/O Connector Mtg Bracket	1067-16154	1
7	Standoff, f/f, #6 x ¼" HX x 9/16"L	1044-16184	4
8	Display Mtg. Plate	1069-16135	1
9	Loadbridge	1066-15993	1
10	Capscrew, Hex, 1/4-20 X 1.00"L	1007-02617	4
11	Main Computer and I/O Pc Board	50908-0016	1
12	Power Supply, 120VAC / 14VDC, .07amp	1148-16069	1
	Power Supply,230VAC/14VDC, 0.7 amp	1148-16070	1
13	Pwr Supply Mtg Bracket	1067-15647	1
14	Sealing Cover Label	1070-60103	1
15	Screw, #6 X .38"L	1009-05758	7
17	Foot Assy	7075-16213	4
18	Bolt, ¼" x 1.0"L	1007-02617	4
19	Standoff, f/f, #6 x ¼" HX x 1 ¼"L	1044-16185	4
20	Standoff,m/f #4 x 3/16HEX x 3/16"L	1044-01085	8
21	Cable Clamp	1074-00392	1
22	Level Bubble	1083-00095	1
23	Adhesive Tape (for bubble)	1045-13049	1
24	Flat Washer, 1/4"	1029-80008	4
25	Access / Security Cover	1069-15766	1
26	Base	7069-16183-01	1
27	Remote Analog/QDT PC. Board (optional)	52111-0015	1
	Kit for Above (Incl. Board,hardware,decal)	52107-0011	1
28	Shipping Block	1084-15131	1
29	Load Stop Pin, (50lb / 25kg)	1090-16074-32	4
	Load Stop Pin, (100lb / 50kg)	1090-16074-50	4
33	Ball Top Shroud (optional)	7076-15118	1
34	Screw, Locking Hex Socket,	1011-15213	1
35	Cable Assy (Quartzell-to-main)	7140-15668	1
36	Screw,#6-32 x ¼"L	1009-10039	2
37	Screw,#6-32 x 3/8"L	1006-02604	8
38	Display Enclosure, Top	1069-15966	1
39	Display Enclosure, Bottom	1069-15967	1
40	Keypad / Backer Plate Assy	51938-0018	1
41	Display / Keypad Intfc Board Assy (PC-820)	50912-0028	1
	Display / Keypad Intfc Board Assy (PC-821)	50912-0010	1
43	Display, LCD w/ Backlite (PC-820)	48622-1021	1
44	Display, LCD w/o Backlite (PC-821)	48622-1013	1
45	Screw, #6 x ¼"L	1006-02598	8
	Optional items not shown		
	Remote QDT Base cable Assy,10 ft. length	49387-0026	1
	Bar Code Gun w/ cable, (high visibility)	48549-1013	1
	Bar Code Gun w/ cable	48549-1021	1
	Standard Keyboard, alpha-numeric	47853-0017	1
	Tufkey (spill resistant) Keyboard, alpha-numeric	47854-0016	1
	External Battery,BP-25R, 12vdc w/Charger (see system block diagram for connection location)	46839-0018	1
	Interface Cable (to 820/821) for BP-25R, 6 ft long	46850-0012	1
	Internal Battery Kit,12vdc,w/Charger PC. Bd	51799-0016	1
	Cable,9-pin,RS-232(computer or scanner)	51800-0013	1
	Cable,25-pin RS-232 Null Modem (printer)	51800-0021	1
	Cable, 9-pin (SSCU only)	51800-0039	1
	Cable, PC serial keyboards	51800-0047	1
	2-Device Cable, (9-pin Scanner *and* 25-pin Printer)	51800-0054	1
	4-Device Cable, (9-pin Scanner, 25-pin Printer,9-pin SSCU, PC keyboard)	51800-0112	1

PC-820/821 COUNTING SCALE
SYSTEM WIRING BLOCK DIAGRAM

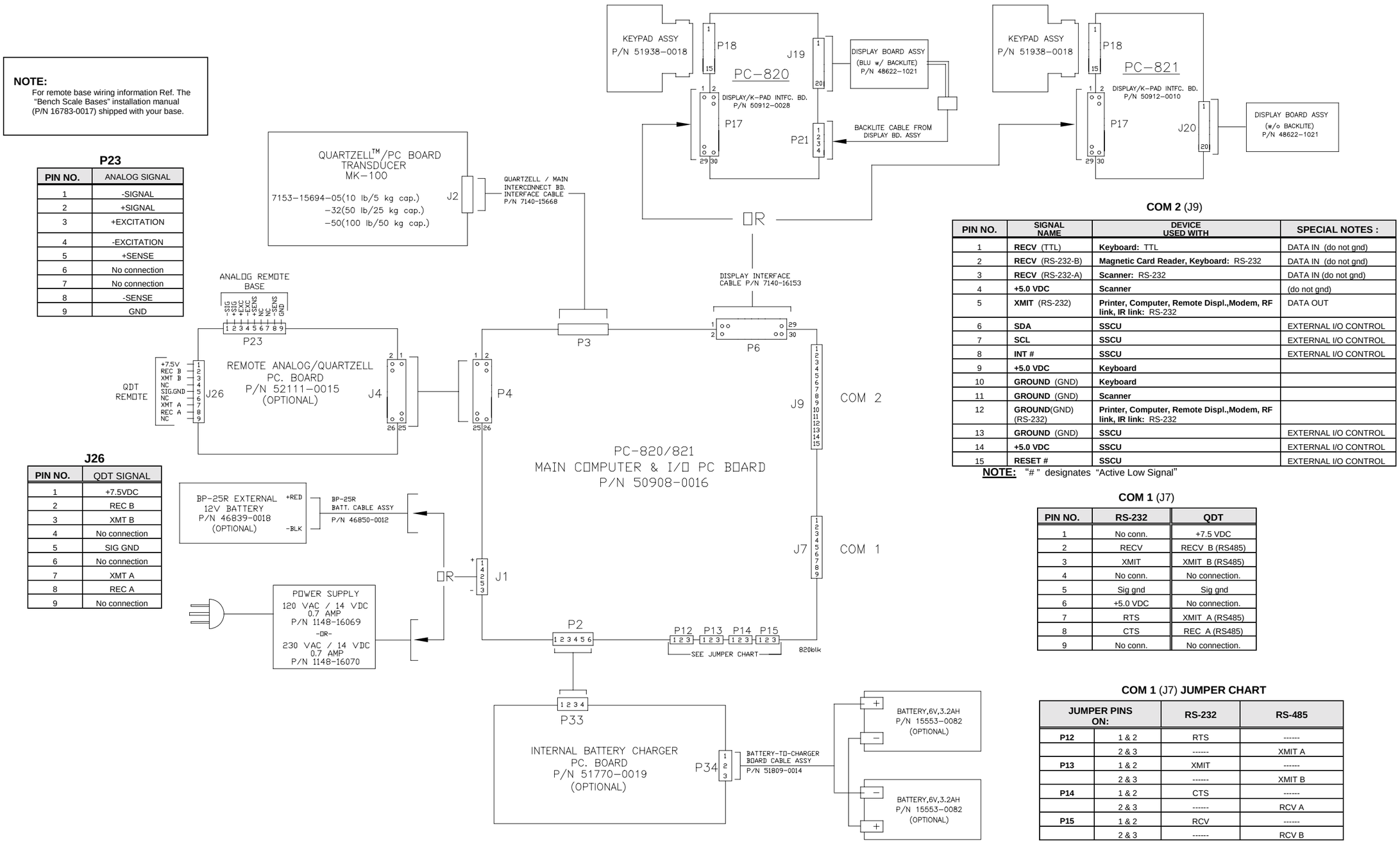
NOTE:
For remote base wiring information Ref. The "Bench Scale Bases" installation manual (P/N 16783-0017) shipped with your base.

P23

PIN NO.	ANALOG SIGNAL
1	-SIGNAL
2	+SIGNAL
3	+EXCITATION
4	-EXCITATION
5	+SENSE
6	No connection
7	No connection
8	-SENSE
9	GND

J26

PIN NO.	QDT SIGNAL
1	+7.5VDC
2	REC B
3	XMT B
4	No connection
5	SIG GND
6	No connection
7	XMT A
8	REC A
9	No connection



COM 2 (J9)

PIN NO.	SIGNAL NAME	DEVICE USED WITH	SPECIAL NOTES :
1	**RECV** (TTL)	**Keyboard:** TTL	DATA IN (do not gnd)
2	**RECV** (RS-232-B)	**Magnetic Card Reader, Keyboard:** RS-232	DATA IN (do not gnd)
3	**RECV** (RS-232-A)	**Scanner:** RS-232	DATA IN (do not gnd)
4	**+5.0 VDC**	**Scanner**	(do not gnd)
5	**XMIT** (RS-232)	**Printer, Computer, Remote Displ.,Modem, RF link, IR link:** RS-232	DATA OUT
6	**SDA**	**SSCU**	EXTERNAL I/O CONTROL
7	**SCL**	**SSCU**	EXTERNAL I/O CONTROL
8	**INT #**	**SSCU**	EXTERNAL I/O CONTROL
9	**+5.0 VDC**	**Keyboard**	
10	**GROUND** (GND)	**Keyboard**	
11	**GROUND** (GND)	**Scanner**	
12	**GROUND**(GND) (RS-232)	**Printer, Computer, Remote Displ.,Modem, RF link, IR link:** RS-232	
13	**GROUND** (GND)	**SSCU**	EXTERNAL I/O CONTROL
14	**+5.0 VDC**	**SSCU**	EXTERNAL I/O CONTROL
15	**RESET #**	**SSCU**	EXTERNAL I/O CONTROL

NOTE: "#" designates "Active Low Signal"

COM 1 (J7)

