

BOSCHE

Indicator **TWI**



User Manual

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1. INTRODUCTION

Please read the operating instructions carefully before erecting and commissioning, even if you already have experience with BOSCHE scales.

The TWI is a general purpose indicator for displaying weight.

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.

The Indicator could have (optional) a Bi-directional RS-232 Interface for communication with printer or PC.

2. TECHNICAL SPECIFICATIONS

Stabilisation Time	2 Seconds
Operating Temperature	0°C - 40°C
Operating Relative Humidity:	< 80% Non-condensing
Power supply (external)	internal rechargeable battery or main power 9 VDC, 800 mA, Akku 6V/4Ah
Battery operating time	40 hours / charging 12 hours
Calibration	Lockable keyboard calibration and configuration
Max. Resolution	External 1/15.000; Internal 1/100.000
Display	50 mm LCD Display with Backlight
Keyboard	7 Tact-Switch
Housing	ABS housing IP54
Interface (Optional)	RS232 or Serial printer output
Funktion	Weighing, Manual and automatic memory accumulation facility, Manual and automatic print, Automatic power off
Load cell sensitivity	1mV/V~3mV/V
Load cells	Up to 8 350ohms cells
AD Converter	Sigma delta, Max 60/sek.
Zero input range	0mv~5mV
Signal input range	0~15mV
Weight kg	3.8 kg

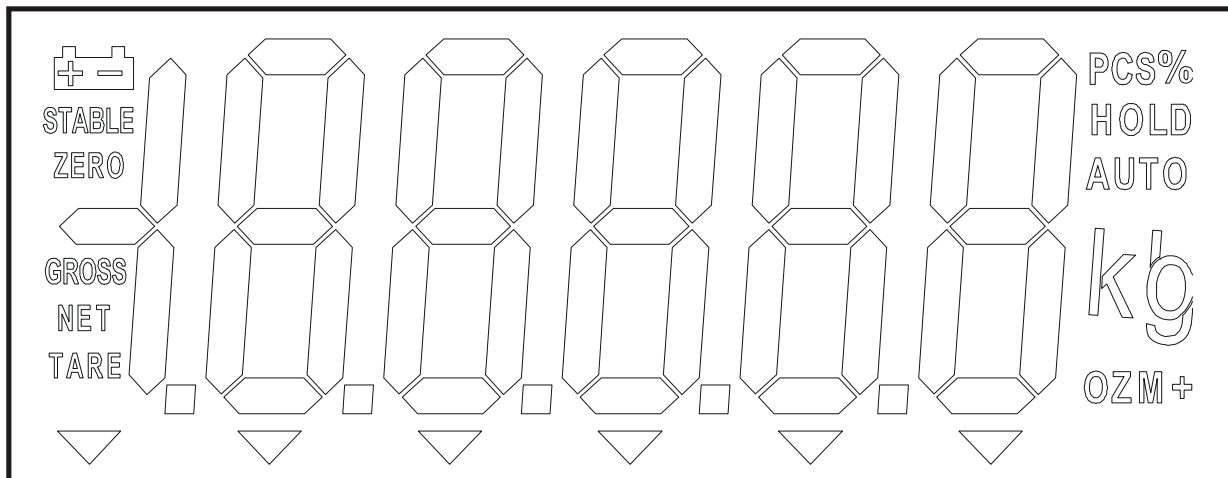
Standard accessories:

- Indicator with built in rechargeable battery
- Mains device (for operating the scale as well as for charging the built in rechargeable battery)
- Operating instructions

3. DISPLAY

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, Stable and for Low battery .



Battery needs charging

STABLE

The weight is stable - when the weight value is being displayed without fluctuation

ZERO

The scale is at zero

GROSS

Brutto

NET

Net

TARE

A weight has been tared, the display is showing the net weight.

PSC %

Parts counting mode is active.

