



MEASURETEK
QUALITY SCALES



EHC-W

User/Technical Manual

Contents subject to change without notice

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1. INTRODUCTION

General and Safety Information



- For use in dry environments only.
- This product uses a Lead-acid rechargeable battery. Dispose of according to local laws and regulations.
- Read and understand all operating instructions before using this product. Keep this manual for future reference.
- Allow sufficient warm up time. Turn the scale on and allow up to 10 minutes for internal components to stabilize before weighing.
- Record the weight shortly after placing a load on the platter. Leaving loads in place for extended periods may vary the load cell's output signature and 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.
- When storing the scale for extended periods, the battery must be charged every 90 days to avoid premature performance degradation. Over time, the operating time per charge will degrade. If the operating time is no longer acceptable even after recharging, the battery must be replaced.
- 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.

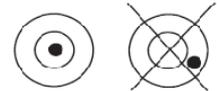
Specifications

Model	EHW-W-0306	EHC-W-0612	EHC-W-1530	EHC-W-3060
Max. Capacity	3 kg (6 lb)	6 kg (12 lb)	15 kg (30 lb)	30 kg (60 lb)
Readability	0.1 g (0.0002lb)	0.2 g (0.0005 lb)	0.5 g (0.001 lb)	1 g (0.002 lb)
Display Resolution	1:30000			
Min. Recommended Weight	2 g (0.004)	4 g (0.01 lb)	10 g (0.02 lb)	20 g (0.04lb)
Min. sample Weight 1%FS	30 g	60 g	150 g	300g
Construction	Stainless steel pan, plastic housing			
Weighing Units	kg / g / lb /oz / lb:oz			
Calibration unit	kg / lb			
Modes	Weighing, Counting, Check Weighing, % weighing, Accumulation			
Weight Display	1-Window backlit LCD display, 25mm (1") high, 6 1/2 digits, 7-segment			
Zero Range	Power-on zero range: calibration zero point \pm 10%FS; ZERO key range: power-on zero \pm 5%FS			
Tare Range	Full capacity			
Stabilization Time	<5 seconds			
Operating Temperature	14° to 105°F (-10° to 40°C)			
Humidity Range	<90% relative humidity, non-condensing			
Power Supply	6V 4Ah lead-acid battery or AC power adapter (12Vdc/500mA with central positive)			
Battery Performance	80 hours continuous use with 12 hour recharge time (with backlit OFF)			
External Interface	RS232			
Safe Overload Capacity	150% of capacity			
Platter Dimensions (L x W)	290 x 220 mm; 11.42" x 8.66"			
Scale Dimensions(L x W x H)	294 x 342 x 115 mm; 11.58" x 13.46" x 4.53"			

2. Unpacking and Setup

- Remove the scale from the box and place it on a firm, level surface. Avoid locations with rapid temperature changes, excessive dust, moisture, air currents, vibrations, electromagnetic fields, heat or direct sunlight.
- Adjust the leveling feet until the bubble is centered in the circle of the level indicator (located on the front panel).

NOTE: Ensure that the scale is level each time its location is changed.



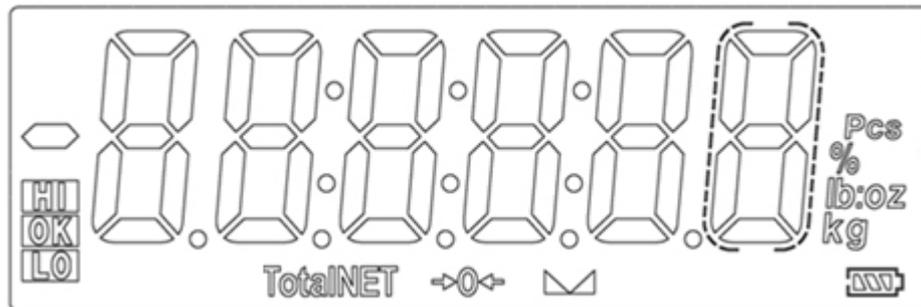
- The internal rechargeable battery should be fully charged for up to 12 hours before using the scale for the first time.
- Connect the supplied AC adapter to the power input receptacle underneath the scale. Plug the AC adapter into a properly grounded power outlet. The battery will begin charging.
- If the scale will be stored or transported in the future, save the packaging material to ensure the best possible protection for the scale.

