@Weigh BW/BWS Series

Trade Approved Version

NMI: S520

Weighing Indicator

User's guide

Table of Contents

SECTION 1 INTRODUCTION

The BW/VW/BWS series of weighing indicator provides an accurate, fast and versatile series of general purpose weighing scale with check-weighing functions.

All the displays are large easy to read liquid crystal type displays (LCD). The LCD's are supplied with a LED backlight.

All units include automatic zero tracking, audible alarm for pre-set weights, and an accumulation facility that allows the individual weights to be stored and recalled as an accumulated total.

SECTION 2 SPECIFICATIONS

Model	BW/BWS
Resolution	1:6,000
Interface	RS-232 Output
Stabilisation Time	1 Seconds typical
Operating Temperature	-10°C - 40°C /
Power supply	External AC adapter, 9V 800mA
Calibration	Automatic External
Display	$5^1/_2$ digits LCD display with 52mm high digits, attached LED backlight
Balance Housing	Indicator ABS Plastic / Stainless Steel
Load cell drive voltage	Max 5V/150mA
Load cells	Up to four 350 ohms cells

SECTION 3 INSTALLATION

3. 1 GENERAL INSTALLATION

The scales should be sited in a location that will not degrade the accuracy.

Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.

Avoid unsuitable tables. The tables or floor must be rigid and not vibrate. Do not place near vibrating machinery.

Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.

Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.

Keep the indicator clean.

3. 2 INSTALLATION OF BW/BWS SERIES

The pillar is attached to the base using a bracket that must first be attached to the base frame using the 4 bolts supplied.   The Pillar is secured to the bracket using 2 set screws.   The cable from the base to the indicator module is run through the tube, out through the plastic support at the top.   Excess cable can be stored within the tube.

Attach the AC power adapter to the connector on the back of the indicator.

3. 3 PORT CONNECT
3.3.1 port locatoin
BW (rear side)
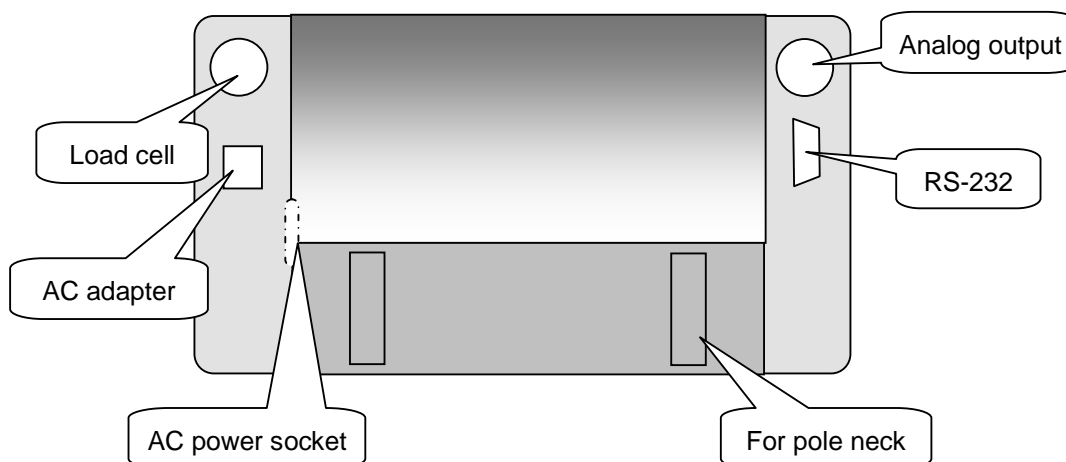
3.3.2 load cell port
Load cell connect as below(7pin air connecter)
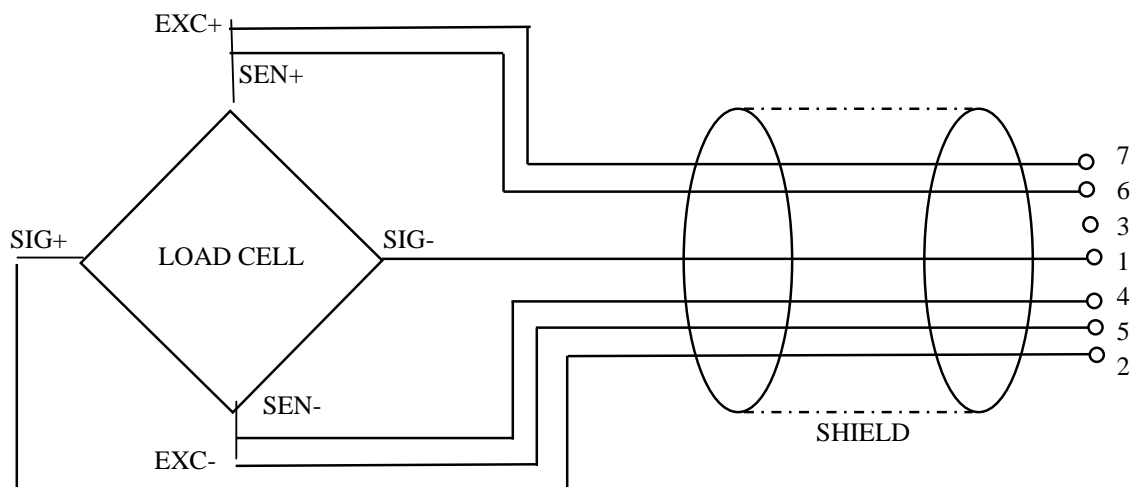
3.3.3 RS-232
RS-232 (9pin D type connector)
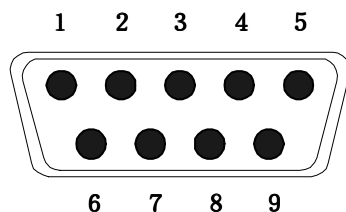
2	RXD	Input	Receiving data
3	TXD	Output	Transmission data
4	VCC	—	Signal　+5 V
5	GND	—	Signal　ground

