

Digital Receiving Bench Scale

with Tower Display



334BS150T

150 lb.

334BS330T

330 lb.

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General & Safety Information



Risk of electric shock: disconnect all power sources before making cable connections to the floor scale platform or indicator.



For use in dry environments only.



The floor scale platform is very heavy. Use appropriate lift equipment.



Scale platform must be installed on a foundation capable of safely supporting the weight of the floor scale plus the weight of the maximum load.



Do not operate in hazardous areas.

- Read & understand all operating instructions before using this product
- Keep this manual for future reference.
- Record the weight shortly after placing a load on the platform. After extended periods, the load cell's output signal may result in a less accurate reading.
- Avoid extended exposure to extreme heat or cold. Optimum operation is at normal room temperature. See operating temperature range in the specifications table. Allow the scale to acclimate to room temperature before using.
- Allow sufficient warm up time. Turn the scale on and allow up to 2 minutes for internal components to stabilize before weighing.
- Electronic scales are precision instruments. Do not operate near cell phones, radios, computers or other electronic devices that emit radio frequencies that may cause unstable readings.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.
- Avoid using in heavy vibration or heavy airflow conditions. This also applies when the floor scale is integrated into conveying systems.

Specifications

Model	334BS150T	334BS330T
Maximum Capacity	150 lb. / 60 kg	330 lb. / 150 kg
Minimum Capacity	1 lb. / 0.5 kg	2 lb. / 1 kg
Scale Division	0.05 lb. / 0.02 kg	0.1 lb. / 0.05 kg
Platform Size	11.81" x 15.75" (300 x 400mm)	
Tower Height	26" (660mm)	
Display	1" High LCD Display	
Operating Temperature	41 - 105°F (5 - 40°C)	
Humidity Range	<85% Relative Humidity, Non-Condensing	
Power	Batteries: Internal, Lead-Acid Rechargeable 6V 4Ah AC Adapter: 12V/500mA	
Calibration	External Calibration Through the Keypad	
Communication Port	Bi-directional RS232, USB (Virtual RS232)	

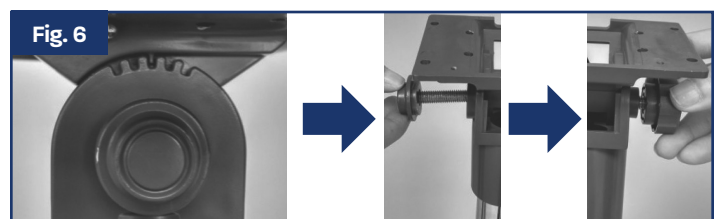
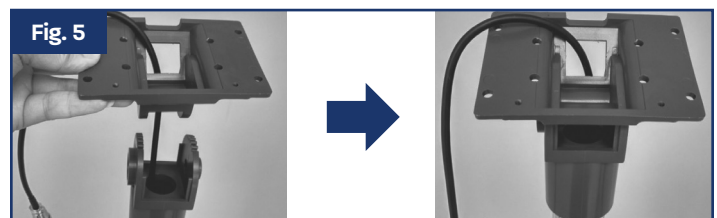
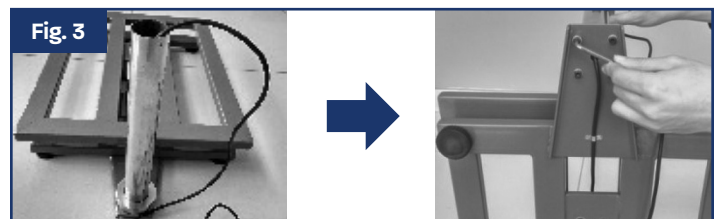
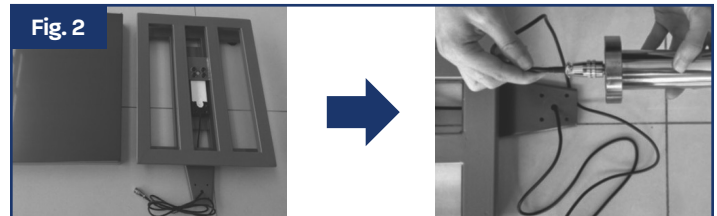
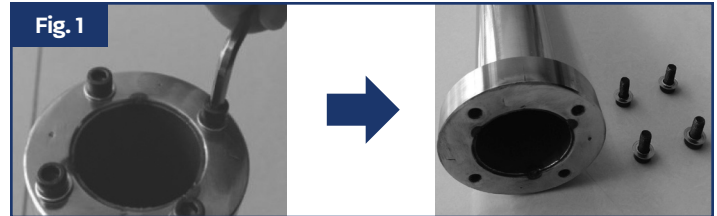
Unpacking & Setup