PSC - Indicates that the number of sampled pieces is being displayed

AUTO

The automatic accumulation function is active



When weight is above the High setpoint



When weight is between the setpoints



When weight is below the High setpoint

kg lb

Shows actual unit of weight

M+

Accumulation function

Charge

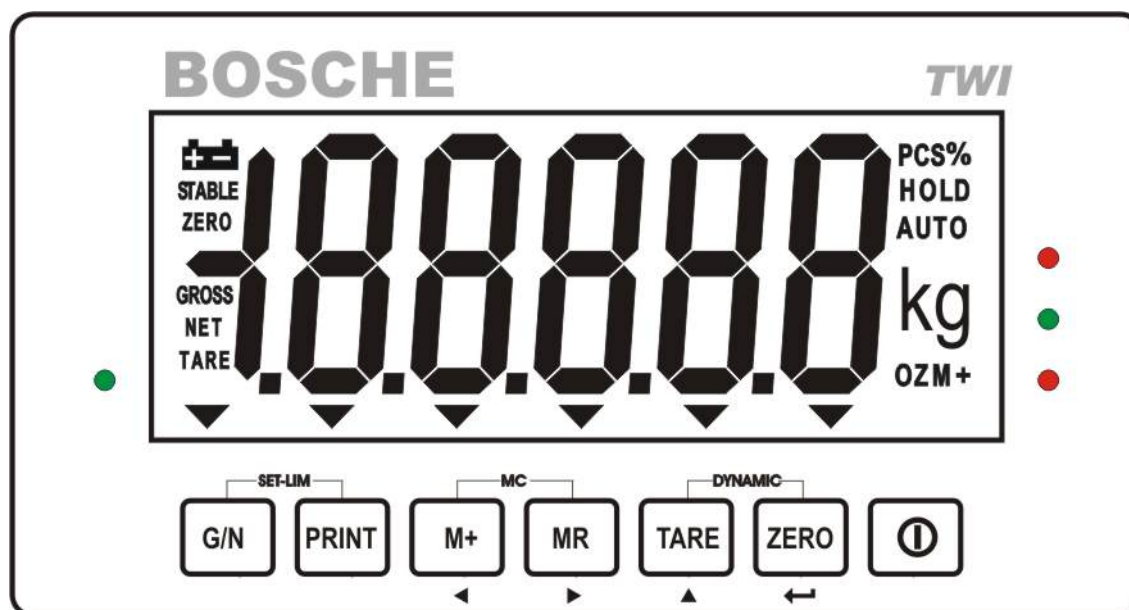
Indicate the status of battery charging.

Green the battery is fully charged.

Red, the battery is nearly discharged.

Yellow indicates the battery should be charged longer, preferably overnight.

4. KEYBOARD



	Normal mode		Setting mode
 Gross/Net	Gross weight/net weight shift key	Esc	A secondary function, is to return to normal operation when the scale is in a parameter setting mode.
 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.	C	Delete. In setting mode, this key used as delete key.
 M+	Accumulation - add current weight in memory. Up to 99 values or full capacity of the weight display can be added.	◀	In setting mode, this key used to move active digits left.
 MR	Memory recall key, show total accumulate weight in memory.	▶	In setting mode, this key used to move active digits right.
 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.
 Zero	Set the zero point for all subsequent weighing. The display shows zero.	↵ Enter	A secondary function of "Enter" key when setting parameters or other functions.
	Turn on or off the power.		

Setting check Weighing limit: Press and together.

MC (memory clear): Press and together

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

5. Fundamental information

5.1 INTENDED USE

The scale you have acquired serves to determine the weighing value of the material to be weighed. It is intended to be used as a “non-automatic” scale. i.e. the material to be weighed is manually and carefully placed in the centre of the weighing plate. The weighing value can be read off after a stable weighing value has been obtained.

5.2 INAPPROPRIATE USE

Do not use the scale for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation” in the scale. (Example: Slow draining off of liquid from a container suspended from the balance).

Do not leave a permanent load on the weighing plate. This can damage the measuring equipment. Be sure to avoid impact shock and overloading the balance in excess of the prescribed maximum load rating (max.), minus any possible tare weight that is already present. This could cause damage to the scale.

Never operate the balance in hazardous locations.

The series design is not explosion proof.

Structural alterations may not be made to the balance. This can lead to incorrect weighing results, faults concerning safety regulations as well as to destruction of the scale.

The scale may only be used in compliance with the described guidelines.

Varying areas of application/planned use must be approved by BOSCHE in writing.

Do not use the crane balance to transport loads.

5.3 GUARANTEE

BOSCHE offers Limited Warranty (Parts and Labour) for the components failed due to defects in materials or workmanship. Warranty starts from the date of delivery.

BOSCHE shall have the right to either repair the fault or supply a replacement unit. Repairs carried out under the warranty does not extend the warranty period.

The guarantee is not valid following:

- non-observation of our guidelines in the operating instructions
- use outside the described applications
- alteration to or opening of the device
- mechanical damage and damage caused by media, liquids
- natural wear and tear
- inappropriate erection or electric installation

5.4 MONITORING THE TEST SUBSTANCES

The metrology features of the balance and any possible available adjusting weight must be checked at regular intervals within the scope of quality assurance. For this purpose, the answerable user must define a suitable interval as well as the nature and scope of this check.

5.5 ACCEPTANCE CHECK

Please check the packaging immediately upon delivery and the device during unpacking for any visible signs of external damage.

5.6 PACKAGING

Please retain all parts of the original packaging in case it should be necessary to return items at any time. Only the original packaging should be used for return consignments.

