Pennsylvania 7000 Series Manual

Pennsylvania Scale Models have common electronics for Instruments and scale bases. Should a main board be changed, model selection is made by depressing the main board “CAL” switch until a model is shown. Repeated toggling of the switch will display current models (7300, 7400, 7500, 7600 and 7600E) and allowing the display to time out on the selected model will set the appropriate software. Indication of improper selection will be evident with lack of proper keypad function.

Pennsylvania Models
1 - 7500(S), 2 - 7600(S), 3 - 7300, 4 - 7600(M), 5 - 7500(M)
S/M refer to scale/meter and are not indicated in the software setting.
See Emery manual for 7600E and 7400.

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V3.41

Content:

Unpacking and Startup

All units are factory calibrated and ready to operate

Counting Scales:

After opening the shipping carton, remove the molded foam top from the carton. (On 2 lb and 5 lb. capacity scales the platform is packaged on top of this foam, remove it first and lay it aside.)

Gently lift and remove the stainless steel platform cover only.
Remove any options which may be packed with the scale.
Carefully remove scale from the packaging by grasping both sides of the base.

DO NOT LIFT SCALE BY THE TOP SPIDER OR SUB PLATFORM ASSEMBLY.

Place the scale on a stable, level surface for operation.
Adjust the corner leveling feet until the level bubble indicates the unit is level.
Firmly tighten hex jam nuts on the leveling feet. (Any time the scale is relocated, it should be leveled.)

Remove the protective plastic wrap from the platform and place the platform on the spider.

Plus Indicators:

Weighing platforms are shipped with the proper mating connector and need only to be plugged into the round CPC style connector on the back of the indicator.

Plus Indicators: Wash-down applications

Open the enclosure by removing the screws holding on the back plate. Carefully remove the back plate from the indicator. Remove the CPC connector and replace with the watertight Heyco bushing supplied and feed the load cell cable up to the terminal block (see options for wiring).

WEIGHING:

If the second base option has been installed, press the BASE button to select base 1 or base 2.

Press the UNITS button to select either the Primary weighing unit or the secondary weighing unit. (Associated indicator will be lit.)

Verify that the "GROSS" indicator is lit. If not, press the GROSS/NET button to light this indicator and put the scale into the gross weight mode.

Establish a base zero by pressing ZERO with nothing on the scale platform to clear any existing weight readings.

Place the item(s) to be weighed on the platform and read the weight on the display.

NOTE: **If very light items (less then 1/4 of the display resolution) are placed on the platform individually, the weight may be zeroed off by the AZT feature. Add light items to the platform simultaneously.**

TARE:

Place the container or object to be tared off on the platform and press TARE; or press the KEYPAD TARE button and then key in the weight of the container or object, and press ENT.

The net weight value will be displayed on the weight display and the NET indicator will be lit. Pressing the GROSS/NET button will toggle between gross weight and net weight. Place the objects to be weighed in the container and read the net weight on the display. To clear a tare value, remove all weight from the scale and press TARE, or press KEYPAD TARE, key in 0 and press ENT.

COUNTING

Parts are counted by determining the average weight of the parts, dividing that into the total weight on the scale. the average piece weight (APW) maybe calculated by the scale with the “sample” method or entered by the keypad (7600).

SAMPLE

If the "sample" method of piece weight entry is used, the total weight of the sample must be at least 0.04% of platform capacity or the scale will not recognize the sample. When sampling, it is always advantageous to use the largest sample possible.

NORMAL COUNTING - Using Sample

If a container will be used to hold items being counted, place it on the platform.

Press the SAMPLE SET button. The scale zeroes. "AddXXX" appears on the display (where "XXX" is one of the four pre-programmed sample sizes.). Repeated pressing of the switch successively displays the four pre-entered sample sizes.

If a different sample size is required, key in the desired sample size and enter. Place the entire sample on the platform at one time. (If the scale has been programmed to show the percent of error; this value will be displayed momentarily at this time.) The scale will now automatically switch to the count mode, displaying the number of parts in the sample.

All of the remaining parts may now be added to the scale and counted.
ZERO, TARE and KEYPAD TARE buttons may now be used without affecting the average piece weight.

NORMAL COUNTING - Keypad Piece Weight Entry

If the individual weight of the parts being counted is known in advance the piece weight may be entered through the keypad (percent of error feature is not active).

Select the appropriate weighing unit (primary or secondary) for the piece weight being entered by pressing the UNITS switch. Press the PIECE WEIGHT switch. The display will alternately show "PC" and any previously stored piece weight.

Key in the average piece weight and press ENT. The scale will go into the count mode.
If a container will be used to hold the parts, place it onto the scale and use the ZERO and/or TARE buttons to zero the scale. Add the parts to the scale at this time. NOTE: The parts in a full container may also be counted by placing the full container onto the scale and using KEYPAD TARE to key in the tare weight of the container.

ALTERNATE COUNTING METHODS

The scale may be programmed to perform a wide variety of different counting methods. the following section describes these counting methods, refer to Configuration “50” for setting your scale to perform one of these.

Two Switch Counting

The 7600 can be programmed so that when the scale is in the sample set mode, the sample will not be accepted until the ENT button is pressed. This allows parts to be added to the platform one at a time, where as with the one switch method all of the sample must be added at once.

Automatic Sample-to-Bulk Counting

With two bases, a "sample" and a "bulk" base. The lighter capacity "sample" base is used to calculate the piece weight, and the parts are counted on a heavier capacity "bulk" base. In most cases, higher counting accuracy is achieved with this method because the calculated piece is more precise when the sample is weighed on the light-capacity sample base. In normal operation, when the sample is placed on the sample base, the scale automatically switches to the bulk base and items to be counted are placed on the bulk base.

Counting by First Determining Error of Count (One-Switch Method using Automatic Sample Update)

The percent error/accuracy of count can be updated by adding more items to the sample after the initial sample size is placed on the platform and the percent error/accuracy is displayed. In normal operation, the sample is placed on the platform and a percent error/accuracy is momentarily displayed, followed by the count. More pieces are then added and a new piece weight is calculated based on the larger sample size, and the new percent of error/accuracy will be momentarily displayed. This continues until updated larger sample total is exceeded.

Counting by First Determining Error of Count (Two-Switch Method)

The percent error of count can be determined before the piece weight is established. Sample pieces are added to the platform until the percent of error/accuracy is acceptable. The sample size (number of pieces) is then keyed-in and entered, and the scale is ready to be used for counting.

Piece Weight Displayed as Weight Per 1000 Pieces

If selected in calibration, the piece weight can be displayed as weight per 1000 pieces. This option is useful when the items being counted are very light and the piece weight for one item would be an extremely small number. When entering the piece weight through the keypad (for normal counting), enter the weight for 1000 items if the piece weight is to be displayed as weight per 1000 pieces.

Top-End Counting (One-Switch Method; Sample Added)
Zero the scale and place container with parts on the platform.
Use KEYPAD TARE to key in the tare weight of the container, then press ENT.
Remove the sample from the container. Use the SAMPLE SET switch. "AddXXX" will appear on the display (where "XXX" is one of the four pre-programmed sample sizes). Select the desired sample size by repeatedly pressing the SAMPLE SET switch, or key in an alternative sample size. Place the sample pieces that were removed back into the container. The scale will momentarily display the percent error/accuracy (If selected in calibration.) and enter the count mode. The display will show the total count for the items in the container.

