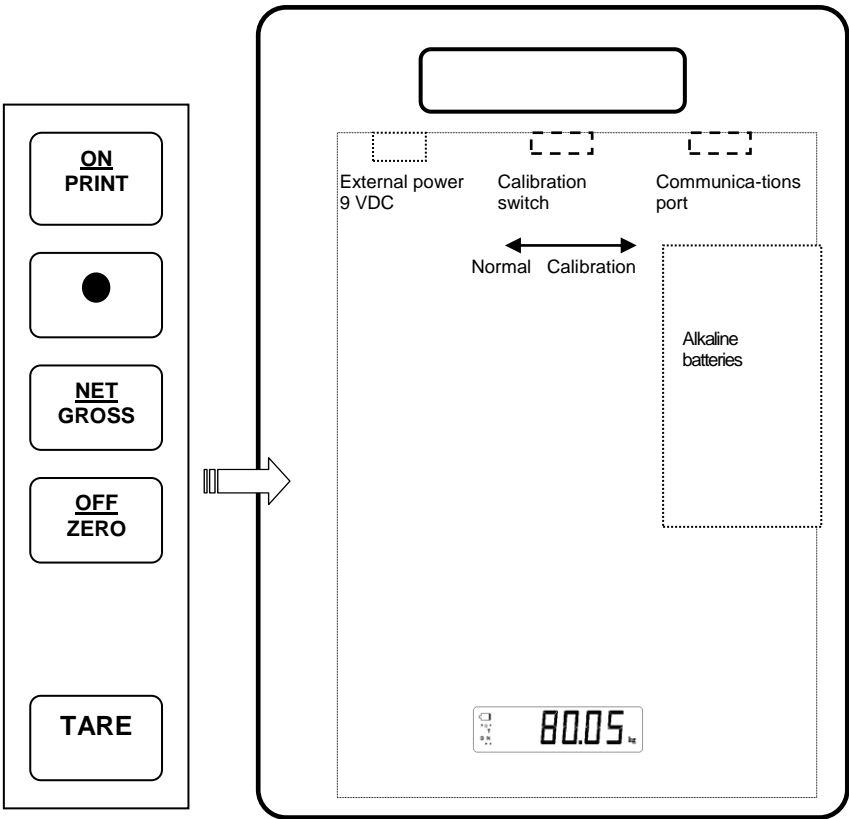# Manual Weighingblock VB2 series and Uniscale

Note: At page 8 in this manual you will find a short form instruction. Normally the only instruction shipped together with the Scale.

Overview different ranges.

Model	Model	Capacity / Graduation
VB2-30-EC		Max 30 kg / 10 g
VB2-100-EC		Max 100 kg / 10 (50) g
VB2-200-EC		Max 200 kg / 100 g
VB2-100-10		Max 100 kg / 10 g
VB2-200-20		Max 200 kg / 20 g
VB2-200-50		Max 200 kg / 50 g
VB2-100-02	UNISCALE 100kg/2g	Max 100 kg / 2 g
VB2-130-10	UNISCALE 130kg/10g	Max 130 kg / 10 g
WS-130		Max 130 kg / 10 g (special)
	UNISCALE 200kg/5g	Max 200 kg / 5 g
	UNISCALE 200kg/50g	Max 200 kg / 50 g

ON PRINT

●

NET GROSS

OFF ZERO

TARE

External power 9 VDC

Calibration switch

Communica-tions port

Normal   Calibration

Alkaline batteries

80.05 kg

The Weighingblock is a robust Scale. It is designed for portable use. When transported by car between different working places we recommend using of a protected space or a case. This will extend the interval for service.

Table of contents

Introduction

Veteks new VB2 series of Weighingblocks are rugged digital scale casted in strong aluminum. It comes standard with a large (.75") LCD screen for easy readout. All setup parameters may be entered via the membrane panel keys. The Scale has an "intelligent" auto power off function and is equipped with 6 pcs alkaline 1,5 V batteries LR6/AA. If the battery is not good enough to ensure a correct value the scale will turn off.