Contents

- Scale
- 12Vdc/500mA adapter
- Manual

3. OVERVIEW OF CONTROLS AND FUNCTIONS

3.1 Front Display



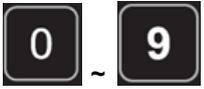
-  - Scale is zeroed, gross weight is 0, tare is 0.
-  - Scale is stable.
- NET** - Display reading is net weight; tare is not 0.
- Total** - Display data is accumulated total times, weight, pieces, or percentage.
- lb** - Measure unit is lb or lb:oz
- oz** - Measure unit is oz or lb:oz
- kg** - Measure unit is kg
- g** - Measure unit is g
- %** - Measure unit is % (in percentage weighing mode).
- Pcs** - Measure unit is pieces (in counting mode).
- HI** - Check-weighing is enabled. Current data is above the specified upper limit.
- OK** - Check-weighing is enabled. Current data is between the specified upper and lower limits.
- LO** - Check-weighing is enabled. Current data is below the specified lower limits.
-  - Battery level.

3.2 Indicator Display Character Definitions

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

3.3 Key Functions



	Press to enter number in counting and checking weighing modes and calibration
	Press to clear the input number or accumulated value
	Press to tare the weight when reading is stable, tare range: 100%FS Press to confirm the operation or entered data
	Press to set the zero point after the scale is stable, zero range: power-on zero point $\pm 5\%FS$
	Press to add the value to the accumulation memory Press and hold to display the accumulated total value
	Press to switch the measuring unit between kg, g, lb and oz
	Press to output data via RS232 port
	Press to enter checking weighing mode, set Hi and Lo value
	Press to enter % weighing mode In counting mode, press to display unit weight(g/pcs), total weight(kg) or count(pcs)
	Press to enter into counting mode Press to exit the current working mode and return to normal weighing mode

	Press to power on the scale when the scale is off Press and hold to power off the scale when the scale is on Press to return normal weighing mode when scale is in parameter setting mode
 + 	Press to enter calibration mode
 + 	Press to enter LCD and Key test mode
 + 	Press to enter parameter setting mode
 + 	Press to check inner code and voltage

4. OPERATIONS

4.1 Power on / Power off scale

Place the scale on a flat, stable surface. Level the scale using the leveling bubble at the lower left side of the display.

With the weighing platter empty, turn on power switch (located underneath on the left-hand side of the scale). Press the **ESC/ON/OFF** key to power on the scale. The self-check will run and the scale will display a zero reading.

When the scale is beyond the power-on zero point range (calibration zero point +/- 10%FS), after powering on, the scale displays "Err 04" or "Err 05".

To power off the scale, press and hold **ESC/ON/OFF** key.

4.2 Zeroing the display

You can press the **ZERO** key at any time to set the zero point from which all other weighing and counting is measured, within $\pm 5\%$ of power up zero. This will usually only be necessary when the platform is empty. When the zero point is obtained the display will show the indicator for zero.

4.3 Taring

Zero the scale by pressing the **ZERO** key if necessary when reading is stable. The zero indicator will be on.

Place a container on the platform, a value for its weight will be displayed.

Press the **TARE** key to tare the scale. The weight that was displayed is stored as the tare value and that value is subtracted from the display, leaving zero on the display. The "NET" indicator will be on. As product is added only the weight of the product will be shown. The scale could be tared a second time if another type of product was to be added to the first one. Again only the weight that is added after taring will be displayed.

When the container is removed a negative value will be shown. If the scale was tared just before removing the container this value is the gross weight of the container plus all product that was removed. The zero indicator will also be on because the platform is back to the same condition it was when the **ZERO** key was last pressed.

4.4 Switching measuring unit

In normal weighing mode, press **[Unit]** key to switching the measuring units between kg, g, lb and oz.

4.5 Normal Weighing Mode

When scale is powered on and back to 0, first tare the empty container then place the sample in the container. The display will show the weight and the units of weight currently in use.

