

MR020
1104
0001

MR100 ELECTRONIC REGISTER

SUPPLEMENTARY MANUAL

Please read and retain this instruction manual to assist you in the operation and maintenance of this Electronic register.

GENERAL INFORMATION

This manual assists you in operating and maintaining your new Electronic LCD register. The information contained will help you ensure many years of dependable performance and trouble free operation.

Please take a few moments to read through this manual before operating your Electronic register. If you experience problems with this product, refer to the Maintenance and Trouble Shooting sections of this manual. If you require further assistance please contact your local Distributor.

OPERATION

DISPLAY BUTTON

Each press of the **DISP** button will allow you to scroll through the meter options

- Resetable Batch Total
- Resetable Accumulative Total
- Non Resetable Accumulative Total
- Flowrate

RESET BUTTON

The **RESET** button allows you to reset the Batch Total or the Resettable Accumulative Total to zero.

To reset either the Batch total or Resettable Accumulative total. Press the **DISP** button to scroll to either the Batch or Resettable total. When the required total is displayed. Press reset to zero the totalizer.

FLOWRATE

This display option shows the flowrate of the fluid passing through the meter.

SLEEPMODE

If NO flow goes through the meter for 60 seconds the display will go into sleep mode (Blank). The display will automatically wake if the buttons are pressed or flow occurs.



BATTERY REPLACEMENT

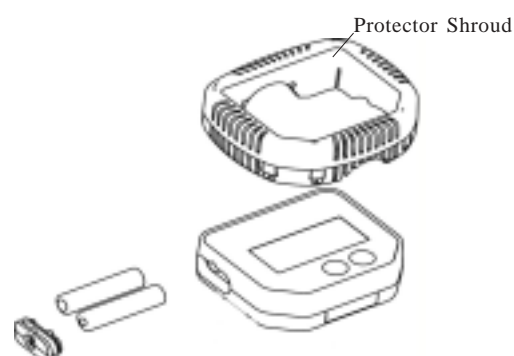
Note: Replace the batteries as soon as the battery indicator on the LCD is displayed



All data will be saved when the batteries are removed.

- 1) Remove the plastic protector shroud from the register assembly. (fig 1)
- 2) Remove the battery cover.
- 3) Replace the 2 x (AAA) Alkaline batteries. (Refer to the front of the register for correct battery orientation).
- 4) Replace the battery cover and re-fit the plastic shroud.

Note: Only use AAA Alkaline batteries.



(fig 1)

REGISTER MAINTENANCE

Refer to the exploded diagram (fig 2) for a full parts breakdown and a list of available spare parts.

To remove the Register

Remove the protective boot (Item 9). Loosen the two grub screws (item 1) using a 3mm AF Hex key until the register can be lifted from the two Bollards (Item 7). Mark the connections on the terminal block and gently unscrew the cable from the meter terminal block. Place the register in a safe place to avoid damage to the LCD.

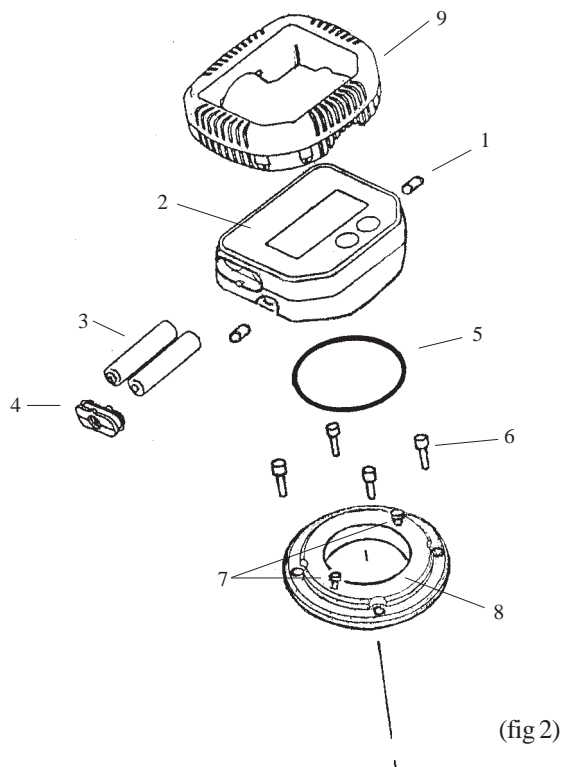
To replace the Register

Clean the mating faces of the register and the meter. Connect the cable to the correct terminals on the meter terminal block. Tighten the terminals and place the register onto the bollards. Ensure the oring (item 5) is located correctly and is not damaged. While applying a light downward pressure to the register tighten the two grub screws (item 1) using a 3mm AF Hex key against the two Bollards. Replace the protective boot and check the register operation.