Top-End Counting (Two-Switch method; Sample Removed
Zero the scale and place container with parts on the platform.
Use KEYPAD TARE to key in the tare weight of the container, then press ENT.
Use SAMPLE SET switch. "AddXXX" will appear on the display (where "XXX" is one of the four pre-programmed sample sizes). Select the desired sample size by repeatedly pressing the SAMPLE SET switch, or key in an alternative sample size.
Remove the displayed sample quantity from the container. The display will show
The percent error/accuracy (If selected in calibration.). Press ENT.
The scale will enter the count mode and display the number of parts in the container. Return the sample pieces to the container.

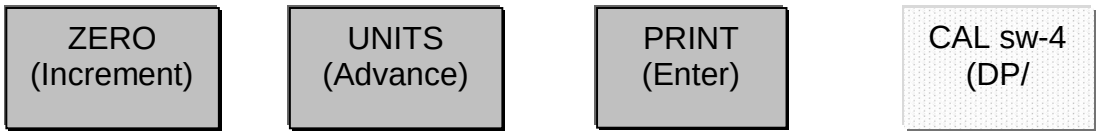
Note: if tare is unknown, container can be checked when empty and its “count” subtracted.

Menu Access: Configuration and Calibration

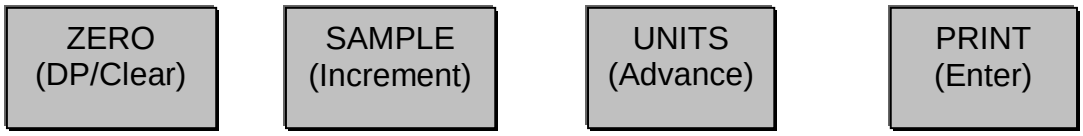
To access instrument configuration, calibration or to enable options, depress the "Zero" key for five seconds.
The Audit Trail counters ("Pxxxx" and "Cxxxx") are displayed first followed by access code request ("AC?"). The initial factory setting is "0000" which is entered "AC0000" and "Print". If no entry is made, instrument returns to operate mode. Stepping the "Zero" key when "AC?" is on, will display software version, display

Key Functions

The 7300 3-Key access functions (------)



The 7500 4-Key access functions (------)

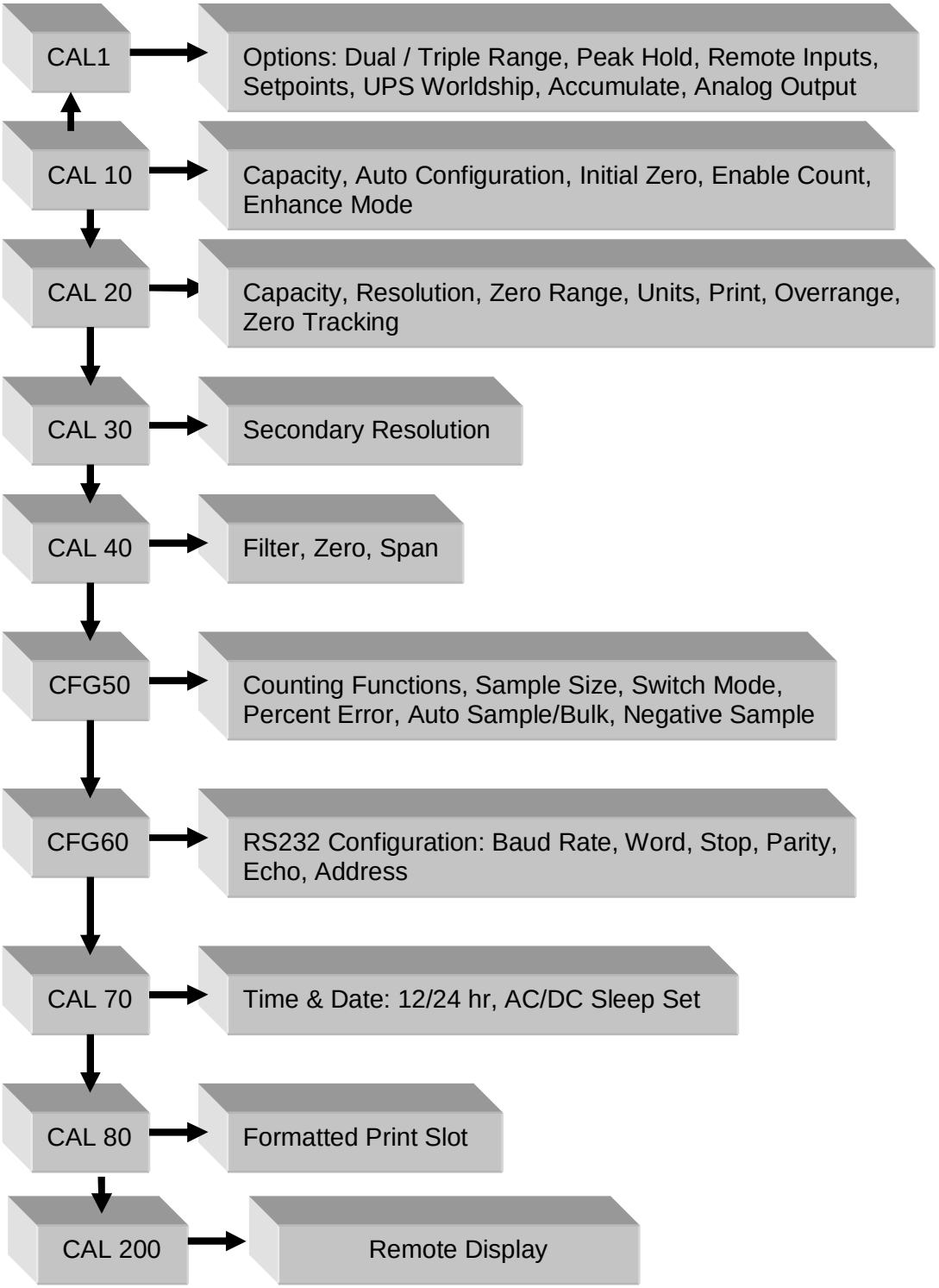


DP/Clear: Enters a decimal point or double push clears the display.
Increment: Scrolls selection of sub parameters or increments value for numeric entry.
Advance: Multiplies a numeric entry by "10".
Enter: Stores entry and steps to the next parameter or exit.

The 7600 (18-Key) uses direct key entry.
The access code can be changed to any four digit combination when exiting setup and display is "AC ?", either input change and enter or use enter alone to exit.

Front panel access is inhibited if conventional "sealing" is applied by setting jumper J1-1 in the B position. The internal "CAL" button is then used for access. Holding the "CAL", will display the current "7X00" and subsequent stepping of the button will select 7300, 7400, 7500, 7600, etc. Leave on current model and allow time out to incorporate.

MENU LAYOUT


CAL1
Options: Dual / Triple Range, Peak Hold, Remote Inputs, Setpoints, UPS Worldship, Accumulate, Analog Output
CAL 10
Capacity, Auto Configuration, Initial Zero, Enable Count, Enhance Mode
CAL 20
Capacity, Resolution, Zero Range, Units, Print, Overrange, Zero Tracking
CAL 30
Secondary Resolution
CAL 40
Filter, Zero, Span
CFG50
Counting Functions, Sample Size, Switch Mode, Percent Error, Auto Sample/Bulk, Negative Sample
CFG60
RS232 Configuration: Baud Rate, Word, Stop, Parity, Echo, Address
CAL 70
Time & Date: 12/24 hr, AC/DC Sleep Set
CAL 80
Formatted Print Slot
CAL 200
Remote Display

Menu Navigation

Configuration for counting, serial setup and remote display modes may be accessed form the front panel using the PRINT key for two seconds. Included in the 7600 are: enhance (ENH) 15, Average piece weight storage (STR) 16, Print options (PRT) 25.