Tools Required

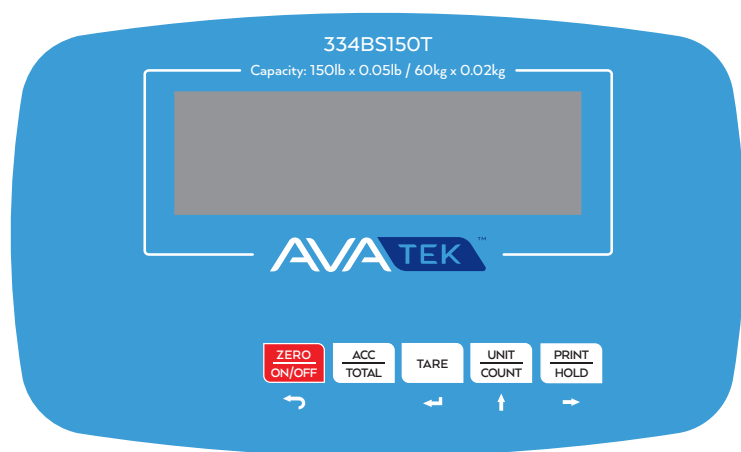
- Phillips Head Screwdriver
- Allen Wrench (Included)

Unpacking & Assembly

1. Take all the contents out of the box.
2. Remove the (4) inner hexangular set screws on the rear side of the shorter post (Fig. 1).
3. Remove the stainless steel platter from the scale base and insert the load cell cable through the short post (Fig. 2).
4. Secure the post onto the bracket of scale base with the (4) inner hexangular set screws (Fig. 3). Make sure the screws are securely tightened.
5. Remove the (4) screws on the rear side of the indicator, then disassemble the locking device on the indicator bracket (Fig. 4).
6. Insert the cable through the bracket, then lay the bracket on the post (Fig. 5).
7. Position the bracket in the slot to the direction desired. (Fig. 6) Lock the bracket.
8. Place the indicator on the bracket, and secure with the (4) phillips screws (Fig. 7).
9. Plug the female connector from the load cell to the male socket on indicator (Fig. 8).
NOTE: The connector is a snap-in connector, DO NOT screw the female end into the male one. A twisting force will cause inside wires to break.
10. Put the stainless steel platter back on the scale base.
11. The scale is now ready to use.



Function Keys & Display



Function Keys

NOTE: Normally, the 2nd function of a key needs to be pressed down for > 3 sec. to be activated.

Keys	Mode	Function
ZERO ON/OFF	Weighing Mode	Turn the scale on or off. Zero the scale if the display drifts from zero.
	Parameter or Calibration Mode	Exits current mode.
TARE	Weighing Mode	Tares the scale, if necessary.
	Parameter or Calibration Mode	Confirms the input data or confirms the operation.
ACC TOTAL	Weighing Mode	Activates accumulation function.
		Reviews the total accumulated value.
UNIT COUNT	Weighing Mode	Toggles the weighing unit between kg and lb. Enters counting mode.
	Parameter or Calibration Mode	Increases the digit in the flashing data entry position by 1.
PRINT HOLD	Weighing Mode	Prints the weight details to a PC or printer. Locks the reading even if object to be weighed is moving.
	Parameter or Calibration Mode	Shifts the flashing data entry position from left to right.
ZERO ON/OFF + UNIT COUNT	Weighing Mode	Enter Parameter Setting Mode.
ZERO ON/OFF + TARE	Weighing Mode	Enter Calibration Mode.

