SALTER Brecknell

WEIGHBLOK

Digital Scale

Setup & Operation Manual

Revision 0502
4-2-03

Contents subject to change without notice.

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Introduction

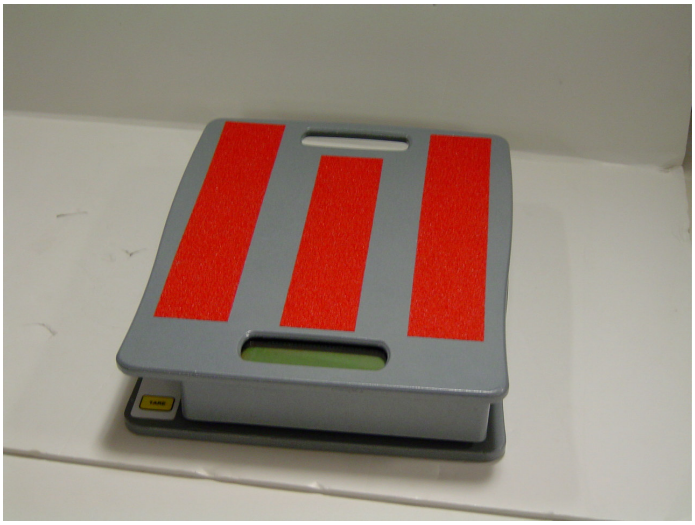
The Weighblok series are a rugged digital scale casted in strong aluminum. It comes standard with a large (.75") LCD screen for easy readout. All setup parameters may be entered via the membrane panel keys. The Scale has an "intelligent" auto power off function and can be operated with 6 alkaline 1,5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

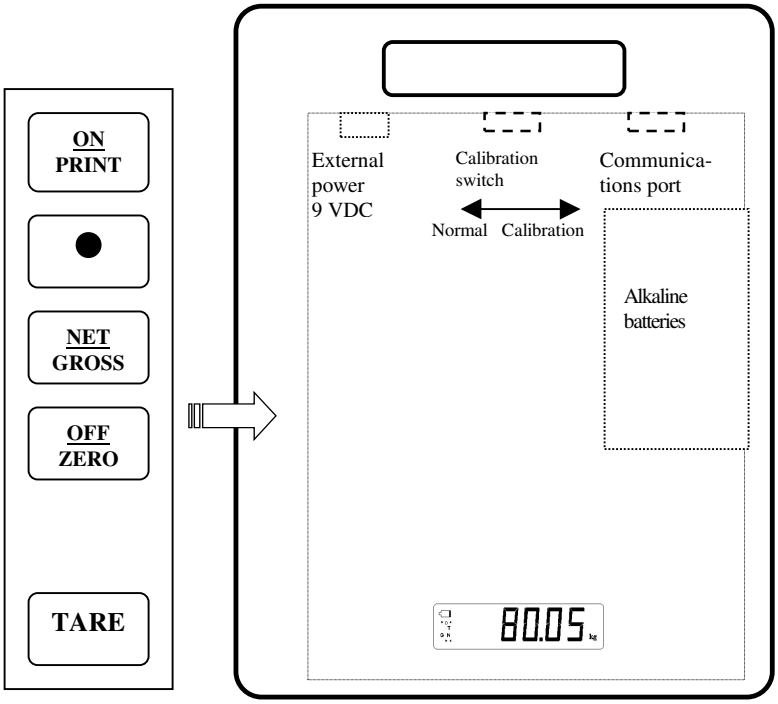
The scale is developed especially for weighing of refrigerant cylinders, and to control when transferring refrigerants to other cylinders or equipments. The scales setup parameters are altered through the Setup menu while a few other parameters are altered through the User menu The configuration section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

The Weighblok scale can be used as a Batching Scale or regular weighing scale

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

Introduction

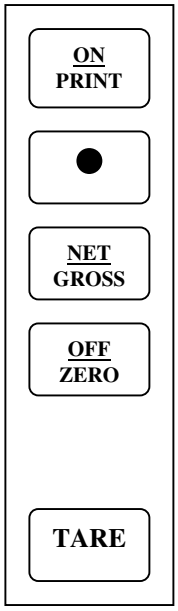




The Weighingblock is a robust Scale. It is designed for portable use. When transported by car between different working places we recommend using of a protected space or a case. This will extend the interval for service.

Keyboard functions

The calibration switch is only for calibration.

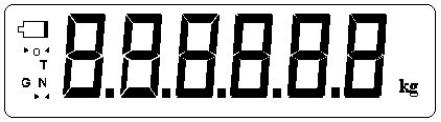


Indicator ON
In not EC-type approved version: Sends "Print" data to printer if scale is stable and not in overload. Not active when "Continuous" option is selected in User Menu.

"Dot". Extended graduation when pushed and 5 sec after release. When pressed and released, the DOT button is the unit switch key, lb – kg.

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.

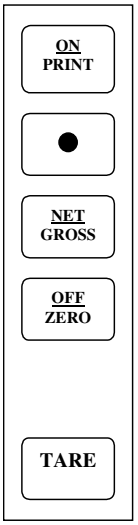
Configuration

The Weighblok 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.

TO ENTER THE SETUP MENU



1. Turn the power **OFF**.
2. Put **Calibration** Switch to the Calibration position.
3. Press the **ON key.**
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 key** 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.