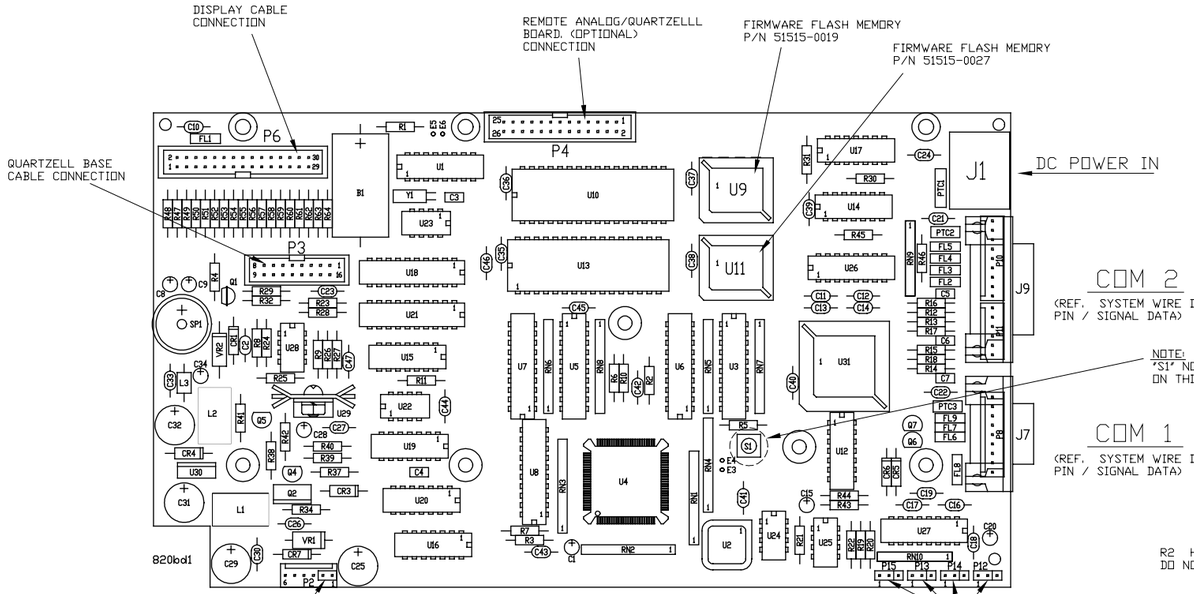
PIN NO.	RS-232	QDT
1	No conn.	+7.5 VDC
2	RECV	RECV B (RS485)
3	XMIT	XMIT B (RS485)
4	No conn.	No connection.
5	Sig gnd	Sig gnd
6	+5.0 VDC	No connection.
7	RTS	XMIT A (RS485)
8	CTS	REC A (RS485)
9	No conn.	No connection.

COM 1 (J7) **JUMPER CHART**

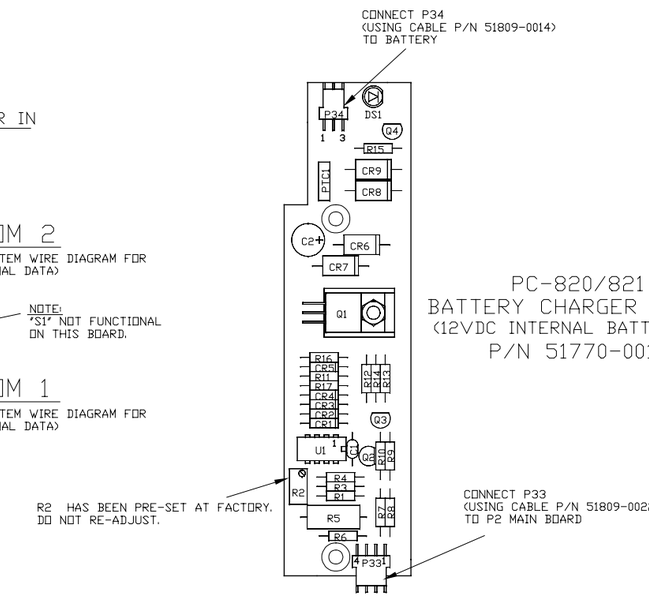
JUMPER PINS ON:		RS-232	RS-485
P12	1 & 2	RTS	------
	2 & 3	------	XMIT A
P13	1 & 2	XMIT	------
	2 & 3	------	XMIT B
P14	1 & 2	CTS	------
	2 & 3	------	RCV A
P15	1 & 2	RCV	------
	2 & 3	------	RCV B

PC-820/821 COUNTING SCALE

MAIN COMPUTER & I/O, REMOTE ANALOG,
INTERNAL BATTERY CHARGER PC. BOARDS



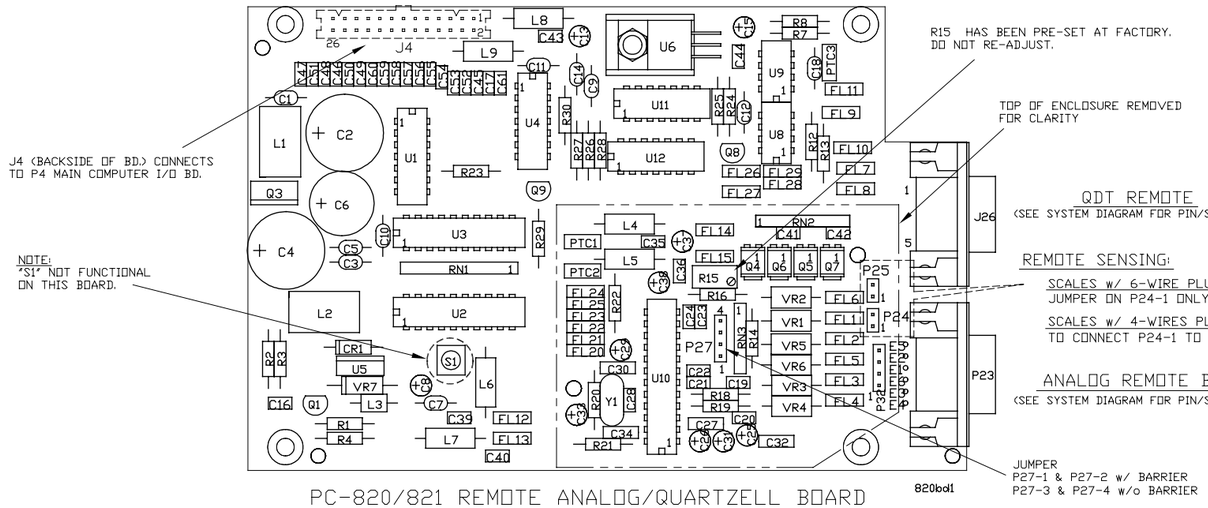
PC-820/821 MAIN COMPUTER & I/O BOARD
P/N 50908-0016



PC-820/821
BATTERY CHARGER BOARD
(12VDC INTERNAL BATTERIES)
P/N 51770-0019

COM 1 (J7) JUMPER CHART

JUMPER PINS ON:		RS-232	RS-485
P12	1 & 2	RTS	------
	2 & 3	------	XMIT A
P13	1 & 2	XMIT	------
	2 & 3	------	XMIT B
P14	1 & 2	CTS	------
	2 & 3	------	RCV A
P15	1 & 2	RCV	------
	2 & 3	------	RCV B

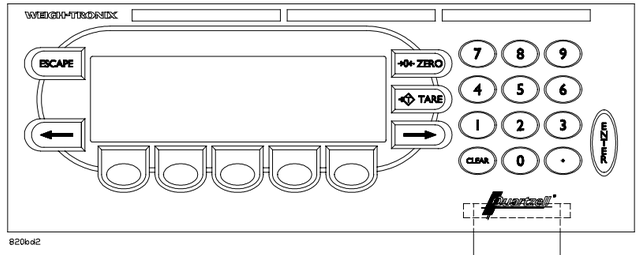


PC-820/821 REMOTE ANALOG/QUARTZELL BOARD
P/N 52111-0015
(OPTIONAL)

PC-820/821 COUNTING SCALE

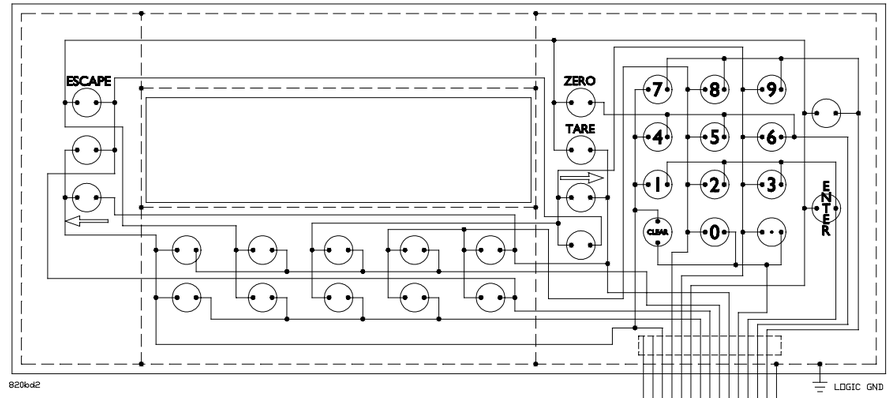
DISPLAY & INTERFACE BD., DISPLAY ASSY,
KEYPAD ASSY And MATRIX

KEYPAD PC-820/821



FRONT SIDE

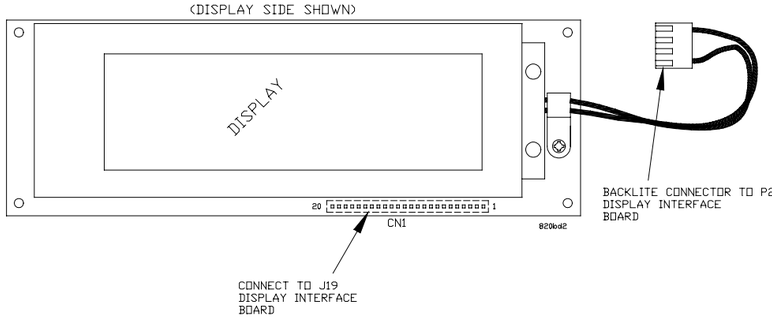
CONNECT TO P18
DISPLAY INTERFACE
BOARD



KEYPAD MATRIX DIAGRAM

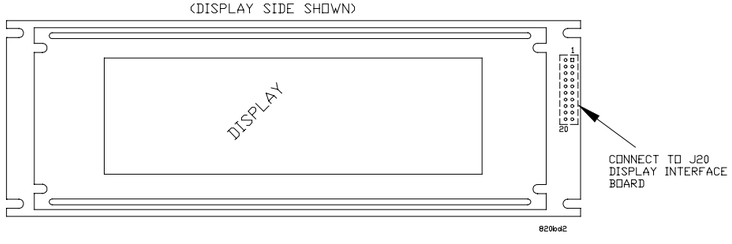
DISPLAY BOARD, PC-820 w/ BLUE & BACKLITE
P/N 48622-1021