Display Characters

Digit	Symbol	Digit	Symbol	Digit	Symbol	Digit	Symbol	Digit	Symbol	Digit	Symbol
0		6		C		I		O		U	
1		7		D		J		P		V	
2		8		E		K		Q		W	
3		9		F		L		R		X	
4		A		G		M		S		Y	
5		B		H		N		T		Z	

Display Icons

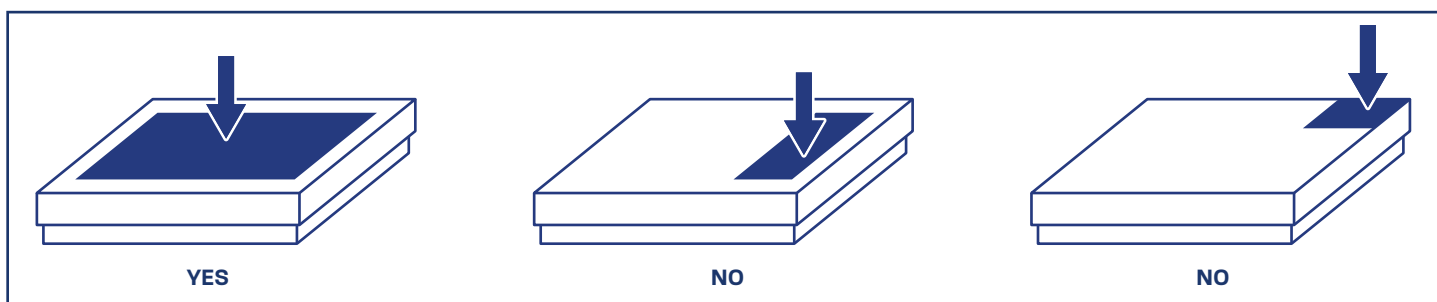
Icon	Definition
<i>Kg</i>	Indicates when the scale is weighing in Kilograms.
<i>Lb</i>	Indicates when the scale is weighing in pounds.
	Indicates when the scale reaches zero.
	Indicates when the scale reading is stable.
<i>NET</i>	Indicates when the net weight is displayed, tare weight is at zero.
<i>Hold</i>	Indicates when the scale has held the weight reading shown on the display.
<i>TOTAL</i>	Indicates when the scale is displaying an accumulated value.
<i>PCS</i>	Indicates when the scale is in counting mode.

Operations & Settings

Normal Weighing Mode

1. Power on the scale by pressing the **ON/OFF** key.
2. If the display stabilizes but doesn't show zero, press the **ZERO** key to set new zero point.
3. Place the objects on the scale platform and read the weight on the indicator.

NOTE: Objects should be placed at the center of the platform. Corner or side loading heavy objects may risk overloading an individual load cell and damage the scale.



4. To change the weight unit of measure, press the **UNIT | COUNT** key.
5. To send data to another device via the serial port, press the **PRINT | HOLD** key.
6. Power off the scale by pressing the **ON/OFF** key for 4 seconds.

Zero Function

1. If the display does not show “0”, and there is no object on the platform, press the **ZERO** key to zero the reading.
 - The zero function is unavailable when the displayed reading is out of the zero range and the indicator will show the error message “0-----” or “0-----” meaning the scale is over or under the zero range.

Tare Function

1. Zero the scale as described above.
2. Place an empty container on the platform, press the **TARE** key. The display will return to zero, eliminating the weight of the container. **NET** will be lit on the display.
3. Place the material or object to be weighed in the container. The net weight will be displayed.
4. To exit tare mode, remove all weight from the scale. The display will show a negative weight. Press the **TARE** key to return the display to zero.

Hold Function

The Hold function is used if you would like to hold the results on the display after the weight/load has been removed from the scale.

1. Press and hold the **PRINT | HOLD** key for 4 seconds while scale is under load.
2. HOLD will be displayed and the weight will remain saved after unloading the scale.
3. To deactivate the Hold function, press and hold the **PRINT | HOLD** key for 4 seconds.

