WorldWEIGH

Technical Manual

BWS
Platform Scales

CONTENTS

PRECAUTIONS

	⚠ **WARNING**
	DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, CLEANING, OR SERVICING. FAILURE TO DO SO COULD RESULT IN BODILY HARM OR DAMAGE THE UNIT.

⚠ **CAUTION**
• **Permit only qualified persons to service the instrument**   • **Before connecting or disconnecting any components, remove the power.**   • **Failure to observe these precautions bodily harm or damage to or destruction of the equipment.**

⚠
- The platform scales is a precision electronic instrument, handle it carefully.
- Do not install the scale in direct sunlight.
- Verify the local voltage and receptacle type are correct for the scale.
- Only use original adaptor, other could cause damage to the scale.
- Pluggable equipment must be installed near an easily accessible socket outlet.
- Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.
- Avoid sudden temperature changes, vibration, wind and water.
- Avoid heavy RF noise.
- Keep the indicator clean

1. SPECIFICATION
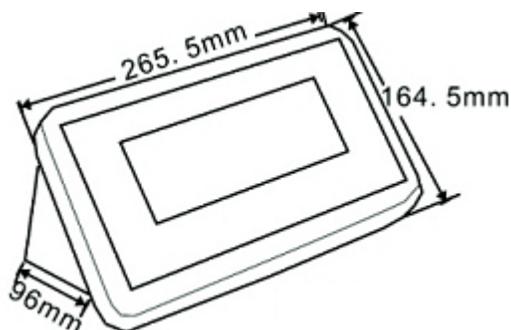
Model	BWS	BWS-E
Display	52mm LCD	1.2" LED
Housing	SST	
Operating Temperature	-10°C - 40°C / 14°F - 104°F	
Resolution	1/6000 (OIML Approved)	
Key Pad	7 Keys	
Power	AC Adaptor (12V/500mA)/ Battery (6V/4Ah)	
Calibration	Automatic External	
Interface	RS-232 Output Optional	
Load cell drive Voltage	Max: 5V/150mA	
Load Cells	Up to 4 load cell	
ADC	Sigma Delta	
ADC Update	≤1/10 second	
Stabilization Time	One seconds typical	

2. INTRODUCTION

➢ The BWS series platform scales that amplifies signals from a load cell, converts it to digital data and displays it as a mass value.

➢ It is suitable for general weighing or more specialized applications such as check weighing, animal weighing and accumulation applications.

➢ It can connect the indicator to a printer or a PC.

➢ Large LCD with white LED back light displays

3. INSTALLATION

Unpacking

When you receive the scale, inspect it to make sure that it is not damaged and that all are parts are included:
- Remove the Indicator from the carton.
- Remove the protective covering. Store the packaging and to use if you need to transport the scale later.
- Inspect the indicator for damage.
- Make sure all components are included.
  1. Indicator
  2. Adaptor
  3. Manual
  4. Indicator holder (Optional)
  5. Load cell Output connecter (Optional)
  6. RS-232 Output Connecter (Optional)

Parts Description

Installation

- Place the Indicator on a table or use indicator holder to connect with stand.
- Connect the plat form load cell cable in to the indicator load cell connecter. Load cell connecter is locating back side of the indicator.

- Connect the adaptor pin in to the indicator adaptor jack.
  Adaptor jack is locating, back side of the indicator.
- Adaptor connects into your AC power socket.
  Pluggable equipment must be installed near an easily accessible socket outlet with a protective ground/ earth contact.
- Turn on the On/Off key. If you want to turn off, press the key again.
- Display will be show the scale capacity and will be starting self checking.
- After self checking, display will be come to normal weighing mode.
- Warm-up time of 15 minutes stabilizes the measured values after switching on.
- Calibrate with exact calibration weights, minimum 1/3 of the scale capacity want to use for calibration. For calibration see details in parameter.