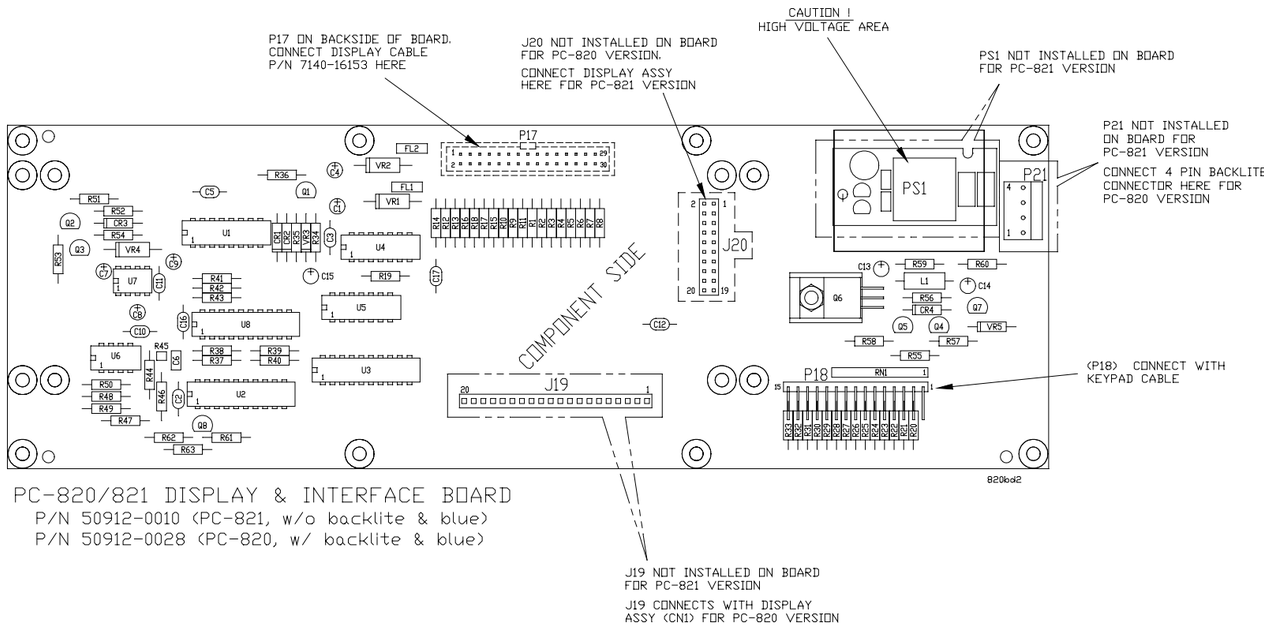
(DISPLAY SIDE SHOWN)



DISPLAY BOARD, PC-821 w/o BLUE & BACKLITE
P/N 48622-1013

(DISPLAY SIDE SHOWN)



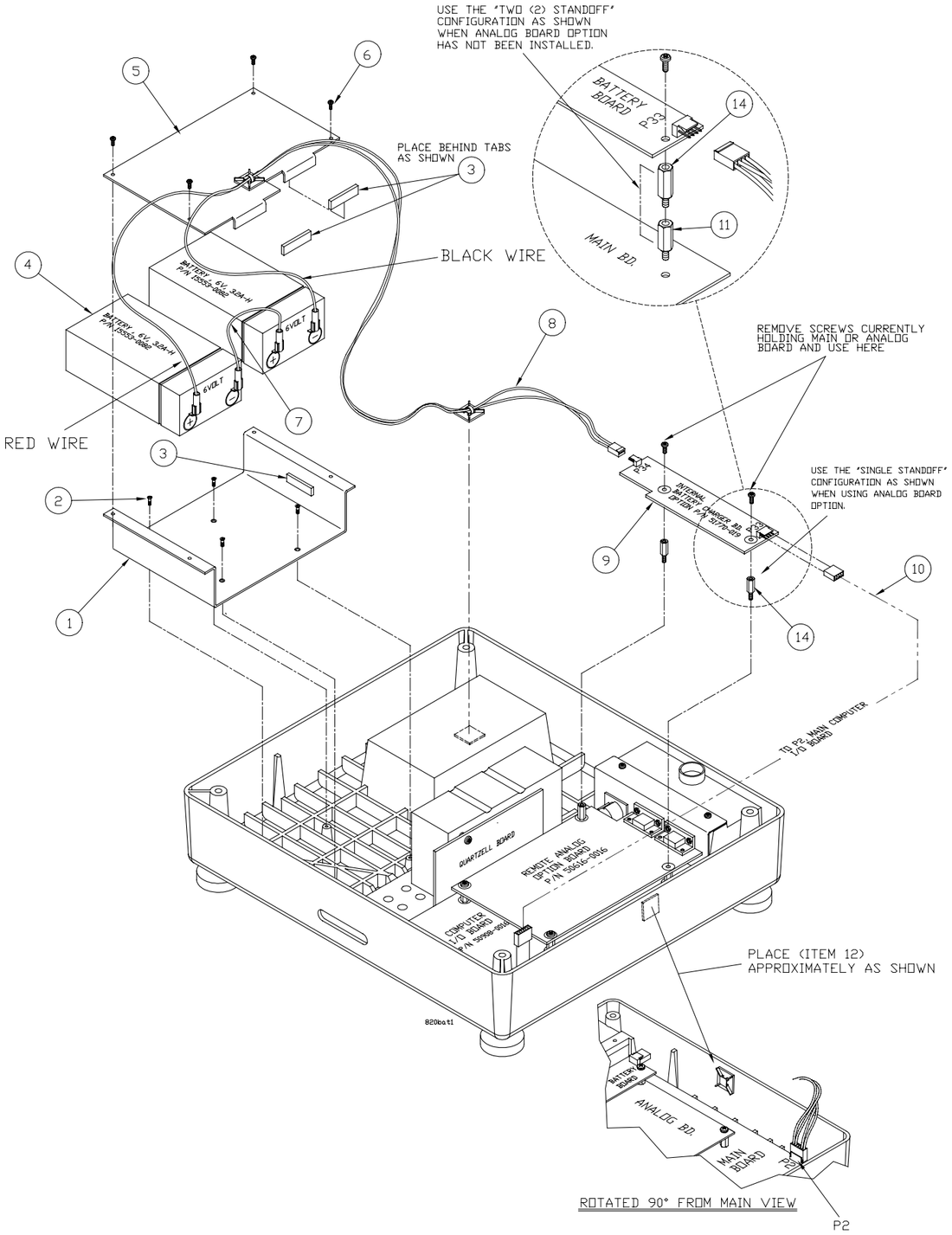


PC-820/821 DISPLAY & INTERFACE BOARD
P/N 50912-0010 (PC-821, w/o backlite & blue)
P/N 50912-0028 (PC-820, w/ backlite & blue)

PC-820/821 COUNTING SCALE

INTERNAL BATTERY & CHARGER PC. BOARD

PARTS *AND* ASSY ***(KIT P/N 51799-0016)***



PARTS LIST

ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Battery Bracket	51793-0012	1
2	Screw,flat hd #6-32 x 3/8"L	16254-0249	4
3	Weather Stripping, (cut into 3 pieces as shown)	15366-0022	1
4	Battery, 6V, 3.2A-H	15553-0082	2
5	Battery Cover	51792-0013	1
6	Screw,pan hd #4-40 x 3/8"L	14473-0124	4
7	Battery Jumper Cable Assy	51809-0030	1
8	Battery –to- Charger Bd. Cable Assy	51809-0014	1
9	Battery Charger Board Assy	51770-0019	1
10	Charger Board –to- Main Board Cable Assy	51809-0022	1
11	Standoff, m/f, #6 x ¼" hex x 9/16"L	15437-5000	2
12	Mounting Device	17887-0010	3
13	Cable Tie	13762-0019	3
14	Standoff, m/f, #6 x ¼"hex x 5/8"L	15437-0456	2

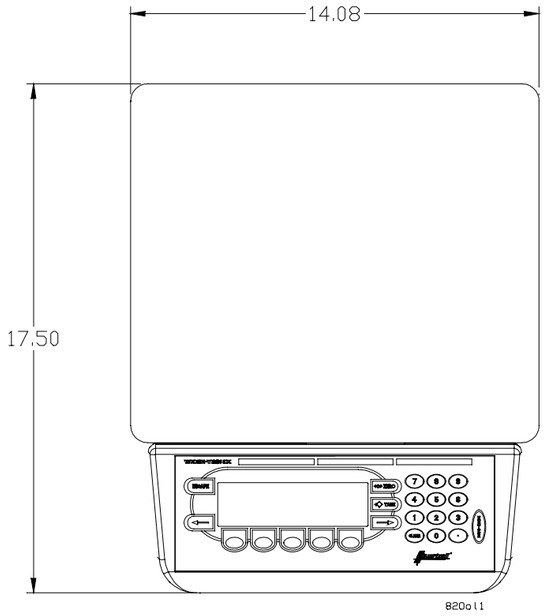
Internal Battery / Battery Charger PC Board Installation Instructions

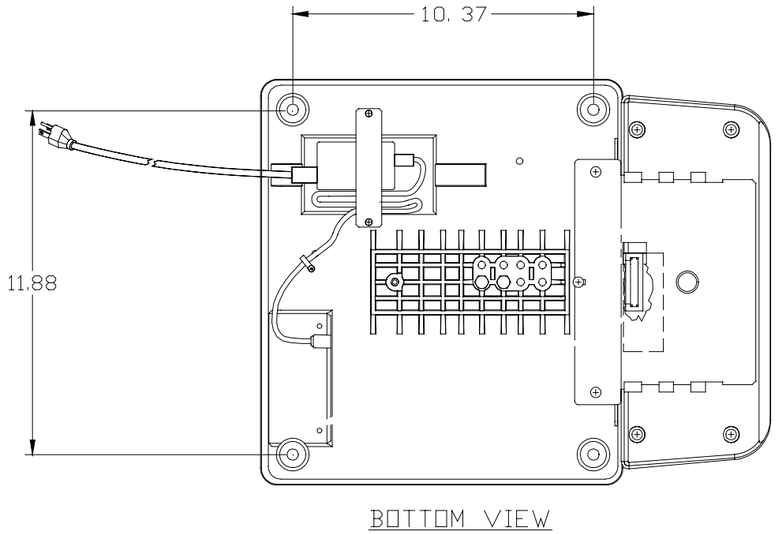
1. Remove shroud. *(refer to "parts & ass'y" pages in this manual when needed)*
2. Remove loadbridge by removing bolts attaching loadbridge to quartzell. *(torque wrench required to re-assemble)*
3. Remove the two screws from main board *(or analog board if installed)* where battery charger pc board will be installed *(see illustration).* These screws will be used to install battery charger pc board.
4. Install standoffs *(items 11 & 14).* Use the two longer standoffs (items 14) if you have analog board, or two standoffs each of (items 11 & items 14) if not using analog board). *(see illustration)*
5. Install battery charger board, *(item 9)* on standoffs using screws referred to in step 3.
6. Install battery bracket *(item 1)* with four screws *(item 2)* as shown in illustration.
7. Cut weather stripping *(item 3)* into desired lengths and apply as shown.
8. Place batteries into battery bracket and install cover *(item 5)* on battery bracket using four screws *(item 6).*
9. Place the three mounting devices *(item 12)* as shown.
10. Remove the 2-pin jumper from P2-1 / P2-2 on main board.
11. Connect batteries with battery jumper cable assy *(item 7)* as shown.
12. Using battery-to-charger board cable assy *(item 8),* connect red wire to positive terminal of one battery, then connect black wire to negative terminal of other battery as shown. Now connect the 3-pin connector to P34 on charger board *(item 9).*
13. Connect battery charger board to main board using charger board-to-main board cable assy *(item 10)* as shown.
14. Attach cable assemblies *(items 7,8 & 10)* to the already attached mounting devices *(item 12)* with cable ties *(item 13)* as shown. DO NOT FULLY TIGHTEN CABLE TIES AT THIS TIME.
15. Verify that the wires in cable assemblies do not touch the quartzell or loadbridge, or be pinched by them in any way, then finish tightening the cable ties. *(REF: step no.14)*
16. Make sure scale is unplugged from wall outlet. Press any key to verify that scale turns on and operates.
17. Press "off" key to verify scale turns off.