Counting

1. In normal weighing mode, press and hold the **UNIT | COUNT** key for 4 seconds to enter Count mode.
2. When the scale displays "**SPL---**", place the samples on the scale and press the **TARE** key to confirm.
3. "---" will flash, then scale displays "**000000**", use the **↑** and **→** keys to input the quantity of samples, press the **TARE** key to confirm. If any error occurs, the scale will display "**SPLE--**" and will require the quantity to be input again.
4. Put more parts on the scale for counting, the display will show the number of parts (pcs).
5. Press and hold the **UNIT | COUNT** key to return to normal weighing.

Accumulation Mode

1. Accumulation can be used in both weighing and counting modes.
2. In normal weighing or counting mode, when reading is stable, press the **ACC | TOTAL** key to accumulate the current weight or quantity into memory, **TOTAL** will blink on and off in 2 seconds.
3. Remove the weight, allowing the scale to return to zero and put a second weight on. Press the **ACC | TOTAL** key to display the new total.
4. To review the accumulated total, press and hold the **ACC | TOTAL** key for 4 seconds. The scale will display the total weight or quantity, "**TOTAL**" will be displayed. After 2 seconds, TOTAL will turn off and the scale will go back to normal weighing or counting mode.

NOTE: In all cases, the scale must return to zero or a negative number before another sample can be added to memory. More product can then be added by pressing the **ACC | TOTAL** key. This can continue until the total weight or quantity exceeds "**999999**".

Calibration

Before calibrating the scale, you should ensure that you have a known KG weight for calibration.

1. When in normal weighing mode with the scale at zero, press and hold down the **ZERO** and **TARE** keys to enter Calibration mode.
2. When the indicator shows "**CAL-2**", press the **TARE** key to confirm and go to the next step, or press the **ZERO** key to exit Calibration mode.
3. Scale will display the max capacity, then display the division. Press the **TARE** key to confirm and go to the next step, or press the **ZERO** key to exit Calibration mode.
4. When "**CALPO**" is displayed, the scale will begin to calibrate the zero-point of the scale. Remove all weight from the scale. Press the **TARE** key to confirm, or the **ZERO** key to exit Calibration mode. After receiving the reasonable zero-point data, the scale will go to the next step automatically.
5. Now the scale displays "**CALPT**", then displays a defaulted standard weight of 50%FS. Load 12.5%-100%FS weight on the scale, and use the **↑** and **→** keys to input the loaded weight. Press the **TARE** key to confirm the input and go to the next step. If an error occurred, the scale will display "**CALER**" and return back to step 4 for re-calibration.
6. When the scale displays "**CALP2**", then displays a default standard weight of 100% FS. Load 25%-100%FS (this must be equal or larger than the weight from the "**CALPT**") weight on the scale. Use the **↑** and **→** keys to input the standard weight's value. Press the **TARE** key to confirm. The indicator will flash the input weight and go to the next step automatically. If an error occurred, the scale will display "**CALER**" and return back to step 4 for re-calibration.
7. When "**CALPO**" is shown again, the scale will calibrate the zero-point again. Remove any weight from the scale, press the **TARE** key to confirm, and back to the normal weighing mode. If an error occurred in calibration, the scale will display "**CALER**" and return back to step 4 for re-calibration.

User Parameters

1. When the scale is in normal weighing mode, press and hold the **ZERO** and **UNIT | COUNT** keys for 3 seconds until "**SETUP**" is shown on the display.
2. In the Setup mode, press the **↑** key to change the flashing digits, press the **→** key to shift the flashing data entry position from left to right, and press the **TARE** key to confirm and move to the next parameter setting. Press the **ZERO** key to exit the Setup mode.