Then you can start your operation

4. KEYS DESCRIPTION

Key Board
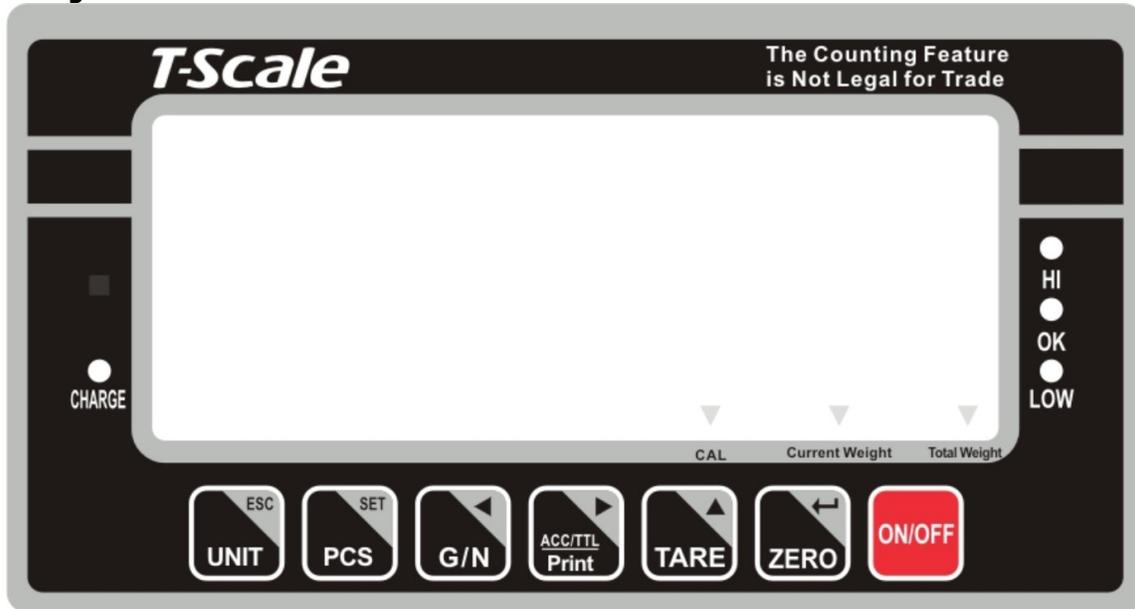
Keys	Description
ON/OFF	Power turn ON/OFF
ZERO	Set the Zero Display
TARE	To perform a tare function, Subtracts weights.
ACC/TTL Print	Accumulator key, current values will store to the memory, To send the data to printer or PC
G/N	Shift to Gross / Net Weight.
PCS	Counting
UNIT	To change the unit

Secondary functions of the keys

Function	Keys
To confirm the selected menu	ZERO
To change the menu and active digit	TARE
To move the active digit to right	ACC/TTL Print
To move the active digit to left	G/N
To enter in to the menu	SET PCS
Escape from the menu to normal operation.	ESC UNIT

5. OPERATION

Initial Start-up

Warm-up time of 15 minutes stabilizes the measured values after switching on.

5.1. Basic Operation

1. **Power On/Off:**
   Switch on the balance by pressing on/ off key.
   The display is switched on and the test is started and if want to switched off, press again the key.

2. **Zero**
   Environmental conditions can lead to the balance exactly zero in spite of the platform not taking any strain. However, you can set the display of

   your balance to zero any time by pressing **ZERO** key and therefore ensure that the weighing starts at zero.

3. **Tare**

   The weight of any container can be tared by pressing **TARE** button so that with subsequent weighing the net weight of the object being weighed is always displayed.
   - Load weight on the platform.

   - Press **TARE** key. Zero is displayed, and tare is subtracted.
   - Remove weight on the platform. Tared weight is displayed. It can set only one tare value. It will be shown with a minus value.
   - Press G/N to change between gross weight and net weight.

   - To clear the tare value, remove the load and press **TARE** key. Zero is displayed, tare weight is cleared.

4. **Select Unit and Sampling operation**

   Press **UNIT** key, it can change unit and sampling operation.

5.2. Check Weighing

It can set an upper or lower limit when weighing with the limits range.
During the limit controls dividing the unit will indicate whether a value
upper or lower limits with an alarm sound .

5.2.1. Set Limits

- Press [UNIT] and [PCS] key together, display will be show **set h.**

- Press [TARE] key to select **set h** or **set l**

- Press [ZERO] key to confirm, display will show **00000** and will blink the last digit.