Before despatch, disconnect all attached cables and loose/movable parts.

Apply any intended transport security devices. Secure all parts to prevent slipping and damage.

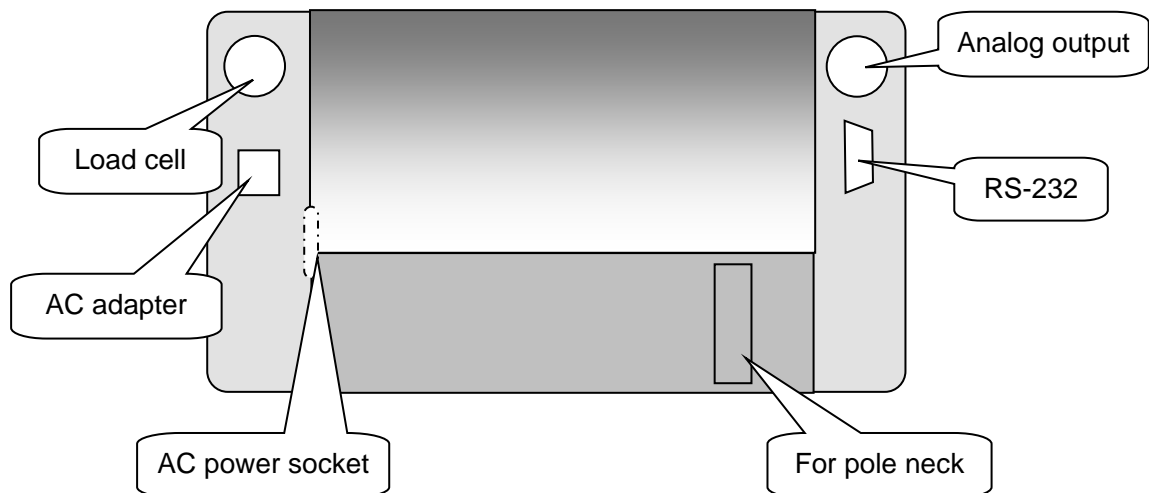
6. INSTALLATION

6.1 INSTALLATION OF TWI SERIES

6.1.1 Pillar

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 indicator module to the pillar by sliding it over the bracket with the flanges engaged in the grooves on the base. Attach the cable from the base to the connector on the rear of the indicator. Attach the AC power adapter to the connector on the back of the indicator.

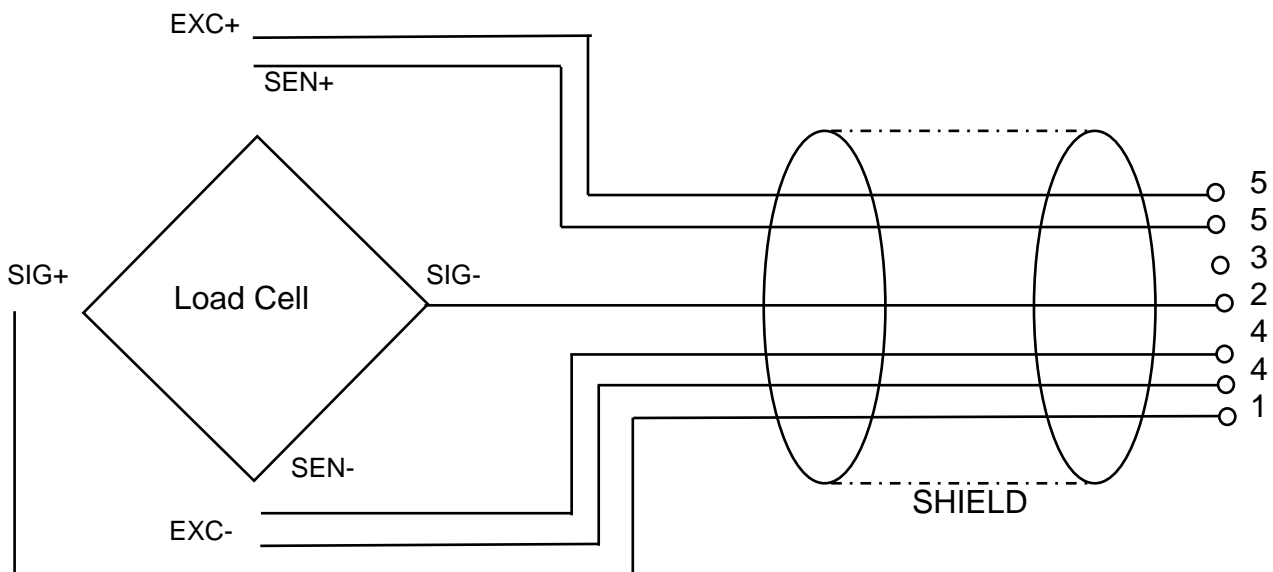


6.1.2 Load Cells

The TWI Indicator is a general purpose weighing indicator for use with strain gauge load cells. Up to 8 load cells (4 or 6-wired) of 350 ohm in parallel connection can be used.