Parameters Setting Summary

Parameter	X/XY	Remark	Default
P1.xy Auto-off Time	00-15	00 = No Auto-Off 01-15 = Minutes Auto-Off Time	5
P2.xy Hold/Print Function	00-02	00 = Only Hold Function 01 = Only Print Function 02 = Both Functions (<3 sec = Print, >3 sec = Hold)	2
P3.xy Hold Function	0-50	0 = Disable Hold Function 1 = Hold Larger Weight Reading 2-50 = Hold reading when variety is within $\pm 2-50d$, auto release Hold function when weight is $< 10d$ and auto-hold new stable weight ($> 10d$)	2
P4.x RS232 & USB Function	0-7	0 = No RS232 and USB 1 = Press PRINT key to output display data when scale is stable 2 = Press PRINT key to output gross, tare, and net weight when scale becomes stable 3 = Continuously outputs display data 4 = Continuously outputs gross, tare, and net weight 5 = Outputs display data one time when scale is stable 6 = Outputs gross, tare, and net weight one time when scale becomes stable 7 = Bi-directional communication	2
P5.x Communication Baud Rate	0-4	0 = 1200bps 1 = 2400bps 2 = 4800bps 3 = 9600bps 4 = 19200bps	3
P6.x Communication Format	0-2	0 = 8N1 1 = 7O1 2 = 7E1	0
P7.xy Resolution	00-32	00 = 500 08 = 2400 16 = 7500 24 = 35000 01 = 600 09 = 2500 17 = 8000 25 = 40000 02 = 750 10 = 3000 18 = 10000 26 = 50000 03 = 800 11 = 3500 19 = 12000 27 = 60000 04 = 1000 12 = 4000 20 = 15000 28 = 70000 05 = 1200 13 = 5000 21 = 20000 29 = 75000 06 = 1500 14 = 6000 22 = 25000 30 = 80000 07 = 2000 15 = 7000 23 = 30000 31 = 100000 32 = Factory Preset N (0<N<1000000)	10

Parameter	X/XY	Remark	Default
P8.x Division Select	0-2	0 = 1 1 = 2 2 = 5	2
P9.x Decimal Point in Calibration	0-5	0 = x1 1 = x0.1 2 = x0.01 3 = x0.001 4 = x0.0001 5 = 10 /19 /15	2
P10.x Calibration Unit	0-1	0 = kg 1 = lb	0
P11.x Weighing Units Enabled	0-6	0 = only kg 1 = only lb 2 = only lb:oz 3 = kg or lb 4 = kg or lb:oz 5 = lb or lb:oz 6 = kg, lb, or lb:oz	3
P12.x Power-on Zero-point Range	0-7	0 = Calibration zero-point $\pm 1\%$ FS 1 = Calibration zero-point $\pm 2\%$ FS 2 = Calibration zero-point $\pm 5\%$ FS 3 = Calibration zero-point $\pm 10\%$ FS 4 = Calibration zero-point $\pm 20\%$ FS 5 = Calibration zero-point $\pm 50\%$ FS 6 = Calibration zero-point $\pm 100\%$ FS 7 = No limitation	7
P13.x Zero Range for ZERO Key	0-9	0 = Power-on zero-point $\pm 1\%$ FS 1 = Power-on zero-point $\pm 2\%$ FS 2 = Power-on zero-point $\pm 3\%$ FS 3 = Power-on zero-point $\pm 4\%$ FS 4 = Power-on zero-point $\pm 5\%$ FS 5 = Power-on zero-point $\pm 10\%$ FS 6 = Power-on zero-point $\pm 20\%$ FS 7 = Power-on zero-point $\pm 50\%$ FS 8 = Power-on zero-point $\pm 100\%$ FS 9 = No limitation	6
P14.x Data as Current Power-on Zero Point When Weight Signal IS IN Power-on Zero-point Range	0-2	0 = Current weight 1 = Calibration zero-point 2 = Switch-off zero-point	0
P15.x Data as Current Power-on Zero Point When Weight Signal IS NOT IN Pow- er-on Zero-point Range	0-3	0 = Current weight 1 = Calibration zero-point 2 = Switch-off zero-point 3 = Continuous display	3
P16.x Zero Tracking Range	0-8	0 = 0d, No Tracking 1 = $\pm 0.25d$ 2 = $\pm 0.5d$ 3 = $\pm 1d$ 4 = $\pm 1.5d$ 5 = $\pm 2d$ 6 = $\pm 3d$ 7 = $\pm 4d$ 8 = $\pm 5d$	6
P17.x Data Filter Intensity	0-3	0 = Very Weak 1 = Weak 2 = Middle 3 = Strong	2

