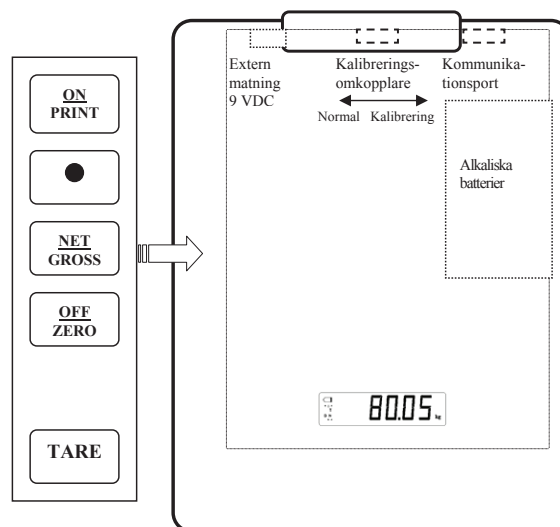


## WEIGHINGBLOCK VB2 SERIES AND UNISCALE

### 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 / 20 (100) g
VB2-200-EC-TM		Max 200 kg / 100 g
VB2-200-50-TM		Max 200 kg / 50 g
VB2-30-05		Max 30 kg / 5 g
<b>VB2-100-02</b>	<b>UNISCALE 100kg/2g</b>	<b>Max 100 kg / 2 g</b>
VB2-100-10		Max 100 kg / 10 g
WS-130		Max 130 kg / 10 g (special)
<b>VB2-130-10</b>	<b>UNISCALE 130 kg/10 g</b>	<b>130kg/10g Max</b>
VB2-200-10		Max 200 kg / 20 g
	<b>UNISCALE 200kg/5g</b>	Max 200 kg / 5 g
	<b>UNISCALE 200 kg/50 g</b>	200kg/50g Max



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 for the scale. This will extend the interval for service.

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## INTRODUCTION

Vetek's new VB2 series of Weighingblocks are rugged digital scales cast in strong aluminum. The scales come standard with a large (.75") LCD screen for easy readout. All setup parameters may be entered via the membrane panel keys. The scales have an "intelligent" auto power off function and is equipped with 6 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 the weighing of refrigerant cylinders, and to use as a control when transferring refrigerants to other cylinders or equipment.

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 several categories of scales: *Non - Automatic* weighing instruments and *Automatic* weighing instruments. Weighingblocks and other scales used only for weighing for example, 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 of use is not commercial, or if the scale's intended use is as an automatic batching scale then there are no legal demands.

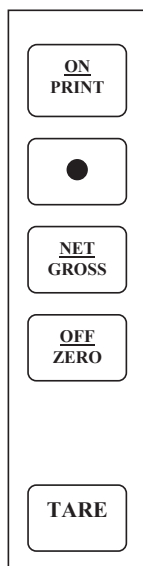
If the Scale is used as a *Batching Scale* it is therefore an *Automatic* weighing instruments and there are no legal demands. This however requires to be checked with the authorities in each country.

**VB2 SERIES OF EC-TYPE APPROVED WEIGHINGBLOCKS:** The parameters should not be changed because of its approval. Only accepted authorities may do the verification. The user requires a good knowledge of all concerning rules and laws. To get complete information we recommend visiting the following website <http://www.sp.se>, or visiting other authorities' web sites.

**VB2 SERIES OF NOT APPROVED WEIGHINGBLOCKS:** Cannot be verified.

The Weighingblocks are suitable for use in various weighing applications such as the weighing of: refrigeration cylinders, fire protection cylinders, CO<sub>2</sub>, cylinders, parcels, persons, etc.

## KEYBOARD FUNCTIONS



THE CALIBRATION SWITCH IS ONLY FOR CALIBRATION.

- ◀ **Indicator ON.** In non 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.



## CONFIGURATION

### SETUP MENU.

To do this configuration you require a good acknowledge of how a digital electronic scale works.

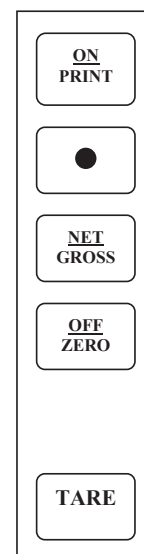
Note: If the scale fails, it is not always certain the scale needs configuration.