3.3.4 Blue tooth
　　 BW/BWS series indicator has a option of blue tooth. When the indicator installs a blue tooth mould, it could be used as a suppositional serial interface. The distance is 10m.

　　 When a Notebook, PC or PDA has the blue tooth function, The BW/BWS indicator could be found and connected via the blue tooth, The default password: 1234. After connecting, the weighing data could be transferred to the Notebook, PC or PDA.

The connect status could be checked though the super terminal of the PC. The blue tooth parameter is set as following:

Baud rate: 9600
Parity: none
Byte size: 8
Stop bits: 1
TRS: comNone

SECTION 4 KEY DESCRIPTIONS

ON/ OFF or (|)
Turn on or off the power.

Zero
Set the zero point for all subsequent weighing. The display shows zero.
A secondary function of "Enter" key when setting parameters or other functions.

Tare
Tares the scale. Stores the current weight in memory as a tare value, subtracts the tare value from the weight and shows the results.
A secondary function incrementing the active digit when setting a value for parameters or other functions.

Press **Zero** and **Tare** key together in normal weighing mode will turn on/off animal scale function.(when enter/escape animal scale mode, you will hear beeper on twice)

MR
Memory recall key, show total accumulate weight in memory.
In setting mode, this key used to move active digits right.

M+
Accumulate key, store current weight in memory.
In setting mode, this key used to move active digits left.

Press **M+** and **MR** key for MC (memory clear)

Print
To print the results to a PC or printer using the optional RS-232 interface.
Press Print during self checking will enter setting mode.

G/N
Gross weight/net weight shift key
Secondary function (ESC) , is to return to normal operation when the scale is in a parameter setting mode.

Press **G/N** and **Print** key together for setting check Weighing limit.

SECTION 5 DISPLAYS

The LCD display will show a value and a unit to the right of the digits.
In addition there are labels for TARE, GROSS weight, Zero and for Low battery

