

BAYKON

LM 2

INDUSTRIAL WEIGHT INDICATOR OPERATION MANUEL

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1. GENERAL FEATURES

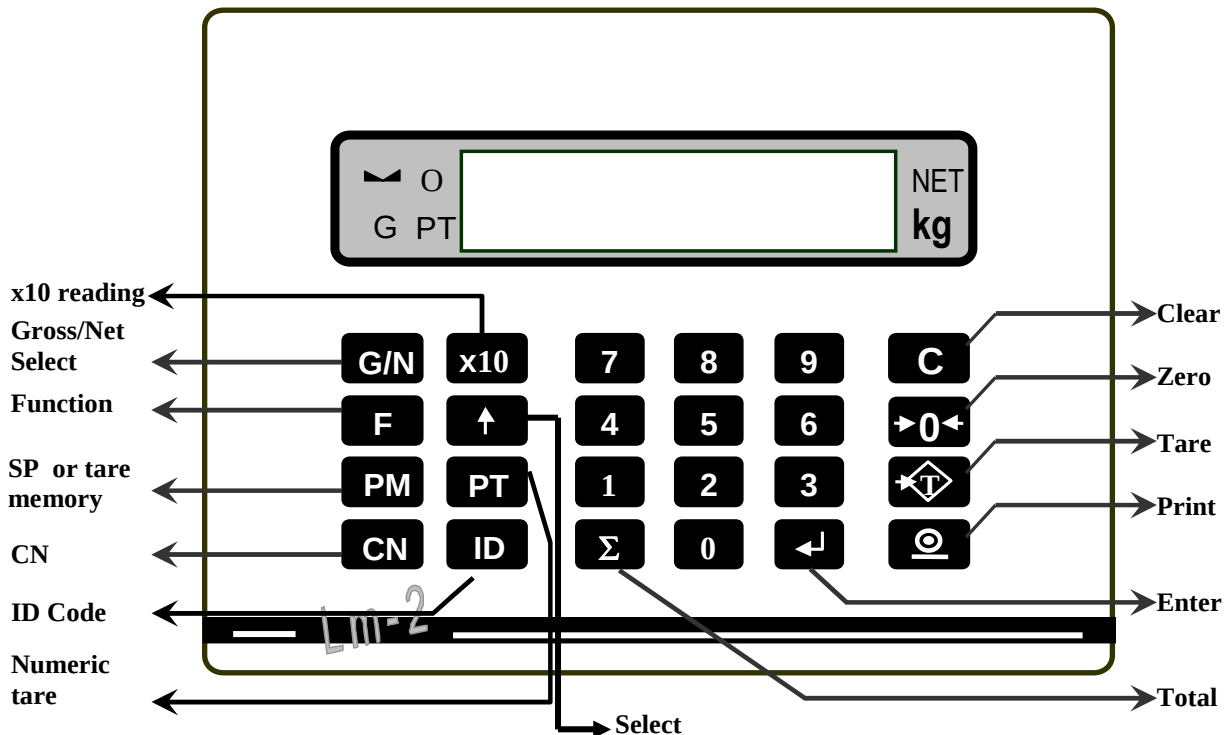
- Zero, net, stable and numeric tare symbols are indicated on the display.
- Automatic zero maintenance, zeroing and taring via keypad.
- Real time clock
- ID (Identification code), Consecutive Number and Date&Time facility.
- Overload message is given on the display
- 2 separate digital filters for stable reading
- Standard RS232C serial output.
- Accumulated total memory for different materials and general total
- Opto-isolated 6 parallel outputs and 4 parallel inputs. Outputs can be increased up to 32 .
- Internal resolution: 1/1.000.000 counts
- Display resolution: Max. 1/20.000 increments
- Power supply: 220 V, 50 Hz
- Power consumption: 10 Watt
- Operating temperature: -10 °C / +40 °C to 85% relative humidity, non-condensing.
- Load cell supply voltage: 10 VDC
- Load cell input for up to six 350 Ω cells.
- 99 tare memory .

WARNING

- For continued protection against shock hazard connect to properly grounded outlet only. Check power supply voltage before start up the unit.
- Disconnect all power to this unit before removing the fuse or servicing.
- Before connecting/disconnecting any interconnecting wiring between electronic equipment always remove power and wait at least 30 seconds before any connections/disconnections are made.
- Permit only qualified personnel to service this equipment.

2. FRONT PANEL AND KEY FUNCTIONS

The front panel of LM 2 :



The symbols on the display:

NET

Net indication : This symbol is illuminated when the scale is in net mode. It disappears in Gross mode.

→0←

Zero indication : Zero indicator illuminates when scale is within +/- 0.25 increments of the centre zero.

⏏

Stability : Indicates that the weight is stable. Zero, tare and print functions are inhibited while the scale is not stable.

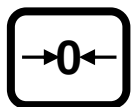
PT

Preset tare: Indicates that tare weight is entered manually by numeric keys.

G

Gross: The display indicates the weight is in gross mode.

LM 2 keypad:



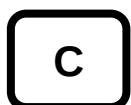
Zero : Zero key is used to compensate for small changes in weight when the scale platform is empty. Zero key is effective in 2% of the total capacity if it is enabled in set-up.



Tare : It is used subtract the weight of the object on the scale platform from subsequent indications of weight.



Preset tare : A known tare value can be taken via this key. Please press this key first and type your known value by numeric keys and press  key.



Clear : Clears the tare value and puts the scale into gross mode. The value of setpoints, ID etc. are also cleared by this key.



Print : This key is used to initiate a serial output of weight data. The accumulated weight totals are also get printed by this key.



Setpoint or tare memory : In setup, this key is programmed as to entry setpoint values or to select tare memories.

Setpoint entry: LM 2 can be programmed to provide 6 separate cutoffs upon reaching 6 independent setpoints can be entered via keyboard. If PM key is pressed, display will show the value of SP1 as 1P. You can type in a new value for SP1 or press  key to display the value of SP2. By using  keys, you can reach any of 6 setpoints. PM key is pressed again to return to weighing mode.

Selection of tare memories: If PM key is pressed the last used tare code is appears on the display. By numeric keys or  key, the tare codes can be changed. After tare code selection,  key is pressed to see the tare value of the selected code. Please press  key again for taring the scale.



Total : The general weight total up to 7 digits is displayed if this key is pressed. Total weight can be printed by Print key or cleared by pressing  and  keys consecutively.  is used to return to weighing mode.