The scale is developed especially for weighing of refrigerant cylinders, and to control when transferring refrigerants to other cylinders or equipments. The scales setup parameters are altered through the Setup menu while a few other parameters are altered through the User menu The configuration section of the manual explains how to use the five front panel keys to maneuver and save settings in both menus.

There are categories of Scales: Non - Automatic weighing instruments and Automatic weighing instruments. Weighingblocks and other Scales used only for weighing e.g. cylinders are Non - Automatic weighing instruments. When using a Non - Automatic scale in commercial purpose in any of the EC countries it is prescribed by law that the scale must be EC-type approved. If the purpose not is commercial or the Scale is used as an automatic batching Scale there is no legal demands.

If the Scale is used as a Batching Scale it is an Automatic weighing instruments and there is no legal demands. But this has to be checked with the authorities in each country.

VB2 series of EC-type approved Weighingblocks:
The parameters shall not ever be changed because of the approval. Authority must do the verification. The user needs a good acknowledge about all rules and the laws. To get complete information we recommend taking a look at http://www.sp.se or other authorities web sites.
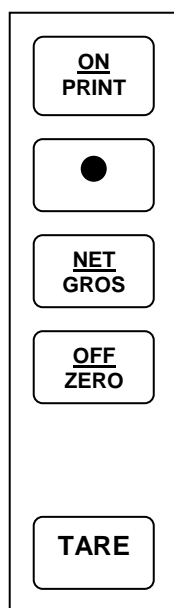
VB2 series of not approved Weighingblocks:
Cannot be verified

The Weighingblocks are suitable for use in weighing applications as: refrigeration cylinders, fire protection cylinders, CO2, cylinders, parcels, persons, etc.

Keyboard functions
The calibration switch is only for calibration.

Indicator ON
In not EC-type approved version: Sends "Print" data to printer if scale is stable and not in overload. Not active when "Continuous" option is selected in User Menu.

"Dot". Extended graduation to 10 g for VB2-100-EC and 20 g for VB2-200-EC when pushed and 5 sec after release.

Toggles between Gross and Net weight display only if a Tare has been established.

Sets scale to display "0" when in Gross mode, and within zero band range. **When pushed in for 3 seconds, the Scale switches off.**

Used to establish a Tare (**zero the Scale**) while in either Gross mode or Net mode. This operation cannot be performed at or below Gross zero.

ON PRINT

●

NET GROS

OFF ZERO

TARE

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Configuration

Setup menu.

To do this configuration you need to have a good acknowledge how a digital electronic Scale works. Note: If the Scale fails, it is not always sure the Scale needs a configuration.

Except the **Normal Meny** the Weighingblock has two menus.

The Setup menu, containing most of the indicator's functional Setup parameters, consists of 15 separate menu selections, each with its own sub-menu of choices.

The User menu, except A5 and A10 containing most of the indicator's serial communication parameters, which not are shown in this manual.

SETUP MENY

1. Turn the power **OFF**.
2. Put **Calibration** Switch to the Calibration position.
3. Turn the indicator **ON**.
4. The display shows "**F1**" to indicate that the unit is in Setup menu mode.
5. To move to a new "F" heading, use **TARE** or **ON** to move up or down.
6. To move to the selection value, press **ZERO** once.
7. Increase and decrease the value with PRINT and **TARE.**
8. To save the value, press **NET**.
9. Press **Dot** to go back to parameter number.
10. To go back to normal menu put **Calibration** Switch to the Normal position.
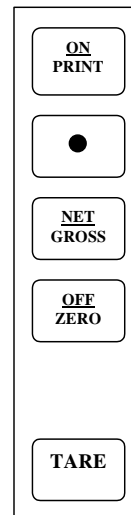
NOTES ON THE SETUP MENU

There is an **F21** sub-menu present that is for FACTORY USE ONLY!

