



1 NOTICES

1.1 PIECE COUNTING




The PT252 and PT253 indicators have a number of powerful features for parts (piece) counting by weight as described in this section. It is recommended that you assign the + key for piece counting counting (1.6.7 + Function Key Usage).

Press the + key to enter piece counting mode. The last used average piece weight (APW) value will be used for counting. If no APW has been stored the default APW is the increment of the scale at power on.

1.1.1 Sampling

The scale counts the pieces on it by using the average piece weight (APW) of the item calculated from a sample. In sampling, the PT252 and PT253 weigh a certain number of the pieces total weight in very high resolution and divide it by the number of pieces (called the sampling quantity) to find the average piece weight (APW). Based on this calculated average piece weight, counting can then be carried out.



NOTE: Sampling should be performed very carefully for correct counting.

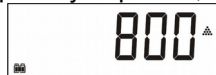
1. Empty the scale and press the [ZERO] key so that the  symbol is seen on the display.
2. Press the + key for a few seconds until the sample quantity shows on the display ([10] or any other sample quantity), the counting annunciator  will be flashing. This value is the quantity of pieces you need to place on the platform for sampling.




3. If pieces are small or piece weights are not very close to each other, sampling in higher quantity is recommended to increase the counting accuracy. To change the sampling quantity, press [▲] or [▼] to change the sampling quantity to 20, 30, 50 or 100 as required.
4. When exactly the quantity entered above is placed on the platform, press the [ENTER] key.
5. The display will stop flashing after sampling and the APW is calculated and start to display the quantity on the scale.

1.1.2 Counting without a container


1. After sampling press the [ZERO] key so that the  symbol is seen on the display. Or recall the desired APW of the item from CLU memory (1.1.8 Counting with a stored APW value).
2. Place the pieces you want to count on the weighing pan.
3. The display will show the total quantity of pieces, the counting annunciator  will be steady.



If you want to accumulate this count into the totalising memory, press the [M+] key (1.1.6).



To return to the weighing mode, press the + key. The last used APW is retained and can be used the next time piece counting mode is entered.

1.1.3 Counting pieces into a container

1. For counting into a container, place the empty container on the scale and tare with the [Tare] key. (After taring the scale the  sign should appear on the display).
2. If need be, you may perform sampling in the container after taring it to zero, to set the APW.
3. Add parts into the container to begin counting.

Note: If the automatic taring function is active, you need not press the [Tare] key, because the scale will tare automatically as soon as the container is placed on the weighing pan.

1.1.4 Counting pieces out of a container

1. Place the full container on the weighing pan and then press the [Tare] key to tare the scale (the  sign should appear).
2. Press the + key to go into piece counting mode.
3. If need be, perform sampling as in 1.1.1 Sampling or select the item APW from CLU memory (1.1.8 Counting with a stored APW value).
4. Take pieces out of the container as required, the display will show the quantity removed with a minus sign.
5. 6. Press [Tare] key to count a new quantity from the container.

Press the + key to go back to basic weighing operation.

1.1.5 APW optimisation

Sampling in high quantity gives a more accurate result although the high quantity (such as counting out a sample of 100 pieces) is not as easy by hand. APW optimisation is strongly recommended for faster counting of higher quantities for a larger sample and more accurate piece counting. Follow the procedure below for APW optimization.

1. First count a small sample by hand, for example 10 pcs. and perform sampling (1.1.1).
2. Then count on the scale 20 pcs. and reapply sampling for 20 pcs.
3. Then count 50 pcs. on the scale reapply sampling with 50 pcs.
4. Then you can count 100 pcs. on the scale and reapply sampling with 100 pcs.

After each APW optimisation, piece counting accuracy will increase. The amount of optimisation required depends upon the variability of the piece weights.

1.1.6 Piece count totalising

You can accumulate the quantities of the parts counted and can view the total value in the piece counting accumulator (CAD).

1. For counting accumulation, press the **[M+]** key when the quantity is displayed and the display is stable (~ is not displaying). You will see the number of additions to the total on the display as **[Cad001]**, etc.
2. Place another batch on the scale for counting. After the quantity is displayed press **[M+]** key again to add the second counted quantity to total, **[Cad002]** will display. (2 quantities have been added to the total)
3. You can continue to add counted quantities to the accumulation memory by pressing the **[M+]** key.

The accumulated total count can be seen by pressing **[MR]** key.

The total count can be printed by pressing the **[ENTER]** key when the total count is displaying (after pressing the **[MR]** key).