- Enter the high limit value by using [G/N] and [ACC/TTL Print] keys to change the active digits and press [TARE] key to increment the value.

- Press [ZERO] key to confirm, display will show **set l**

- Enter the high limit value by using [G/N] and [ACC/TTL Print] keys to change the active digits and press [TARE] key to increment the value.

- Press [ZERO] key to confirm.

- To escape from the settings press [UNIT] key.

5.2.2. Set Check Weighing

- Press [UNIT] and [PCS] key together, display will be show **set h.**

- Press [TARE] key to select display **beep.**

- Press [ZERO] key to confirm, display will be shown **none** or **ok** or **ng**

- **Check mode none** : No beep sound in the limits. Function turned off.

- **Check mode ok :** When the weight is between the limits. OK will shown

and beeper will be sounded.

- **Check mode ng :** When the weight is out of the limits, the beeper will be sounded and OK will shown.

Note: Check weighing available only when weight more than 20d

5.3. Accumulation

The scale can be set to accumulate manually by pressing key. For settings, see the parameter **p 1 Com » mode »   pr 2**
Before operation scale should be stable and return to zero, accumulation available only when weight more than 20d

Accumulation Operation

- Place the load on the platform.
- Press key, when displayed STABLE indication.
- Display will be show **acc 1** then will be show the total saved value. These displays will be shown only three seconds.
- Remove the weight from the pan.
- When display get zero and stable then place the second weight.
- It can continue until the memory gets fully or 99 items.

5.3.1 Memory Recall

To recall the memory press key.

Display will be show **acc X** (X: Total number of accumulation) then will be show the total saved value. These displays will be shown only three seconds.

5.3.2. Memory Clear

To clear the memory, press and keys together.

Display will be show **Acc 0** , all accumulation memory cleared from the memory.

5.3.3. Automatically accumulation.

The scale can be set to accumulate automatically. For settings, see the parameter **p 1 Com » mode »   auto**

<u>Automatic Accumulation Operation</u>

- Place the load on the platform.
- When display gets STABLE indication, display will be show **acc 1** then will be show the total saved value. These displays will be shown only three seconds.
- Remove the weight from the pan.
- When display get zero and stable then place the second weight.
- It can continue until the memory gets fully or 99 items.

5.4. Parts Counting

To enter the parts counting, press ![ESC/UNIT] key and select until display will be show **p 10**

Press ![TARE] to change the parts quantity.
Options: **p10** / **p 20** / **p 50** / **p100** / **p 200**

<u>Parts Counting Operation</u>

- Select the parts quantity as per the option
- Place the load on the platform

- Press ![ZERO] key to confirm, display will be shown ---- then will show the quantity
- Then can add goods on the platform, display will update the parts quantity automatically

Press ![ESC/UNIT] key back to the weighing mode..

5.5. Animal Weighing

BWS can use for vibrate loads weigh. This function can use for animal weighing. For settings, see the parameter **p 3 oth » anm**

Bring the load on the platform, when the load few seconds get stable, the reading will be locked for few seconds.
It can add or remove loads also update the weighing locked values.

To enter or exit animal weighing mode, press ![SET PCS] key until HOLD indicator will be displayed or not..

When in animal weighing mode **HOLD** indicator will be displayed.

5.6. Keyboard Lock

It can set lock key board, for settings, see the parameter **p 3 oth » lock**

When the keys are not using with in 10 minutes, the keys will be lock automatically.

After entering into the lock function, when we press the keys display will be show **k-lok.** Then will come to normal display.

If want to unlock and want to use the keys press and hold ![SET PCS] , ![ACC/TTL Print] and

![ZERO] keys three seconds. Display will be show **u lck** Then will come to normal display

5.7. Set auto power off

It can set auto power of the scale, when scale not in use, scale will turn off after the setting time.

- Hold ![ZERO] key three seconds display will show **setbl**

- Press ![TARE] key to change **Set of** and press ![ZERO] key to confirm

- Press ![TARE] key to change the options.