To rotate the Register

Remove the protective boot (Item 9). Loosen the two grub screws (item 1) using a 3mm AF Hex key until the register can be lifted from the two Bollards (Item 7). Mark the connections on the terminal block and gently unscrew the cable from the meter terminal block. Place the register in a safe place to avoid damage to the LCD. Remove the 2 bollards (Item 7) using a flat bladed screw driver and replace them in the desired location. Clean the mating faces of the register and the meter. Connect the cable to the correct terminals on the meter terminal block. Tighten the terminals and place the register onto the bollards. Ensure the oring (item 5) is located correctly and is not damaged. While applying a light downward pressure to the register tighten the two grub screws (item 1) using a 3mm AF Hex key against the two Bollards. Replace the protective boot (item 9) and check the register operation.

PARTS DIAGRAM



(fig 2)



IMPORTANT INFORMATION

TO PROLONG THE REGISTER LIFE:

1. Do not expose the register to bright direct sunlight.
2. Do not expose the register to rain.
3. Replace the batteries as soon as the low battery element on the LCD is displayed.
4. Do not clean the facia with solvents or abrasive cleaners.
5. Use only good quality AAA Alkaline batteries.
6. Do not exceed the maximum or minimum rated temperatures stated in the register specifications.
7. Do not allow the register housing to be exposed to impacts.

PARTS LIST

ITEM	PART NO	No. off	ORDER FOR REPLACEMENT		DESCRIPTION
			PART/SET		
1	N411	2	N411s incl items 1,5 & 7		GRUB SCREW
2		1			METER REGISTER ASSY
3	IM066	2	IM066s		BATTERY SET
4	IM060A	1	IM060As		BATTERY COVER SET
5	BS133	1			ORING
6	MS115	4	MS115s		BOLTS
7	MR017	1			BOLLARDS
8	MR018	1	MR018s		ADAPTOR PLATE ***
9	IM070	1	IM071BKS = (BLACK)		PROTECTOR BOOT SET
9	IM070	1	IM071BUS = (BLUE)		PROTECTOR BOOT SET
9	IM070	1	IM071GRS = (GREEN)		PROTECTOR BOOT SET
9	IM070	1	IM071RDS = (RED)		PROTECTOR BOOT SET

*** Item 8 required for G10 to G100 models only.

ELECTRONIC REGISTER

PROGRAMING DETAILS

Note: As the decimal point does not float we recommend that a maximum of 2 decimal places be used, see below for details.

The electronic module has been set up as follows:-

- a) Ensure the meter is awake before trying to enter the programming mode.
- b) If the meter goes into sleep mode during programming, it will automatically return to operating mode.
- c) To access the programs and settings, hold down the **RESET** button for 5 seconds

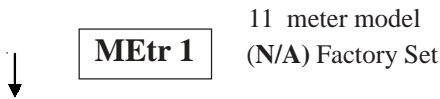


- d) To scroll through the setting options press the **DISP** button.

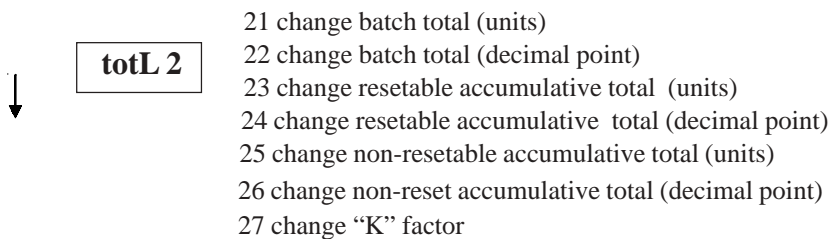
NOTE: Details for changing individual options .

For example to change the units setting on the batch total turn to item 2 - 21

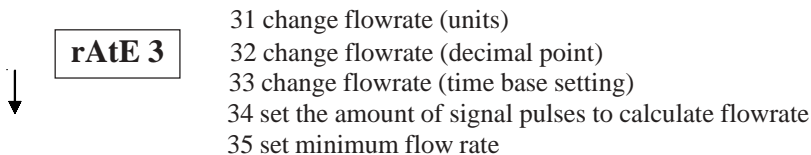
1. METER MODEL



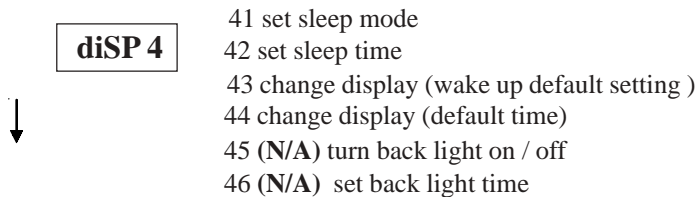
2. TOTALS



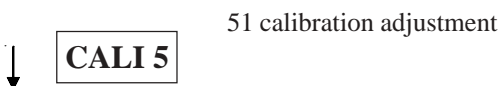
3. FLOWRATE



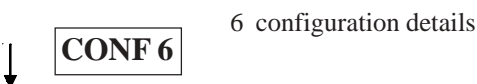
4. DISPLAY



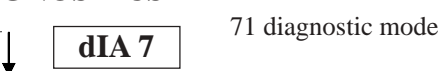
5. CALIBRATION



6. CONFIGURATION



7. DIAGNOSTICS



1. METER MODEL

MEtr 1

11 METER MODEL

NOTE: The meter model is factory set and cannot be changed. To return the meter to the operating mode press the **RESET** button for 5 seconds.