To delete the accumulation, press the **[MC]** key when count accumulation is displaying (after pressing the **[MR]** key).

1.1.7 Saving an APW value to memory

Up to 100 average piece weights (APW) for different materials can be saved in CLU memory.

- To save an APW in to the CLU memory, press the **[ADV]** key in piece counting mode for a few seconds. The display shows **[CLU 01]**, with the 01 digits flashing.
- Change to the desired memory location (00 to 99) by pressing the **[▶]** and **[◀]** keys to shift to the digit to change and pressing the **[▲]** and **[▼]** keys to change the digit up or down.
- After accessing the desired memory location, press the **[ENTER]** key to save. The indicator goes back to the counting operation automatically.

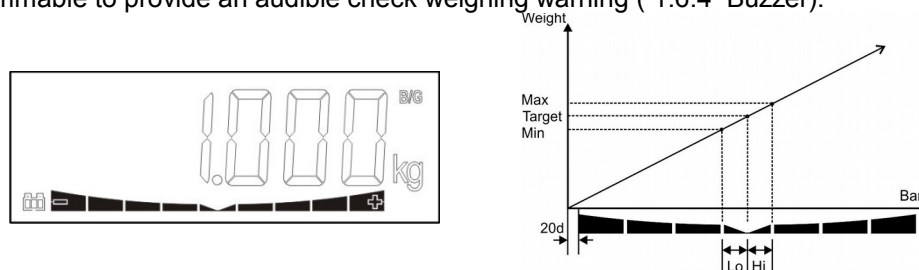
1.1.8 Counting with a stored APW value

Counting can be performed with one of 100 APW values already stored to save re-sampling for different materials.

- To use a stored APW value press the **⋯+** key for a few seconds to access setup in counting mode or in weighing mode to enter sampling.
- Press the **[▶]** key to show **[CLU 01]**, with the 01 digits flashing.
- Change to the desired memory location (00 to 99) by pressing the **[▶]** and **[◀]** keys to shift to the digit to change and pressing the **[▲]** and **[▼]** keys to change the digit up or down.
- After accessing the desired memory location, press the **[ENTER]** key to use the stored APW. The indicator goes back to the counting operation automatically.

1.2 CHECK WEIGHING

This function is used for classifying products as under, in tolerance and over weight. A Check weighing bar under the weight display helps the operator to see the deviation from target weight. The indicator is also programmable to provide an audible check weighing warning (1.6.4 Buzzer).



Check weighing operation first requires the nominal weight and tolerance values to be entered in to the PLU memory.

1.2.1 Saving check weighing targets in memory.

Warning: Entries into PLU memory must be done in the power on unit.

The PT252 and PT253 indicators have 100 check weighing PLU memory locations for different materials and 100 ALU memory locations for checking quantity during piece counting. Data must be saved into the PLU / ALU memory locations before it can be used to classify the item on the scale as OK, under or over. Here the Target is the desired weight of the material. Hi and LO are the “+ tolerance” and “– tolerance” for the material respectively.

A weight or quantity between LO and HI is considered OK, outside this band it is over or under.

For example, if the target is 1000 g and the weight limits are 950g and 1100g during check weighing, enter values of Target = 1000g, Hi = 100g and Lo = 50g. The values for counting are entered into the ALU memory as number of pieces.

1.2.1.1 Saving weight checking targets.

1. When in basic weighing mode enter the Advanced Functions menu by pressing the [ADV] key for a few seconds. The display shows [PLUPro].
2. Press [ESC] to exit or press [ENTER] to programme targets. When you press [ENTER] the display shows [PLU 01] with the 01 digits flashing.
3. Change to the desired memory location (00 to 99) by pressing the [▶] and [◀] keys to shift to the digit to change and pressing the [▲] and [▼] keys to change the digit up or down and press [ENTER], the display shows [tArGeT].
4. Press [ENTER], the display shows the target weight. Change the value to the desired target weight by pressing the [▶] and [◀] keys to shift to the digit to change and pressing the [▲] and [▼] keys to change the digit up or down and press [ENTER], the display shows [HI].
5. Press [ESC] to exit to the menu at [PLUPro]. Press [ENTER], the display shows the target deviation for a high reading. Change the value to the allowable deviation above the target weight by pressing the [▶] and [◀] keys to shift to the digit to change and pressing the [▲] and [▼] keys to change the digit up or down and press [ENTER], the display shows [LO].
6. Press [ENTER], the display shows the target deviation for a low reading. Change the value to the allowable deviation below the target weight by pressing the [▶] and [◀] keys to shift to the digit to change and pressing the [▲] and [▼] keys to change the digit up or down and press [ENTER], the display shows [PLU 02] (the next memory location in sequence) with the digits flashing.
7. Continue entering more targets or press [ESC] twice to exit to normal operation.