Set of	off	To set auto off function turn off, for scale always on
	Of 5	Set to turn off five minutes later
	Of 15	Set to turn off fifteen minutes later

- After select the auto off option press ![ZERO] key to confirm and press ![ESC UNIT] key to escape from the settings.

5.8. Set Back Light

It can set back light when scale in use.

- Hold ![ZERO] key three seconds display will show **setbl**

- Press ![ZERO] key to confirm

setbl	au	To set auto option. When start to use back light will be on and when stop the operation back light also will off.
	on	To set always on. After turn on the power, back light also will be on.
	off	To set back light turn off. No back light in the operations

- After select the back light option press ![ZERO] key to confirm and press ![UNIT] key to escape from the settings.

6. PARAMETERS

To set parameter, turn on the scale.

- Press [Hi Resolution SET] key during the self checking.
- Display will be show **pn**
- Press [G/N], [UNIT ESC] and [TARE] to enter, display will be show **po chk**

Menu	Sub Menu		Description
P 0 chk	Set H		Set high limits for check weighing
	Set lo		Set low limits for check weighing
	beep	No	No beep for check weighing
		Ok	Beep, when check weighing between the limits
		ng	Beep, when check weighing out of the limits
P 1 com	Mode		**This option is used to set accumulation and RS-232 communication** Options: **Cont** : data send continues **St 1** : Send data one time, when stable. **St c** : Send data continuously, when stable **P r1** : Send data one time, when press print Key (in printer mode) **Pr 2** : Send data to print and accumulation, When press [ACC/TTL Print] key **Auto** : Auto accumulate and auto print mode. When weight stable and return to zero. **Ask** : Ask mode, Command R: read data Command T: Tare Command Z: Zero **Wireles**: Wireless mode (communication through wireless) **KIT 1** :
	Baud		To set the baud rate. Options:

			600 / 1200 / 2400 / 4800 / 9600		
	Pr		To set the parity Options: **7 e1 / 7 o1 / 8 n1**		
	Ptype		To set printer model Options: **TM220** : set the Tscale printer tm220 **Lp50** : Set the Tscale printer LP-50 **TM295** : set the Tscale printer tm295		
	LAB				
P 2 mod	**Si g r**	**To select single range operation**			
		Count	To check internal counts		
		Deci	To set decimal points		
		Div	To set increment		
		Cap	Set Capacity		
		Cal	Calibration		
		gra	Gravity		
	Dual 1	**To select dual range - mode 1** Note: Once active second interval (div 2), Then second interval will work until display return to zero			
		Count	To check internal counts		
		Deci	To set decimal points		
		Div	**Di v 1**	**To select first division**	
			Di v 2	**To select second division**	
		Cap	**Cap 1**	**To select first capacity**	
			Cap 2	**To select second capacity**	
		Cal	Calibration		
		gra	Gravity		
	Dual 2	**To select dual interval - mode 2** **Note:** First interval will active in CAP 1 Second interval will active in CAP 2			
		Count	To check internal counts		
		Deci	To set decimal points		
		Div	**Di v 1**	**To select first division**	
			Di v 2	**To select second division**	
		Cap	**Cap 1**	**To select first capacity**	
			Cap 2	**To select second capacity**	
		Cal	Calibration		
		gra	Gravity		
P3 oth	**Lock**		To set keypad lock		

		Options: **on / off**
	anm	To set animal mode.
		Options: **on / off**
P4 S T	**ST ON**	
	ST OFF	
P5 CLR	**CLRCAL**	Clear the calibration record
	CLROPT	Clear the parameter modification record

7. CALIBRATION

To set calibration, turn on the scale.

- Press ⬛ key during the self checking.
- Display will be show **pn**
- Press ⬛ , ⬛ and ⬛ to enter, display will be show **po chk**
- Press ⬛ until display will be show **p 2 mod.**(These is a switch on the main board you need to press it then can into the parameter)
- Press ⬛ key to confirm and press ⬛ to select **sigr /dual 1 /dual 2**
- Press ⬛ key to confirm and press ⬛ to select **cal**
- Press ⬛ key to confirm

Calibration   Cal

- Press ⬛ key to enter calibration, display will be show   unld
- Remove all the weight from the platform.
- When indicator get stable, press ⬛ key to confirm.
- Display will be show the last calibration weight. If want to change the calibration weight value, press ⬛ and ⬛ keys to change the active digits and press ⬛ key to increment the value.
- When the calibration value is correct, press ⬛ key to confirm.