Consecutive number : The number of weighing items can be displayed when this key is pressed. Consecutive number increases by 1 automatically after each print action. CN can be max. 6 digits. You can return to weighing mode by pressing CN key again.



Identification code : When ID key is pressed, the last used material code is displayed. You can reach other material code by  key. You can get display the accumulated total weight for the selected ID by pressing  key and get printed by pressing Print key while the total value is displayed. Press ID key again to return to weighing mode.



Gross/Net : In Net mode, you can see the gross weight. Please press this key, the gross weight will be displayed while the scale stays in Net mode. Press this key again to see the net value again.



High resolution mode : The weight value can be displayed as 10 times in high resolution by pressing this key for testing purposes.



Displaying Time & Date : If F and 4 keys pressed consecutively, Time will appear on the display in [t hh.mm] format. Pressing key will display the date in [d dd.mm.yy] format. key is pressed to return to weighing mode.



Displaying accumulated weight totals : Please press the keys on the left consecutively. The display will show the accumulated total weight of the last entered ID. By using key, you can reach other ID codes and see the accumulated total weights for the selected ID. is pressed to get the print list of all accumulated weight totals. key is pressed to return to weighing mode.



Entering Tare Memory : You can save up to 99 preset tare in LM 2. To enter tare value, please press the keys on the left consecutively. The display will show the last entered tare code. By using key, you can reach other tare codes or enter new code and then press enter key and enter tare value by using numeric keys. key is pressed to return to weighing mode.

3. CHANGING PASSWORD

Please press keys consecutively. Please type the password and press key. The message (**passent**) will appear on the display. Please type your new password and press key. You will see the message (**Passen2**) on the display. Please type your new password once more and press key. LM 2 will give you the message (**okey**) and return to weighing mode in a short time. If the new password is written wrongly after (**Passent2**) message, then, LM 2 displays (**Err**) message and return to weighing mode. Default factory password is (**1**).

4. CHANGING DATE & TIME

Please press keys consecutively. Please type your password and press key. Time will appear on the display as (t hh.mm) format. You can select date by using keys in (d dd.mm.yy) format. You can type in Time/ Date by numeric keys and accept by key. Please press Function key to return to weighing mode.

5. CLEARING WEIGHT TOTALS AND DELETING ID CODE

Please press **[F]** **[2]** keys consecutively. The accumulated weight total for the last entered ID will be displayed. Please select the requested ID by using **[↑]** keys. Press **[0]** key. After entering password, the message (**CLR I/O**) is displayed. **[0]** key is used to clear the accumulated total weight for the selected ID and **[1]** key clears all accumulated weight totals. Please press **[F]** key to return to weighing mode.

To delete an ID code, please press ID button and select the ID which will be deleted by using **[↑]** keys. Press **[C]** key. After entering password, the message (**del I/O**) is displayed. **[0]** key is used to clear the selected ID and **[1]** key clears all ID codes. Please press **[F]** key to return to weighing mode.

6. HEADER DEFINITION

You can define your own header on your weight ticket by a PC via RS232C serial port. Press **[F]** **[3]** keys consecutively, enter your password and press **[↵]** key. The message (**header**) will appear on the display.

Please run the PC program called “**LM 2 BASLIK**” and the program will inform you the connection by the message “**connected**”. Please fill the 4 lines each up to maximum 20 characters on your PC. Select the cell “ **PC>>LM**” by your mouse. You will get the message informing that the header is stored and select the cell “**okay**” by your mouse to terminate the program. LM 2 will automatically return to weighing mode.

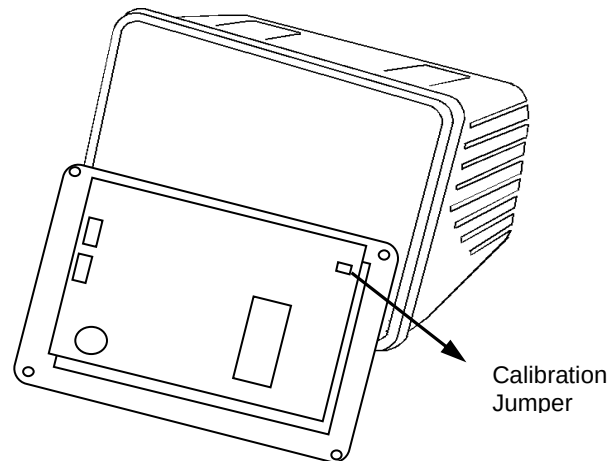
7. ALIBI MEMORY

If the Alibi Memory is enabled in setup LM 2 will store 3000 weighing records in its memory. Those records can be displayed or printed out via RS232C port. To display Alibi memory, first F key and then key 5 are pressed consecutively. The record number, gross weight and net weight are displayed consecutively. You can reach the requested record by entering record number or by pressing enter key consecutively. Print key is pressed to print of the alibi records. The empty records are printed as “ ----- ” or the faulty records are printed as “ xxxxx ”. Printing can be stopped by pressing the F key. [**no rcrd**] message is seen if the weight record cannot displayed.

8. PROGRAMMING AND CALIBRATION

The following steps are taken to go into programming and calibration parameters:

- Disconnect the power
- Open LM 2 front panel by 4 screws at the corners of front panel and connect the calibration jumper as indicated below.
- Close LM 2 by one screw at any corner and power up.



Key functions in the programming:



Function key is used to go into set-up or to go out from any programming blocks. While the message **[save 1]** is displayed, this key is used to reserve the entered parameters until power off .