Configuration/Calibration Main Blocks: 10, 20, 30, etc can be stepped to directly by incrementing "CAL 10" to "20" and "enter" (Options are CAL 1). The sub parameters need to step through to the next "main" before a direct change. From any "main" point, exit by changing to "CAL 0" and "enter". A "store" "no" will need to be changed to "yes" to save any changes. Changing to "CAL 0" from within "CAL 40" allows exit prior to adjusting span.

NOTE: During the setup procedure each step will be printed to any device interfaced to the RS-232 port. If options are not present, steps will not appear.

7600 Menu entry point:

Step	Parameter	Definition
bAS ?	**1, 2**	Select 1(main) or 2(remote base) and ENT. Only when dual channel installed.
CAL 10		Capacity, auto-config, Initial zero, count (Press ENT or inc/ENT to step).
CAP 11	Full Capacity	Key in the capacity of the base.
ACL 12	**Yes, No**	Auto configuration. Use the UNITS button to select YES or NO. If YES the scale will jump to Cnt 14, EnH, Prt 25 and CAL 40 storing defaults "*". If NO is selected the scale will proceed to the next step.
A-0 13	**Yes, No**	Select if scale is to auto zero when first turned on. Use the UNITS button to select YES or NO*.
Cnt 14	**Yes, No**	Turn count mode on or off. Use the UNITS button to select YES* or NO.
EnH 15	**Yes, No**	Turn on for count "enhance" mode. (skipped if count is off)
Str 16	**OFF, A**	Enables average piece weight storage.

Calibration Settings for Capacity, resolution, zero range, primary units, print (inhibits), zero tracking and stable (motion).

7300/7500 entry point

Step	Parameter	Definition
CAL 20		Calibration setting entry point.
CAP 21	**Full capacity**	By-passed when entered in CAL 10.
rES 22	**1, 2, 5**	Resolution - Input Scale Resolution. Default (*) entry is the capacity of the scale divided by 5000 and rounded to the nearest 1, 2, 5. -
-0- 23	**1.9, 10, 30**	Zero Range - Input the Zero Range in % of full scale. The amount of weight the scale is allowed to Zero.
UnS 24	**1, 2, 3, 4, …..14**	Select the primary weighing unit by keying in a number :1 = lb*, 2 = kg, 3 = g, 4 = oz t, 5 = lb t, 6 = g, 7 = dwt, 8 = oz, 9 = c, 10 = oz f, 12 = l, 11 = ml, 13 = tons, 14 = lb - oz
Prt 25	**Stable, First, Unstbl, ntEP** **Auto, Prn-1**	Print: Select whether the scale will respond to a print request when stable, first (positive) stable, any time (unstable), or NTEP. Auto: prints when stable and min 10 grads above zero, prints again with min 25 grad change from last print. Does not need to return to zero. Prn-1: Single stable print, must return to zero
Cnd 26	**Yes, No**	Overrange: Select YES (9d) or NO (105%)*.
0-t 27	**0.00**	Zero tracking value entered as a percent of display resolution. Entering a 0.25* equals 25% of one display graduation. “0” disables the zero tracking feature.
SbL 28	**OFF, 1, 3, 5, 10**	Select motion in grads/sec.

Secondary Units Selection and Power-up reset mode. Secondary units are converted from primary unit selection (calibration). For kg only mode, set primary and secondary units to kg and calibrate using same.

CAL 30		Secondary units, resolution.
2Un 31	1, 2, 3, 4, …..14..15 (user)	Select secondary weighing unit by keying in a number: 1 = lb*, 2 = kg, 3 = g, 4 = oz t, 5 = lbt, 6 = g, 7 = dwt, 8 = oz, 9 = c, 10 = oz f, 12 = l, 11 = ml, 13 = tons, 14 = lb – oz, 15 = user
2rE 32	1, 2, 5, (plus user)	Secondary weighing resolution. Key in the resolution for the secondary weighing
CnU 33	0.000001 to 999999	Conversion Factor (31 must be set on
EPn 34	n = -4 to 4, (10^n)	Multiplier exponent (0.0001 to 10000)
PUd 39	PrI, SEC, SEC On, COUnt, SELECt	Power up: Primary units, Secondary units, Secondary units and Count, Count, If real time clock installed (RTC), then Gross/Net and scale select restored.

Calibration and filter setting. Dead Load Zero can be updated without changing span by using “0” and ENT to jump back to starting point (Cal 40) and repeating to exit. Note on exit to change “save no” to “yes” with UNITS key before ENT to save changes.

Step	Parameter	Definition
CAL 40		Filter, zero/span calibration.
FIL 41	**0, 1, 2, 3, ….9, 11…15**	Response time: 0-9 selects conversions to average directly. 11-15 correspond to 25, 30, 35, 40, & 50 conversions for extended filtering.
ADJ.CAP	**No,Yes, (11 Pnt 7600only)**	7300,7500 select yes to enter normal calibration.11 Pnt, 7600 provides multi-point linearity and bypasses 42-45.
nol 42	**0.00**	No Load - With the platform in place but no weight on the scale, press ENT. Dis-play will indicate “------“ and step if reading is acceptable.
HLF43	**XXX.XX**	Half Capacity - Apply a half capacity weight to the platform and Press ENT If 1/2-capacity weight is unavailable, place a substitute weight on the platform and key in the amount of weight being used and press ENT. Display will indicate “------“ and step if reading is acceptable.
FUL44	**XXX.XX**	Full Capacity - Apply a full capacity weight to the platform and press ENT. If a full-capacity weight is unavailable, place a substi-tute weight on the platform, key in the amount of weight being used and press ENT. Weight used in 43 can be keyed in again.
nol 45		No Load - Remove all weight from the platform and enter, or just use ENT to skip this step.

Multi-point Calibration (10 pt + Dead Load) provides additional calibration steps which may be selected throughout the weighing range to enhance linearity. Display provides live readings before and after each entry. Minimum requirement is a Dead Load and one span point.

KEY (FUNCTION)	DISPLAY	Definition
(Live weight 123 lb)	"C"__123	11 Point Cal mode scale reading
Zero (acquire dead load)	"------" to "C___0.0"	acquires new dead load
(live weight 5000 lb)	"C"__4995	Scale reading with load
Enter numeric value directly:		
Key in 5000	005000	adjusted value
Then ENT:	"------" to "C" 5000	displays new span

Repeat with increasing loads as required then ENT to exit CAL, a new zero is required to clear linearity points, but if a zero is taken without a new span point, then the prior spans remain. Entering a "0" during this submenu will jump to the beginning "CAL 40" to allow bypassing span changes. A second "0"will exit setup and question "SAVE" to effect changes or abort.