DISPLAY

LCD Enunciator	MEANING
➔0←	Better known as the "Center of Zero" enunciator, this light is active whenever the displayed weight is within ± 0.25 divisions of true zero.
N	Indicates that the indicator is displaying net weight.
G	Indicates that the indicator is displaying gross weight.
T	Indicates that a tare weight has been established in the system.
lb, kg	Indicates the unit of the displayed weight (normally disabled).
bAtt	Indicates a low battery condition. Re-charge the battery or replace if alkaline batteries.
▶ ◀	Indicates stable weighing.

VB2 Enunciator Definitions

| PARAMETER	DESCRIPTION	CODE/VALUE

F1 Graduations	Specifies number of the Weighingblocks graduations. Value should be consistent with legal requirements and environmental limits on the useful system resolution.	500 1000 1500 **2000 VB2-100-EC / 200-EC** 2500 **3000 VB2-30-EC** 4000 5000 **6000: VB2-30-05** 8000 **10000: VB2-100-10 / 200-20** **13000: WS-130**
F2 Sampling rate	Sampling rate. 10 or 80Hz. Only choose 80hz for very fast weighing applications. Normally always 10hz is chosen.	80 **10: all versions**
F3 Zero Track Band	Selects the range within which the scale will automatically zero. Note that the scale must be in standstill to automatically zero. Selections are in Display Divisions. "d" = graduation	0d**,** 0.5d: **,** 1d: **all EC-versions** **3d: all other versions** 5d
F4 Zero Range	Selects the range within which the scale may be zeroed. Note that the indicator must be in standstill to zero the scale.	100%√ (US) 1.9%√ (CE) **2%: all EC versions** **20%: all other versions**
F5 Motion Band	Sets the level at which motion is detected by comparing the present display update with the previous one. If motion is not detected for two seconds or more, scale is in standstill and can process a Print or Zero command. Maximum value varies depending on local regulations.	0,25 1d **3d all versions** 5d 10d
F6 Digital Filter	Averages weight readings to produce higher accuracy. The higher the filter number, the greater the accuracy but the slower the response time. Choose 4 or 8 unless a very fast response is needed.	1 2 4 **8 all versions**
F7 Overload Limit	Selects the desired formula which determines the point at which the indicator shows overload ("□□□□"). All selections are based on the primary unit selected in F8. "FS" = Full scale in primary units.	FS **FS + 2% all none EC ver.** FS + 1d **FS + 9d all EC ver.**
F8 Calib. Unit	Selects the primary base unit to be used in the calibration process. Also the default unit for normal operation. "1" = primary unit is lb. "2" = primary unit is in kg.	1 **2 all versions**
F9 Display Div.	Determines the desired weight increments. Value should be consistent with legal requirements.	**1: VB2-100-10/30-EC, WS-130** **2: VB2-200-20** **5: VB2-100-EC/30-05/100-50**
F10 Decimal Pt.	Determines location of the decimal point.	0 0,0 **0,00 all versions except VB2-30-05** **0,000 VB2-30-05** 0,0000
F11 Batching funct.	Activating Batching function (not be used with "EC"-Scales)	**0: Approved Scales** **1: Not Approved Scales** **2: for scales with set points (F13,14)**
F13 Set point 1	For special versions only	Any value.
F14 Set point 2	For special versions only	Any value.
F16 Zero Calibration	Places indicator into the zero calibration routine. Scrolling down with the **ZERO** key one level begins the procedure.	Press **ZERO** key to begin sequence
F17 Span Calibration	Places indicator into the span calibration routine. Scrolling down with the **ZERO** key one level begins the procedure.	Press **ZERO** key to begin sequence
F21 Factory Reset	This sub-menu will reset all parameters in the "F" and "A" menu to the default settings. USE WITH CAUTION!	Press the **ZERO** key twice to execute.
A5 Disable the lb/kg Key	Allows the lb/kg key to be disabled so that an operator cannot accidentally press the key and change the displayed units. "0" = Disable the lb/kg key "1" = Enable the lb/kg key "2" Activate the extended graduation for VB2-100-EC	0 all versions 1 2 (only for VB2-100-EC and for batching Scales)
A10 Auto Power Off Period	Selects the auto power off time period in minutes: "Off" = Disabled (Always ON)	1, 2, 4, 10, 20**,** 60, off **All versions factory default is 10**