4.6 Checking Weighing Mode

Check-weighing is a procedure to cause an alarm to sound when the weight, quantity or % weight on the scale meets or exceeds values stored in memory. The memory holds values for a high limit and a low limit. Either limit can be used or both can be used.

Press the **[LIMIT]** key. The display will show “**LO P**”, then show “**UNIT**”, now you can use Unit key to choose the measuring units you need. Press Tare key to confirm.

The display will show “**HI**” then display 0, user 0-9 keys to input the value, press the **[TARE]** key to confirm. If you want to reset the value to zero press the **[C]** key to clear the value.

After pressing the **[TARE]** key the display will then show “**LO**”. Enter the low limit in the same way the high limit was entered.

After pressing the **[TARE]** key the scale will return to weighing with the Check weighing function enabled.

When a weight is placed on the scale the HI/OK/LO symbol will be shown if the weight is above or below the limits and the beeper will sound as described below.

BOTH LIMITS SET

The display will show OK and the beeper will sound when the weight is between the limits.

LOW LIMIT SET, HIGH LIMIT is set to zero

The display will show “OK” and the beeper will sound when the weight is less than the Low Limit. Above the Low Limit the display will show “HI” and the beeper will be off.

HIGH LIMIT SET, LOW LIMIT is set to zero

The display will show “LO” and the beeper will be off when the weight is less than the High Limit. Above the High Limit the display will show “OK” and the beeper will be on.

BOTH LIMITS SET. LOW is set greater than HIGH

The beeper will never sound and the display will show “LO” if the weight is less than the LOW limit, and “HI” if the weight is greater than the Low Limit.

NOTE: The weight must be greater than 20 scale divisions for the check weighing to operate.

To disable the Check-Weighing function enter zero into both limits by pressing the **[C]** key when the current limits are shown then pressing the **[TARE]** key to store the zero values

Note: you can set high/low limit in all normal weighing, percentage weighing and counting mode.

4.7 Counting Mode

Before beginning, tare the weight of any container that will be used, leaving the empty container on the scale.

Place the samples on the scale, press the **FUNC** key to begin. The scale will show "SPL. ---", use 0-9 keys to input the samples quantity, press the **TARE** key to confirm. If you want to reset the value, press the **C** key to clear the value.

Now put more weight on the scale, the display will show the number of parts (pcs).

Press the **%** key to display unit weight (g/pcs), Total weight (kg) or the count (pcs).

Press the **FUNC** key to return to normal weighing.

NOTE: Sample piece weight should not be less than 0.5d, otherwise, scale will display "L o.PC.Yt", then back to normal weighing mode in 2s.

4.8 Percent Weighing Mode

The scale will allow a sample weight to be shown as 1% - 100%. Then any other weight placed on the scale will be displayed as a percentage of the original sample.

Press **%** key to enter percentage weighing mode, the display will show "SPL.100%".

Press **0** key to set to 1%, display shows "SPL.001"

Press **1** key to set to 2%, display shows "SPL.002"

Press **2** key to set to 5%, display shows "SPL.005"

Press **3** key to set to 10%, display shows "SPL.010"

Press **4** key to set to 20%, display shows "SPL.020"

Press **5** key to set to 50%, display shows "SPL.050"

Press **6** key to set to 100%, display shows "SPL.100"

Press **Tare** key to confirm. Remove the sample, and put another weight on the scale, it will display the percentage of the original sample.

For example, if 6kg is placed on the scale and the **%** key is pressed the display will show 100.00%. Press **Tare** key. Removing the 6kg weight and putting a 3kg weight on the scale the display will show 50% as 3kg is 50% of 6kg.

Press the **FUNC** key will return the scale to normal weighing mode.

Note: if sampling weight is set to 1%, the weight must be more than 50d, if set to 2%, the weight must be more than 100d. The rest % need to be set in the same manner.

4.9 Manual Accumulation

Accumulation can be used in both weighing and counting modes.

When the scale is set to manual accumulation the weight displayed will be stored in memory when the **ACCU** key is pressed and the weight is stable.