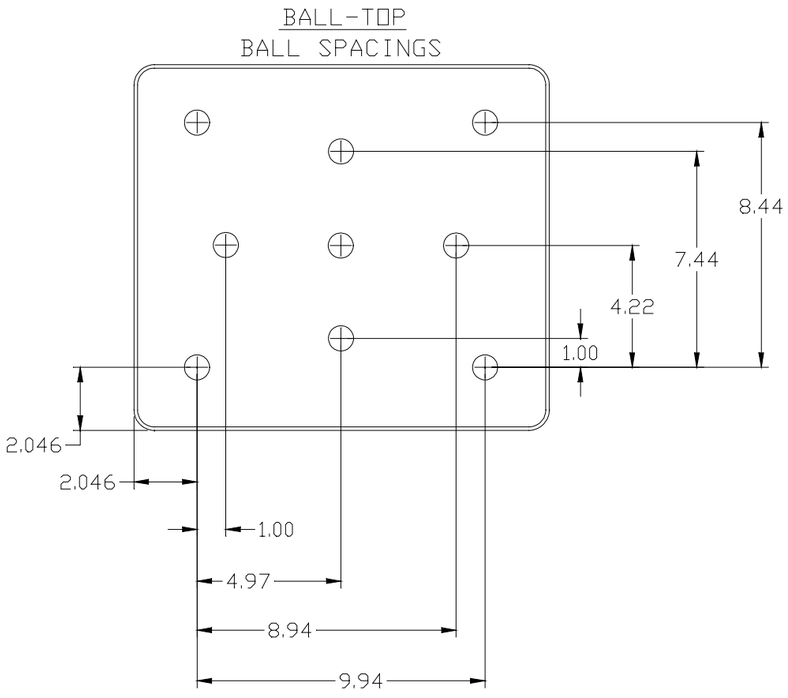
IMPORTANT: SCALE MUST BE PLUGGED IN TO WALL OUTLET, AND TURNED OFF TO PERFORM VOLTAGE CHECK AND/OR CHARGE THE BATTERIES.

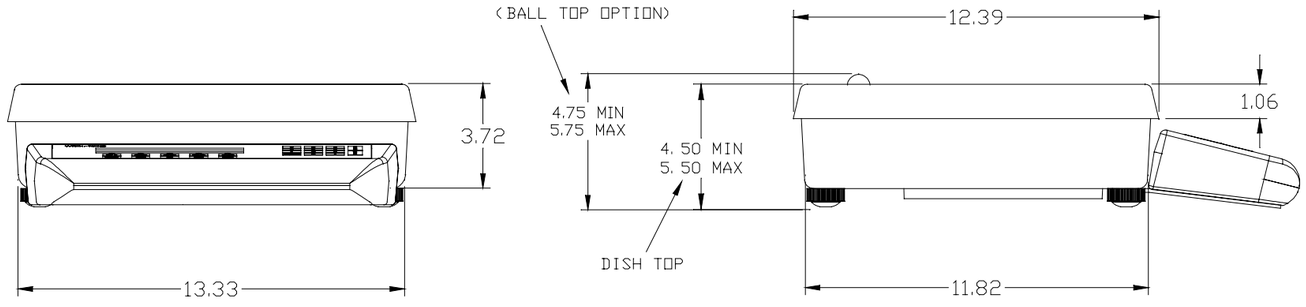
18. Connect power cord to wall outlet and verify that the battery voltage is higher than 12.5 VDC, and is increasing.
19. When the battery is 90% of full charge, the green LED (DS1) on charger board will flash on and off. When fully charged the LED will stay on continuously. BATTERY DOES NOT NEED TO BE 100% CHARGED. Normal charging time is approx. 4-6 hr. If battery is totally discharged, a longer charging time may be necessary. The charger system will automatically shut off when battery is fully charged.
20. When the green LED begins to flash, unplug the scale and reinstall the loadbridge and shroud. Using a torque wrench tighten the load bridge bolts to specs *(90±5 ft. lbs).*

PC-820/821 COUNTING SCALE
SCALES *AND* BASES
DIMENSIONAL OUTLINE *FOR* 12” x 14” BASE



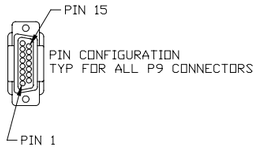


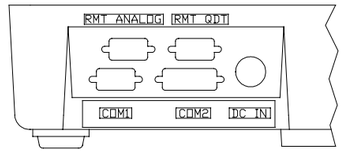




PC-820/821 COUNTING SCALE
COM2 INTERFACE CABLE OPTIONS *AND* PIN-OUTS

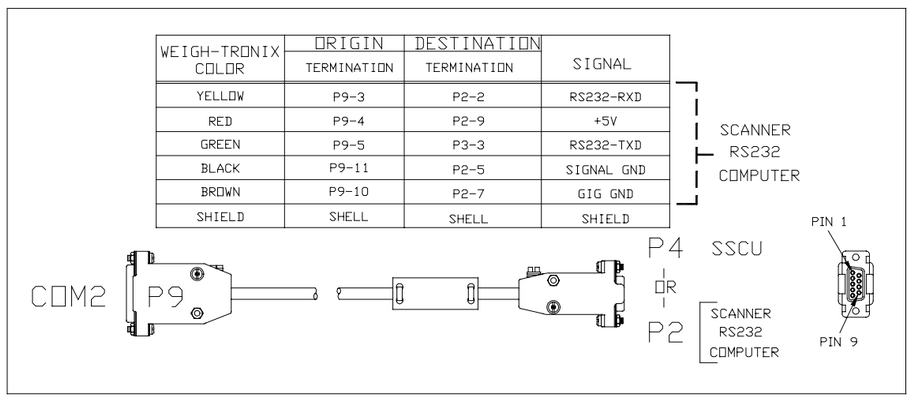
DESCRIPTION	P/N
SINGLE CABLE OPTIONS (9-in.)	
BI-DIRECTIONAL RS232, 9-PIN (COMPUTER OR SCANNER)	51800-0013
BI-DIRECTIONAL RS232, NULL MODEM 25-PIN (PRINTER)	51800-0021
SSCU, 9-PIN (SSCU ONLY)	51800-0039
PC SERIAL KEYBOARD	51800-0047
TWO DEVICE CABLE OPTIONS (9-in.)	
9-PIN SCANNER AND 25-PIN PRINTER	51800-0054
9-PIN SSCU, PC SERIAL KEYBOARD	51800-0104
FOUR DEVICE CABLE OPTIONS (9-in.)	
9-PIN SCANNER, 9-PIN SSCU, 25-PIN PRINTER, PC SERIAL KEYBOARD	51800-0112





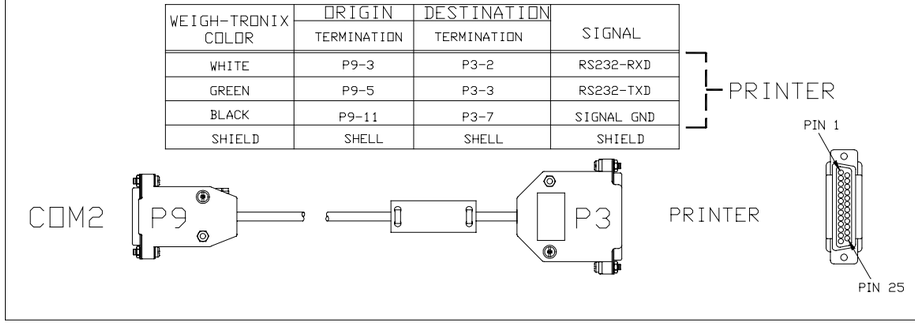
(REAR VIEW, 820/821)

WEIGH-TRONIX COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
YELLOW	P9-3	P2-2	RS232-RXD
RED	P9-4	P2-9	+5V
GREEN	P9-5	P3-3	RS232-TXD
BLACK	P9-11	P2-5	SIGNAL GND
BROWN	P9-10	P2-7	GIG GND
SHIELD	SHELL	SHELL	SHIELD