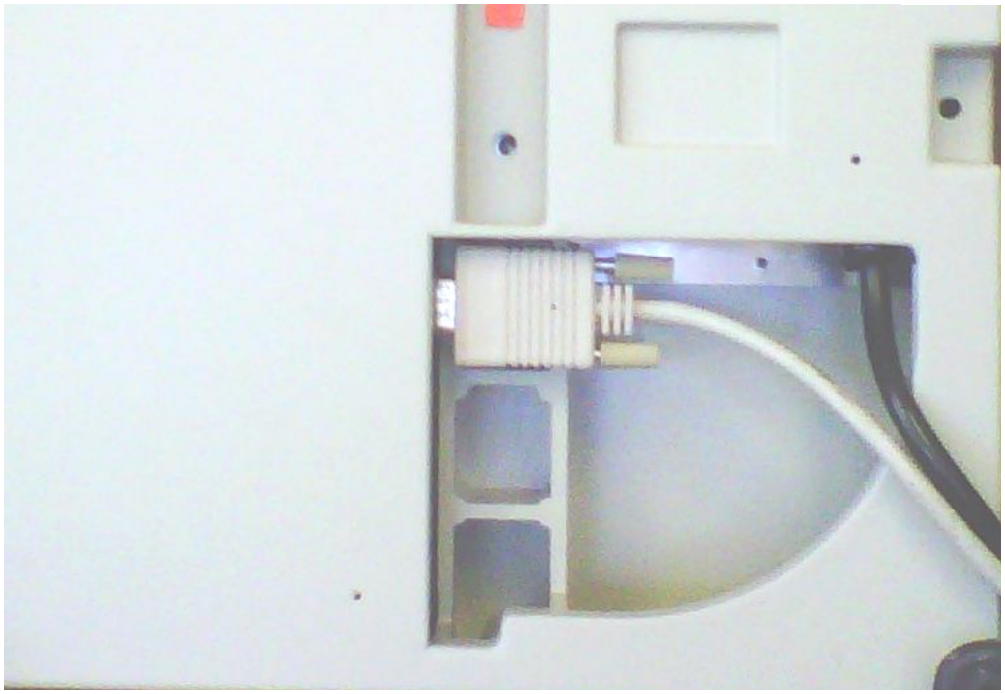
Counting Configuration (CFG50), Sample Set 51-54 and options. Set SS1 to "0" to turn off count mode in 7500.

Step	Parameter	Definition
CFG 50	(7500, 7600 only)	Counting functions. (Cnt 14-yes)
SS1 51	10	Key in first sample size. (Normal entry is 10). Set to "0" to turn off count mode.
SS2 52	20	Key in sample size two. (normal entry is 20)
SS3 53	50	Key in sample size three (normal entry is 50)
SS4 54	100	Key in sample size four (normal entry is 100)
PCt 55	Yes, No (7600 only)	Select if piece weight is to be displayed as weight per 1000.
Enh 55	Yes, No (7500 only)	Turn on for count "enhance" mode. (skipped if count is off)
2S 56	Yes, No (7600 only)	Enable Two Switch counting method.
Pr 57	P Err, P Acc, disable (7600 only)	Percent of error, percent accuracy, disable the percent error feature.
ASb 58	Yes, No (7600 only)	Select automatic sample-to-bulk.
nEG 59	Yes, No	Select if negative sampling will be allowed during two switch, top end counting.

RS-232 PIN ASSIGNMENTS AND IMPLEMENTED FUNCTIONS

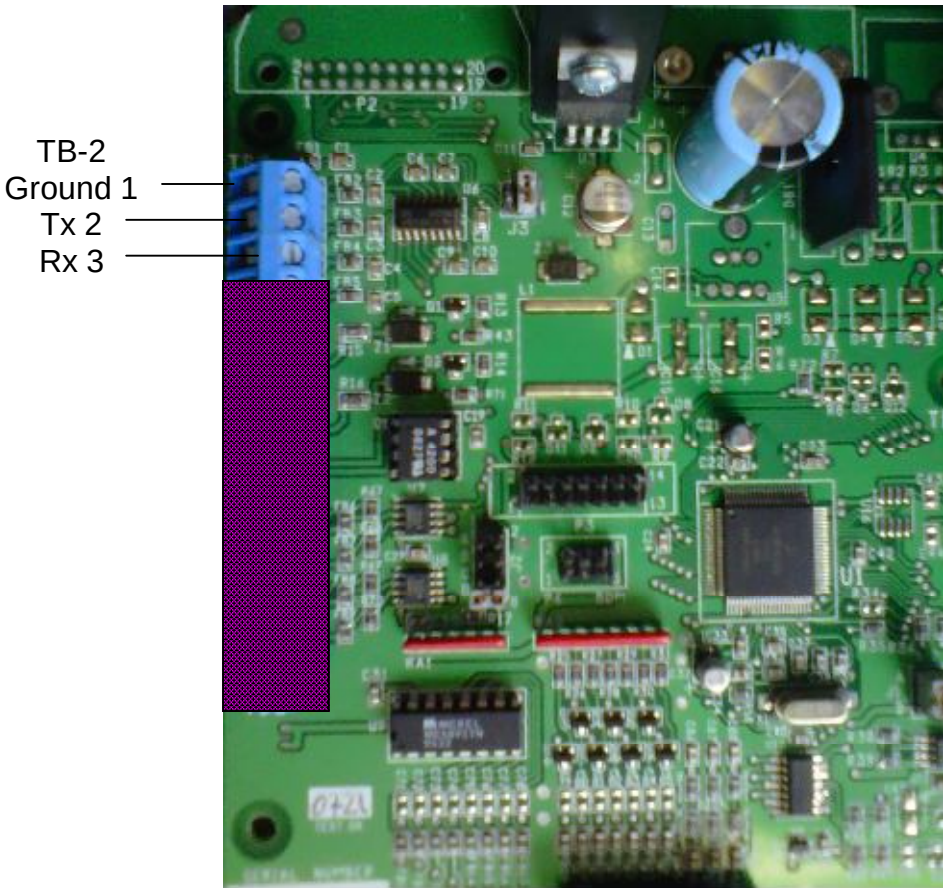
Connection to the Serial Port is made via a DB-9 female connector found in the access area under the scale. Internal Instrument connection is on the main board, TB2-1,2,3.

PIN	FUNCTION
1	Signal Ground
2	Transmit Data
3	Receive Data



RS232 Indicator Connection: The serial connection on the Indicator is on TB-2.

Main Board



Step	Parameter	Definition
CFG 60		RS-232 Configuration (This step can also be reached from the front panel by pressing and holding the PRINT button for 2 sec.)
bAU 61	300,600,1200,2400, 4800, 9600*, 19200, 38400	BAUD RATE: Select a baud rate using the UNITS button.
LEn 62	7, 8	WORD LENGTH: Select: 7 bits*, 8 bits.
SPb 63	1, 2	STOP BITS: Select: 1 stop bit*, 2 stop bits.
PAr 64	None, Odd, Even	PARITY: Select: None, Even, Odd*.
Ech 65	No Ech, Ech	Select: No Echo*, Echo.
Cdr 66	0…255	ADDRESS: Key in a number from 0* to 255, 0 disables this feature.

Step	Parameter	Definition
CAL 70	7600 std, 7500 option	Setting of time and date.
StF 71	0, 1, 2, 3	Select type of clock: 0 = Time and date OK, skip to SLP 74, 1 = 24 hour clock, 2 = 12 hour clock, currently AM, 3 = 12 hour clock, currently PM.
td1 72	HH MM SS	Enter the current time as HHMMSS. Based on the type of clock selected in step 71. Clock will begin with the pressing of the ENT button.
td2 73	MM DD YY	Enter the current date as MMDDYY.
SLP 74	0…12	For AC/DC versions of the scale, enter the amount of time the display is to remain on before going into the battery saver sleep mode. The time is entered in number of minutes, from .5 to 12. Entering a zero will disable the sleep mode for AC only scales.

CAL 80 Formatted print slot programing

BUILDING A FORMATTED PRINT

The user defined formatted print is the string of information sent from the RS-232 port when the PRINT button is pressed, or the scale receives an SRP command from a computer or terminal. The user selects the format of this string by entering two digit print codes into the 20 available print slots, PSL 81 through PSL 101. When you are finished entering data to construct the formatted print, "99" is entered to mark the end of print formatting.