Parameter	X/XY	Remark	Default
P18.x Check Weight Stability Range	0-2	0 = $\pm 0.5d$ 1 = $\pm 1d$ 2 = $\pm 1.5d$ 3 = $\pm 2d$ 4 = $\pm 3d$ 5 = $\pm 4d$ 6 = $\pm 5d$ 7 = $\pm 6d$ 8 = $\pm 7d$ 9 = $\pm 8d$	1
P19.x Overload Limit Range	0-9	0 = FS+0d 1 = FS+9d 2 = 101%FS 3 = 102%FS 4 = 103%FS 5 = 110%FS 6 = 120%FS 7 = 150%FS 8 = 200%FS 9 = No Limitation	1
P20.x Backlight ON/OFF Mode	0-2	0 = Always OFF 1 = Always ON 2 = Auto ON/OFF Auto OFF when scale is stable with no key operation for 10 seconds. Auto ON when scale is unstable and there is key operation	2
P21.x LCD Contrast Level	0-4	0 = Very Low 1 = Low 2 = Medium 3 = High 4 = Very High	3

RS-232/USB Communications

RS-232 Connection Between Scale & Host

Scale	Cable		Host
DB9 Female	DB9 Male	DB9 Female	DB9 Male
PIN2 TXD	2	2	PIN2 RXD
PIN3 RXD	3	3	PIN3 TXD
PIN5 GND	5	5	PIN5 GND
PIN4 DSR	4	4	PIN4 DTR
PIN6 DTR	6	6	PIN6 DSR
PIN7 CTS	7	7	PIN7 RTS
PIN8 RTS	8	8	PIN8 CTS
PIN1 NC	1	1	PIN1 NC
PIN9 NC	9	9	PIN9

When Parameter P4.x in section 7 is set to 0

No RS232 and USB function. It will not transmit or receive any data although the scale is equipped with RS232 or USB. The RS232 and USB function can be only activated when scale is in normal weighing mode.

When Parameter P4.x in section 7 is set to 1

Output the current displayed data when the **PRINT | HOLD** key is pressed, and it does not receive any data. The output format is as below:

<LF>< reading, symbol, decimal point, weight unit><CR><EXT>

When Parameter P4.x in section 7 is set to 2

Output displayed gross, tare, and net weight when the **PRINT | HOLD** key is pressed, and it does not receive any data. The output format is as below:

<LF>< Gross: Weight, symbol, decimal point, weight unit><CR><EXT>

<LF>< TARE: Weight, symbol, decimal point, weight unit><CR><EXT>

<LF>< Net: Weight, symbol, decimal point, weight unit><CR><EXT>

The number of bytes used:

Weight reading7 bytes

Symbol1 byte

Decimal point1 byte

Weight unit2 or 4 bytes

When Parameter P4.x in section 7 is set to 3

Continuous output data when reading is stable, and it does not receive any data. The output format is same as P4.1.

When Parameter P4.x in section 7 is set to 4

Continuous output gross, tare and net weight when reading is stable, and it does not receive any data. The output format is same as P4.2.

When Parameter P4.x in section 7 is set to 5

Output displayed data one time when scale is stable, and it does not receive any data. The output format is same as P4.1.

When Parameter P4.x in section 7 is set to 6

Output gross, tare and net weight one time when scale is stable, and it does not receive any data. The output format is same as P4.2.

When Parameter P4.x in section 7 is set to 7

1. The baud rate and data format is fixed as per P5 and P6 setting. Responses to serial commands will be immediate, or within one weight measure cycle of the scale. One second should be more than adequate for use as a time-out value by remote (controlling) device.
2. The length of the weight field will be 7 digit weight data, one for minus sign, one for decimal point, two for measure unit (e.g. "lb", "kg"). If the unit is lb:oz, another two for "lb" and one for a space (<sp>) after lb. Units of measure abbreviations are always lower case.