Calibration

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We recommend the scale to be calibrated at yearly intervals.
The minimum test weight that can be used is 70% of full-scale capacity.

To adjust the zero point using the F16 zero adjust procedure:

1. Turn the power **OFF**
2. Put Calibration Switch to the Calibration position.
3. Turn the indicator **ON**.
4. Scroll to "**F 16**". Use **TARE** or **ON** to move up or down.
5. Press **ZERO**. The display will momentarily show "**C 0**" followed by a value. (If you want, press **Dot** to go back to parameter number.)
6. After making sure that there are no weights on the platform, press **ZERO** to zero out the displayed value.
7. Press **NET** to save the zero point value. The display will show "**EndC0**"momentarily, and then revert back up to F16. At this time, proceed to the F17 span calibration to complete indicator calibration.
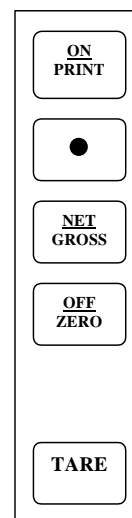
To adjust the max point using the F17 span adjusts procedure:

1. Scroll to "**F 17**", then press ZERO to enter span calibration menu.
2. The display will momentarily show "**C 1**" for the span calibration, followed by a value with one flashing digit. This value will be zero. Place the test weight on the Scale.
3. Pressing **TARE** or **ON** will change the position of the flashing digit.
4. Increase the flashing digit by pressing **Dot**. Decrease the flashing digit by pressing **ZERO**.
5. After setting the exact value, press **NET** to save the value.
6. If the adjustment was successful, the display will show "**EndC1**" momentarily, and then revert back up to F17.

"**Err0**" – The calibration test weight or the adjusted keyed-in weight is larger than the full capacity of the scale. Change the calibration test weight or check the input data.

"**Err1**" – Change the calibration test weight or check the input data.

"**Err2**" – The internal resolution of the scale is not high enough to accept the calibration value. Select a larger parameter for the Span Gain (F2).

7. Put the Calibration Switch to the normal mode.
8. Check the Scale.

Specifications and displayed error codes.

General

Model	Capacity / Graduation	Weight kg	Dimension mm	Battery
VB2-30-EC	Max 30 kg / 50 g	3,6	210 x 260x 65	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-100-EC	Max 100 kg / 50 g	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-200-EC	Max 200 kg / 100 g	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-100-10	Max 100 kg / 10 g Not approved version	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-100-02	Max 100 kg / 2 g Not approved version	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-130-10 WS-130	Max 130 kg / 10 g Not approved version	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-200-20	Max 200 kg / 20 g Not approved version	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.
VB2-200-50	Max 200 kg / 50 g Not approved version	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hours operation.

Alternative power is a 9 VDC adaptor (centre minus).

OPERATOR INTERFACE

Display	0.75" (19 mm) 7-segment, Liquid Crystal, 6-Digit
Additional Symbols	Net, Gross, Stable, Tare, lb, kg, Zero
Keyboard	5-key flat membrane panel

ENVIRONMENTAL

Operating Temperature	0 to +30 grad C (-10 to +40 grad C not approved version)
Storage Temperature	-25 to +70 grad C

Displayed error codes.