The display will show "ACC 00 I" and then the total in memory for 2 seconds before returning to normal.

Remove the weight, allowing the scale to return to zero and put a second weight on. Press **ACCU**, the display will show "ACC 002" and then show the new total.

Continue until all weights have been added.

To view the totals in memory, press the **ACCU** key when the scale is at zero. The display will show the total number of items "ACC xxx" then the total weight before returning to zero.

Note: In all cases the scale must return to zero or a negative number before another sample can be added to the memory. More product can then be added and **ACCU** pressed again. This can continue for up to 99 entries, or until the capacity weight display is exceeded.

4.10 Automatic Accumulation

When the scale has been set to Automatic Accumulation the value is stored in memory automatically.

Put a weight to the scale, the beeper will sound when the scale is stable to signify the value is accepted, remove the weight, 2 seconds later the "total" symbol will be on, scale will show "ACC 0 I", then display the total value. Then "total" symbol will be off after 2s and back to weighing mode.

Remove the weight, and add a second weight on the scale, repeat the process.

The totals can be viewed as above.

4.11 Print (output) data via RS232 interface

In normal weighing mode, when reading is stable, press **Print** key to output data via RS232 interface:

Gross: xxx.xxxkg/lb/oz
Tare: xxx.xxxkg/lb/oz
Net: xxx.xxxkg/lb/oz
ACC.N: xxxxxxxx
Total: xxxxxxxxkg/lb/oz

In counting mode, when reading is stable, press **Print** key to output data via RS232 interface:

Gross: xxx.xxxkg
Tare: xxx.xxxkg
Net: xxx.xxxkg
Pc.wt.: xxxx.xxg
Count: xxxxxxxxpcs
ACC.N: xxxxxxxx
Total: xxxxxxxxpcs

In % weighing mode, when reading is stable, press **Print** key to output data via RS232 interface:

Gross: xxx.xxxkg
Tare: xxx.xxxkg
Net: xxx.xxxkg
100%.WT:xxx.xxxkg
Precent: xxxxx.xx%

5. Calibration

- 5.1 Under the normal weighing mode, press and hold **0** and **ESC/ON/OFF** key until scale displays “CAL”.
- 5.2 Then scale displays “UN, L.LG” or “UN, L.Lb” for the calibration unit choosing.
- 5.3 Use **UNIT** key to choose the calibration unit kg or lb (the corresponding unit indicator will be lighted on), use **ESC/ON/OFF** key to exit the mode, or **TARE** key to confirm the unit and go to the next step.
- 5.4 The scale displays “UNLOAD” (this means that the scale is ready to calibrate the zero point, please move away any weight on the scale). When scale is stable, press **TARE** key to confirm the zero point calibration and go to the next step automatically, or use **ESC/ON/OFF** key to exit the mode.
- 5.5 The scale displays “LOAD 1”, (this means the scale is ready to calibrate the first calibration point). Place a standard weight (>10% FS) on the center of the scale platter, press **TARE** to confirm the standard weight calibration after the scale is stable and go to the next step automatically. Or use **ESC/ON/OFF** key to exit the calibration mode.
- 5.6 The scale displays “, PLD” (Input Load Weight), then displays 0, use **0** - **9** key and **C** key to input loaded standard weight, then press **TARE** key for confirmation. Or use **ESC/ON/OFF** key to exit the calibration mode.
- 5.7 The scale displays “LOAD 2”, (this means the scale is ready to calibrate the second calibration point). Place a standard weight (> first calibration point weight + 10d) on the center of the scale platter, press **TARE** to confirm the standard weight calibration after the scale is stable and go to the next step automatically. Or use **ESC/ON/OFF** key to exit the calibration mode.
- 5.8 The scale displays “, PLD” (Input Load Weight), then displays 0, use **0** - **9** key and **C** key to input loaded standard weight, then press **TARE** key for confirmation. Or use **ESC/ON/OFF** key to exit the calibration mode.
- 5.9 The scale displays “LOAD 3”, (this means the scale is ready to calibrate the third calibration point). Place a standard weight (> second calibration point weight + 10d) on the center of the scale platter, press **ENTER** to confirm the standard weight calibration after the scale is stable and go to the next step automatically. Or use **ESC/ON/OFF** key to exit the calibration mode.