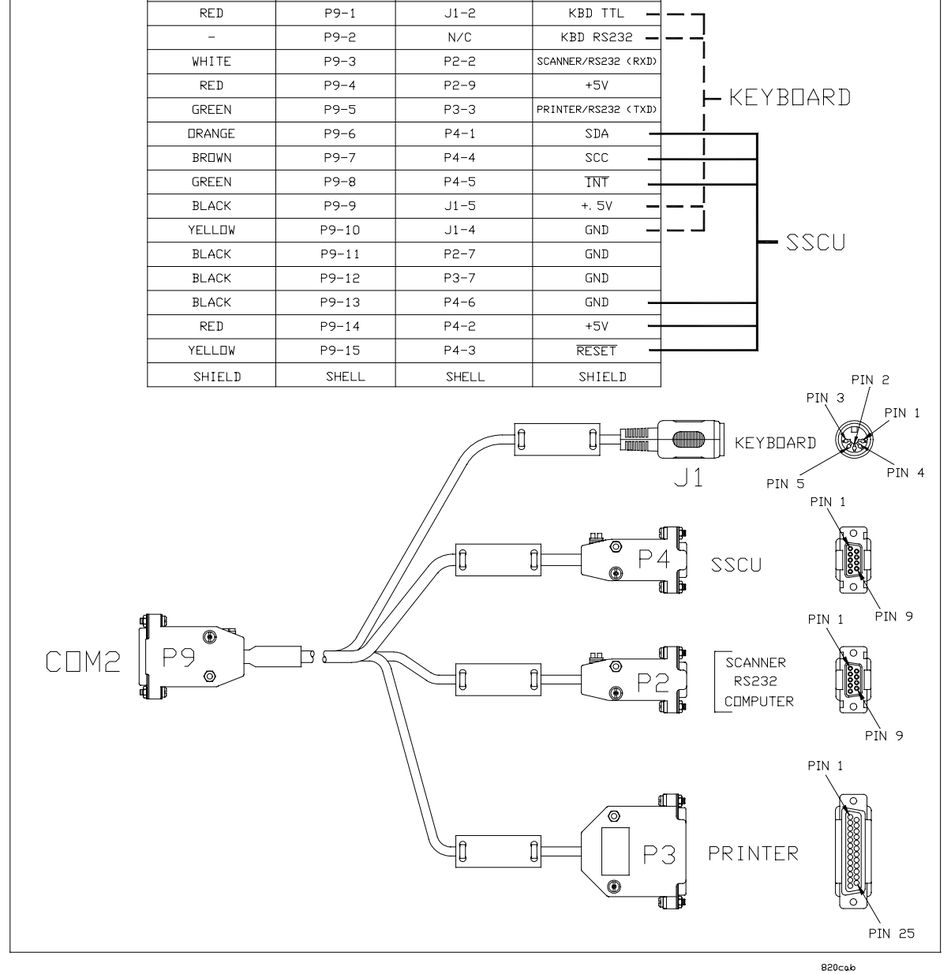
820cab

WEIGH-TRONIX COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
WHITE	P9-3	P3-2	RS232-RXD
GREEN	P9-5	P3-3	RS232-TXD
BLACK	P9-11	P3-7	SIGNAL GND
SHIELD	SHELL	SHELL	SHIELD



820cab

WEIGH-TRONIX COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
RED	P9-1	J1-2	KBD TTL
-	P9-2	N/C	KBD RS232
WHITE	P9-3	P2-2	SCANNER/RS232 (RXD)
RED	P9-4	P2-9	+5V
GREEN	P9-5	P3-3	PRINTER/RS232 (TXD)
ORANGE	P9-6	P4-1	SDA
BROWN	P9-7	P4-4	SCC
GREEN	P9-8	P4-5	$\overline{INT}$
BLACK	P9-9	J1-5	+.5V
YELLOW	P9-10	J1-4	GND
BLACK	P9-11	P2-7	GND
BLACK	P9-12	P3-7	GND
BLACK	P9-13	P4-6	GND
RED	P9-14	P4-2	+5V
YELLOW	P9-15	P4-3	$\overline{RESET}$
SHIELD	SHELL	SHELL	SHIELD



820cab

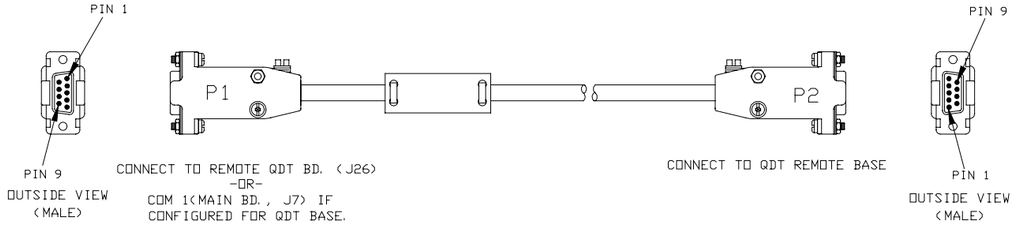
PC-820/821 COUNTING SCALE

COM1 INTERFACE CABLES, 820-TO-QUARTZELL BASE
AND 820-TO-ELTRON PRINTER CABLE ASSEMBLIES

820-TO-QUARTZELL BASE CABLE ASSEMBLY, P/N 49387-0026 (10ft.)

WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
RED	P1-1	P2-1	+7.5 v
BLUE	P1-2	P2-2	REC B
YELLOW	P1-3	P2-3	XMT B
BLACK	P1-5	P2-5	GROUND
GREEN	P1-7	P2-7	XMT A
WHITE	P1-8	P2-8	REC A
DRAIN WIRE	SHELL	SHELL	SHIELD

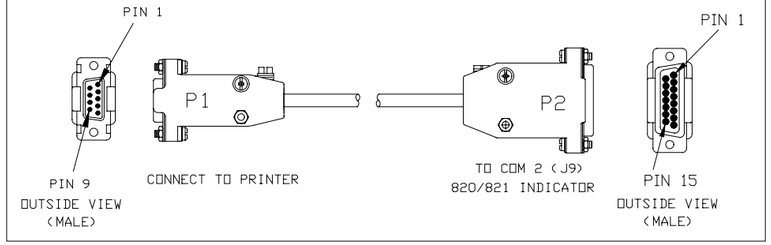
SIGNAL NAMES ARE FROM INDICATOR



820cab2

ELTRON PRINTER-TO-820/821 CABLE ASSY P/N 52002-0017

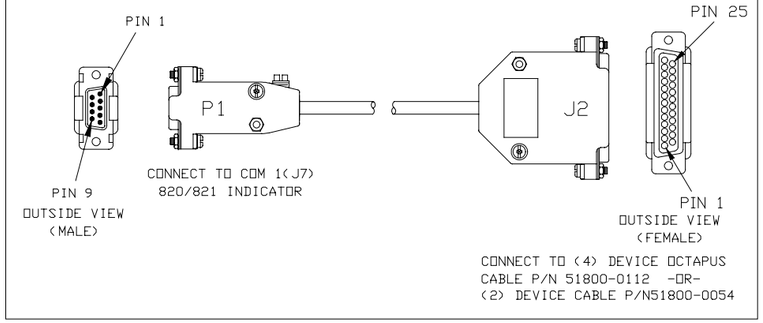
WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
DRAIN WIRE	NC	NC	SHIELD
RED	P1-3	P2-5	TXD
BLACK	P1-5	P2-10	GND



820cab2

"ELTRON PRINTER-TO-OCTAPUS CABLE" CABLE ASSY P/N 52001-0018

WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
DRAIN WIRE	NC	NC	SHIELD
RED	P1-3	J2-3	TXD
BLACK	P1-5	J2-7	GND

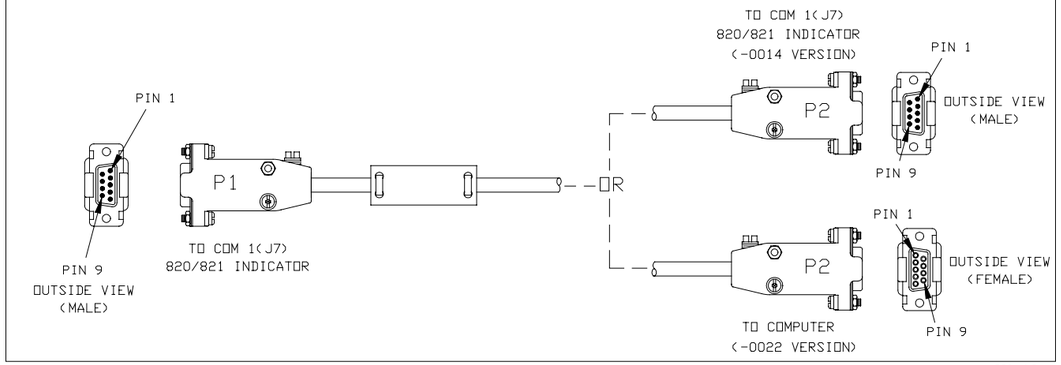


820cab2

"COM 1" CABLE ASSEMBLIES, P/N 52039-0014 AND -0022

WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
YELLOW	P1-2	P2-3	SCALE RXD
GREEN	P1-3	P2-2	SCALE TXD
BLACK	P1-5	P2-5	SIGNAL GROUND
ORANGE	P1-7	P2-8	SCALE RTS
BROWN	P1-8	P2-7	SCALE CTS
DRAIN WIRE	SHELL	SHELL	SHIELD

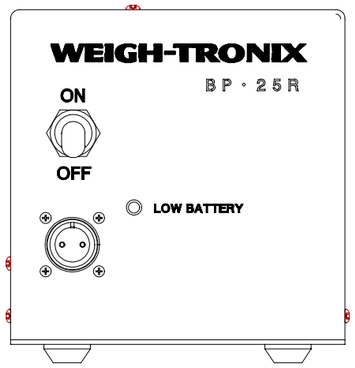
SIGNAL NAMES ARE FROM INDICATOR



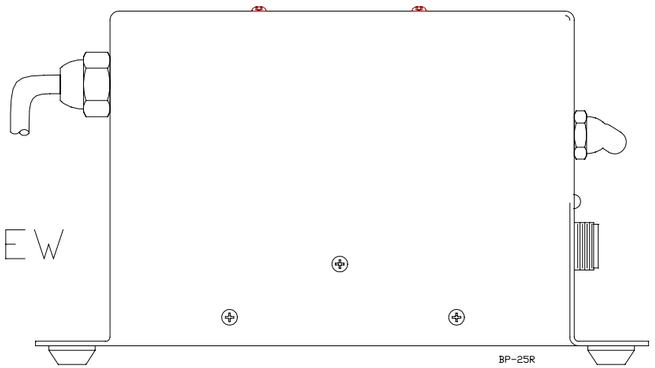
820cab2

PC-820/821 COUNTING SCALE
BP-25R EXTERNAL BATTERY
P/N 46839-0018 *(115VAC)* ,-0026 *(230VAC)*

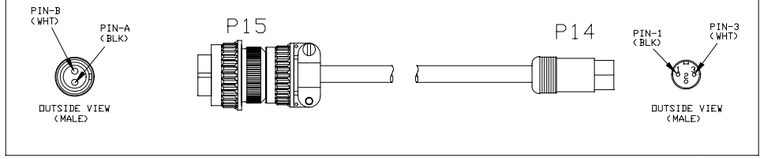
FRONT VIEW



SIDE VIEW



BP-25R TO 820/821 CABLE ASSY P/N 46850-0012			
WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
BLK	P15-A	P14-1	+ 12V
WHT	P15-B	P14-3	RETURN