CODE	MODE	MEANING / POSSIBLE SOLUTION
□□□□□□	Normal Operating Mode	Gross Overload. A weight greater than the rated capacity has been applied to the scale. Remove the weight from the platter or try re-calibrating the scale. Otherwise, check for a bad load cell connection or possible load cell damage due to overloading.
bAtt	Normal Operating Mode	Indicates a low battery condition. Re-charge the battery or replace if alkaline batteries.
Err 0	Span Calibration Mode (F17)	Keyed-in weight value is larger than full-scale capacity. Use a smaller test weight or check keyed-in value.
Err 1	Span Calibration Mode (F17)	Keyed-in weight value is less than 1% of full-scale capacity. Use a larger test weight or check keyed-in value.
Err 2	Span Calibration Mode (F17)	There is not enough load cell signal to produce the internal counts necessary to properly calibrate the scale. First check all load connections. Use F16 mode to view internal counts. See Appendix C for more information.
Err 3	All Modes	Non-volatile memory read error. One or more setup parameters have been lost.
Err 4	All Modes	Non-volatile memory writes error. Indicator needs service.
Err 5	Key-in Span Calibration Mode (F20)	You have attempted to enter a zero value for C1. Enter a known calibration value greater than zero.
Err 7	Initialization	No reading from the ADC. Make sure there is a load cell(s) connected to the indicator at start-up.
Err 9	Normal Operating	Span calibration value has been lost. Re-calibrate the Scale.

Fault localization and repair.

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Please note: If a verified Scale is repaired it probably needs a new verification, check with authorities in your country.

Fault localization

If the Weighingblock is "dead".
1. Change to new alkaline batteries.
2. Change the membrane key buttons if you have reason to believe it's broken.

If the Scale starts but the display shows wrong.
1. Adjust and Calibrate the Scale.
2. If it not works, the Scale must be demounted.

Demounting.
1. Demount the bottom plate of the Weighingblock trough the two screws covered by a piece of tape. Be careful with the keyboard connection.
2. Check the inside of the Scale visually. Look for bad cables and connections.
3. If needed, clean the PC-board.

If the Scale shows F1
1. Probably the Calibration Switch has been changed to calibration mode?
2. Reset to normal mode.

Check the Loadcell

Check the Loadcell with a universal volt instrument, see table. The left pin is number 1.

Terminal J1	Description	Colours Loadcell AG	Colours Loadcell 1042	Colours Loadcell LOC o FAS	Colours Loadcell SP4
E+ (1)	Out +5 VDC*	Brown	Green	Red	White
S+ (2)	In +	Yellow	Red	Green	Green
E- (3)	Out 0 VDC	Green	Black	Black	Black
S- (4)	In -	White	White	White	Red

If it is problem to get a reading on the display or it is important to calibrate.
1. Check the excitation voltage (E+ and E-) from the Indicator. Should be 5,0* (+-0,4) VDC.
2. Check the input to the Indicator (S+ and S-). The output from the Loadcell S+ and S- (pin 2 and 4) will increase from aprox. 0 to 10 mV analogue to the capacity range (100 or 30 kg). Note S+ is plus and S- is minus. The polarity is important.
3. If the input is wrong, <0 mV or > +10 mV with unloaded Scale check the Loadcell. Do have only E+ and E- connected (or probably an external Power 5 VDC) and checks the output from the Loadcells direct on the wires. Should be 0 mV to +10 mV depending on the load.

Instruction for handling Weighingblock VB2-series and UNISCALE
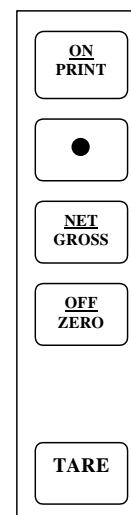
This instruction is valid for the new design with waist and rounded corners. Shipped after 2002-09-18 with serial number higher than 74201

This instruction is for the user of the Scale. It is the last site in the complete manual. Hopefully is this the only needed information. For complete information, contact you wholesaler, Vetek AB or download it from our web site http://www.vetek.com

We hardly recommend that the user of this Scale to get a good acknowledge about all rules and the law. To get complete information we recommend taking a look at the Authorities web sites.