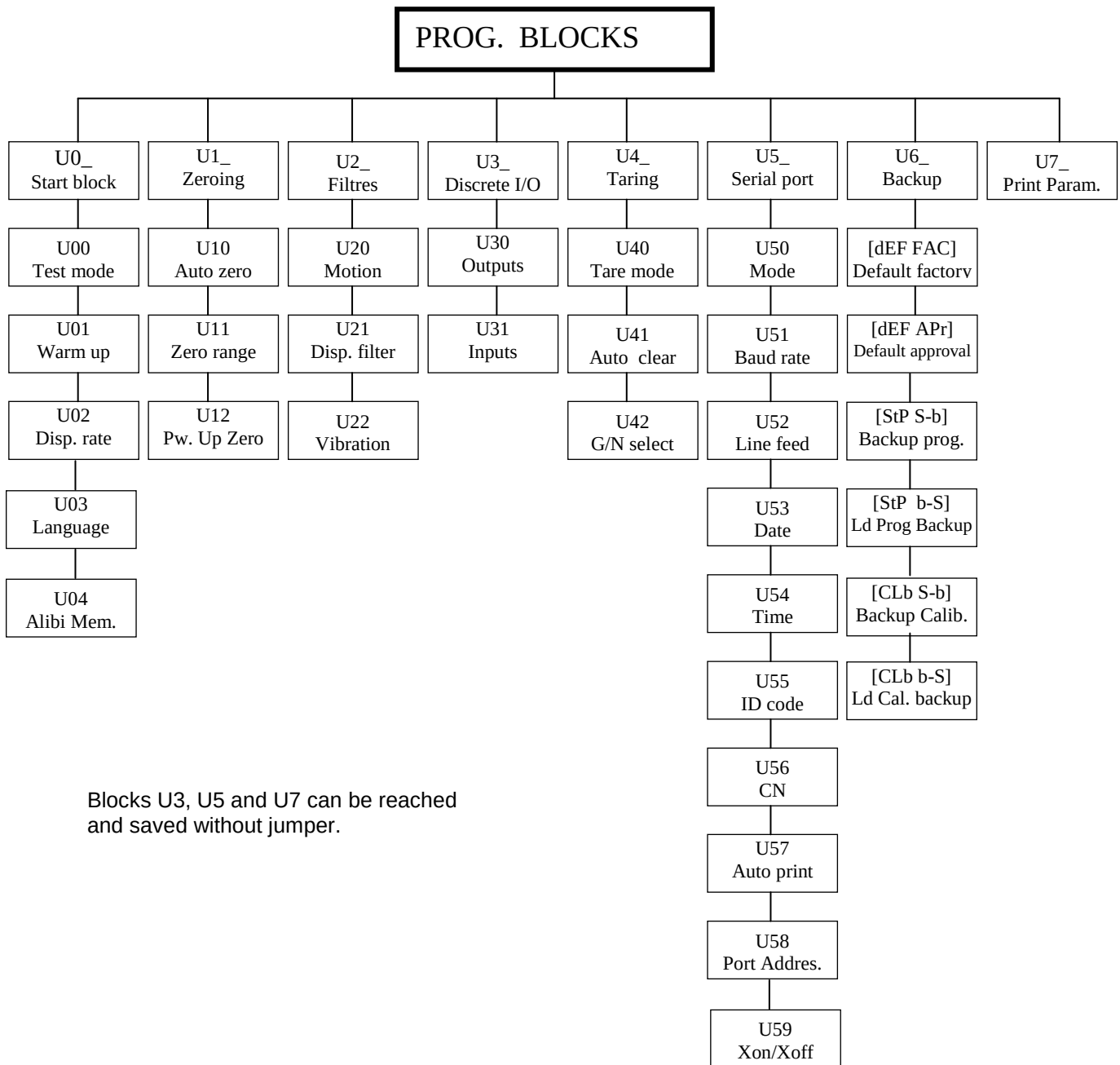
This key is used to go to the next parameter in programming or to change the value of the selected parameter.



This key is used to go into the selected programming block. The displayed or entered value is accepted by this key.

8.1. PROGRAMMING

- Press **[F]** , **[8]** keys consecutively, enter password and press **[↵]** key.
- The message **[U0-]** will appear indicating that you are in programming mode.



[U0] **Starting Parameters Block**

This is the first block displayed in the programming. By pressing  key you can get to the next block. Please press  key to access to the subblocks in this block.

[U00 X] **x10 Test mode**

X=0 Display shows normal weight data, x10 key do not work.

X=1 Display shows normal weight data, x10 key works.

X=2 Weight is displayed in x10 higher resolution for testing.

 is used to select the requested value.

 is used to go to next parameter.

[U01 X] **Warm up**

X=0 LM 2 displays weight immediately after power-up.

X=1 Weight is displayed in 45 sec. after power-up.

 is used to select the requested value.

 is used to go to next parameter.

[U02 X] **Display update rate**

This parameter defines the display update rate of LM 2. This parameter can be from 1 to 9 by  keys. This number is multiplied by 100 ms to find display update speed.

 is used to go to next parameter.

[U03 X] **Language**

X=0 English.

X=1 Turkish

 is used to select the requested value.

 is used to go to next parameter.

[U04 X] **Alibi Memory**

X=0 Disables alibi memory

X=1 Alibi memory is enabled and can be displayed only

X=2 Alibi memory is enabled and can be displayed and printed out

 is used to select the requested value.

 is used to go to next parameter.

[U1] Zeroing Parameters Block

[U10 X] Automatic zero maintenance

Weight indication within the selected values below around centre zero will automatically compensated to zero.

X=0 Auto zero disabled.

X=1 +/- 0.5 increments.

X=2 +/- 1 increments.

X=3 +/- 2 increments.

X=4 +/- 3 increments.

 is used to select the requested value.

 is used to go to next parameter.

[U11 X] Zero range

Zero button will be effective within the weight limit below.

X=0 Zero button is not active.

X=1 % 2 of scale capacity.

 is used to select the requested value.

 is used to go to next parameter.

[U12 X] Power-up zero

When LM 2 is powered on, the weight indication within the selected weight limit will automatically compensated to zero. If the weight indication is bigger then the selected limits, then, [PW_r ZEr] message is given. In this case,  key is pressed to go into weighing mode.

X=0 Disables power-up zero.

X=1 +/- %2 of scale capacity.

X=2 +/- %10 of scale capacity.

 is used to select the requested value.

 is used to go to next parameter.

[U2] Filter Parameters Block

[U20 X] Motion detection

This parameter defines if the weighing is stable. Can be entered via numeric keys from 0,0 to 9,9. If the change of the weight indication is within the entered value, then, the weighing considered as stable. Zero, tare and print keys are inhibited if the scale is in-motion. X=0.0 disables in motion detector.  is used to go to next parameter.

[U21 X] Display filter

This is standard digital filter against wind or other environmental effects.

- X=0 No Filter.
- X=1 Low level.
- X=2 Medium level.
- X=3 High level.
- X=4 Very high level.

 is used to select the requested value.

 is used to go to next parameter.

[U22 X] Vibration and damping filter

This filter is particularly effective against vibration because of mixing or agitating.

- X=0 No filter.
- X=1 Very low level.
- X=2 Low level.
- X=3 Medium level.
- X=4 High level.

 is used to select the requested value.

 is used to go to next parameter.