- Display will be show   load
- Place the calibration weight on the platform.

- When indicator get stable, press ⬛ZERO key to confirm.
- Display will com to normal weighing mode

8. RS-232 OUTPUT

8.1. Specifications:

RS-232 output of weighing data
Code   : ASCII
Data bits   : 8 data bits
Parity   :No Parity
Baud rate   : 600bps to 9600bps selectable

8.2. RS-232 (9pin D type connector)

Pin 2	RXD	Input	Receiving data
Pin 3	TXD	Output	Transmission data
Pin 5	GND	—	Signal ground

9pin D Connecter:

Indicator	**Computer**
Pin 2:	Pin 3
Pin 3:	Pin 2
Pin 5:	Pin 5

Check Weighing Output

Pin 1 : VB
Pin 4: Vcc 5v (Output)
Pin 5: Com (Ground)
Pin 6: Ok (Output)
Pin 7: Low (Output)
Pin 8: Hi (Output)
Pin 9: Beep (Output)

8. 3. Continuously output protocol

Weighing mode

		,		-/⊔						k	g	CR	LF

HEADER1-- | - HEADER2- | --- WEIGHT DATA -- | -WEIGHT UNIT- | TERMINATOR

Counting mode

P	C	S	:							⊔	p	c	s	CR	LF

- QTY - | -QTY UNIT-

HEADER1: ST=STABLE, US=UNSTABLE

HEADER2: NT=NET, GS=GROSS

Con2:

Header0	Header1	Header2	Header3	Weight1	Weight2	Weight3	Weight4	Weight5	Weight6	Tare1	Tare2	Tare3	Tare4	Tare5	Tare6	Terminator1	Terminator2

Header0=02H
Header1 follow decimal point
Decimal point=0, header1=22H
Decimal point=1, header1=23H
Decimal point=2, header1=24H
Decimal point=3, header1=25H
Decimal point=4, header1=26H
Header2 follow weigh status, default value=20H
If in net mode (tare value not 0), header2=header2|01H
If gross weight "-", header2=header2|02H
If overload or gross weight "-", header2=header2|04H
If unstable, header2=header2|08H
If weighing unit=kg, header2=header2|10H
Header3 follow weighing unit
If weighing unit=g, header3=21H
If weighing unit=oz, header3=23H
Weight1~weight6: weighing data
Tare1~tare6: tare value
Terminator1: 0DH
Terminator2: 0AH

Con3:

Header0	Header1	Weight1	Weight2	Weight3	Weight4	Weight5	Weight6	Weight7	Unit1	Unit2	Status	Terminator1	Terminator2

Header0=01H
Header1 follow weight "+" or "-"
When weight "+", header1="+", when weight "-", header="-"
Weight1~weight7: weight data (include decimal point)
Unit1~unit2: weight unit
Status: when stable, status=0, when unstable, status=1