- 5.10 The scale displays “*INPLd*” (Input Load Weight), then displays 0, use **0** - **9** key and **C** key to input loaded standard weight, then press **TARE** key for confirmation. Or use **ESC/ON/OFF** key to exit the CAL mode.
- 5.11 When the scale displays “*UNLOAD*” again, the scale is ready to re-confirm the zero point, move away any weight on the scale, press **TARE** key to confirm.
- 5.12 After the calibration completes, the scale will re-initialize to be ready for normal weighing.

Note: If there is an error occurred in calibration, the scale will display “*CAL.Er*” (this normally means incorrect data input or loading weight), please return back to the last step or use **ESC/ON/OFF** to exit the calibration mode.

6. Parameter Setup Mode

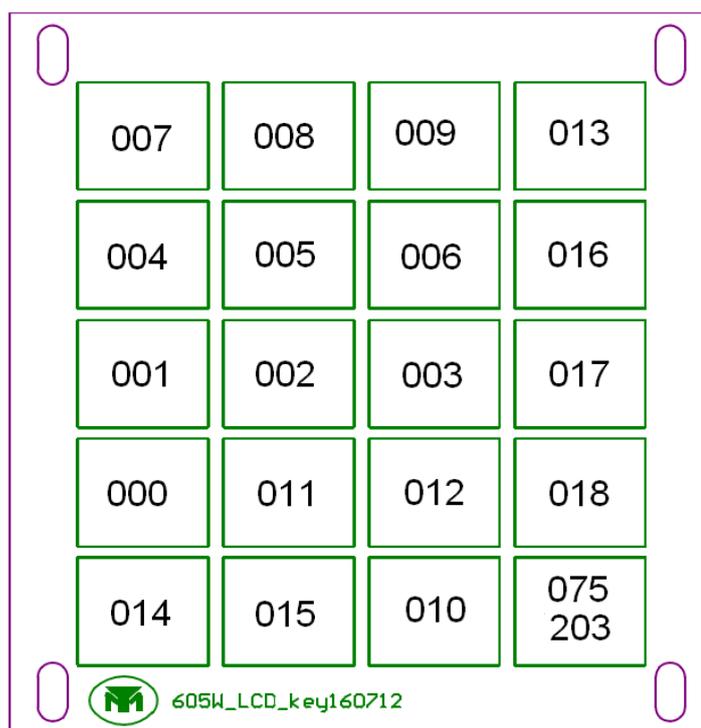
- 6.1 In normal weighing mode, press **ESC/ON/OFF** and **2** key until scale displays “SETUP”.
- 6.2 Then scale displays “A.O.T xx”, it means entering parameter setup mode.
- 6.3 In setup mode, use **0** - **9** key to input numbers, use **C** key to clear the input value, use **TARE** key to confirm and go to the next parameter, use **ESC/ON/OFF** key to exit the mode.

Parameter menu:

Parameter	meaning	option	Default setting
A.O.T xx	Auto off time setting	00~30 minutes	5
BLT. x	backlight	0 - Backlight always off 1 - backlight always on 2 - Auto auto on when key operation or weight changing; auto off if no operation in 15s	2
CST. x	LCD contraction level selection	0~7	4
ACC.xxx	Accumulation mode	0 - MAN, manual accumulation 1 - AUT, auto accumulation	MAN
BEEP:xx	Beeper mode in check weighing mode	0-beeper always off 1-compare result is LO, beeper on 2- compare result is OK, beeper on 3- compare result is HI, beeper on	2
BPS.xxx	Baud rate	1200bps, displays as “12” 2400bps, displays as “24” 4800bps, displays as “48” 9600bps, displays as “96” 19200bps, displays as “192”	96
DFT.xxx	Byte format	1 - 8N1=8 data bits, No parity check bit, 1 stop bit; 2 - 7O1=7 data bits, 1 parity check bit, 1 stop bit; 3 - 7E1=7 data bits, 1 parity check bit, 1 stop bit;	1
CFT. x	Output mode	0-no communication 1-output after reading is stable 2-output after PRINT key is pressed 3-output after reading is stable or after PRINT key is pressed	2