Battery low

Weighing unit

Check Weighing
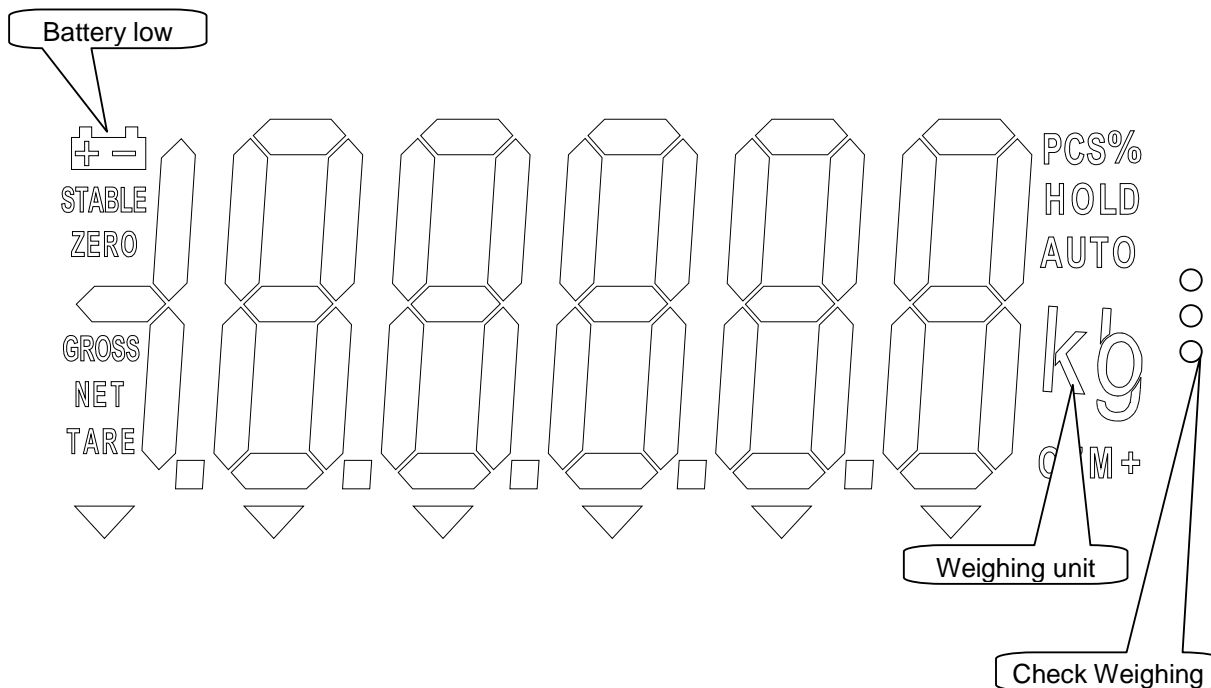
SECTION 6 OPERATION

6.1 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 +/-2% 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.

The scale has an automatic re zeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press the ZERO key to rezero the scale if small amounts of weight are shown when the platform is empty.

6.2 Taring

Zero the scale by pressing the ZERO key if necessary. 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.

6.3 Weighing a sample

To determine the weight of a sample 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.

6.4 Check-Weighing

6.4.1 About check-weighing

Check-weighing is a procedure to cause an alarm to sound when the weight on the scale meets or exceeds values stored in memory. The memory holds values for a high limit and a low limit.

Check mode OK:
When check range, the display will show OK and the beeper will sound when the weight is between the limits.
Check mode NG:
When check range, the display will show OK and the beeper will sound when the weight is out of the limits.

6.4.2 Set limits
Press **G/N** and **PRINT** key together, it will display "set h", use **TARE** key to select "SET H" or "SET L", press **ZERO** key to enter, use **M+** and **MR** key to move active digit, use **TARE** key to change value, use **Print** key to clear value. After you enter the value, press **ZERO** key to sure, press **G/N** key to escape.

6.4.3 Set check weighing mode
Press G/N and print key together, it will display "set h", use **TARE** key to select beep, press **ZERO** key to enter, press **TARE** key to select ok(check mode OK), ng (check mode NG), no(no beep), press **ZERO** key to sure, press **G/N** key to escape.

6.4.4 NOTE

Check weighing function only available when weight more than 20d (min).

To disable the Check-Weighing function enter zero into both limits by pressing the **PRINT** key when the current limits are shown then pressing **ZERO** to store the zero values.

6.5 Accumulated Total

6.5.1 Note
The scale can be set to accumulate manually by pressing the **M+** key. See the PARAMETERS Section for details of selecting the method using function "P2 com".

Please note before every accumulate operate, scale need return to zero, and only press **M+** key when stable, when weight less than 20d, accumulate operate will be invalid.

6.5.2 Accumulate operate
The weight displayed will be stored in memory when the **M+** key is pressed and the weight is stable.

The display will show "ACC 1" and then the total in memory for 2 seconds before returning to normal. (after do accumulate operate, "M+" indicator will turn on) If the optional RS-232 interface is installed the weight will be output to a printer or PC.

Remove the weight, allowing the scale to return to zero and put a second weight on. Press the **M+** key, the display will show "ACC   2" and then the new total.

Continue until all weights have been added.

6.5.3 memory recall
To view the totals in memory press **MR** key.

6.5.4 memory clear
To clear the memory, just press **M+** and **MR** together

6.5.5 automatically accumulate
Press Print key during self checking, enter setting mode, press Tare key until display show `P32COM`, press **ZERO** key to enter, press **TARE** key to select "`mode`", press **ZERO** key to sure, display will show current RS-232 mode, press TARE key to select `Auto`. After you set, AUTO indicator on.