EXAMPLE OF BUILDING A FORMATTED PRINT

To build a simple formatted print that could be sent to a ticket printer the following print codes could be entered:

PSL 81 - 30 (gross w/ prefix & suffix.)
PSL 82 - 65 (CR/LF)
PSL 83 - 32 (net w/ prefix & suffix.)
PSL 84 - 65 (CR/LF)
PSL 85 - 31 (tare w/ prefix & suffix.)
PSL 86 - 65 (CR/LF)
PSL 87 - 99 (End)

The result:

GROSS
1.205 lb
NET

02	Time	12	"Base" prefix	22	net weight (or Peak)	32	Net weight prefix, data, suffix, (or Peak)
03	Date	13	"ID" prefix	23	Count	33	Count pre.data & suffix
04	unit suffix label	14	FR"F1"	24	Piece Weight	34	Piece Weight prefix, data, suffix
05	"GROSS" prefix	15		25	Sample Size	35	Sample Size prefix data & suffix
06	"TARE" prefix	16	P1	26	% Error or Accuracy	36	Percent Error/Accuracy prefix, data, and suffix
07	"NET" prefix	17		27	Base in use	37	Base in Use prefix & data
08	"COUNT" prefix	18		28	ID Number	38	ID Number prefix, data
09	"PIECE WEIGHT" prefix	19	"Pcs" suffix	29		39	UPS format
10	"SAMPLE SIZE" prefix	20	gross weight	30	Gross weight pre-fix, data and	40-49	Print strings 1 – 9
11	"err" or "acc" prefix (%=error / accuracy)	21	Tare weight	31	Tare pre.data & suffix	59	Print Display

Note: Continuous “code 50” needs to be in the first print slot

50	Continuous output (Formatted print will be sent continuously as long as scale is turned on.)
51	Toggled continuous output (The formatted print will be sent continuously after the PRINT button is pressed or an SRP command is received by the scale. Pressing the PRINT or sending SRP a second time will turn off the continuous output.)
52	Status Character (May be used by a computer to determine the condition of the scale at any given moment.
53	ABO Checksum (May be used in building a continuous output compatible with other Pennsylvania Scales.)
54	Select Leading Zeros

Print String Special ASCII Characters

60	ASCII space (SP)
61	ASCII horizontal tab (HT)
62	ASCII line-feed (LF)
63	ASCII start of header (SOH)
64	ASCII carriage return (CR)
65	ASCII carriage return and line feed (CR LF)
66	ASCII form-feed (FF)
67	Turn on large print (PA Scale printer)(SO, HEX 0EH)
68	Turn off large print (PA Scale printer)(SI, HEX 0FH)
69	ASCII null (NUL)
78	Invert print (PA Scale printer)(DC3, HEX 13H)
79	End inverted print (PA Scale printer)(DC4, HEX 14H)
80	Print accumulator name, value and units

Print String Special Characters cont.

81	Print “Accumulator Total”
82	Print accumulator value
83	Print Force a clear accumulator and transaction counter
84	Print Prompt clear accumulator and transaction counter
85	Print transaction name and counter
86	Print “Transaction”
87	Print transaction counter
98	“98” is a second print string triggered by the Accumulator.
99	Marks the end of the formatted print

Remote Serial Display (RSD): Enabled from “Cal 200” with “Set.RSd” parameter to “yes” for access to remote display setup. To return unit to normal mode, the Internal CAL SEL (SW4) is used to re-access the menu.

CAL 200	Set.rSd (no..Units...yes)	Changes to RSD Mode
rSd200	OFF, En, Ser rt	En = RSD mode, Ser rt = Main unit Setting for Tx/Rx with RSD.
En 201	No, Yes	Enable remote keypad
ZrO 202	No, Yes	Enable zero key
Tar 203	No,Yes	Enable Tare key
Unt 204	No, Yes	Enable unit key
Prn 205	No, Yes	Enable print key
FnC 206	No, Yes	Enable function keys

SERIAL COMMAND FORMATS

The Model 7600 can be controlled from an external device (such as a computer or terminal) by various commands, each three letters long.

For example, to tell the scale to zero, type ZRO followed by a carriage return.
The basic command formats are:

[<add>]<cmd><cr>

<cmd> [<xx.xx>]<cr> Where <cmd> is a three-letter command, <add> is a scale address number (0-255), <cr> represents a carriage return, and <xx.xx> is a mixed number, the brackets [ ] are used to indicate an optional part of the command.

Examples:

SRP<cr>	Send a formatted print
ITW 13.43<cr>	Instructs scale to set tare weight to 13.43 in the current unit
5 SGW<cr>	Instructs the scale with address #5 to send the Gross weight.

ATW	Acquire Tare Weight
CHK	Initiate self-diagnostics Check
LCK	Lock out keypad
RES	Reset, clears tare weight and count information
SCM	Select Count Mode
SCI	Prints configuration on port one
SSS	Select Sample Size
SWM	Select Weight Mode
UCK	Unlock keypad
UNP	Unit Primary
UNS	Unit Secondary
ZRO	Zero scale

Commands Which Enter Information into the Unit

IBA	[FLOATING POINT NUMBER]	Input BAse number (with option)
IPW	[FLOATING POINT NUMBER]	Input Piece Weight
ITW	[FLOATING POINT NUMBER]	Input Tare Weight
IID	[Up to 15 characters,0-9 & hphen]	Input ID
IUS	[Print string, 40 – 49]	Input Print string

Commands Which Request Information

SBA	Send Base in use (with second base option)
SCO	Send Count
SDT	Send Date
SGW	Send Gross Weight
SID	Send Part ID
SMI	Send Metrological Information
SNW	Send Net Weight
SPC	Send Print Codes
SPR	Send Percent error or accuracy
SPW	Send Piece Weight
SRP	Send Requested Print
SSZ	Send Sample size
STM	Send Time
STW	Send Tare Weight
SVN	Send Software Version Number

NOTES: All commands and parameters must be separated by spaces.
The entire command string must be terminated with a carriage return.

Custom serial string command: IUS

IUS x y, where x selects the string 1 – 10

and y is the string comprised of up to 22 characters.

The strings are printed with using the format codes

40 – 49 where string 1 is 40, 2 is 41, etc.

Average Piece Weight Storage

APW ID memory in 7600 counting scale mode.

Parameter 16, “STr 16” selects OFF or A.

The “A” selection is expanded storage of APW’s. Key in an ID or, using the TARE (NEXT) or KEYPAD TARE (LAST) keys, selects a currently stored ID. If the ID exists and has APW>0, the stored APW is loaded into the PIECE WEIGHT memory and the count display is selected. If the ID is new or has an APW= 0 (initial value when the ID is first entered), the “Add xx” prompt is displayed so an APW can be established and stored to ID memory.