1.2.1.2 Saving count checking targets.

When in counting mode enter the Advanced Functions menu by pressing the [ADV] key for a few seconds. The display shows [ALUPro]. Follow the process in 1.2.1.1 above noting you will see ALU in place of PLU.

1.2.2 Weight Checking procedure.

Check weighing is used for checking the weight of an item or material is within tolerance. This is indicated on the display with bars across the bottom and with an audible alarm if it has been programmed (1.6.4 Buzzer). On the PT253 the back light color changes automatically when check weighing to indicate the load is under, okay or over. Refer to 1.6.5.2 to adjust this feature.

1. Press the [H-L] key for a few seconds in basic weighing mode until the message below displays. The letter on the right indicates yes or no, if check weighing is enabled or not.

H-L : Y

2. To enable check weighing, press the [▲] key to select 'Y' and then press the [ENTER] key. Disable check weighing by selecting 'n'.
3. When 'Y' is selected, the PLU memory number shows on the display as [PLU :01].
4. Change to the desired memory location (00 to 99) by pressing the [▶] and [◀] keys to shift to the digit to change and pressing the [▲] and [▼] keys to change the digit up or down and press [ENTER] to start check weighing or press [ESC] to go to normal operation without saving.
5. The Target, Hi and LO values are displayed automatically after pressing [ENTER] before check weighing begins.

- Place the object or material on the platform and the check weighing bar will be activated by loading the platform as shown below. The buzzer and display will activate if enabled.

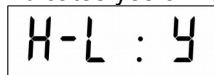


- To return from the check weighing mode to basic weighing, press the [H-L] key for a few seconds, change the H-L value to "n" and press the [ENTER] key. The check weighing bar, buzzer and backlight will be disabled.

1.2.3 Quantity Checking procedure.

This feature is used for checking whether or not the quantity is in tolerance during piece counting mode. On the PT353 the back light color changes automatically when counting to indicate the quantity is under, okay or over. Refer to 1.6.5.2 to adjust this feature.

- Press the [H-L] key for a few seconds in piece counting mode until the message below displays. The letter on the right indicates yes or no, if quantity checking is enabled or not.



- To enable quantity checking, press the [▲] key to select 'Y' and then press the [ENTER] key. Disable quantity checking by selecting 'n'.
- When 'Y' is selected, the ALU memory number shows on the display as [ALU :01].
- Change to the desired memory location (00 to 99) by pressing the [▶] and [◀] keys to shift to the digit to change and pressing the [▲] and [▼] keys to change the digit up or down and press [ENTER] to start check weighing or press [ESC] to to normal operation.
- The Target, Hi and LO values are displayed automatically after pressing [ENTER] before quantity checking begins.
- Place the parts that require quantity checking on the platform and the quantity checking bar will be activated by loading the platform as shown below. The buzzer and display will activate if enabled.



- To return from the check weighing mode to basic weighing, press the [H-L] key for a few seconds, change the H-L value to "n" and press the [ENTER] key. The quantity checking bar, buzzer and backlight will be disabled.

1.3 ANIMAL WEIGHING

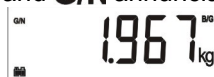
One of the function keys (the $\text{▲}+\text{▲}$ key is recommended) has to be programmed for animal weighing before use, (1.6.7 + Function Key Usage). The indicator calculates the weight of the dynamic load after pressing the programmed function key. The dynamic filter value needs to be adjusted to suit your application for the best result. The dynamic weighing procedure is;

- Load the scale.
- Press the $\text{▲}+\text{▲}$ key (or other key that has been programmed for animal weighing).
- The display shows [- - - -] to indicate that the PT252 or PT253 is measuring the dynamic weight.
- After calculating the dynamic weight, the indicator displays the value.
- Press the [ENTER] key to print out or the [M+] key to add the weight value to the totalising memory.
- Unload the scale or press the [ESC] key to go back to the basic weighing mode.

1.4 TEMPORARY GROSS DISPLAY

You may need to briefly view the gross weight value while in net weighing mode. If one of the function keys is programmed to the G/N function (1.6.7 , 1.6.8), temporary gross weight value indication is available during net weighing.