Terminator1: 0DH
Terminator2: 0AH

9. DRAWING

9.1. Drawing
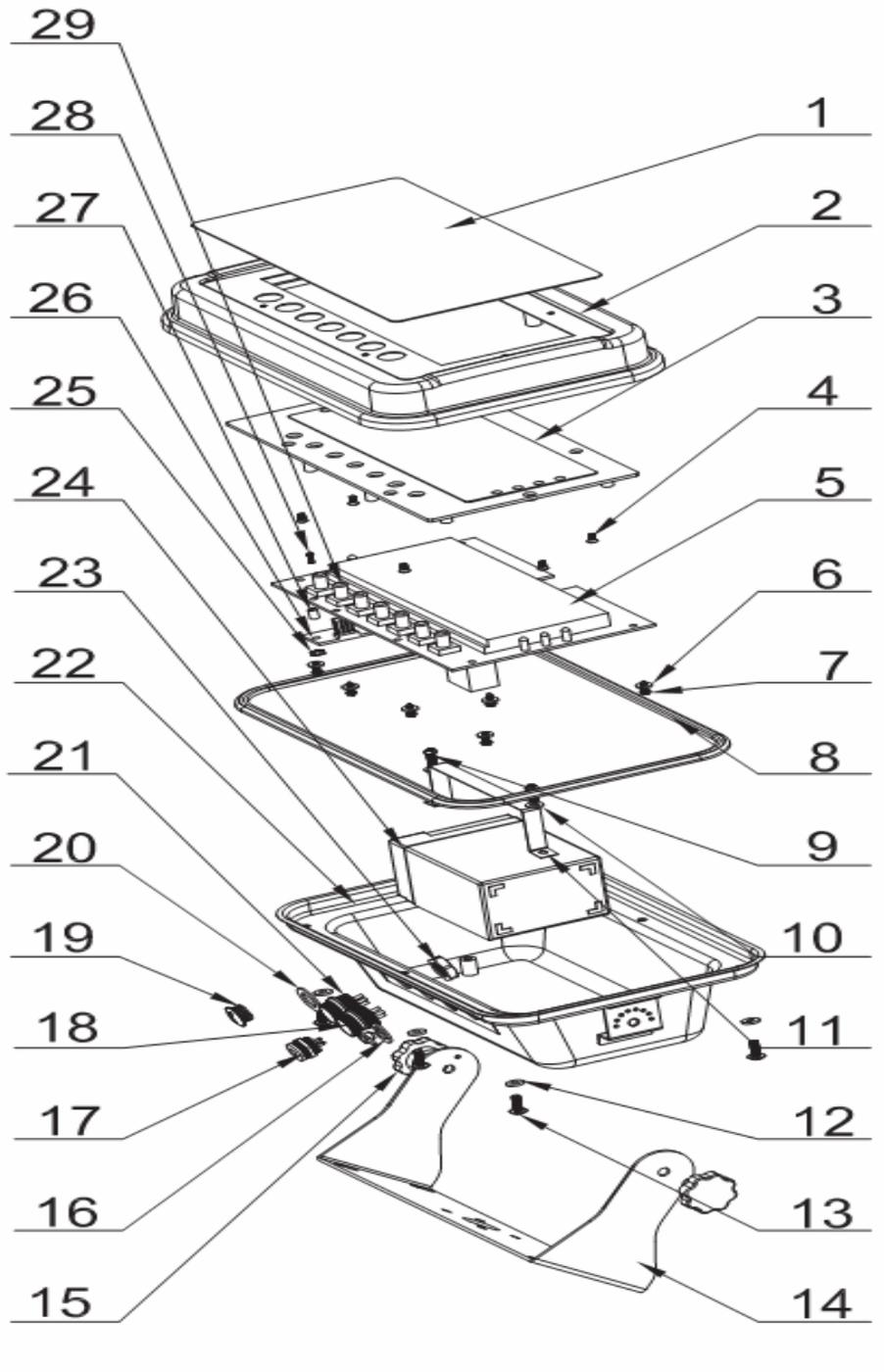
9.2. Parts List

No	Parts	Qty	Spec
1	Key Panel	1	

2	Front Cover	1	
3	Display Protection Plate	1	
4	Nut	6	M3*6
5	Main PCBA	1	
6	Washer	6	8x3.1x1.5
7	Star (+) Self Thread screw	6	M3x8
8	Water Proof Rubber Bar	1	
9	Star (+) Screw	2	M4x10
10	Washer	2	M4
11	Battery Clamp	1	
12	Washer	6	M4
13	Star (+) Big head Screw	6	M4x12
14	Bracket	1	
15	Bracket Screw	2	
16	Water Proof Adaptor jack	1	
17	Interface Module	1	
18	Air connecter	1	5Pin
19	Plug	1	
20	Rubber Spacer	3	
21	Air Connecter	1	7Pin
22	Back Cover	1	
23	Air Connecter Water Proof Nut	1	
24	Battery	1	6V/4Ah
25	Nut	1	M3x6
26	Main Serial board	1	
27	Spacer	1	
28	Star (+) Screw	1	3Mx20
29	Micro Switch Cap	7	