3. If the weight is overcapacity, the scale will return nine '~' characters (the field of symbol, decimal point, weight data is filled by '~').
 - a) If the weight is under capacity, it will return nine '_' characters (the field of symbol, decimal point, and weight data is filled by '_').
 - b) If the zero point is error, it will return nine '_' characters.
4. The character will be '-' for negative weight or a space character for positive weight. Symbol, follows after the first digit.
5. Useless leading zero before digits is suppressed.

Command: W<CR> (57h 0dh)

Response:

1. <LF>~~~~~u1u2<CR><LF>H1H2H3<CR><ETX>---over capacity.
2. <LF>_____u1u2<CR><LF> H1H2H3 <CR><ETX>---under capacity.
3. <LF>-----u1u2<CR><LF> H1H2H3<CR><ETX>---zero-point error.
4. <LF><p>w1w2w3w4w5w6<d p>w7u1u2<CR><LF>H1H2H3<CR><ETX> ---Scale is stable, and the current weight unit is kg or lb. With or without decimal point and the position is as per the P9 setting and current unit.

Command: S<CR> (53h 0dh)

Response: <LF> H1H2H3<CR><ETX>

Command: Z<CR> (5ah 0dh)

Response: ZERO function is activated and it returns to current scale status.

Just like pressing ZERO key: <LF> H1H2H3<CR><ETX>

If ZERO function cannot be activated, it will return to current scale status.

Command: T<CR> (54h 0dh)

Response: TARE function is activated and it returns to current scale status.

Just like pressing TARE key: <LF> H1H2H3<CR><ETX>

If TARE function cannot be activated, it will return to current scale status.

Command: U<CR> (55h 0dh)

Response: Changes units of measure and return scale status with new units.

Just like pressing UNIT key: <LF>u1u2<CR><LF> H1H2H3<CR><ETX>

The new measure unit should be allowed to use as per P11 setting.

Command: X<CR> (58h 0dh)

Response: Powers off the scale, just like pressing the ON/OFF key.

Command: All Others

Response: Unrecognized command: <LF>?<CR><ETX>

Key to Symbols Used

Symbol	Definition
<LF>	Line Feed character (hex 0AH)
<CR>	Carriage Return character (hex 0DH)
<ETX>	End of Text character (hex 03)
<SP>	Space (hex 20H)
H1H2H3	Three status bytes. Refer to Table1 for definition.
<p>	Polarity character including minus sign for negative weight and a space character for positive weight
W1-W7	Weight data
<dp>	Decimal point
U1U2	Measure units, kg, lb

Status Bits Definitions

Bit	Byte 1 (H1)	Byte 2 (H2)	Byte 3 (H3)
0	0 = Stable	0 = Not Under Capacity	01 = Normal Work Mode 10 = Hold Work Mode 00 = Not Define 11 = Not Define
	1 = Not Stable	1 = Under Capacity	
1	0 = Not at Zero Point	0 = Not Over Capacity	0 = Gross Weight 1 = Net Weight
	1 = At Zero Point	1 = Over Capacity	
2	Always 0	Always 0	Always 0
3	Always 0	Always 0	Always 0
4	Always 1	Always 1	Always 1
5	Always 1	Always 1	Always 1
6	Always 0	Always 1	Always 0
7	Parity	Parity	Parity

Troubleshooting

Symptom	Probable Cause	Remedy
AD----	The cable from the platform to indicator is not correctly connected, is disconnected, or has short circuited.	Check connections. If damaged, return the scale for repair.
	Indicator is damaged.	Replace with a new indicator and perform calibration.
AD----	Load cell cable is broken.	Return the scale for repair.
	Load cell is damaged.	Return the scale for repair.
0-----	Weight reading exceeds Power On Zero limit.	1. Ensure scale platform is empty. 2. Perform zero calibration. 3. Reduce the weight on the platform until the indication is within the key zero range.
	Indication is out of key zero range.	
0-----	Weight reading below Power On Zero limit.	1. Install platform on the scale. 2. Check for objects stuck between the load cell and the scale base, remove if present. 3. Perform zero calibration.
CALER	Input data or loaded weight is too small, or too big.	Input correct data, load correct weight onto platform.
	Weight signal is unstable, non-linear.	Return the scale for repair.
LOBAT	Low Battery	Replace the batteries.