[U3] Setpoints and parallel Inputs

[U30 X] Setpoint / Tare memory mode :

- X=0 Disable setpoints.
- X=1 Setpoints are active according to Net weight values.
- X=2 Setpoints are active according to Gross weight values.
- X=3 In this case from SP1 to SP4, setpoints are activated according to displayed weight values. SP5= In motion: It becomes active if the scale is in motion. SP6= Error: It becomes active if LM 2 produces an error such as over capacity, under capacity, etc.
- X=4 PM key is used for tare memory instead of setpoint.
- X=5 32 setpoint output via BR408 relay units based on Net weight.
- X=6 32 setpoint output via BR408 relay units based on Gross weight.

 is used to select the requested value.

 is used to go to next parameter.

[U31 X] Inputs

This parameter activates the opto-isolated inputs.

- X=0 Disable inputs.
- X=1 Activate inputs as scale functions Zero, Clear, Tare and Print.

 is used to select the requested value.

 is used to go to next parameter.

[U4] Taring Block

[U40 X] Tare mode

X=0 : Disable tare function.

X=1 : Tare can be taken by Tare button and via parallel input and serial port.

X=2 : Tare can be taken by Tare button, numeric preset tare and via parallel input and serial port.

 is used to select the requested value.

 is used to go to next parameter.

[U41 X] Automatic tare clear

If this parameter is enabled, the scale clears the tare value and returns to gross mode automatically when the weight is at centre zero.

X=0 : Disable auto clear tare.

X=1 : Enable auto clear tare.

 is used to select the requested value.

 is used to go to next parameter.

[U42 X] Select Gross / Net

This parameter enables or disables GROSS / NET key.

X=0 : Disables  key.

X=1 : Enables  key.

 is used to select the requested value.

 is used to go to next parameter.

[U5] Serial port parameters

[U50 X] Data mode

X=0 : No serial data.

X=1 : Continuous mode.

X=2 : Standart-1 data in Demand mode.

X=3 : Standart-2 data in Demand mode.

X=4 : Standart-3 data in Demand mode.

X=5 : Not used

X=6 : Displayed weight is sent continuously.

X=7 : Special format for BAYKON's control cards.

X=8 : Displayed weight is sent by pressing Print key.

 is used to select the requested value.

 is used to go to next parameter.

[U51 X] Baud rate

X=0 : 1200 Baud
X=1 : 2400 Baud
X=2 : 4800 Baud
X=3 : 9600 Baud
X=4 : 19200 Baud

 is used to select the requested value.
 is used to go to next parameter.

[U52 X] Line feed

This parameter defines the number of line feed at the end of ticket. Can be typed in from 1 to 9 by numeric keys.

 is used to select the requested value.
 is used to go to next parameter.

[U53 X] Date

X=0 : Date is not printed.
X=1 : Date will be printed.

 is used to select the requested value.
 is used to go to next parameter.

[U54 X] Time

X=0 : Time will not be printed.
X=1 : Time will be printed.

 is used to select the requested value.
 is used to go to next parameter.

[U55 X] ID

X=0 : ID will not be printed.
X=1 : ID will be printed.

 is used to select the requested value.
 is used to go to next parameter.

[U56 X] CN

X=0 : CN will not be printed.
X=1 : CN will be printed.

 is used to select the requested value.
 is used to go to next parameter.

[U57 X] Auto print

If auto print is enabled, automatic print is activated when the weight value goes over SP1 and becomes stable.

X=0 : Disables auto print.

X=1 : Enables auto print.

 is used to select the requested value.

 is used to go to next parameter.

[U58 X] Unit address :

LM 2 can be configured as a unit address by this parameter. This number can be typed in from 1 to 9 by numeric keys. 0 defines communication without address.

[U59 X] Xon/Xoff :

X=0 : Disables Xon/Xoff.

X=1 : Enables Xon/Xoff.

[U6] Backup Parameters Block

In this block, the backup operations are organised. Default memory is the memory area to keep factory settings, approval settings, programming and calibration backup. and those values cannot be changed.

PLEASE BE VERY CAREFUL WHILE WORKING IN THIS BLOCK NOT TO DESTROY YOUR SETUP AND CALIBRATION VALUES.

 key is used to move up and down in this block.

[dEF FAC] Loading factory setup :

Please press  key to load factory default parameters as setup values.

[dEF APr] Loading approved parameters :

Please press  key to load approved parameters default as setup values.

[StP S-b] Backup programming parameters :

Please press  key to save programming values into programming backup memory.

[StP b-S] Loading programming backup :

Please press  key to download the programming backup memory as programming parameters.

[CAL S-b] Backup calibration parameters :

Please press  key to save calibration values into the calibration backup memory.

[CLb b-S] Loading calibration backup :

Please press  key to download the calibration backup memory as calibration parameters.

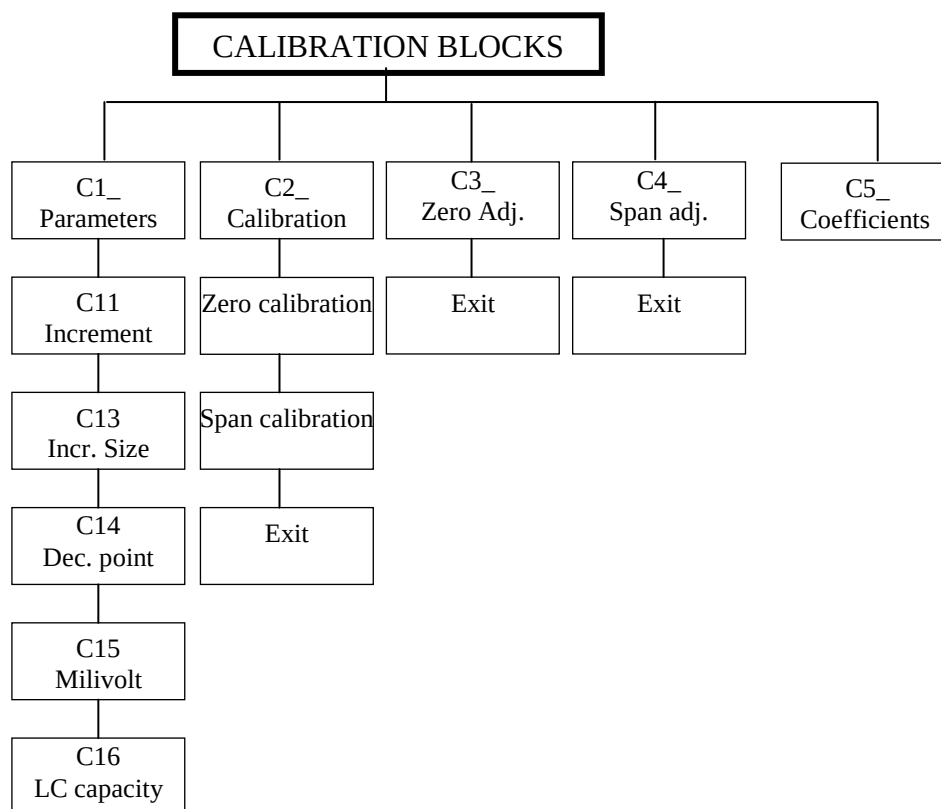
[U7] Printing Setup parameters

You can get the list of setup parameters in this block. Please press  key. LM 2 will return to [U0-] block after printing.