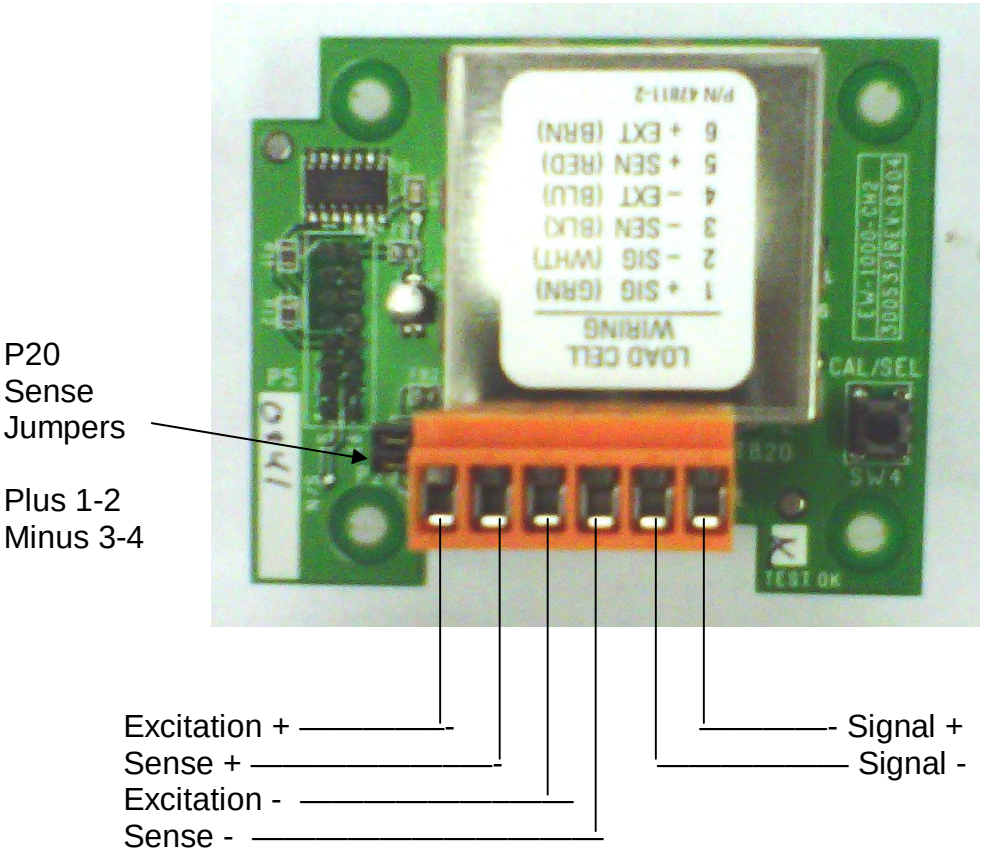
Key functions during ID selection/entry:

KEY	FUNCTION
ZERO	Clear ID
GROSS/NET	Print all IDs w/ their stored APWs and integrity status (OK or ERR). See the text box to the right.
TARE	Select next ID
TARE RECALL	Select last ID
CLEAR	Press and release to clear the currently selected ID, or press and hold to access the “clear all” prompt.
ENTER	Enter if keyed in or select the displayed ID.
0-9	Key in a new or existing ID and then press the enter key to accept.

Note: While one is keying in an ID, one can press the blue zero key to abort the entry and view the last keyed or selected ID.

Specifications:
Storage locations: 250
ID size: 21-digit (0-9)

Optional Dual Base Board PA # 57834



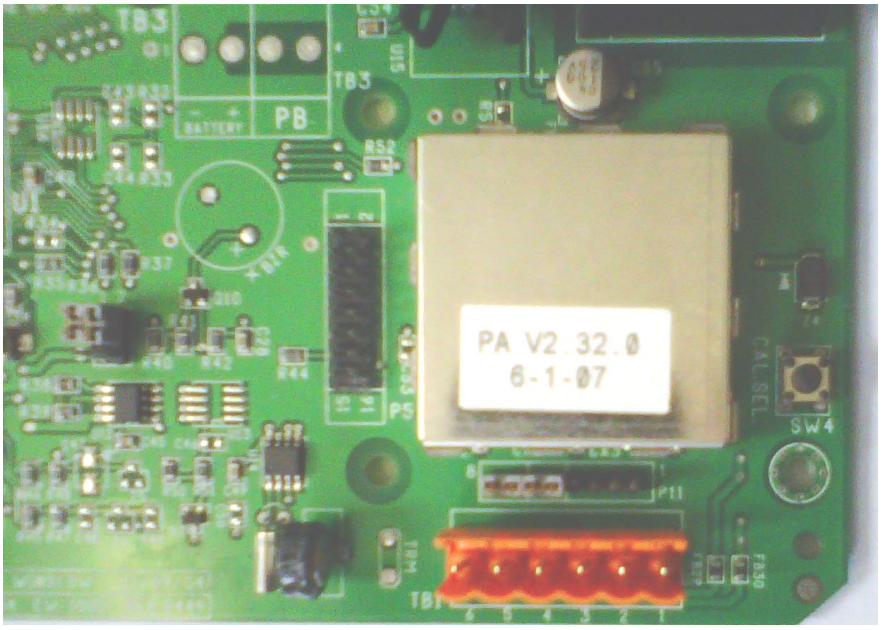
Plus Indicators:

Weighing platforms are shipped with the proper mating connector and need only to be plugged into the round CPC style connector on the back of the indicator.

CPC PIN #	FUNCTION	CABLE	TB1 (main board)
1	+Signal	Green	1
2	-Signal	White	2
3	Ground	Shield	Chassis stand off
4	Key		
5	-Sense	Black	3
6	-Excitation	Blue	4
7	+Sense	Red	5
8	+Excitation	Brown	6

Plus Indicators: Wash-down applications

Open the enclosure by removing the screws holding on the back plate. Carefully remove the back plate from the indicator. Remove the CPC connector and replace with the watertight Heyco bushing supplied and feed the load cell-cable up to TB1. Note sense jumpers P11-8/7, P11-6/5 are required when using a four wire connection. Wire jumpers may be added accordingly on TB1 6-5 and 4-3 if plugs are not available.



Option Configuration (Cal 1): Battery and Auto Range

Step	Parameter	Definition
Bat 1	**OFF, On**	AC/DC board select charger “on” when battery is included, circuit may be used to drive status light in “off” state. See Battery Charger Output (BCO).
Dtr 2	**0……15**	Dual/Triple Auto Range (0 = off), range is per dtr 1-15 table below if 2.1 and 2.2 are set to 0.
Pnt 2.1	**0…….99%**	Sets low range of dtr
Pnt 2.2	**0…….99%**	Sets mid range of dtr, if 11-15 selected.

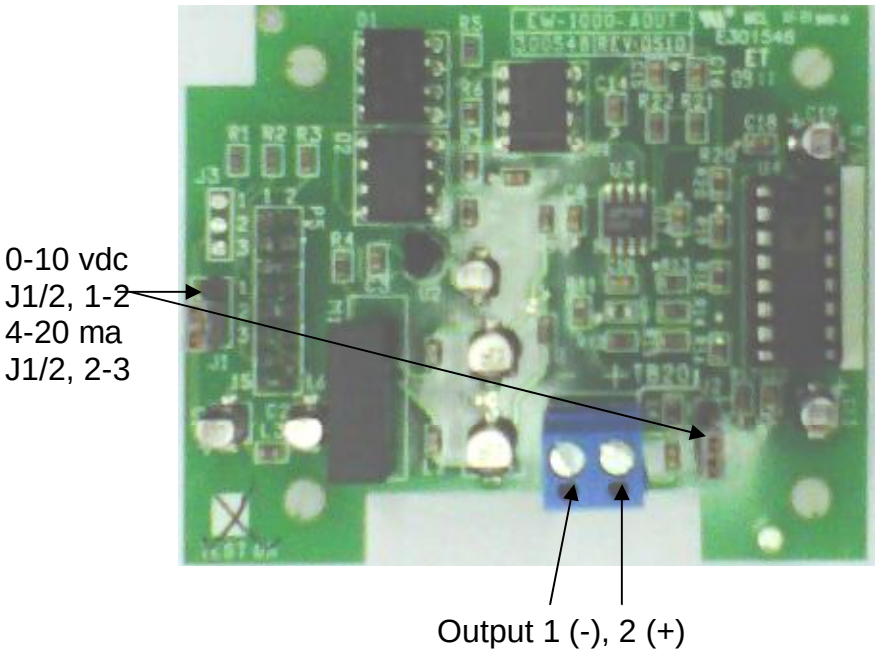
dtr	High Res.		Medium Res.	
0	----	---	----	----
1	50%	X2	----	----
2	50%	X5	----	----
3	25%	X2	----	----
4	25%	X5	----	----
5	20%	X2	----	----
6	20%	X5	----	----
7	20%	X10	----	----
8	10%	X2	----	----
9	10%	X5	----	----
10	10%	X10	----	----
11	25%	X5	50%	X2
12	10%	X5	50%	X2
13	25%	X10	50%	X2
14	10%	X10	50%	X2
15	1%	X100	10%	X10