Excluding the Normal Meny, the Weighingblock has two menus:

- The Setup menu; contains 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 contains most of the indicator's serial communication parameters, which are not shown in this manual.

## SETUP MENU

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 $\pm 0.25$ 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
<b>F1 Graduations</b>	Specifies number of the Weighing blocks 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
<b>F2 Sampling rate</b>	Sampling rate. 10 or 80Hz. Only choose 80hz for very fast weighing applications. Normally always 10hz is chosen.	80 10: all versions
<b>F3 Zero Track Band</b>	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
<b>F4 Zero Range</b>	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
<b>F5 Motion Band</b>	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
<b>F6 Digital Filter</b>	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
<b>F7 Overload Limit</b>	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.
<b>F8 Calib. Unit</b>	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
<b>F9 Display Div.</b>	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
<b>F10 Decimal Pt.</b>	Determines location of the decimal point.	0 0,0 0,00 all versions except VB2-30-05 0,000 VB2-30-05 0,0000
<b>F11 Batching funct.</b>	Activating Batching function (not be used with "EC"-Scales)	0: Approved Scales 1: Not Approved Scales 2: for scales with set points (F13,14)
<b>F13 Set point 1</b>	For special versions only	Any value.
<b>F14 Set point 2</b>	For special versions only	Any value.
<b>F16 Zero Calibration</b>	Places indicator into the zero calibration routine. Scrolling down with the ZERO key one level begins the procedure.	Press ZERO key to begin sequence
<b>F17 Span Calibration</b>	Places indicator into the span calibration routine. Scrolling down with the ZERO key one level begins the procedure.	Press ZERO key to begin sequence
<b>F21 Factory Reset</b>	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.
<b>A5 Disable the lb/kg Key</b>	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)

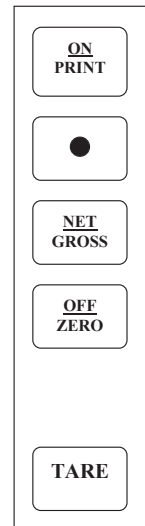
## CALIBRATION

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 SPECIFICATIONS

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 hrs operation
VB2-100-EC	Max 100 kg / 10 (50) g	4,5	260 x 345 x 55	6 st alk. 1,5 V batteries LR6/AA for 24 hrs. operation
WS-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 hrs 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 hrs. operation
VB2-30-05	Max 30 kg / 5 g Not approved version	3,6	210 x 260x 65	6 of alk. 1,5 V batteries LR6/AA for 15 hrs. operation
VB2-100-02	Max 100 kg / 2 g	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hrs. 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 hrs. 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 hrs. operation
VB2-100-50	Max 100 kg / 50 g Not approved version	4,5	260 x 345 x 55	6 of alk. 1,5 V batteries LR6/AA for 15 hrs. operation
VB2-200-10	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 hrs. 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 M.	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 M.	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 info.
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

\*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 Lastcell 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. Have only E+ and E- connected (or probably an external Power 5 VDC) and check the output from the Loadcells directly on the wires. Output should be 0 mV to +10 mV depending on the load.



## INSTRUCTIONS FOR HANDLING WEIGHINGBLOCK VB2-SERIES AND UNISCALE

These instructions are valid for the new design with waist and rounded corners, shipped after 2002-09-18, and with a serial number higher than 74201.

The following instructions are for the scale user, and comprises this last section of the user manual. If you require even further information, contact you wholesaler; Vetek AB or download information from our web site: <http://www.vetek.com>

We highly recommend that the user of this scale gains good knowledge of all rules and laws pertaining to its usage. To get complete information we recommend visiting the concerning Authorities' web sites.

LCD Indikator	Betydelse
→0←	Better known as the "Center of Zero" enunciator, this light is active whenever the displayed weight is within $\pm 0.25$ 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

Pictured 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" extends graduation to 10 g for VB2-100-EC when pushed and 5 seconds 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).

## COMMUNICATION PORT (NOT VALID FOR UNISCALE)

THESE INSTRUCTIONS ARE ONLY VALID FOR THE NEW DESIGN, WITH WAIST AND ROUNDED CORNERS  
(FOR UNITS SHIPPED AFTER 2003-03-01).

## 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 if 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

- Batching too quickly 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.