8.2 CALIBRATION

To go into calibration:

- Please press ,  keys consecutively, type in the password and press  key.
- The message [C1-] will appear on the display. There exists 5 main block in the calibration menu. You can select the requested block by  keys and press  key to go into the selected block.
-  is used to get out of any block.



[C1] Calibration Parameters Block

[C11 X] Increment Number

Please select your increment size by pressing  keys from 1000 to 20000. The possible values for increment size are indicated in Table I. The relation between scale capacity and increment size can be found in section “ Relation between scale capacity and increment size”.

 is pressed for the next step.

[C13 X] Increment size

Can be selected as 1,2 or 5. Indicates step of increment on the display.

 is used to select the requested value.

 is used to go to next step.

[C14 X] Decimal point

Decimal point can be selected as 10, 1 , 0.1 , 0.01 , 0.001 and 0.0001 .

 is used to select the requested value.

 is used to go to next step.

[C15 X.X] Load cell sensitivity

The load cell sensitivity is typed via numeric keys from 0.0 to 9.9 mV/V.

 is used to go to next step.

[C16 X] Maximum load cell capacity

Maximum load cell capacity is multiplication of number of cells and load cell capacity. For example, for 4 load cells each with the 1000 kg in the scale, the maximum load cell capacity is 4000 kg. You can type this value by numeric keys and press  key to go to next parameter.

Relation between scale capacity and increment size

The Table.I the possible values for C11, C13 and C14 are indicated.

C11	1000, 1500, 1600, 2000, 2500, 3000, 4000, 5000, 6000, 7500, 8000, 10000, 12000, 15000, 16000, 20000
C13	1, 2, 5
C14	0.0001, 0.001, 0.01, 0.1, 1, 10

Table.I: Possible values for C11, C13 and C14

Scale capacity= C11 x C13 x C14

C13= Readability/ C14

Example 1 : Let the scale is 100 kg x 0.02 kg (20 g)

Capacity : 100 kg

Readability : 0.02 kg

Decimal point : 0.01

C14= 0.01

C13= 0.02/C14= 0.02/0.01=2

C11= Scale capacity/ C13xC14= 100/ 0.01 x 2 = 5000

Example 2: Let the scale is 1500 kg x 0.5 kg (500 g)

Capacity : 1500 kg

Readability : 0.5 kg

Decimal point : 0.1

C14= 0.1

C13= 0.5/C14= 0.5/0.1=5

C11= Scale capacity/ C13xC14= 1500/ 0.1 x 5 = 4000

Example 3: Let the scale is 60000 kg x 20 kg

Capacity: 60000 kg

Readability: 20 kg

Decimal point : 1

C14= 10

C13= 20/C14= 20/10=2

C11= Scale capacity/ C13xC14= 60000/10 x 2 = 3000

Example 4: Let the scale is 10000 g x 1g

Capacity: 10000 g

Readability: 1 g

Decimal point : 1

C14= 1

C13= 1 /C14= 1/1=1

C11= Scale capacity/ C13xC14= 10000/1 x 1 = 10000

IMPORTANT NOTE:

If C11 is calculated between any 2 numbers in Table.I, the bigger will be selected.

[C2] Calibration Block

1- The message [**Zero CL**] comes on the display. Please unload scale and press key. The message [**dELAY**] will come to the display. LM 2 is now getting zero value of the scale. It will take about 10 seconds and please do not touch the scale during this period.

2- The message [**CALB II**] appears and a value comes to display in 5 seconds. This value is the last entered test weight for span calibration. You can use this test weight or enter the new one. Please place the test weight on the scale and enter this value via numeric keys and press key. [**Gain CL**] message appears. Press key and the [**dELAY**] message appears. LM 2 is now getting known the test weight value and doing span calibration. It will take about 10 seconds and please do not touch the scale during this period.

3- After delay period [**CAL End**] and [**SAVe 1**] messages appears consecutively. Please press key to save the new calibration. If, key is pressed, the new calibration will be lost after power off.

[C3] ZERO ADJUSTMENT

If the zero of the scale is changed by any reason, only zero adjustment is done without complete calibration steps in this block. [**Zero CL**] message appears when you enter this block. Please empty the scale and press key. The message [**dELAY**] appears for about 30 sec. Please do not touch the scale during this period. After this period first [**CAL End**] message appears and then [**SAVe 1**] message comes. Please press key to save the new zero. If, key is pressed, the new zero value will be lost after power off.

[C4] SPAN ADJUSTMENT

If the span calibration of the scale is changed by any reason, only span calibration is done without complete calibration steps in this block. [**CALB II**] message appears when you enter this block. Please press key and the value of the last test weight appears on the display. You can use the old test weight or change it. Please place the test weight on the scale and type in this value via numeric keys and press key. [**Gain CL**] message appear and press key. The [**dELAY**] message appears. LM 2 now gets known the test weight value and doing span calibration. It will take about 20-30 sec and please do not touch the scale during this period.

After delay period [**CAL End**] and [**SAVe 1**] messages appears consecutively. Please press key to save the new calibration. If, key is pressed, the new calibration will be lost after power off.

[C5] CAL. COEFFICIENTS

In this block, you can see 8 values by pressing Enter key. Please write down those values after the calibration. In case of the calibration's lost, enter these values via numeric keypad to reload the calibration without reperforming the calibration process again.

9. TESTING PARALEL I/O AND SERIAL PORT

You can reach test menu by pressing and keys consecutively. You can reach the requested test by key and key is press to go out from the test menu.

9.1 Discrete Output Test

Please press key until [t0_] message appears and press key. The message [t00 0] comes to display. The first 3 digit indicates the output number and the digit on the right shows the value of this output. You can change the value of output by pressing 0 or 1 keys. key is used to reach other outputs. Please press key to go out from output test.

9.2 Discrete Input Test

Please press key until [t1_] message appears and press key. The message [t1 XXXX] comes to display. Each digit on the display shows the inputs respectively. X= 0 means no input and X=1 means an input is applied.
Please press key to go out from input test.