7. Display and Key test

- 7.1 In normal weighing mode, press **ESC/ON/OFF** and **1** key until scale displays all segments of LCD.
 Use **0** key to display all segments of LCD;
 use **1** key to display each segment one by one;
 use **2** key to display all segments of same COM;
 use ENTER key to auto display each segment ;
 use **3** key to enter testing key mode, and displays “KEY---“, press a key, its ID number will be displayed.
- 7.2 Press **ESC/ON/OFF** key to exit the mode.



8. Display A/D code and working voltage

- 8.1 In normal working mode, press and hold **ESC/ON/OFF** and **3** key until scale displays “CODE”, then displays inner code (if inner code is bigger than 999999, it will display on two pages H xxxx and L xxxx). Press **Unit** key to display H xxxx, L xxxx or display both automatically.
- 8.2 Press **TARE** key to tare the inner code and display net inner code, “NET” symbol will be on. Press **TARE** key again to display the inner code and “NET” symbol will be off.
- 8.3 Press **FUNC.** key to check the working voltage, shows “U.x.x” (Voltage x.x V), this means the inner working voltage is x.x V. If the scale uses AC power adaptor, the voltage is the power adaptor voltage after regulating. If AC adaptor is not used, this around voltage is battery’s voltage.

9. Display symbol meaning

- Err01: weight is too big
- Err04: exceed zero range
- Err05: less than zero range
- Err12: parameter is not correctly set
- Err20: calibration error
- Err30: inner code is too big
- CAP: capacity
- UOL.: voltage
- UNIT: measuring units
- UnLoAd: no loading
- LoAd: load weight
- INPLd: input loaded weight value

10. Troubleshooting

10.1 Troubleshooting

SYMPTOM	PROBABLE CAUSE	REMEDY
<i>Err01</i>	Weight reading exceeds the overload limit or the weight value cannot be displayed in the current unit of measure.	Reduce load on scale until weight value can be displayed, or use an alternate unit of measure.
<i>Err04</i>	Weight exceeds Power On Zero limit (+10%), or over ZERO key range (+10%).	Make sure scale platform is empty. Power off scale and power on again. Perform zero calibration.
<i>Err05</i>	Weight is below Power On Zero limit (-5%) or below ZERO key range (-5%).	Install platform on scale. Perform zero calibration.
<i>Err30</i>	Load cell wires to indicator are incorrectly connected, shorted, or open; or ADC, load cell are damaged.	Make sure wires are correctly connected. Service required to replace load cell or ADC chip.
<i>Err10</i>	EEPROM is damaged.	Service required to replace main EEPROM IC chip.
<i>Err12</i>	Setup parameters are not set, not correctly set, or settings have been lost.	Re-set parameters. Perform calibration.
<i>Err20</i>	Calibration error. Input data or loaded weight is too small, too large, unstable, or not linear.	Input correct data, load correct weight onto platform, or service is required.
Will not power on	Power cord not plugged in or properly connected. Power outlet not supplying electricity. Battery discharged. Other failure.	Check power cord connections. Make sure power cord is plugged into the power outlet. Check power source. Replace batteries. Or service required.
Unable to zero the display or will not zero when turned on	Load on scale exceeds allowable limits. Load on scale is not stable. Load cell damage.	Remove load on scale. Wait for load to become stable. Service required.
Lo.bAt is shown	Battery is discharged	Charge battery

10.2 Battery and Charging

Power is supplied by an internal rechargeable 6V lead-acid battery (4Ah). When “**Lo.bAt**” is displayed, the battery must be recharged. Plug in the AC power adapter to recharge the battery. The scale may continue to be used on AC power during charging. Full charging time is approximately 10-12 hours.

Battery life and recharge time will vary with use. Over time, the operating time per each full charge will degrade. If the operating time is no longer acceptable, the battery must be replaced. When storing the scale for extended periods, the battery must be charged every 90 days to avoid premature performance degradation.