Option Configuration: Peak Hold, Remote Inputs, Shipping Manifest and Accumulator.

Step	Parameter	Definition
PHd 3	**OFF, Peak-H, Hold**	Peak/Hold function, zero key clears current peak, tare function is disabled, print code 22 and 32 are modified to value and value with labels (xx.xxx / Peak xx.xxx lb)
HdS 3.1	**0……240**	Hold after “samples”: Weight must be stable for 0 – 240 samples to “hold”.
Rln 4	**no, yes**	Remote inputs,(with DIO option) **Input 1:** Gross/net, **Input 2:** Tare, **Input 3:** Zero, **Input 4:** Print
5	**Nor, UPS,FEd 12, FEd 96, PUrOL, Toledo**	**UPS WorldShip,** Parameters 25, 60-69, 80 + are hidden, format:9600/odd/7/2,“39” outputs the UPS format. Federal Express: 1200,8,none,1 Federal Express: 9600,7,even,1 Purolator: 1200,8,none,1 Toledo: Mode only, set serial with 60-69
ACC 6	**OFF, A-Cnt, Cnt, A-Prl, Prl**	**A-Cnt:** Auto count accumulator **Cnt:** Manual count accumulator **A-Pri:** Auto primary units accumulator **Pri:** Manual primary units accumulator

Analog Output Option: PA#57811

AOS 7	**Gross, Net, Display**	Sets the weight that the output represents: Gross, Net, or Display.
Zr 7.1	**0.00**	Sets the value of weight that is equal to 4mA/0V.
FS 7.2	**Full-scale**	Sets the value of weight that is equal to 20mA/10V.
Zr.A 7.3	**Zero Cal Adjust**	Use the cal up/down keys (table II) to set the output to as close to 4mA/0V that is acceptable to one's requirements.
SP.A 7.4	**Span Cal Adjust**	Use the cal up/down keys (table II) to set the output to as close to 20mA/10V that is acceptable to one's requirements.



Setpoint Option Configuration: Setpoint status can be provided by attaching an LED on the Battery Charging Circuit (BCO) on a AC/DC main board or with AC/DC Relays provided on the Digital Input/Output (DIO) option board. Set-points can be configured to act on weight or count.

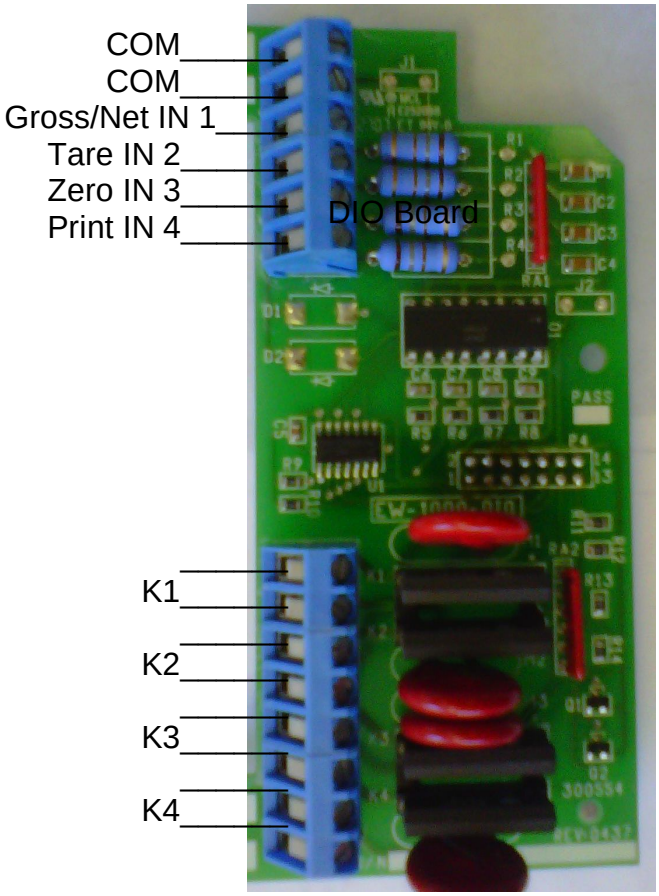
SPt 8	**OFF, Tr, Prtr, drtr, drtk, C tr, C Prtr, C drtr, C drtk, C rang**	**tr : Target weight relay K1** **Prtr : tr + Preact weight** **Drtr : tr + Dribble weight relay K2** **Drtk : tr + dr + Trickle weight relay K3** **C tr : Target count relay K1** **C Prtr : tr + Preact count** **C drtr : tr + Dribble count relay K2** **C drtk : tr+dr+Trickle count relay K3** **C rang :Tr+window (0,1,10) see below.**
Out 8.1	**CHG, dIO**	**CHG : Uses battery ckt to drive LED** **dIO : Uses relay board, K1-3.**
	dIO	**Relays as per SPt 8**
	CHG (BCO)	**tr : LED on < tr, off > tr** **Prtr : on < Pr, flashes <tr, off > tr** **Drtr : on < dr, flashes <tr, off > tr** **Drtk : on < dr, flashes fast < tk, slow < tr**

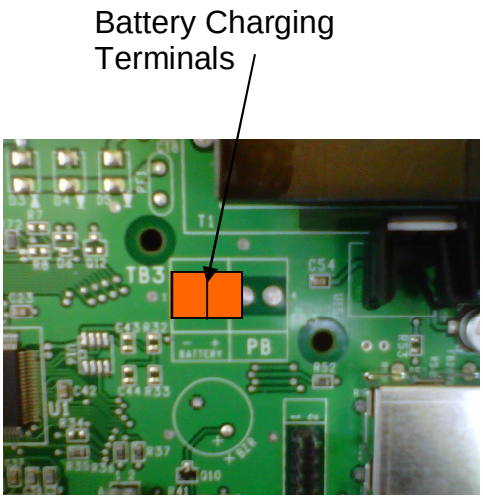
Example: Target set point is 1000.

C Range	OFF(BCO/K1)	ON (BCO/K1)	OFF(BCO/K1)
0	0 to 999	1000	1001 to capacity
1	0 to 998	999 to 1001	1002 to capacity
10	0 to 989	990 to 1010	1011 to capacity

Setpoint Option Configuration (continued): Check main board for AC/DC components or presence of DIO board.