9.3 Testing serial port :

Please press key until [t2_] message appears and press key. The message [t2_] comes to display. If you press any numeric key of LM 2, the display changes as [t2_ X_] and the ASCII value of this key is sent via serial port. If any ASCII code received from serial port, the display changes as [t2_ X_X].

Please connect to RXD and TXD pins of serial port connector and apply this test. you can read the value of key which is pressed on the display as [t2_ X_X].

Please press key to go out from serial port test.

10. SERIAL DATA OUTPUT :

Baud rate can be selected as 1200, 1400, 4800, 9600, 19200. Data length is 8 bit with no parity.

10.1 Continuous data format :

STATUS				GROSS							NET							
STX	STA	STB	STC	D6		D4	D3	D2	D1	D0	D6	D5	D4	D3	D2	D1	D0	CR

10.2 Standart-1 Data format :

By pressing  key, data is sent as single line as indicated below.

DATE				TIME				ID						CN						GROSS						TARE						NET			
M	S	D		L	S	D	S	P	M	S	D		L	S	D	S	P	M	S	D		L	S	D	S	P	M	S	D		L	S	D	C	R

DATE

D	D	/	M	M	/	Y	Y	Y	Y
Msd								Lsd	

TIME

H	H	/	M	M
Msd			Lsd	

ID

I	D	=	D4	D3	D2	D1	D0
Msd							Lsd

CN

C	n	=	D5	D4	D3	D2	D1	D0
Msd								Lsd

GROSS

G	=	D6	D5	D4	D3	D2	D1	D0	K	g
Msd										Lsd

TARE

T	=	D6	D5	D4	D3	D2	D1	D0	K	G
Msd										Lsd

NET

N	=	D6	D5	D4	D3	D2	D1	D0	K	g
Msd										Lsd

Date, time, ID and CN can be sent or not. These can be selected by the related programming parameters.

The meaning of some symbols:

[SP] : Space

[CR] : Carriage return

[LF] : Line feed

[MSD] : Most significant digit.

[LSD] : Least significant digit.

[X] : Digit of data.

10.3 Standart-2 Data format :

By pressing $\square$ key, data is sent as multiple lines as indicated below.

LF	CR	D	A	T	E			:		D	D	/	M	M	/	Y	Y	Y	Y	LF	CR
----	----	---	---	---	---	--	--	---	--	---	---	---	---	---	---	---	---	---	---	----	----

T	I	M	E			:	H	H	:	M	M	LF	CR
---	---	---	---	--	--	---	---	---	---	---	---	----	----

C	N					:	D5	D4	D3	D2	D1	D0	LF	CR
---	---	--	--	--	--	---	----	----	----	----	----	----	----	----

I	D						:		D4	D3	D2	D1	D0	LF	CR	LF	CR	LF	CR
---	---	--	--	--	--	--	---	--	----	----	----	----	----	----	----	----	----	----	----

G	r	o	s	s	:		D6	D5	D4	D3	D2	D1	D0		K	g	LF	CR
---	---	---	---	---	---	--	----	----	----	----	----	----	----	--	---	---	----	----

T	a	r	e	:		D6	D5	D4	D3	D2	D1	D0		K	g	LF	CR
---	---	---	---	---	--	----	----	----	----	----	----	----	--	---	---	----	----

N	e	t	:		D6	D5	D4	D3	D2	D1	D0		K	g	LF	CR
---	---	---	---	--	----	----	----	----	----	----	----	--	---	---	----	----

10.4 Standart-3 Data format :

When $\square$ key is pressed, first the data block including header, date, time, ID and the first weight with CN=1 is sent. After each weighing, CN increases by 1 and only CN and the weight is printed by $\square$ key. After the last weighing, $\square$ key is pressed and the total line is printed by $\square$ key.

LF	CR	D	A	T	E			:		D	D	/	M	M	/	Y	Y	Y	Y	LF	CR
----	----	---	---	---	---	--	--	---	--	---	---	---	---	---	---	---	---	---	---	----	----

T	i	m	e			:	S	S	:	D	D	LF	CR
---	---	---	---	--	--	---	---	---	---	---	---	----	----

C	N					:	D5	D4	D3	D2	D1	D0	LF	CR
---	---	--	--	--	--	---	----	----	----	----	----	----	----	----

I	D						:		D4	D3	D2	D1	D0	LF	CR	LF	CR	LF	CR
---	---	--	--	--	--	--	---	--	----	----	----	----	----	----	----	----	----	----	----

		1						D6	D5	D4	D3	D2	D1	D0		K	g	LF	CR
--	--	---	--	--	--	--	--	----	----	----	----	----	----	----	--	---	---	----	----

		2						D6	D5	D4	D3	D2	D1	D0		K	g	LF	CR
--	--	---	--	--	--	--	--	----	----	----	----	----	----	----	--	---	---	----	----

		n						D6	D5	D4	D3	D2	D1	D0		K	g	LF	CR
--	--	---	--	--	--	--	--	----	----	----	----	----	----	----	--	---	---	----	----

-	-	-						-	-	-	-	-	-	-	-	-	LF	CR
---	---	---	--	--	--	--	--	---	---	---	---	---	---	---	---	---	----	----

T	O	T	A	L		=		D6	D5	D4	D3	D2	D1	D0		K	G	LF	CR
---	---	---	---	---	--	---	--	----	----	----	----	----	----	----	--	---	---	----	----

10.5 Continuous displayed weight data format (U50 =6) :

DISPLAYED WEIGHT

		D6	D5	D4	D3	D2	D1	D0	LF	CR
--	--	----	----	----	----	----	----	----	----	----

11. CONNECTOR PIN LAYOUT :

11.1 LOADCELL CONNECTOR (DB9 FEMALE)

PIN NO	MEANING	LOAD CELL 6 LINE CABLE	LOAD CELL 4 LINE CABLE
1	+ EXCITATION	+ EXCITATION	+ EXCITATION
2	+ SENSE	+ SENSE	+ EXCITATION
3	SHIELD	SHIELD	SHIELD
4	- SENSE	- SENSE	- EXCITATION
5	- EXCITATION	- EXCITATION	- EXCITATION
7	+ SIGNAL	+ SIGNAL	+ SIGNAL
8	- SIGNAL	- SIGNAL	- SIGNAL

11.2 RS 232C SERIAL PORT CONNECTOR (DB9 MALE)

PIN NO	MEANING
2	TXD
3	RXD
7	GND

11.3 PARALLEL INPUT AND OUTPUTS (DB25 FEMALE)

OPTOISOLATED INPUTS

Max. input voltage is 28 V.