- Press the [G/N] programmed function key while in net weighing mode.
- The indicator activates the B/G and G/N annunciators and indicates the gross weight value.



- The display automatically goes back to net weight indication after 5 seconds.



1.5 UNIT CHANGE

You may need to change the units displayed in your application while you are weighing. One of the function keys should be programmed to be the Unit Change function to use this feature (1.6.7 , 1.6.8). The changeable units are between kg and lb or between g and oz.

- When the indicator is powered on the units will be as in the “Power On Unit” setting (Error: Reference source not found).
- Press the function key assigned above to switch to the second unit and display the weight in those units.
- Press the function key again to switch back to the first units.

Warning:

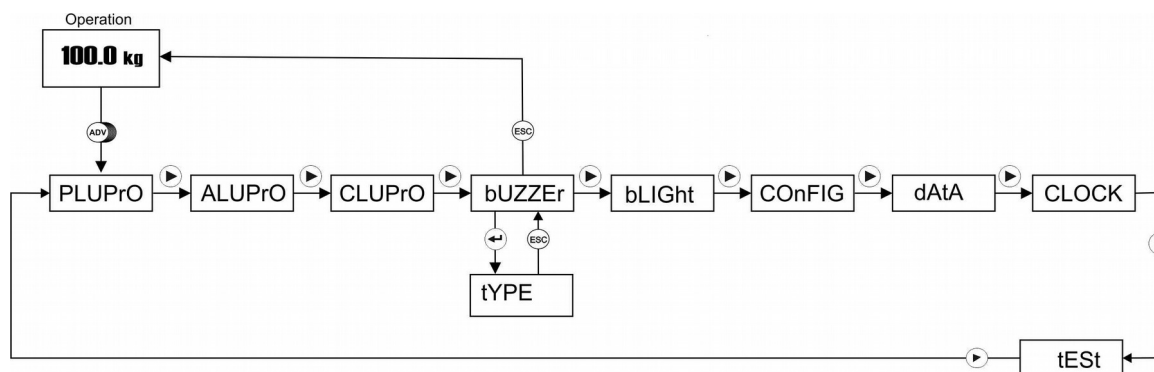
PLU memory and CLU memory data entries should be made in the power on unit.

The Unit Change feature is not available after sealing the instrument in legal usage.

1.6 ADVANCED USER FUNCTIONS

Please refer to Error: Reference source not found Error: Reference source not found for the keypad button functions.

- To access these functions if the display shows [E E E], press [ENTER] first (see Error: Reference source not found).
- You can change the advanced user functions of the instrument by pressing the [ADV] key for a few seconds while in the weighing mode to enter the set-up menu.
- You can access menus by pressing the [▶] key to change to the next menu, press the [ENTER] key to access items in the selected menu or press the [ESC] key to return to the previous step.
- The general arrangement of the menus is shown below. The [bLIght] item is only for the PT253.



1.6.1 PLU memory

PLU memory is used in check weighing operations to store weight checking targets. This memory usage and data input are described in check weighing operation in 1.2.1.1 Saving weight checking targets.

1.6.2 ALU memory

ALU memory is used to check the quantity during piece counting to store quantity checking targets. This memory usage and data input are described in 1.2.1.2 Saving count checking targets.

1.6.3 CLU memory

CLU memory is used in piece counting operations to store average piece weights (APW). This memory usage and APW saving after sampling are described in 1.1.7 Saving an APW value to memory

1.6.4 Buzzer

To access the Buzzer related functions menu, press the [ADV] key for a few seconds until the [PLUPrO] message appears on the display. Press the [▶] key until the [bUZZEr] prompt appears and press the [ENTER] key so that [tYPE: ?] is displayed. ? Could be n, b or C.

1.6.4.1 Buzzer Sound during Check Weighing

The buzzer sound can be programmed to be none, a continuous or a once only beep warning as shown in the table below. Use the [▲] key to change the value.

N = No sound,	b = One-time warning for 1 second	C = Continuous warning
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.4.2 Buzzer Mode during Check Weighing

The buzzer can set to activate in 3 different ways as follows, use the [▲] key to change the value. Press the [ENTER] key a number of times from the [bUZZEr] menu to access this item [MOde: ?].

Ou = Sound when weight is out of tolerance(Hi or Lo), in = Sound when weight is within the limits(OK), Hi = Sound when weight is over the high limit (Hi).

Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.4.3 Keypad Sound

The buzzer can be set to beep when pressing keys as set below, use the [▲] key to change the value. Press the [ENTER] key 3 times in from the [bUZZER] menu to access this item [SOUUn:?].

N = No sound when keys are pressed,	Y = Sound when keys are pressed.
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.5 Backlight menu

The backlight can be adjusted differently for the PT252 and PT253 and is found in the [CONFIG] and [bLiGht] menus respectively, each accessed as explained in 1.6 ADVANCED USER FUNCTIONS.

1.6.5.1 PT252 backlight

To access the Backlight menu, press the [ADV] key for a few seconds until [PLUPRO] appears on the display. Press the [▶] key several times until the [CONFIG] prompt is seen. Press the [ENTER] key in this menu to display [LIGH:?], use the [▲] key to change the value of ?

OF = Backlight always off,	On = Backlight always on,
AU = Backlight is on during weighing and turns off after being idle for 5 seconds.	

Press the [ENTER] key to proceed to the next item in the [CONFIG] menu, [ESC] to go back.

1.6.5.2 PT253 backlight

To access the Backlight menu, press the [ADV] key for a few seconds until [PLUPRO] appears on the display. Press the [▶] key several times until the [bLiGht] prompt is seen.

Backlight Activation

Press the [ENTER] key in this menu to display [LIGH:?], use the [▲] key to change the value of ?

OF = Backlight always off,	On = Backlight always on,
AU = Backlight is on during weighing and turns off after being idle for 5 seconds.	

Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

Colour

The colour of the backlight can be changed.

When you press the [ENTER] key from above [CoLr:?] displays, use the [▲] key to change the value of ?

Wh = Backlight colour is white,	rE = Backlight colour is red,	Gr = Backlight colour is green,
bL = Backlight colour is blue,	YE = Backlight colour is yellow.	

Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

H-L colour

The backlight can be programmed to change colour during check weighing for a positive visual confirmation.

When you press the [ENTER] key from above [H-L:?] displays, use the [▲] key to change the value of ?

?	Under	OK	Over
rE=	Red	Green	Yellow
YE=	Yellow	Green	Red

Press the [ENTER] key to proceed to the next item below, [ESC] to go back.


1.6.6 Auto power off

The indicator is programmable for automatic power off to increase the battery life if the scale is not used for a defined period. Press the [ENTER] key a number of times from the [CONFIG] menu to access this item [AOFF:?], use the [▲] key to change the value of ?

N = Disable,	1 = Automatic power off after 1 minute,
2 = Automatic power off after 2 minute,	3 = Automatic power off after 3 minute,
4 = Automatic power off after 4 minute,	5 = Automatic power off after 5 minute.

Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.7 + Function Key Usage

The + function refers to the  key and can be programmed to provide direct access to various functions. Press the [ENTER] key a number of times from the [CONFIG] menu to access this item [-KEY:?], use the [▲] key to change the value of ?

N = Disable (no function assigned), Gn = Temporary Gross indication in Net,	PC = Piece count, Un = Unit change,	n = Increased resolution, An = Animal weighing.
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.8 f Function Key Usage

The f function key refers to the top navigation key and can be programmed to provide direct access to various functions. Press the [ENTER] key a number of times from the [CONFIG] menu to access this item [FKEY:?], use the [▲] key to change the value of ?

N = Disable (no function assigned), Gn = Temporary Gross indication in Net,	PC = Piece count, Un = Unit change,	n = Increased resolution, An = Animal weighing.
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.9 Stability filter

You can change the digital filtering with this parameter to compensate for the influence on the scale of vibration or motion in the environment or to increase performance or for faster response. Press the [ENTER] key a number of times from the [CONFIG] menu to access this item [FILt:?], use the [▲] key to change the value of ?

L = Faster response with low filtering, H = Slow response with high filtering.	M = Medium settling time (recommended).
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.10 Animal Filter

This parameter changes the dynamic filtering to compensate for animal movement on the scale when in animal weighing mode. Higher filtering gives more reliable results for very dynamic loads. Press the [ENTER] key a number of times from the [CONFIG] menu to access this item [dYnA:?], use the [▲] key to change the value of ?

UL = Very low filtering (1.6 seconds), M = Medium filtering (4.8 seconds),	L = Low filtering (3.2 seconds), H = High filtering (6.4 seconds).
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.11 Tare Operation

The PT252 and PT253 can have the tare function programmed to operate in 4 different modes with the tare key, including automatically, with this parameter as seen below. Press the [ENTER] key a number of times from the [CONFIG] menu to access this item [tArE:?], use the [▲] key to change the value of ?