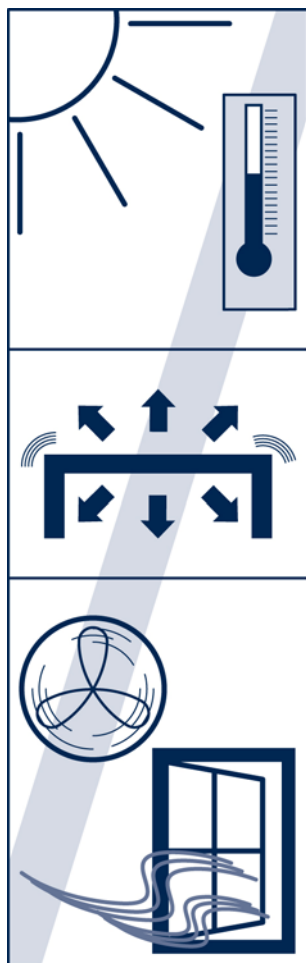
When the indicator is first connected to a load cell it is necessary to set up the indicator to display the correct information. To do this, first set up the capacity, resolution, decimal point location and then calibrate the scale.

Load cell connect as below (5pin air connector)



6.2 GENERAL INSTALLATION

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



- The scales should not be placed in a location that will reduce the accuracy.
- Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.
- Avoid unsuitable tables. The table or floor must be rigid and not vibrate.
- Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.
- Do not place near vibrating machinery.
- Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.
- Avoid air movement such as from fans or opening doors. Do not place near open windows or air-conditioning vents.
- If the scale is long time not in use, please charge every 3 month the battery.
- Keep the scales clean.
- Do not stack material on the scales when they are not in use.

Attention: ⇒ A warm-up time of 15 minutes stabilises the measured values after switching on.
 ⇒ Do not stack material on the scales when they are not in use.
 ⇒ Place the products in the middle of the scale.
 ⇒ Don't overload the scale.



6.3 SET BACKLIGHT

Press **ZERO** for 3 seconds, display will show "SEt bL", press **ZERO** key to enter backlight setting, press **TARE** key to change backlight mode:

BL AU ⇒ "Auto Backlight" mode. backlight will on when press any key or add load on scale. After 5 seconds turn the backlight off.

bl on ⇒ Backlight always on.


bl off ⇒ Backlight always off.

Press **ZERO** key to sure, press **G/N** key to escape.

6.4 KEYBOARD LOCK


You can use keyboard lock when this function enable. After keyboard haven't use for 10 minutes, keyboard will be lock, after enter lock status, if you press any key, display will show "H-LCH". If you want to escape lock mode and return work mode, hold **PRINT**, **MR**, **ZERO** key 2 seconds, display will show "ULCH", return normal mode.

7. WEIGHING

Switch the indicator on by pressing the  key. Next a self-test is followed. At the end of the self-test, it will display "0". The display shows *STABLE* - *9-055* - *2E-0* symbol. A warm-up time of 15 minutes stabilises the measured values after switching on. Once the weight display appears, the scale is ready for use. Place the products on the scale. The indicator will show the weight.


7.1 RESETTING THE SCALE TO ZERO

Environmental influences can cause the scale not to display exactly "0.00", even though the scale is empty.


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  to re-zero the scale if small amounts of weight are still shown when the platform is empty, and thereby be certain that all weighing operations begin at zero.

Switch the scale on.









If the scale not to display exactly "0.00", press 

Resetting to zero even when there is a weight on the scale is only possible within a certain weight range (-4 % ... +4 % of max. weight range).

If the scale cannot be reset to zero with a weight on it, this range was exceeded. By using  the scale can be reset to "0.00".

7.2 SET AUTO POWER OFF

Hold  key 3 seconds, display will show "SEt bL ". Press  key, display show "SEt oF". Press  key to enter auto power off setting. Press  key to change auto power off time (oF 0n: always on, oF 5: auto power off after standby 5 minutes, oF 15: auto power off after standby 15 minutes). Press  key to sure, press  key to escape.

7.3 SIMPLE WEIGHING

Place the products on the scale.



A value for its weight will be displayed.



Please do not add item that is over the maximum capacity. When reading "-OL-" and hear beeping sound, remove the item on the platter to avoid damage to the load cell.