BP-25R

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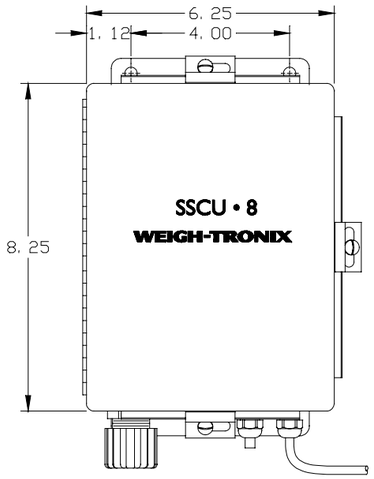
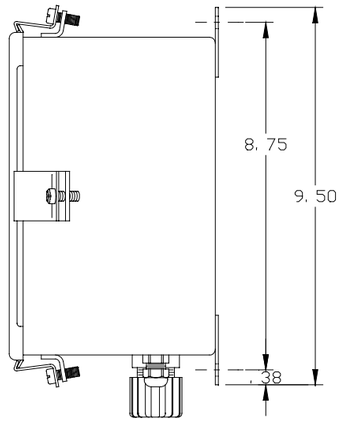
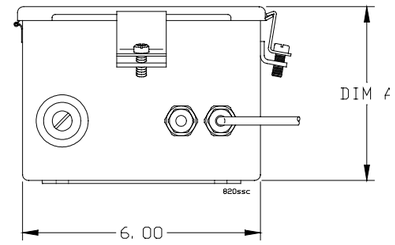
PC-820/821 COUNTING SCALE

SOLID STATE CONTROL UNIT (SSCU)
PARTS *AND* ASSEMBLY



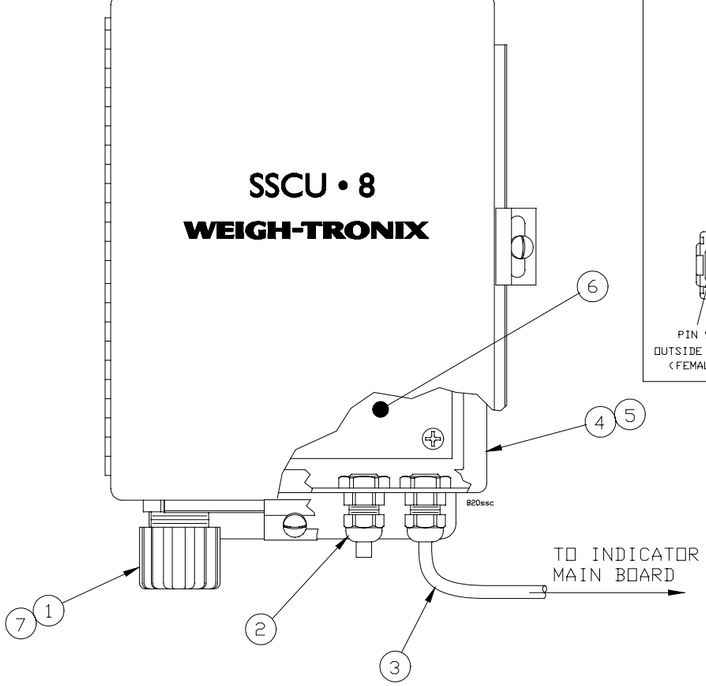


DATA CHART		
PART NO.	DIM "A"	DESCRIPTION
47192-0017	4. 38	STAINLESS
47192-0025	3. 87	PAINTED CARBON



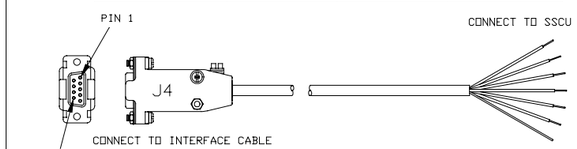
(BOTTOM VIEW)

ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Strain Relief	22380-0053	1
2	Strain Relief	15257-0024	2
3	Sscu Interface Cable (9-pin)	47388-0029	1
	Sscu Interface Cable (15-pin)	47388-0037	1
4	Enclosure (Steel, Painted)	47665-0031	1
5	Enclosure (Stainless)	47665-0049	1
6	Remote 16 TTL Control I/O Pc Bd	49853-0013	1
	Remote 8 Solid State Control I/O Pc. Bd.	47183-0018	1
7	Lock Nut (Self Sealing)	22381-0011	1



9-PIN SSCU INTERFACE CABLE ASSY P/N 47388-0029

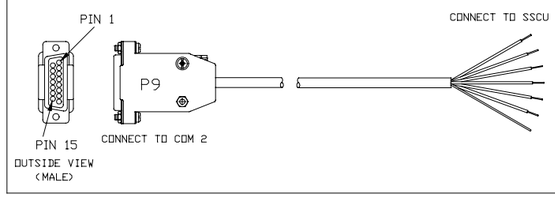
WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
ORANGE	J4-4	TB37-1	SCL
YELLOW	J4-1	TB37-2	SDA
GREEN	J4-5	TB37-3	INT
BLACK	J4-6	TB37-4	GND
RED	J4-2	TB37-5	+5V
BROWN	J4-3	TB37-6	RESET
SHIELD	SHELL	TB37-7	SHIELD



820ssc

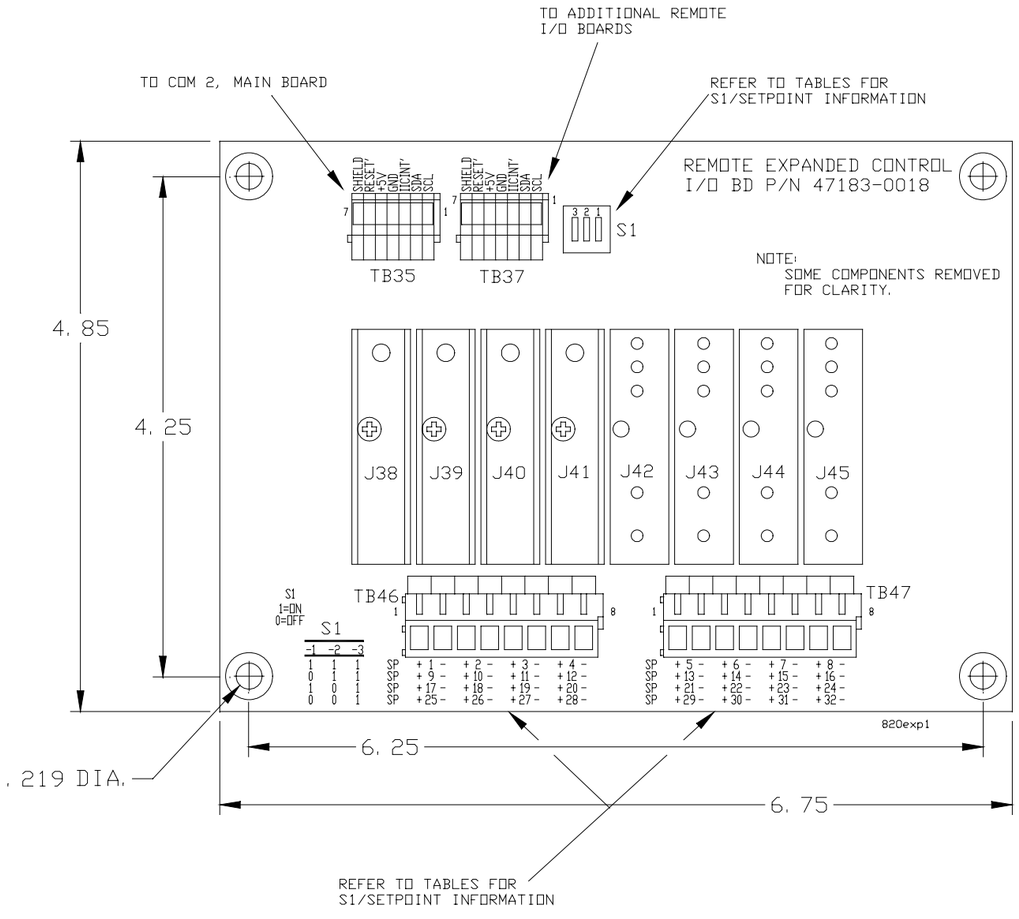
15-PIN SSCU INTERFACE CABLE ASSY P/N 47388-0037

WEIGH-TRONIX WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
ORANGE	P9-7	TB37-1	SCL
YELLOW	P9-6	TB37-2	SDA
GREEN	P9-8	TB37-3	INT
BLACK	P9-10	TB37-4	GND
RED	P9-14	TB37-5	+5V
BROWN	P9-15	TB37-6	RESET
SHIELD	P9-11	TB37-7	SHIELD



820ssc

PC-820/821 COUNTING SCALE
SSCU-8 REMOTE EXPANDED CONTROL I/O BOARD
P/N 47183-0018



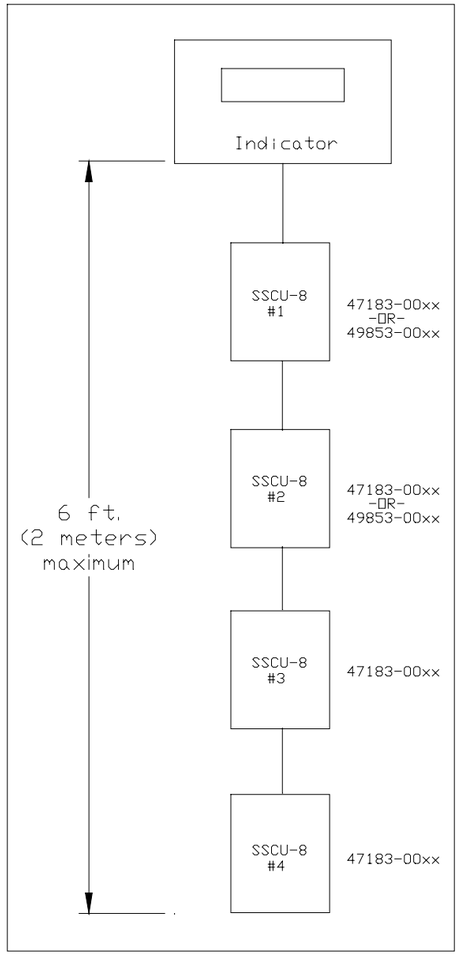


Table 1: Setpoints 1 thru 8

SW1 (1)ON	(2)ON	(3)ON
SETPOINT #	TB #	PIN #
1 (+)	46	1
1 (-)	46	2
2 (+)	46	3
2 (-)	46	4
3 (+)	46	5
3 (-)	46	6
4 (+)	46	7
4 (-)	46	8
5 (+)	47	1
5 (-)	47	2
6 (+)	47	3
6 (-)	47	4
7 (+)	47	5
7 (-)	47	6
8 (+)	47	7
8 (-)	47	8

Table 2: Setpoints 9 thru 16

SW1 (1)OFF	(2)ON	(3)ON
SETPOINT #	TB #	PIN #
9 (+)	46	1
9 (-)	46	2
10 (+)	46	3
10 (-)	46	4
11 (+)	46	5
11 (-)	46	6
12 (+)	46	7
12 (-)	46	8
13 (+)	47	1
13 (-)	47	2
14 (+)	47	3
14 (-)	47	4
15 (+)	47	5
15 (-)	47	6
16 (+)	47	7
16 (-)	47	8