Weighblok Enunciator Definitions

Parameters

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 1,000 1,500 **2,000** 2,500 3,000 4,000, 5,000 6,000 8,000 10,000 12,000 13,000 15,000 20,000 30,000 40,000 50,000
F2 Span Gain	Span Gain is related to A/D integration time. The larger the span gain, the higher the internal resolution, but the slower the update speed.	25 50 75 **100** 150 200
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 3d 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% 1.9% **2%**
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 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**
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% FS + 1d **FS + 9d**
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**
F9 Display Div.	Determines the desired weight increments. Value should be consistent with legal requirements.	1 2 **5**
F10 Decimal Pt.	Determines location of the decimal point.	0 **0.0 0.00** 0.000 0.0000
F11 Batching function.	Activating Batching function (not be used with "EC"-Scales	**0 = OFF** 1 = ON
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
F18		
F19		
F20		
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.

Parameters

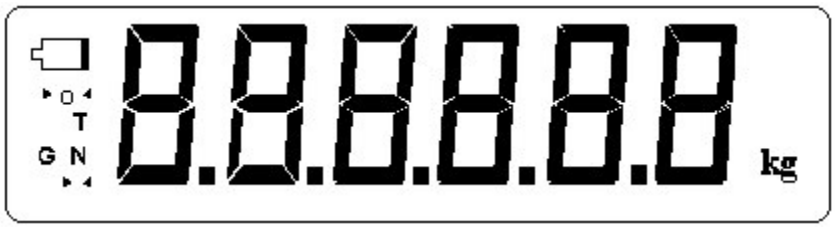
PARAMETER	DESCRIPTION	CODE/VALUE
A1		
A2		
A3		
A4		
A5 Disable the lb/kg Key	Allows the lb/kg key to be disabled and allows use of extended graduation. "0" = Disable the lb/kg key "1" = Enable the lb/kg key "2" Activate the extended graduation for VB2-100-EC	0 **1** 2
F6		
F7		
F8		
F9		
A10 Auto Power Off Period	Selects the auto power off time period in minutes: "Off" = Disabled (Always ON)	1, 2, 3, **5**, 10, 15, 20**,** 30, off

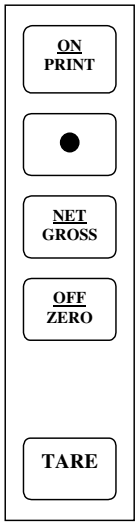
Calibration

We recommend the scale to be calibrated at periodic intervals with the frequency based on usage.
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. Press the **ON key.**
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
Weighblok	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 hours operation.

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
Storage Temperature

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 Mode	Span calibration value has been lost. Re-calibrate the Scale.

Troubleshooting

If the Weighblok to power up.

1. Change to new alkaline batteries.
2. Check to see if AC adapter is plugged in.

If the scale starts but the display shows wrong.

1. Adjust and Calibrate the Scale.

Bottom plate removal

1. Remove the two screws from the bottom plate of the Weighblok.. Be careful with the keyboard connection.
2. Check the inside of the Scale visually. Look for bad cables and connections.

If the Scale shows F1

1. Check the position of the Calibration Switch.
2. Reset to normal mode.

Loadcell Connections

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

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

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.

Scale Use

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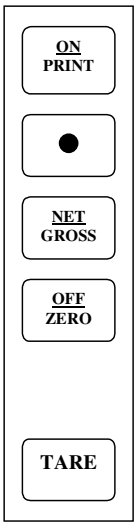


Weighblok Enunciator Definitions. Shown above is the LCD display. Before reading the value the stable indicator must be "on".
If not, wait a few seconds until it appears.

Basic scale use
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.

General advice
When the Scale is not in use and is transported between different working places, we recommend usage of a case or any other protection against vibrations and other hard environmental conditions. Protect the scale with a plastic bag if there is any risk of working in a wet environment.

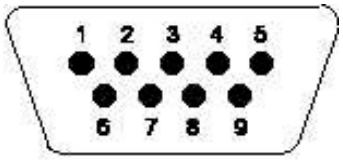
Communication Port

The Weighblok has a Communication Port standard. It is possible to connect different accessories such as a Printer, PC/Notebook or external relay.

Printer for the weight value.
Many printers in the market can be connected. For more information, contact Transcell.

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

External Relay
The scale can be connected to an external relay. A 5 V output is available to actuate a relay for cut-off control when filling or discharging.
One time set up: F11 must be "1" and A5 must be "2" (normally done when delivered)



Front View

RS-232

PIN NUMBER	PIN NAME
2	RXD
3	TXD
5	GND
7	TARGET TTL(+5V/OV)
8	TTL +5V

Set the target weight value:

1. To set the Target Weight:
2. Press, "**Dot**" for 5 seconds, display shows 0,0 (flashing).
3. Press **ON** until the first relevant digit flashes.
4. Change to the desired value with "**Dot**".
5. Press **ON** until the next relevant digit flash.
6. Change to the desired value with "**Dot**".
7. When the Scale shows desired value, save with **NET**
8. Press **ZERO** it the Scale not shows zero and put the object on the Scale. The Scale shows the gross weight.
9. Batching: Press **TARE**. The Scale shows zero and the process begins.
10. When the weight difference on the Scale is same as Batching Weight the process stops.
11. The Scale shows the Batching Weight. Press **NET/GROSS** for gross weight.