7.4 TARE WEIGHING

The weight of any weighing container can be subtracted from the gross weight with the press of a key, so that subsequent weight measurements always display the item's net weight. Place the empty container on the platform. The total weight of the container and **9r055** 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.

Place the empty container on the platform.



The total weight of the container and **9r055** 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 the "**9r055**" will disappear.

Place the products in the container.




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.


Deleting Tara - To delete the stored tare weight, remove any weights from the balance and press the **TARE** key.

7.4 ACCUMULATED TOTAL - Totalising

The scale can be set to accumulate manually by pressing the  key. See the PARAMETERS Section for details of selecting the method using function "P2 c0i1".

7.4.1 Accumulate operate

The weight displayed will be stored in memory when the  key is pressed and the weight is stable. If the optional RS-232 interface is installed the weight will be output to a printer or PC. 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).

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

Continue until all weights have been added.

Press  key.




Buzzer "beeps". The display will show **ACC 1** and then the total in memory for 2 seconds.

Remove the weight, allowing the scale to return to zero and put a second weight on.

Press the  key again.



The display will show **ACC 2** for 2 seconds, etc. This can continue for up to 99 entries, or until the capacity of the display is exceeded.

More products can be added and  be pressed again. This can continue for up to 99 entries, or until the capacity of the display is exceeded. The indicator shows the total number of all individual parts "ACC HH" and the total weight, before it goes back to zero. The sum total is printed by the interface (RS 232).

7.4.2 Memory recall




To view the totals in memory press  key.



7.4.3 Memory clear

To clear the memory, just press  and  together.

7.4.4 Automatically accumulate

Press  key during selfchecking, then    to enter setting mode.


Press  key until display show **P2c0n** press  key to enter, press  key to select "i0dE".

Press  key to sure, display will show current RS-232 mode, press  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.

Attention:



Please note before every accumulate operate, scale need return to zero, and only press  key when stable.

When weight less than 20d, accumulate operate will be invalid.

7.5 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.

7.5.1 Set limits

After you enter the value, press **ZERO** key to sure, press **G/N** key to escape.

Press **G/N** and **PRINT** together

Set H

You are in the menu for set the high limit. 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.

00000.0 kg

After you enter the value, press **ZERO** key to sure.

Press **TARE**.

Set L

You are in the menu for set the low limit. 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.

00000.0 kg

After you enter the value, press **ZERO** key to sure, press **G/N** key to escape.

Attention:



Checkweighing 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.

After setting the limit is the checkweighing is active.

If a weight is put on the scale, you can read off from the LED display, whether the weight is lower or higher than the limit value.

7.5.2 Set beep in check weighing mode

Press **G/N** and **PRINT** together.

Set H

You are in the menu for set the high limit.

Press **TARE** till **EEP** will be displayed to set the beep.

Press **ZERO** key to enter.

EE

Press **TARE** key to select between 3 options (**OH** **NG** **NO**), press **ZERO** key to sure, press **G/N** key to escape.

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

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

Check mode NO NO: No beeper.



7.6 DYNAMIC WEIGHING – ANIMAL WEIGHING

If "itself moving loads" like living animals should be weighed, the scale can be switched to the dynamic cradle mode.

In this case the scale weighs 20 times per second, and a calculated average value is indicated and held.

Without this function the movement of the load would be passed directly to the indicator, and it would be difficult to read off.

The scale can be set for animal weighing in the set up section. The scale should use a high level of filtering and the HOLD function will be enabled automatically when it has determined a stable weight for the animal.

You can press  and  together to enter/escape animal weighing mode.

Attention: !



After the weighing is indicated as stable by the dynamic cradle function, a signal appears and the weight will be stored.

8. BATTERY OPERATION

The scales can be operated from the battery, if desired. The battery life is approximately 70 hours.

When the battery needs charging the arrow above the low battery symbol  will turn on.

The battery should be charged as soon as 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 the power supply module into the scale and switch the main power ON. The scale does not need to be turned on.

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

Under the display is an LED to indicate the status of battery charging. When the scale is plugged into the main power, the internal battery will be charged. If the LED is green the battery is fully charged. If it is red, the battery is nearly discharged and yellow indicates the battery should be charged longer, preferably overnight.

9. PARAMETER

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

The first indicated value, is the standard increment of the balance. In order to select another increment, press **TARE**. Press **ZERO** in order to store the new value.

- Switch the scale on. To set parameters press the **PRINT** key during self checking.
- Display will show **Pn** (ask password). Press **M+** **G/N** **TARE** to enter the setting mode.
- The display will show the first function "**FOCHI**".
- 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+** or **MR** key to move 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.

Example:

For example when the display shows "**PO cHH**" 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.