Table 3: Setpoints 17 thru 24

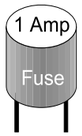
SW1 (1)ON	(2)OFF	(3)ON
SETPOINT #	TB #	PIN #
17 (+)	46	1
17 (-)	46	2
18 (+)	46	3
18 (-)	46	4
19 (+)	46	5
19 (-)	46	6
20 (+)	46	7
20 (-)	46	8
21 (+)	47	1
21 (-)	47	2
22 (+)	47	3
22 (-)	47	4
23 (+)	47	5
23 (-)	47	6
24 (+)	47	7
24 (-)	47	8

Table 4: Setpoints 25 thru 32

SW1 (1)OFF	(2)OFF	(3)ON
SETPOINT #	TB #	PIN #
25 (+)	46	1
25 (-)	46	2
26 (+)	46	3
26 (-)	46	4
27 (+)	46	5
27 (-)	46	6
28 (+)	46	7
28 (-)	46	8
29 (+)	47	1
29 (-)	47	2
30 (+)	47	3
30 (-)	47	4
31 (+)	47	5
31 (-)	47	6
32 (+)	47	7
32 (-)	47	8

Note:

The Solid State Control Unit (SSCU-8) option boards require that the total cable length from The indicator to the last SSCU-8 box/card be two meters (approx. six ft.) maximum. Noise Problems & intermittent communications with the SSCU-8 card will occur if this guideline is Not followed



Opto-22 Output Module Fuse Table

W-T P/N 46618	Rated Current (amp)	Wickmann TR5-F P/N	W-T P/N 46618	Rated Current (amp)	Wickmann TR5-F P/N
-0015	.050	19373K-50A	-0122	.630	19373K-630A
-0023	.063	19373K-63A	-0130	.800	19373K-800A
-0031	.080	19373K-80A	-0148	1.0	19373K-1A
-0049	.100	19373K-100A	-0155	1.25	19373K-1,25A
-0056	.125	19373K-125A	-0163	1.6	19373K-1,6A
-0064	.160	19373K-160A	-0171	2.0	19373K-2A
-0072	.200	19373K-200A	-0189	2.5	19373K-2,5A
-0080	.250	19373K-250A	-0197	3.15	19373K-3,15A
-0098	.315	19373K-315A	-0205	4.0	19373K-4A
-0106	.400	19373K-400A	-0213	5.0	19373K-5A
-0114	.500	19373K-500A	-0221	6.3	19373K-6,3A

OPTO-22 CONTROL INTERFACE DEVICES
Specifications

The OPTO-22 Generation 4 I/O modules can be used on the optional Remote Expanded Control Interface Boards (max. 32).

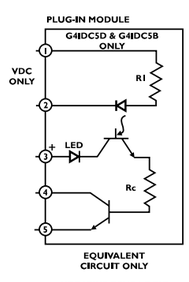
NEW P/N 48552	OLD P/N 46571-	OPTO-22 P/N	I/O Type AC or DC Input or Output	Color	External circuit voltage range	External circuit Max. Current	Turn on time msec.	Turn off time msec.	I/O operating temperature range
-0019	-0010	G4IDC5D	DC only (input)	White	2.5-28 vdc only	30mA	1.0	1.5	-30°Cto 70°C
-0027	-0028	G4IDC5B	DC only (input)	White	4.0-16 vdc only	45mA	0.05	0.1	-30°Cto 70°C
-0035	-0036	G4IDC5	AC/DC (input)	White	12-32	25mA	5	5	-30°Cto 70°C
-0043	-0044	G4IDC5G	AC/DC (input)	White	35-60	25mA	10	15	-30°Cto 70°C
-0050	-0051	G4IAC5	AC/DC (input)	Yellow	90-140	11mA	11	20	-30°Cto 70°C
-0068	-0069	G4IAC5A	AC/DC(input)	Yellow	180-280	6.5mA	2	20	-30°Cto 70°C
-0076	-0077	G4ODC5	DC ouput N.O. Normally Open	Red	5-60 vdc only	3A@45°C 2A@70°C	100	750	-30°Cto 70°C
-0084	-0085	G4ODC5A	DC (output) N.O. Normally Open	Red	5-200 vdc only	1A@45°C 0.55A@70°C	100	750	-30°Cto 70°C
-0092	-0093	G4OAC5	AC (output) N.O. Normally Open	Black	12-140 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0100	-0101	G4OAC5A	AC (output) N.O. Normally Open	Black	24-280 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0118	-0119	G4OAC5A5	AC (output) N.C. Normally Closed	Black	24-280 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0126	-0127	G4ODC5R	AC/DC (output) N.O. Dry contact Normally Open	Red	130VAC/100VDC	1.5A	500	500	0°C to 70°C
-0134	-0135	G4ODC5R5	AC/DC (output) N.C. Dry contact Normally Closed	Red	130VAC/100VDC	1.5A	500	500	0°C to 70°C

Each I/O module has an LED that lights indicating an active state. The output modules also have a replaceable fuse for circuit protection. These modules are LOW CURRENT devices. Refer to OPTO-22 data specifications for additional information.

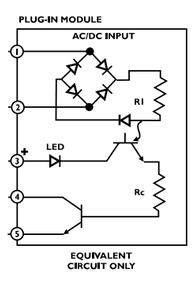
Below is a diagrm of the different I/O control modules:

A	B	C	D	E
46571-0010	46571-0036, 46571-0044	46571-0077	46571-0093	46571-0127
46571-0028	46571-0051, 46571-0069	46571-0085	46571-0101	46571-0135
			46571-0119	

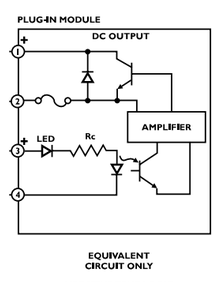
A



B



C



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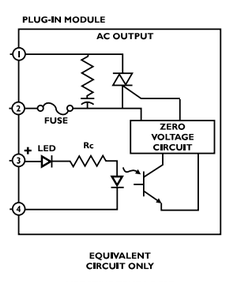

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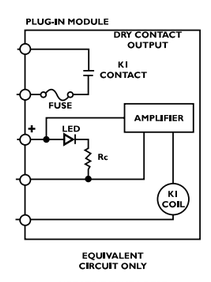
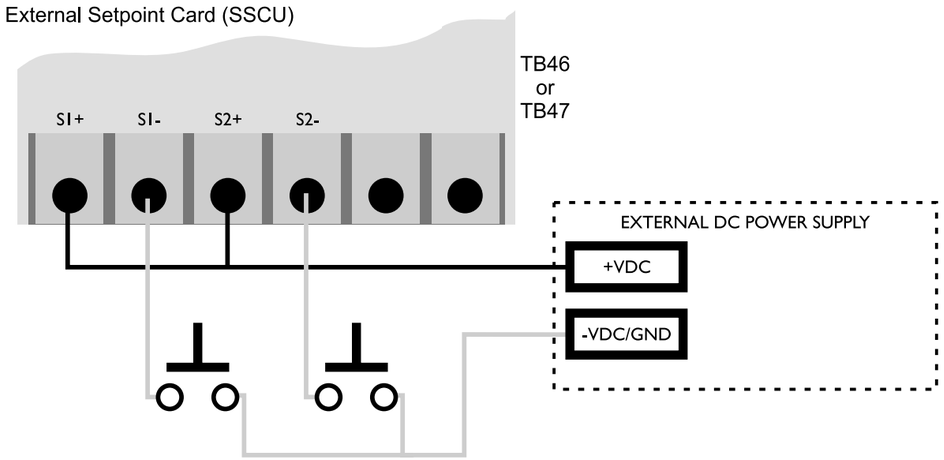
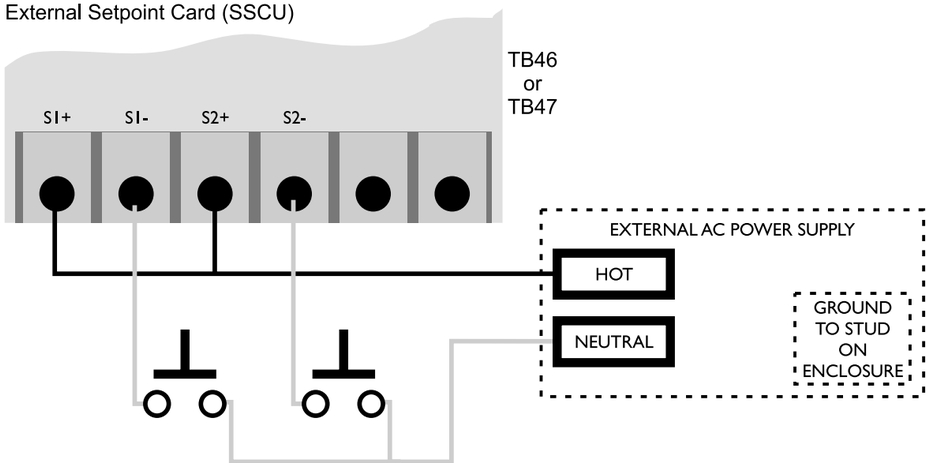
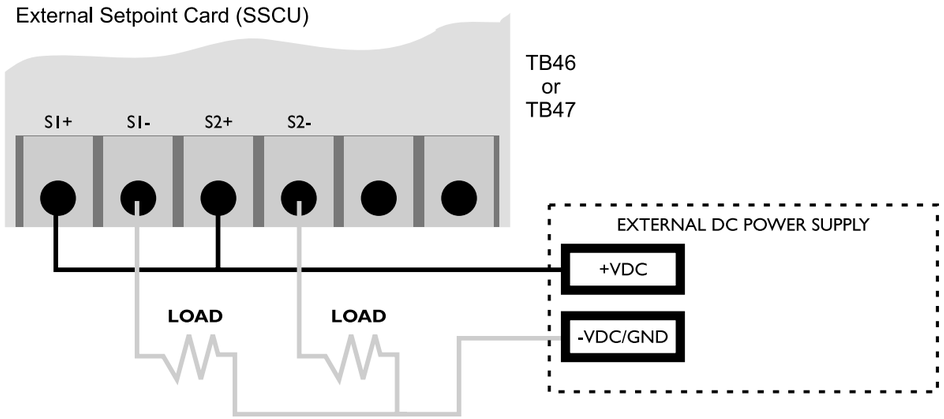