PA# 57818 (AC), 57800 (DC)





Main Board

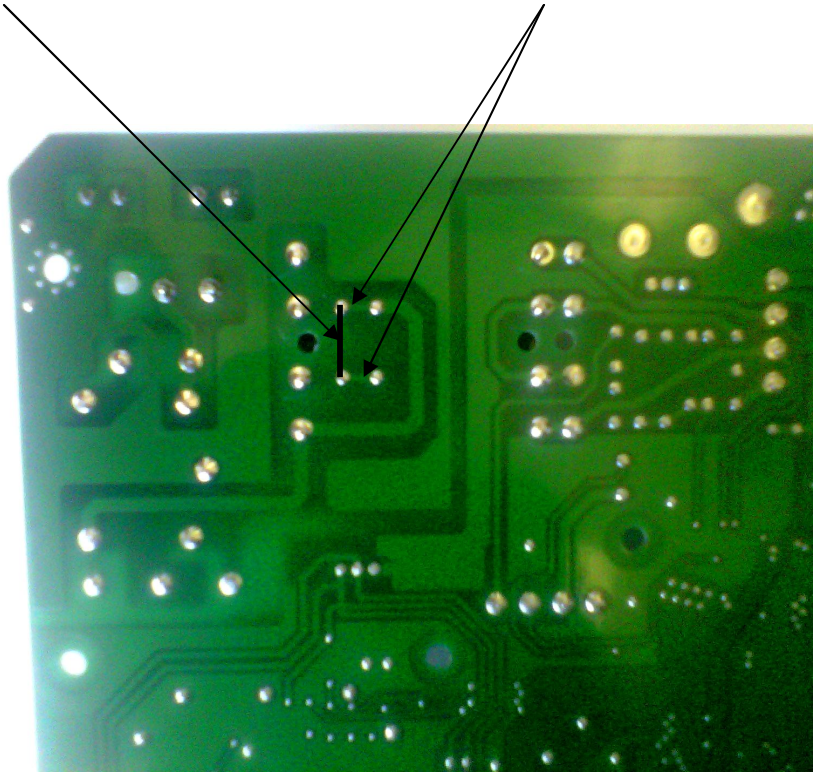
STATUS CHARACTERS**:**

@	Gr, pri, sta, non-zero	U	Net, sec, sta, zero
A	Gr, pri, sta, zero	V	Net, sec, unsta, non-zero
B	Gr, pri, unsta, non-zero	W	Net, sec, unsta, zero
C	Gr, pri, unsta, zero	X	OL/UL, Net, pri, sta
D	Gr, sec, sta, non-zero	Z	OL/UL, Net, pri, unsta
E	Gr, sec, sta, zero	\	OL/UL, Net, sec, sta
F	Gr, sec, unsta, non-zero	^	OL/UL, Net, sec, unsta
G	Gr, sec, unsta, zero	‘	Cnt, pri, sta, non-zero
H	OL/UL, Gr, pri, sta	a	Cnt, pri, sta, zero
J	OL/UL, Gr, pri, unsta	b	Cnt, pri, unsta, non-zero
L	OL/UL, Gr, sec, sta	c	Cnt, pri, unsta, zero
N	OL/UL, Gr, sec, unsta	d	Cnt, sec, sta, non-zero
P	Net, pri, sta, non-zero	e	Cnt, sec, sta, zero
Q	Net, pri, sta, zero	f	Cnt, sec, unsta, non-zero
R	Net, pri, unsta, non-zero	g	Cnt, sec, unsta, zero
S	Net, pri, unsta, zero	h	OL/UL, Cnt, pri, sta
T	Net, sec, sta, non-zero	j	OL/UL, Cnt, pri, unsta
l	OL/UL, Cnt, sec, sta	n	OL/UL, Cnt, sec, unsta
p	Net, Cnt, pri, sta, non-zero	q	Net, Cnt, pri, sta, zero
r	Net, Cnt, pri, unsta, non-zero	s	Net, Cnt, pri, unsta, zero
t	Net, Cnt, sec, sta, non-zero	u	Net, Cnt, sec, sta, zero
v	Net, Cnt, sec, unsta, non-zero	w	Net, Cnt, sec, unsta, zero
x	OL/UL, Net, Cnt, pri, sta	z	OL/UL, Net, Cnt, pri, un-sta

MESSAGE	DESCRIPTION
DAC	D/A card detected - Displayed under the check function.
IIC.ERR	IIC short - Power-up hardware failure indication.
RST	EEPROM is reset by EER command - Power-up message
ON	Displayed on power-up when the DC power push-button is pressed.
AUTO	EEPROM is reset - Power-up message
ERR6.x	Key-pad key is stuck.
-232-	Serial calibration/setup is active.
UPDATE	Enhancement calculation in progress.
LO.BATT	Low battery
D BATT	Dead battery
ULULUL	Under-load (-400 graduations under dead-zero)
OLOLOL	Over-load (+9 graduations or 105% from dead-zero reference)
------	A/D acquisition is in progress.
7x00	Instrument mode selection.
Err 10	Number > 999999
Err 13	Number < -99999
ADC.Err	A/D hardware failure (channel one only).
CHECK	Check mode accessed.
rC.xxxx	Lower four-digits of the ROM check-sum.
Err.80	Serial command data error.
Err.81	Unknown serial command.
-CAL-	Remote calibration
Err.OFF	Hardware failure of the D.C. power on/off circuitry.
RTC.RST	The clock is reset to 01:01:04 12:00:00am.
RST ID	The ID EEPROM has been reset since it was detected as corrupt.
AC OK	Access code entered has been accepted.
E-1234	EEPROM set 1,2,3, and/or 4 have been fixed.
Err 40	Positive or negative signal overload (check sense connections).
Err 31	Bad tare entry
Err 30	Push to Zero out of range
PC Err	Piece Weight Entry is out of range

115 to 220 VAC Conversion: EW1000 Bottom side, directly under the transformer.

Add Jumper Cut Clad



SPECIFICATIONS

LOAD CELL A/D CONVERTER

TYPE: 24 bit delta sigma
EXCITATION: 5 VDC, 120 mA max .
SIGNAL INPUT: 16 mv
SENSITIVITY: 0.1 uV/grad
UPDATE RATE: 30 update/second

DISPLAY: Six (6) Decades, 0.6 inch LED

INDICATORS: Gross, Tare, Net, Zero, Stable, Base, Units, Count **.**

POWER INPUT: 117/217 VAC, 50‑60 HZ, 20 watts, fuse 0.25 A Slo-Blow.

SERIAL PORT: RS232C

INSTRUMENT: Stainless Steel, NEMA 4x, Tilt ‑ Stand Base, 7lbs.
8.813”(w) x 6.313”(h) x 3.83”(d)

COUNTING SCALE: Cast Aluminum, 14” (L) x 15.5” (W) x 5.25 (H); 15.25 lbs.

OPTIONS:

TIME & DATE: 12/24 hr, battery backed.

AC/DC: Battery backed (counting Scale).

DUAL CHANNEL: Independent A/D converter.

Analog Output: 64 bit Isolated 4-20 ma, 0-10 VDC

Digital Input/Relay Output Board: 4 input/ 4output, AC or DC.

Spare Parts

PA Part #	Application	Notes
57817	Main Board	Universal for all PA Models
57812	AC/DC Main Board	Includes Battery Charger
57834	Dual Base Board	Adds Dual Base to Main Board
57811	Analog Output	Adds 0-10 vdc, 4-20 ma to main board
57818	DIO Board	AC
57880	DIO Board	DC
57512-3	Display Board	All 7000’s except 7300
57422	Display Board	7300
57514	Keypad	7600
57564	Keypad	7500
57408-7	Keypad	7300