9.1 PARAMETER SETTING TABLE

Function	Sub Function	Describe
FOCHI	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 Check mode OK 0H: beep when weight between hi and low (OK) Check mode NG n9: beep when weight out of hi-low range (NG) Check mode NO n0: no beep for checkWeighing
F I rEF	A2n 0	This option is used to select the auto zero tracking range Options : 0d, 0.5d, 1d, 2d, 4d
	0RAUto	This option is used to select the auto zero range when turn the indicator. Options : 0%, 2%, 5%, 10%, 20%, 50%, 100%
	0-rAGE	This option is used to select the manual zero range when press the ZERO key. Options: 0%, 2%, 4%, 10%, 20%, 50%, 100%
	0-tAr-E	This option is used to set whether weighing indicator will do auto zero tracking in net mode (after do tare operate, net weight is zero) Options: ON/OFF
	SPEED	Set the ADC speed 7.5/15/30/60 times/second

	ZERO	Set new zero point, after set this value, when in zero point, the reading will be -xxx.xxx
F2 coin	MODE	This option is used to set RS-232 communication mode Options: CONT (continuously send) SE1 : send one frame data after stable SE2 : 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 ASH : ask mode, bi-direction, Command R: read data Command T: tare Command Z: zero WIRELESS : wireless mode Note: if you have selected the wireless model, the communication mode has to be set to wireless.
	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
	PTYPE	TPUP - set the printer as tpup model. LP-50 - set the printer as LP-50 model.
	LAB	LABH - set gross/acc print format
	PrE	PrE - set the date/time print format
	LANG	ENG - set the print language as English. CHN - set the print language as Chinese.
F3CAL	DECL	This option is used to select the decimal Options : 0, 0.0, 0.00, 0.000
	INC	This option is used to select the division Options : 1, 2, 5, 10, 20, 20, 100, 200
	CAP	This display will show xxxxxx for setting the capacity.
	CAL	NONLI Non- linearity Calibrate LINEr Linearity Calibrate
	COUNT	This display will show xxxxxx for indicating the internal counts.
	GRA	Set gravity.(0.9600~~1.0400)
F4lock	LOCK	Enable /disable key lock
	Anti PEAK	ON (animal scale) OFF(normal mode) On Off
F5Unit	Lb	Set unit, when the unit is set as on, then this unit could be active. Note, Tj and Hj could not be used at the same time.
F6HCL		External calibration.
F7rSt		Reset the parameter back to the factory mode.
F8U2b		Set the Blue tooth function on or off. Options:on/off. When the blue tooth function is set as on, the RS232 could not be used.

10. CALIBRATION

As the acceleration value due to gravity is not the same at every location on earth, each scale must be coordinated – in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out during the initial start-up, after change in location and variation of surrounding temperature. It is also recommendable to adjust the balance periodically during weighing operation in order to obtain exact measured values.

Calibration:

Please make sure, that there are stable conditions at the calibration location. A warm up period of 10 minutes for stabilization is necessary. Make sure that there are no objects on the plate of the scale.

Switch the scale on. To set parameters press the **PRINT** key during self checking.

Pn

Display will show **Pn** (ask password). Press **M+** **G/N** **TARE** to enter the setting mode. The first parameter **FDcH₁** is displayed.

Press **TARE** till **F3cAL** is displayed. Pressing **ZERO** will allow you to set the function.

P3cAL

Press **TARE** till **cAL** is displayed. Pressing **ZERO** will allow you to set the function.

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

STABLE **UnLd**

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:

STABLE **LoAd**

Place the calibration weight on the scale. After stable, press the **ZERO** key.

The calibration weight should be removed during this test.

STABLE
ZERO
GROSS **0.0 kg**

Now the scale makes a self check and then it is ready to use.

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 persist 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.

Attention:




The P3 CAL Subparameter contains the basic functions for the scale: setting capacity, place of the decimal point, step-size as well as for calibration procedures. Please don't change one of these attitudes, because the scale doesn't work any more to its technical data, and a wrong capacity, etc will be stored.

12. RS 232 Interface

The indicators of the TWI series can be equipped with a RS 232-interface. If the scale is connected to a computer or a printer by this interface, the weighing result and the selected weighing unit are printed.

The RS-232 Interface is for output of weighing results.

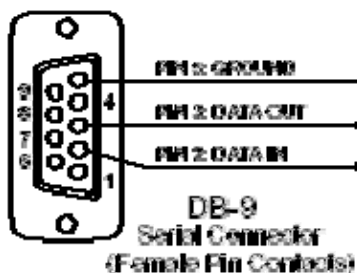
The RS-232 is normally configured to print a weight when the value is stored into memory, either automatically or when the  key is pressed.