Press weight on platform, after stable, you will hear beep on twice, you can add or remote weight now, scale will beep on again after stable, at last, remove all weight on platform, the last weight value will store in memory

6.6 Animal Scales

Let the animal on the platform, after some second, if reading data change not a lot, you can hear beep sound and reading data will be locked.

In reading data lock mode, if you add/remove big weight, display will still update and lock new reading data.

You can press **ZERO** **TARE** together to enter/escape animal weighing mode.

6.7 Keyboard lock

You can use keyboard lock when this function enable (see detail setting process in section 7), after keyboard haven't use for 10 minutes, keyboard will be lock, after enter lock status, if you press any key, display will show "`K-LCK`".

If you want to escape lock mode and return work mode, hold **PRINT** , **MR** , **ZERO** key 2 seconds, display will show "`ULCK`", return normal mode.

6. 8 set backlight

Hold **ZERO** key 3 second, display will show "`setbl` ", press **ZERO** key to enter backlight setting, press **TARE** key to change backlight mode (`BL ON`: always on, `BL AU`: auto backlight, backlight will on when press any key or add load on scale, `BLOFF`: backlight always off), press **ZERO** key to sure, press **G/N** key to escape.

6.9 set auto power off

Hold **ZERO** key 3 second, display will show "setbl ", press **TARE** key, display show "setoff", press **ZERO** key to enter auto power off setting, press **TARE** key to change auto power off time (of ON: always on, of 5: auto power off after standby 5 minutes, of 15: auto power off after standby 15 minutes), press **ZERO** key to sure, press **G/N** key to escape.

SECTION 7 PARAMETERS

If the user wants to enter the calibration mode, the jumper K1 on the main board must be short.

The scale has 5 parameters that can be set by the user plus a method of entering the calibration section.

To set parameters press the **PRINT** key during self checking, display will show `pn` (ask password), press **M+**, **G/N**, **TARE** to enter.

The display will show the first function, `"p0 chk"`.
Pressing the **TARE** key will cycle through the other functions.
Pressing **ZERO** will allow you to set the function. It may be necessary to either use **TARE** or set a value using the **M+** **MR** key to move the active digit and then using the **TARE** key to increment a digit, followed by the **ZERO** key to enter the value. Use the **G/N** key to leave a parameter unchanged.

For example when the display shows "`p0 chk`" press the **ZERO** key to begin.

The display will show "`Set Lo`", press the **ZERO** key to set the low limit, or press the **TARE** to skip to the next parameter, "`Set Hi`" for setting the high limit.

After pressing the **ZERO** key to set a limit, use the **M+** **MR** keys to change the flashing digit, then use the **TARE** key to increment the flashing digit. Continue to the next digit and set it as needed.

When all digits have been set press the **ZERO** key to store the value. The display will go back to the parameter just set, i.e. "`Set Lo`". Advance to another parameter if needed or press the **G/N** key to return to weighing.

Parameter setting table

function	Sub function	describe
P0 CHK	SET H	Set high limit, press **M+** **MR** key to move active digit, press **TARE** to change value, press **PRINT** key to clear data, press **ZERO** key to sure.
	SET LO	Set high limit, press **M+** **MR** key to move active digit, press **TARE** to change value, press **PRINT** key to clear data, press **ZERO** key to sure.
	BEEP	Set beep mode, `no`: no beep for check Weighing `OK`: beep when weight between hi and low (OK) `ng`: beep when weight out of hi-low range (NG)

P1 COM	MODE	This option is used to set RS-232 communication mode Options: CONT(continuously send) ST1: send one frame data after stable STC: send data continuously when stable PR1: when press print key, send one frame data (printer mode) PR2: when press M+ key, do print data and M+ at the same time AUTO: auto accumulate (auto print) mode, when weight stable and then return to zero, indicator will do accumulate and print operate automatically ASK: ask mode, bi-direction, Command R: read data Command T: tare Command Z: zero
	BAUD	This option is used to set baud rate Options: 600/1200/2400/4800/9600
	pr	This option is used to set parity verify Optional: 7E1/7O1/8N1
P2 CAL	COUNT	This display will show xxxxx for indicating the internal counts.
	DECI	This option is used to select the decimal Options : 0, 0.0, 0.00, 0.000, 0.0000
	Dual	This option is used to select the dual division. The you could set the division and capacity of the Range 1 and Range 2.
	CAL	Calibrate
P3 OTH	LOCK	Enable /disable key lock
	ANM	ON (animal scale) OFF(normal mode)

SECTION 8 BATTERY OPERATION

The weighing indicator can be operated from the battery if desired. The battery life is approximately 50 hours.