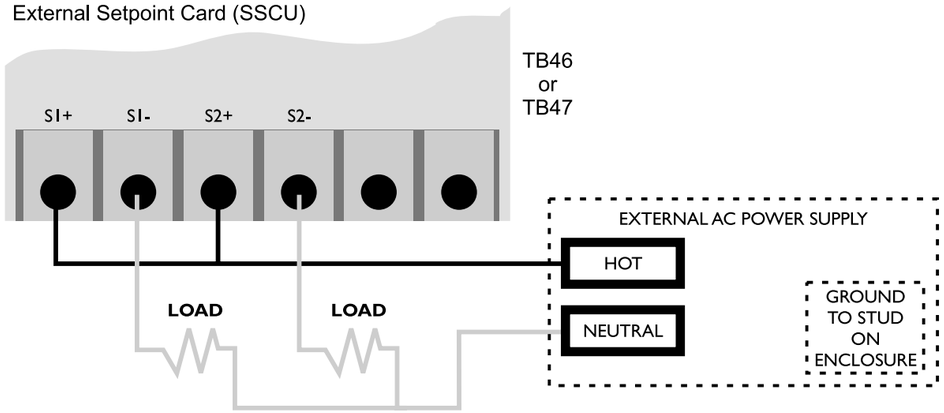
WIRING DIAGRAM FOR INPUT MODULES





WIRING DIAGRAM FOR OUTPUT MODULES





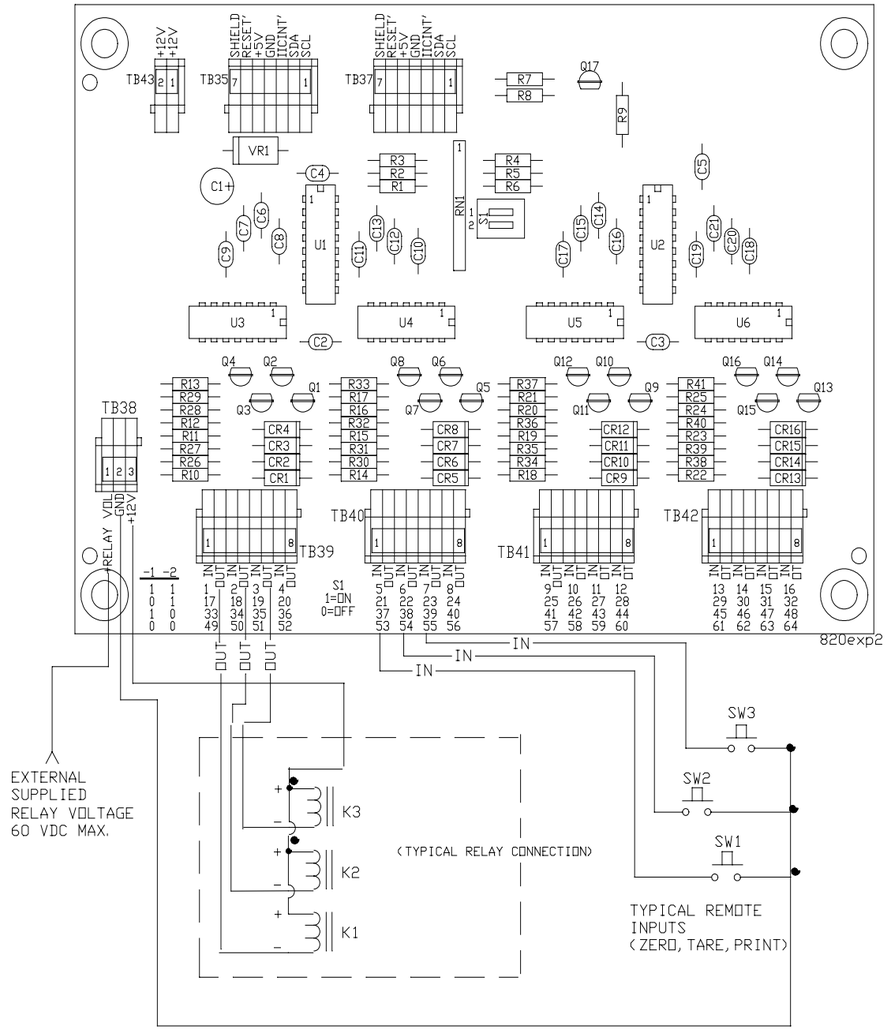


Table 1: Setpoints 1 thru 16

SW1	(1)ON	(2)ON
SETPOINT #	TB #	PIN #
1 (input)	39	1
1 (output)	39	2
2 (input)	39	3
2 (output)	39	4
3 (input)	39	5
3 (output)	39	6
4 (input)	39	7
4 (output)	39	8
5 (input)	40	1
5 (output)	40	2
6 (input)	40	3
6 (output)	40	4
7 (input)	40	5
7 (output)	40	6
8 (input)	40	7
8 (output)	40	8
9 (input)	41	1
9 (output)	41	2
10 (input)	41	3
10 (output)	41	4
11 (input)	41	5
11 (output)	41	6
12 (input)	41	7
12 (output)	41	8
13 (input)	42	1
13 (output)	42	2
14 (input)	42	3
14 (output)	42	4
15 (input)	42	5
15 (output)	42	6
16 (input)	42	7
16 (output)	42	8

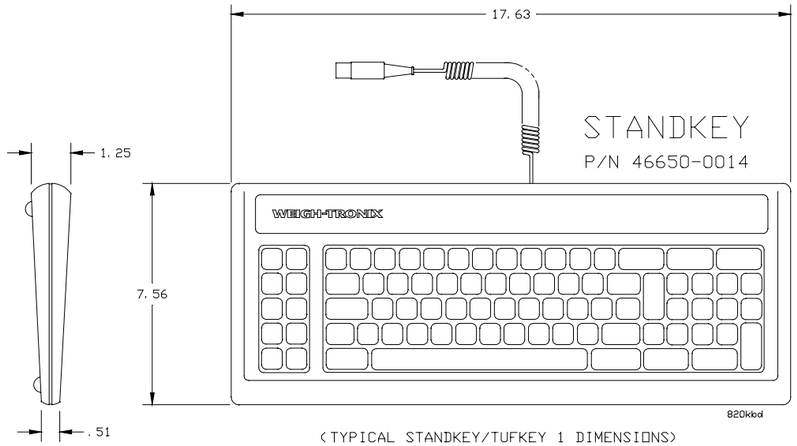
Table 2: Setpoints 17 thru 32

SW1	(1)OFF	(2)ON
SETPOINT #	TB #	PIN #
17 (input)	39	1
17 (output)	39	2
18 (input)	39	3
18 (output)	39	4
19 (input)	39	5
19 (output)	39	6
20 (input)	39	7
20 (output)	39	8
21 (input)	40	1
21 (output)	40	2
22 (input)	40	3
22 (output)	40	4
23 (input)	40	5
23 (output)	40	6
24 (input)	40	7
24 (output)	40	8
25 (input)	41	1
25 (output)	41	2
26 (input)	41	3
26 (output)	41	4
27 (input)	41	5
27 (output)	41	6
28 (input)	41	7
28 (output)	41	8
29 (input)	42	1
29 (output)	42	2
30 (input)	42	3
30 (output)	42	4
31 (input)	42	5
31 (output)	42	6
32 (input)	42	7
32 (output)	42	8

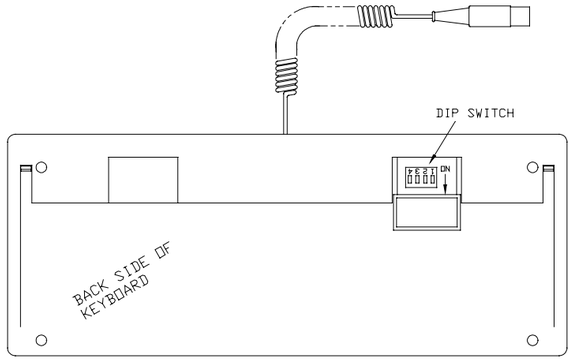
Note:

The Solid State Control Unit (SSCU-16) option boards require that the total cable length from The indicator to the last SSCU-16 box/card be two meters (approx. six ft.) maximum. Noise Problems & intermittent communications with the SSCU-16 card will occur if this guideline is Not followed

PC-820/821 COUNTING SCALE
REMOTE (TTL) KEYBOARD OPTIONS



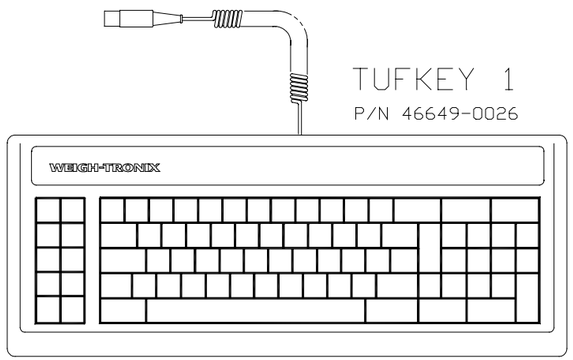
(TYPICAL STANDKEY/TUFKEY 1 DIMENSIONS)

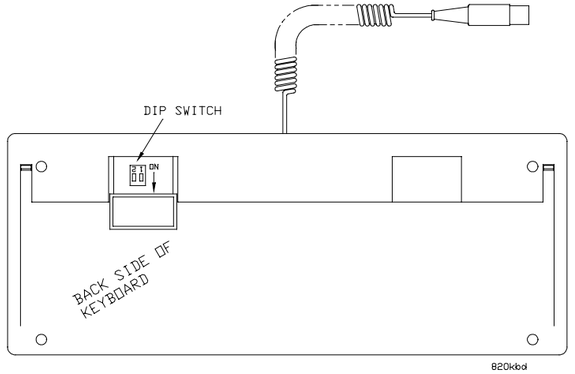


BAUD RATE / DIPSWITCH SETTINGS
FOR **STANDKEY** (TTL) KEYBOARD

BAUD RATE	SWITCH SETTINGS			
	1	2	3	4
300	ON	OFF	ON	OFF
1200	OFF	OFF	ON	OFF
9600	ON	OFF	OFF	OFF

KEYBOARD SPECIFICATIONS
Environmental: 32°f to 130°f (0°c to 55°c).
Communication Output: 1 start bit, 8 data bits, 1 step bit TTL asynchronous serial, selectable baud rates.
Weight: 2lb. / 9kg nominal





BAUD RATE/DIP SWITCH SETTINGS
FOR **TUFKEY-1** *(TTL)* KEYBOARD

BAUD RATE	SWITCH SETTINGS	
	1	2
300	ON	ON
1200	ON	OFF
9600	OFF	ON

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e-mail: industrial@weigh-tronix.com
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Facsimile: 514-695-6820

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