12.1 SPECIFICATION RS 232

- ASCII Code
- 7/8 Data bits
- Parity setable
- Baud rate from 600 to 9600 Baud

12.2 CONNECTOR

The RS-232 connector is a 9 pin d-subminiature plug mounted on the rear panel.



Pin 2: RXD – Input - Receive data

Pin 3: TXD – Output - Transmit data

Pin 5: GND - Signal ground

12.3 FORMAT OF THE INPUT- INSTRUCTIONS

The scale can be steered by the following instructions.

The instructions for the functions must be entered in capital letters, like “T” and not “t”

Press Enter to confirm your input.

.

T<cr><lf>

With this key, you can tare the scale in order to indicate the net weight, like pressing .

Z<cr><lf>

Sets the zero point for all following weighing procedures. The display shows Zero.

T12.5<cr><lf>

Like the input of a tare value of 12.5 by the keyboard.

P<cr><lf>

By using this key, results can be sent to a printer or a PC by the (optional) RS-232 interface. If the distribution memory is not adjusted on mechanism, the scale adds the value to the distribution memory.

12.4 PRINT OUTPUT

Data Format for normal weighing operations, parts counting or recalling of totals from memory will all be different.

12.4.1 Normal print out:

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

12.4.2 Accumulation memory the output format is:

*****	A line of stars is shown
<lf>	Includes 1 line feed
Total No. 5	Times of the accumulation memory
Total wt.: 21.456kg	Weight of the accumulation memory

12.4.3 Continuously output protocol:

		,			-/□									k	g	CR	LF
-HEADER1-		↑ HEADER2-		--- WEIGHT DATA --								-WEIGHT UNIT		TERMINATOR			

HEADER1: ST=STABLE, US=UNSTABLE

HEADER2: NT=NET, GS=GROSS

13. MAINTENANCE, DISPOSAL

13.1 CLEANING

Only use a cloth dampened with mild suds and not aggressive cleaning agents (solvents or similar). Please ensure that fluids are not able to get into the device and rub off using a clean, soft cloth. Loose sample residue/powder can be removed carefully using a brush.

13.2 MAINTENANCE, UPKEEP

The device may only be opened by trained service engineers authorised by BOSCHE. Disconnect from the mains supply before opening.

The battery is not water-proof, so the contact with water is forbidden. If the battery should become wet or it is visible damaged, don't use the battery.

13.3 DISPOSAL

The operating company shall dispose of the packaging and the device in compliance with the valid national or regional law of the operating location.

A defective battery is to be disposed separately in accordance with the national and local regulations for environmental protection and recovery of raw materials.



This product is not to be treated as normal waste. You have to bring it to an accepted place for the recycling of electrical and electronic devices. You receive further information at your municipality, your local disposal enterprises or the company, from which you bought the product.



14. Spare parts & Accesories

If you need spare parts or accessories, please contact your dealer or BOSCHE
Here some spare parts for example:

- battery
- RS 232 Interface
- power cord

15. ERROR CODES

During operation or calibration, certain conditions may appear to be incorrect as determined by the scale. In such cases, an error code will be displayed.

Errors	Possible	Causes
-----	Over range	Remove weight from the scale. If the problem persist contact your dealer or BOSCHE for assistance.
--oL--		Please do not add item that is over the maximum capacity. When reading "-oL-" and hear beeping sound, remove the item on the platter to avoid damage to the load cell.
Err4	Zero Setting Error	The scale was outside the normal zero setting range either when it was turned on or when the  key was pressed. Remove weight from the scale and try again. Use the  key to set the display to zero value. If the problem persist contact your dealer or Taiwan scale for assistance.
Err6	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
Err7	SCALE un stable	The values from the A/D converter are not stabilizing and scale cant find the ZERO point after turning on. Please check cable connector and look for damage in the cable. Indicates the load cell or the electronics may be faulty.

If there are other disturbances or error messages, please turn the scale off and restart it after one minute. It is then necessary to repeat the weighing process from the beginning. If error messages arise again, please contact the manufacturer.

16. TROUBLE-SHOOTING GUIDE

Display is blank	On/Off switch on rear panel is off Scale not turned on Battery not charged
No turn on test	Battery not charged Power supply not plugged in Power supply faulty Display turned off
Display blank after turn on test or Error message displayed	Load cell not connected correctly Load cell damaged
Display is unstable	Drafts or air currents Load cell connections not secure Obstruction under weighing platform Sample is moving (animal weighing) Vibrations through table or floor Temperature changed dramatically Power supply faulty
Weight value incorrect	Calibration error, Recalibrate Unit calibrated with inaccurate weight Obstruction around platform
Cannot use Full Capacity	Overload stops hitting platform support or hitting bottom of load cell Shipping screw not removed if applicable Electronic problem on A/D Parameters set incorrectly Load cell Damaged
Not Linear	Overload stops hitting too soon Load cell damaged A/D damaged
Off Center Loading error	Overload stops not set correctly Load cell damaged
Battery will not charge	Charging circuit failure Battery failure Main voltage not present or too low