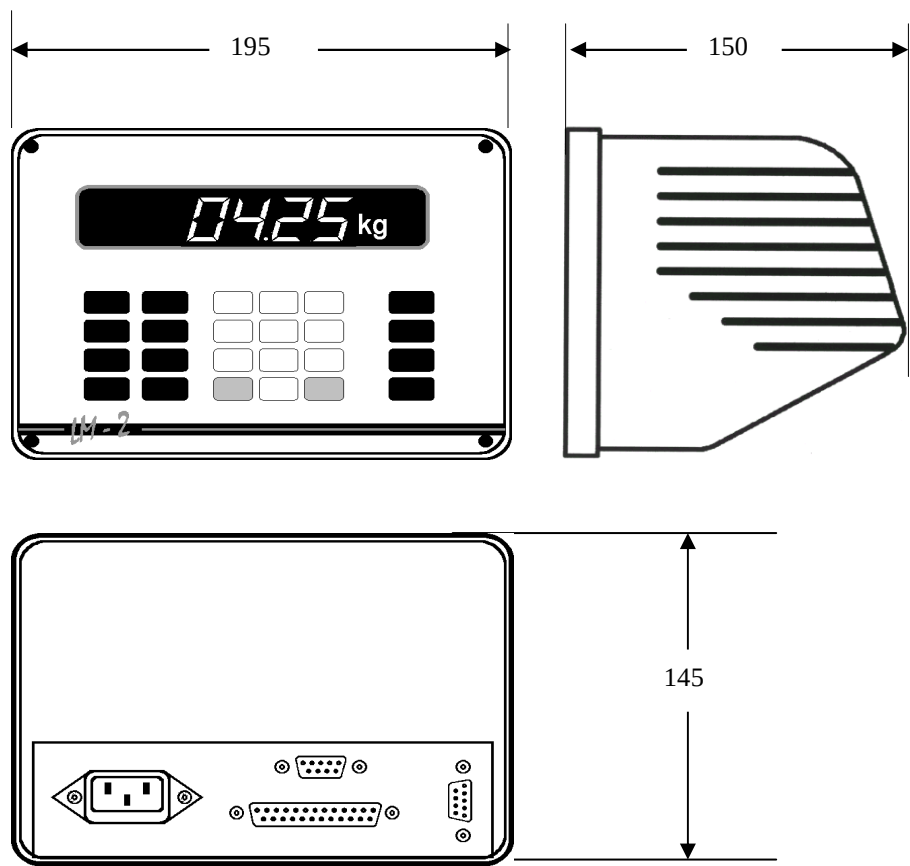
PIN NO	MEANING
2	GND (common)
9	PRINT
10	CLEAR
11	TARE
12	ZERO

OPTOISOLATED OUTPUT3 :

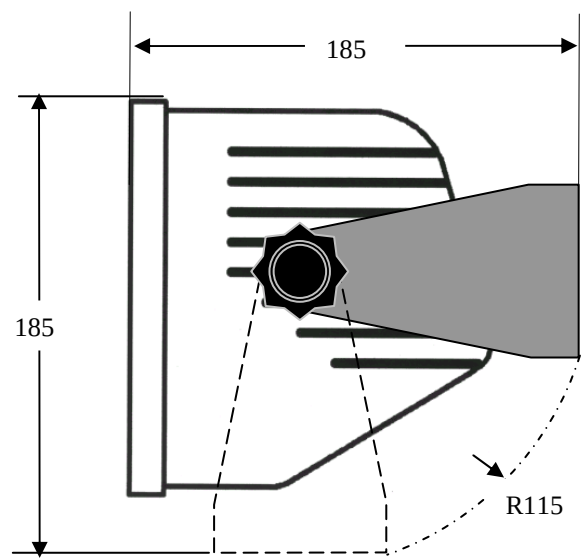
Max. Total output current is 300mA.

PIN NO	MEANING
3	SETPOINT 1
4	SETPOINT 2
5	SETPOINT 3
6	SETPOINT 4
7	SETPOINT 5
8	SETPOINT 6
1	24V
2	GND

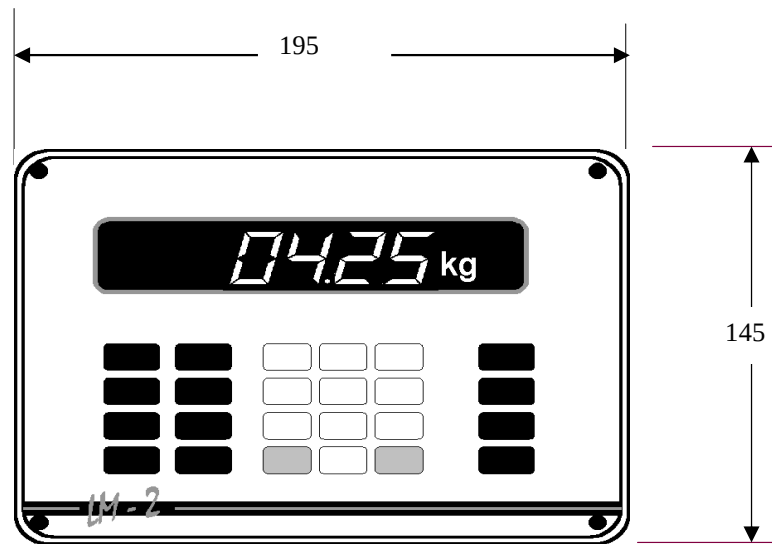
12. DIMENSIONS :