LCD Enunciator	MEANING
→0←	Better known as the "Center of Zero" enunciator, this light is active whenever the displayed weight is within ± 0.25 divisions of true zero.
N	Indicates that the indicator is displaying net weight.
G	Indicates that the indicator is displaying gross weight.
T	Indicates that a tare weight has been established in the system.
lb, kg	Indicates the unit of the displayed weight (normally disabled).
bAtt	Indicates a low battery condition. Re-charge the battery or replace if alkaline batteries.
► ◄	Indicates stable weighing.

Enunciator Definitions Shown above is the LCD display. Before reading the value the stable indicator must be "on".
If not wait a few seconds until it appears.

Handling
1. Press **ON** to start the scale.
2. If necessary, press **ZERO** to obtain a weight reading of zero.
3. Press **OFF** to switch off the scale. Hold 3 seconds.
4. The scale switches off automatically after 10 minutes when not in use

Weighing (e.g. a cylinder with liquid)
1. Unload scale and press **ZERO**.
2. Place the object (cylinder, container, etc) on the scale's platter and allow the weight indication to stabilize. If the item weight exceeds the scale's weight capacity, it displays "❑❑❑❑❑". Press **TARE** to zero the Scale. The display shows zero weight and turns the NET enunciator on.
3. **NET/GROSS** toggles between Gross and Net weight display only if a Tare has been established.
4. **"Dot".** Extended graduation to 10 g for VB2-100-EC when pushed and 5 sec after release.

General advice
- When the Scale is not in use and is transported between different working places we recommend to use a case or any other protection against vibrations and other hard environmental conditions.
- Protect the scale with a transparent plastic bag if there is any risk of leakage or when working in a wet environment.
- Use onle 6 pcs alkaline 1,5 V batteries LR6/AA. Alternative power is a 9 VDC adaptor (centre minus).

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Communication Port (not valid for UNISCALE)

**This instruction is valid for the new design with waist and rounded corners
(for units shipped after 2003-03-01).**

This new generation of Weighingblock have a Communication Port as standard. It is possible to connect different accessories as Printer, PC/Notebook or Solenoid module VBB-10.

Printer for the weight value.

Many printers in the market can be connected e.g. Martels MCP9800. For more information, contact Vetek AB.

PC/Notebook

The Scale can be connected to a PC/Notebook. For more information, contact Vetek AB.

Solenoid module VBB-10 (Note: this function in VB2 is standard for Scales delivered after march 2003)

One time set up: F11 must be "1" and A5 must be "2" (normally done when delivered)

Handling

1. Mount the Solenoid module to the cylinder.
2. Connect the "zero modem cable" and the Mains cable.   (For the points 3 – 10 below it is no need for the Scale to be on the floor, you can keep it in your hands)
3. Start the Scale with **ON** and wait a few seconds.
4. To set the Batching Weight:
5. Press, "**Dot**", display shows 0,0 (flashing).
6. Press **ON** until the first relevant digit flash.
7. Change to the wished value with "**Dot**".
8. Press **ON** until the next relevant digit flash.
9. Change to the wished value with "**Dot**".
10. When the Scale shows wished value, save with **NET**
11. Press **ZERO** it the Scale not shows zero and put the object on the Scale. The Scale shows the gross weight.
12. Batching: Press **TARE**. The Scale shows zero and the valve is opened.
13. When the weight difference on the Scale is same as Batching Weight the valve will close.
14. The Scale shows the Batching Weight. Press **NET/GROSS** for gross weight.

General advice

- Too fast batching gives less accuracy.
- Do not touch the tube to the cylinder during batching.

VBB-10 consist of:
VBB-10-10 Box with Solenoid
VBB-10-11 "Zero modem cable" 9-pin female/female
VBB-10-12 Mains cable.