17. SERVICE INFORMATION

This manual covers the details of operation. If you have a problem with the scale that is not directly addressed by this manual then contact your supplier for assistance. In order to provide further assistance, the supplier will need the following information which should be kept ready:

Details of your company

Name of your company:

Contact person's name:

Contact telephone, e-mail,

fax or any other methods:

Details of the unit purchased

This part of information should always be available for any future correspondence. We suggest you to fill in this form as soon as the unit is received and keep a print-out in your record for ready reference.

Model name of the scale:	
Serial number of the unit:	
Software revision number (Displayed when power is first turned on):	
Date of Purchase:	
Name of the supplier and place:	

Brief description of the problem

Include any recent history of the unit. For example:

- Has it been working since it's delivered
- Has it been in contact with water
- Damaged from a fire
- Electrical Storms in the area
- Dropped on the floor, etc.

**KONFORMITÄTSERKLÄRUNG**

Declaration of conformity

Déclaration de conformité

Conformiteitsverklaring

Declaración de conformidad



Typ/Modell: Type/Model – Modèle – Model -Tipo/ Modelo :	BWI Seriennummern: BWI2016A001-BWI2016999 Serial numbers - Les numéros de série – Seriennummers - Números seriales:
Hersteller: Manufacturer – Fabricant – Fabrikant - Fabrikante:	BOSCHE GmbH & Co. KG Reselager Rieden 3 DE-49401 Damme

Die alleinige Verantwortung für die Ausstellung trägt der Hersteller.

The sole responsibility for the issue carries the manufacturer - La seule responsabilité de l'exposition porte le fabricant –
De verantwoordelijkheid voor de uitgifte draagt de fabrikant.- El único responsable de la publicación lleva el fabricante.

Die nicht selbsttätige Waage BWI

The non-automatic weighing instrument – L'instrument de pesage á fonctionnement non automatique –
De niet-automatische weeg – El pesaje de funcionamiento no automático



Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:

2004/108/EG
2014/35/EU

The object of the declaration described above complies with the relevant Union harmonization legislation:

L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union:

Het doel van de verklaring bovenbeschreven voldoet aan de relevante harmonisatiewetgeving van de Unie:

El objeto de la declaración descrito anteriormente cumple con la legislación de armonización pertinente de la Unión:

entsprechend den folgenden Normen:

in conformity with following standards:

conforme aux norms suivantes:

volgens de volgende normen:

de acuerdo con las siguientes normas:

EN 55022 :2011-12
DIN EN 61000-3-3 VDE 0838-3 :2009-06
DIN EN 55024 VDE 0878-24 :2011-09
DIN EN 61000-4-2 VDE 0847-4 2 :2009-12
DIN EN 61000-4-3 VDE 0847-4-3 :2011-04
DIN EN 61000-4-4 VDE 0847-4-4 :2010-11
DIN EN 61000-4-5 VDE 0847-4-5 :2007-06
DIN EN 61000-4-6 VDE 0847-4-6 :2009-12
DIN EN 61000-4-11 VDE 0847-4-11 :2005-02
DIN EN 61000-6-3 VDE 0839-6-3 :2011-09
DIN EN 61000-6-4 VDE 0839-6-4 :2011-09

Unterzeichnet für und im Namen von:

Signed for and on behalf of: - Signé pour et au nom de: - Ondertekend voor en namens: - Firmado por y en nombre de:

Bosche GmbH & Co.KG**Damme, 20. April 2016**

Damme, 20 April 2016 - Damme 20 Avril 2016 - Damme, 20 April 2016 - Damme, 20 de Abril el año 2016

Bosche, Dr. Jarmila, Geschäftsführer - managing director – manager – gerente



Return-delivery-note

(please put it into the package or fax to: 0049-5491-999689-9)

Company:

Customer-ID:

Street address:

Postcode / City:

Contact Person:

Phone:Fax:

Scale/Accessories (Model):

Delivery Note / Invoice:

Reason for return (please specify):

- 01** Repair (without new legal for trade authorisation)
- 02** Repair (with new legal for trade authorisation)
- 03** complaint
- 04** Service
- 05** Calibration
- 06** Modification, others
- 07** Delivery
- 08** Transport damage (notification was made on.....)

Note: For returns within the warranty period, please include the invoice or if not available, provide your customer-ID!

Please return the product in its original packaging and pack them well to avoid transport damage!

Description of the fault:

.....

Further description under which operating conditions / situations the error occurs:

.....

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