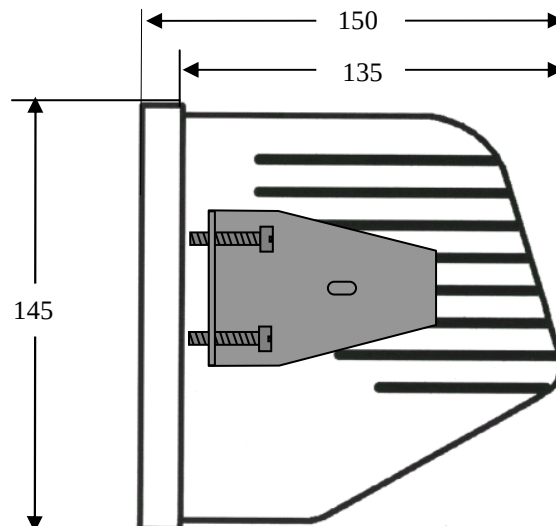
LM 2 desk type layout and dimensions



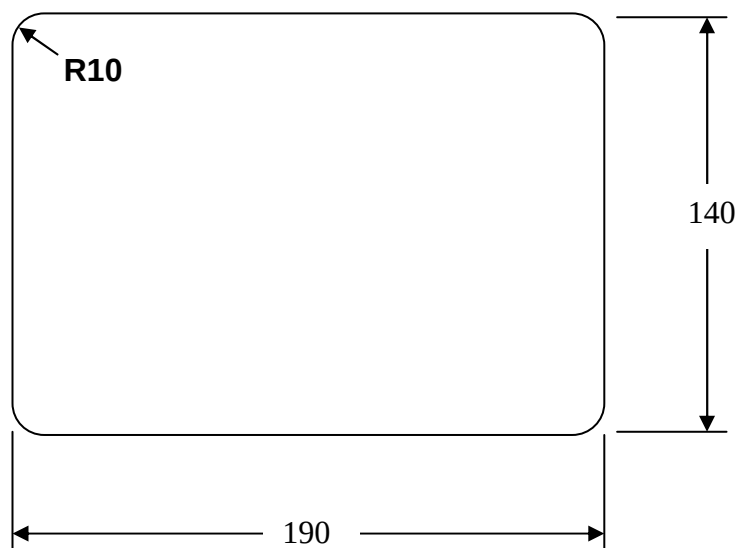
LM 2 wall mount dimensions



Panel type front apperance



LM 2 Panel mount side view and dimensions



LM 2 Panel mount dimensions

13. ERROR TABLE

Codes	Description	Solution
UndEr	Scale is under range	- Check the scale and load cell - Check calibration - Main board error
OvEr	Scale is over range	- Check the scale and load cell - Check calibration - Main board error
AdC oUt	Weight is out of range	- Check the scale and load cell - Check calibration - Main board error
E AdC		
- EEE	Power up zero cannot be executed. Auto zero range is out of range in minus	- Press enter key - Check the scale and load cell - Check calibration
EEE	Power up zero cannot be executed. Auto zero range is out of range in positive	- Press enter key - Check the scale and load cell - Check calibration
SSSS	Power up timer is in process	- Check the scale and load cell - Check calibration - Main board error
Err 1	NOVRAM error	- Contact to Baykon
Err 2	NOVRAM error	- Contact to Baykon
Err 3	RTC error	- Contact to Baykon
Err 4	RTC error	- Contact to Baykon
Err 11	Setup parameters checksum error	- Press print key. Reload or backup the parameters.
Err 12	ID memory checksum error	- Press print key to clear ID and totals.
Err 13	Total memory checksum error	- Press print key to clear total
Err 14	Calibration novram checksum error	- Press print key. Please check the scale calibration.
Err 15	Memory checksum error in standard 2 printout.	- Press print key to clear memory.
Err 16	Calibration parameters checksum error	- Press print key. If need be calibrate the scale.
Err 17	Header checksum error	- Press Print key. Reload header.
Err 33	Calibration weight is not sufficient.	- Press Print key and increase calibration weight.
Err 34	Zero calibration error	- Press Print key. Check the scale and recalibrate it.
Err 35	Gain calibration error	- Press Print key. Recalibrate scale - Check load cell connections. - Check the scale. - Change main PCB.
Err 37	Scale is in motion	- Provide stabile conditions during calibration. - Check ground connection.

14. SPARE PARTS

Order No	Name	Description
LM 2/10	Housing Desk type	
LM 2/11	Housing Panel type	
LM 2/12	Housing Wall type	
LM 2/2	Front panel membran	
LM 2/3	Main board	Processor and ADC are on this board
LM 2/41	Display board	Includes display, key switches and I/O
LM 2/50	Power supply board	
LM 2/51	Line filter	
LM 2/71	LC connector	
LM 2/72	Parallel I/O connector	
LM 2/73	Serial port connector	
LM 2/79	W&M Sealing kit	

15. PARAMETERS DEFAULT LIST

Parameter	Factory Default values	Defaults for approved scales	Acceptable values for approved applications
U00	1	1	0,1
U01	0	1	1
U02	0	3	0,1,, 9
U03	1	1	0,1
U04	0	0	0,1, 2
U10	1	1	0,1
U11	1	1	0,1
U12	0	2	0,1, 2
U20	1.0	0.4	0.0, 0.1, 0.2, 0.3, 0.4
U21	2	4	0, 1, 2, 3, 4
U22	4	4	0, 1, 2, 3, 4
U30	0	4	0,1, 2, 3, 4, 5, 6
U31	0	0	0,1
U40	2	2	0,1, 2
U41	0	0	0,1
U42	1	1	0,1
U50	2	2	0, 1, 2, 3, 4, 5, 6, 7, 8
U51	3	3	0, 1, 2, 3, 4
U52	1	1	1, 2,, 9
U53	0	0	0,1
U54	0	0	0,1
U55	0	0	0,1
U56	0	0	0,1
U57	0	0	0,1
U58	0	0	0, 1, 2,, 9
U59	0	0	0,1
C11	10000	3000	Up to 6000
C13	1	1	All values
C14	0.001	0.1	All values
C15	2.0	2.0	
C16	20.000	635.0	

16. APPENDIX I:

STATUS BYTES OF CONTINUOUS DATA FORMAT

Status word A			
Bit 0, 1 and 2			
0	1	2	Decimal point
0	0	0	XXXXOO
1	0	0	XXXXXO
0	1	0	XXXXXX
1	1	0	XXXXX.X
0	0	1	XXXX.XX
1	0	1	XXX.XXX
0	1	1	XX.XXXX
1	1	1	X.XXXXX
Bit 3 and 4			Readability
3	4		
1	0		X 1
0	1		X 2
1	1		X 5
Bit 5			Always=1
Bit 6			Always=1
Bit 7			Not used

Status B	
Bit 0	Gross=0, Net=1
Bit 1	Weight positive=0, Weight negative=1
Bit 2	Over weight=1
Bit 3	Stabile=0, In-motion = 1
Bit 4	Kg=1
Bit 5	Always = 1
Bit 6	Zeroed when powered up.
Bit 7	Not used

Status C	
Bit 0	Always = 1
Bit 1	Always = 1
Bit 2	Always = 1
Bit 3	Always = 1
Bit 4	Always = 1
Bit 5	Always = 1
Bit 6	Always = 1
Bit 7	Always = 1

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