When the battery needs charging a symbol on the weight display will turn on. The battery should be charged when the symbol is on. The scale will still operate for about 10 hours after which it will automatically switch off to protect the battery.

To charge the battery simply plug into the mains power. The scale does not need to be turned on.

The battery should be charged for 12 hours for full capacity.

Just under the quantity display is an LED to indicate the status of battery charging. When the scale is plugged into the mains power the internal battery will be charged. If the LED is green the battery has a full charge. If it is Red the battery is nearly discharged and yellow indicates the battery is being charged.

As the battery is used it may fail to hold a full charge. If the battery life becomes unacceptable then contact your distributor.

SECTION 9 RS-232 OUTPUT

The BW/BWS Series of scales can be ordered with an optional RS-232 output.

9. 1 basic information
Specifications:

RS-232 output of weighing data
ASCII code
7/8 data bits
Parity settable
Baud rate from 600bps to 9600bps

Connector: 25 pin d-subminiature socket
    Pin 2:   Input,
    Pin 3:   Output
    Pin 5:   Signal Ground

9. 2 normal print out
Data Format for normal weighing operations, parts counting or recalling of totals from memory will all be different.   Examples follow:

Normal Output

S/N	The number increments every time a new value is stored in memory
GW	GW for gross weight, NT for net weight and a unit of weight
\<lf\>	
\<lf\>	Includes 2 line feeds

When recalling the Total weight stored in the accumulation memory the output format is:

***************		A line of stars is shown
\<lf\>		Includes 1 line feed
Total No:	3	Times of the accumulation memory
Total wt.:	0.447KG	Weight of the accumulation memory
***************		

9. 3 continuously output protocol
con1: weighing mode

		,			-/ ⎵						k	g	CR	LF

|-HEADER1--| |- HEADER2-| | --- WEIGHT   DATA -- | |-WEIGHT UNIT-| |TERMINATOR|
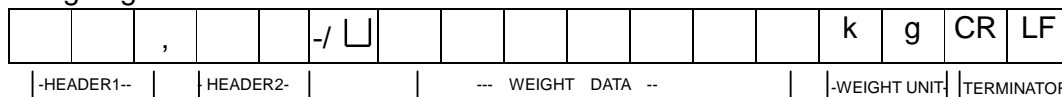
HEADER1: ST=STABLE ,   US=UNSTABLE

HEADER2: NT=NET ,   GS=GROSS

SECTION 10 CALIBRATION

Turn the power off.

Turn the power back on, during the counting from 9 to 0 press the **PRINT** key.

The display will show "pn " (ask password), press **M+**, **G/N**, **TARE** to enter.
The display will show the first function, "p0chk". , press **TARE** until display show P2 cal, press zero to enter, press Tare to select CAL, press **ZERO** key to enter calibrate. The display will show "unLd".

Remove any weight from the platform. After stable indicator on, press the **ZERO** key.

Then the display will show the last calibration weight used. If this is correct you can continue by pressing the **ZERO** key. If it is not correct use the **M+**, **MR**, **TARE** keys to change the calibration weight value. When it is correct press the **ZERO** key.

Then display will show "LoAd". Place the calibration weight on the scale. After stable, press the **ZERO** key.

If the calibration is acceptable the display will return to normal. If an error message is shown try calibration again as a disturbance may have prevented a successful calibration.

If the problem persists then contact your dealer.

After calibration the scale should be checked to verify the calibration and linearity is correct. If necessary repeat calibration, especially be certain the scale is stable before accepting any weight.

SECTION 11 ERROR CODES

ERROR CODES	DESCRIPTION	RESOLUTION
- - - - -	Over range	Remove weight from the scale. If the problem persist contact your dealer for assistance.
Err 4	Zero Setting Error	The scale was outside the normal zero setting range either when it was turned on or when the ZERO key was pressed. Remove weight from the scale and try again. Use the TARE key to set the display to zero value. If the problem persist contact your dealer for assistance.
Err 6	A/D out of range	The values from the A/D converter are outside the normal range. Remove weight from the scale if overloaded, make sure the pan is attached. Indicates the load cell or the electronics may be faulty. If the problem persist contact your dealer