N = Taring is disabled, tC = Set alternating Tare-Clear active,	Mt = Set Multi-tare mode active, AU = Set automatic taring active.
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Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.12 Serial Data Output

To access the serial data output menu, press the [ADV] key for a few seconds until [PLUPRO] appears on the display. Press the [▶] key several times until the [dAtA] prompt is seen. Press [ENTER] to go into serial port 1 settings where [SPort1] is displayed or the [▶] key to access serial port 2 or printer menus.

NOTE: Data is output with 8 data bits, no parity and 1 stop bit. Serial port 2 is an extra option.

1.6.12.1 Serial Port 1 Settings

Serial port 1 is included standard on the PT252 and PT253. To change Serial port-1 settings, press the [ENTER] key when the [SPort1] prompt seen in the serial data output menu and [Form:?] will show.

Data Format

While the display is showing [Form:?] use the [▲] key to change the value of ? to set the data format.

NOTE: Selct C1 for use with a remote display RD4, RD5 or RD6

n = Data output is disabled, C2 = Continuous format 2 is selected 1.6.12.3 .	C1 = Continuous format 1 is selected 1.6.12.3 . Pr = Data output is formatted for a printer.
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Press the [ENTER] key to proceed to the next item below [bAud:?], [ESC] to go back.

Baud Rate

While the display shows [bAud:?] use the [▲] key to change the value of ? to set the communication baud rate.

01 = 1200 baud,	02 = 2400 baud,	04 = 4800 baud,
09 = 9600 baud,	19 = 19200 baud,	38 = 38400 baud.

Press the [ENTER] key to proceed to the next item below, [ESC] to go back.

1.6.12.2 Serial Port 2 Settings

Serial port 2 is not standard and included as an option on the PT252 and PT253. To change Serial port-2 settings, press the [ENTER] key when the [SPort2] prompt is seen in the serial data output menu.

Data Format

While the display is showing [Form:?] use the [▲] key to change the value of ? to set the data format.

NOTE: Selct C1 for use with a remote display RD4, RD5 or RD6

n = Data output is disabled,	C1 = Continuous format 1 is selected 1.6.12.3 .
C2 = Continuous format 2 is selected 1.6.12.3 .	Pr = Data output is formatted for a printer.

Press the [ENTER] key to proceed to the next item below [bAud:?], [ESC] to go back.

Baud Rate

While the display shows [bAud:?] use the [▲] key to change the value of ? to set the communication baud rate.

01 = 1200 baud,	02 = 2400 baud,	04 = 4800 baud,
09 = 9600 baud,	19 = 19200 baud,	38 = 38400 baud.

Press the [ENTER] key to proceed to the next set up item Error: Reference source not found Error: Reference source not found, [ESC] to go back.

1.6.12.3 Continuous Data Formats

Continuous data output from the instrument is transmitted in the following data structure.

Continuous-1 Data Format

The data format of the Continuous-1 data output is;

Status				Displayed Weight						Tare								
STX	STA	STB	STC	D5	D4	D3	D2	D1	D0	D5	D4	D3	D2	D1	D0	CR	LF	CHK

Following is the definition table for status bytes STA, STB and STC;

Definition Table for Status A (STA)								Definition Table for Status B (STB)						
Bits 0, 1 and 2			Bits 3 and 4			Bits 5,6	Bit 7	Bit 0	Bit 1	Bit 2	Bit 3	Bits 4,5	Bit 6	Bit 7
0	1	2	Decimal point	3	4	Inc. size	Always 1	X	1 = Net	1 = Weight negative	1 = Error	1 = Unstable	Always = 1	1 = Zeroed with power on
1	0	0	XXXXXO	1	0	X 1								
0	1	0	XXXXXX	0	1	X 2								
1	1	0	XXXXX.X	1	1	X 5								
0	0	1	XXXX.XX											
1	0	1	XXX.XXX											
0	1	1	XX.XXXX											

Status C (STC) is always hex '30'.

Note: The weight data is represented right aligned and the error messages (UNDER, OVER and A.OUT) are represented left aligned in the Displayed Weight field.

Continuous-2 Data Format

The data format of the Continuous-2 data output is;

[STX][STATUS][SIGN][DISPLAYED WEIGHT VALUE][UNIT][CR][LF][CHK]