2. TOTALS SETTINGS

totL2

21 BATCH TOTAL = unit 21 (set units)

- Press and hold down **RESET** for 5 seconds until “MEtr1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** “unit 21” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)
- Press **RESET** to scroll through the settings (ltr, gal, qrt) to the desired units
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press “**RESET**” for five seconds to return the meter to the operating mode.

22 BATCH TOTAL = dEC 22 (set decimal point)

- Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** twice “dEC 22” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)
- Press **RESET** to set the decimal point to 1st, 2nd, 3rd or no decimal place. (e.g 11111.1 = 1 decimal place)
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press **RESET** for five seconds to return the meter to the operating mode.

23 RESETABLE ACCUM TOTAL = unit 23 (set units)

- Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** 3 times “unit 23” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)
- Press **RESET** to scroll through the settings (ltr, gal, qrt) to the desired units
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press **RESET** for five seconds to return the meter to the operating mode.

24 RESETABLE ACCUM TOTAL = dEC 24

(set decimal point)

- Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** 4 times “dEC 24” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)

- Press **RESET** to set the decimal point to 1st, 2nd, 3rd or no decimal place (e.g. 11111.1 = 1 decimal place).
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press **RESET** for five seconds to return the meter to the operating mode.

25 NON-RESET ACCUM TOTAL = unit 25 (set units)

- Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** 5 times “unit 25” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)
- Press **RESET** to scroll through the settings (ltr, gal, qrt) to the desired units.
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press **RESET** for five seconds to return the meter to the operating mode.

26 NON-RESET ACCUM TOTAL = dEC 26

(set decimal point)

- Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** 6 times “dEC 26” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)
- Press **RESET** to set the decimal point to 1st, 2nd, 3rd or no decimal place (e.g. 11111.1 = 1 decimal place).
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press **RESET** for five seconds to return the meter to the operating mode.

27 “K” FACTOR = kFac 27

(setting will vary with meter type, refer to the calibration report or contact local distributor for further details)

- Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- Press the **DISP** button to reach “totL 2”
- Press **RESET** 7 times “kFac 27” will appear.
- Press and hold down **RESET** for 2 seconds (program will appear)
- To change the ‘K’ factor, press **RESET** (digit will flash), to change digit press **RESET**.
Press **DISP** to scroll to the next number. Press **RESET** to change the value
To change the decimal point, press **DISP** until it is in the required position. Press **RESET** to set the decimal point.
- Press and hold down **RESET** until “program” disappears to accept setting.
- Press **RESET** for five seconds to return the meter to the operating mode.

3. FLOW RATE rAtE 3

31 UNITS = unit 31 (set units)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button twice to reach “rAtE 3”
- c) Press **RESET** “ unit 31” will appear.
- d) Press and hold down **RESET** for 2 seconds (program will appear)
- e) Press **RESET** to scroll through the settings (ltr, gal, qrt) to the desired units
- f) Press and hold down **RESET** until “program” disappears to accept setting.
- g) Press **RESET** for five seconds to return the meter to the operating mode.

32 DECIMAL POINT = dEC 32. (decimal point setting)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button twice to reach “rAtE 3”
- c) Press **RESET** twice “ dEC 32” will appear.
- d) Press and hold down **RESET** for 2 seconds (program will appear)
- e) Press **RESET** to set the decimal point to 1st, 2nd, 3rd or no decimal place (e.g. 11111.1 = 1 decimal place)
- f) Press and hold down **RESET** until “program” disappears to accept setting.
- g) Press **RESET** for five seconds to return the meter to the operating mode.

33 TIME = tiME 33 (rate time base)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button twice to reach “rAtE 3”
- c) Press **RESET** 3 times “tiME 33” will appear.
- d) Press and hold down **RESET** for 2 seconds (program will appear)
- e) Press **RESET** to set time base (seconds, minutes, hours)
- f) Press and hold down **RESET** until “program” disappears to accept setting.
- g) Press **RESET** for five seconds to return the meter to the operating mode.

34 NUMBER OF PULSES = nuM 34 (Number of pulses used to calculate flowrate)

Note: When there is fluctuating flowrate present increasing the number will give a more accurate flowrate reading. (number range is 0 - 299)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button twice to reach “rAtE 3”
- c) Press **RESET** 4 times “ NUM 34” will appear.
- d) Press and hold down **RESET** for 2 seconds (program will appear and the digit will flash). To change press **RESET**
- e) Press **DISP** to go to the next digit. To change press **RESET**

- f) Press and hold down **RESET** until “program” disappears to accept setting.

- g) Press **RESET** for five seconds to return the meter to the operating mode

35 FLOW = Cut 35 (Set minimum measurable flowrate)

This value is the maximum time (sec) to measure the number of pulses set in nuM34

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.

- b) Press the **DISP** button twice to reach “rAtE 3”

- c) Press **RESET** 5 times “ Cut 35” will appear.

- d) Press and hold down **RESET** for 2 seconds (program will appear and the digit will flash). To change press **RESET**

- e) Press **DISP** to go to the next digit. To change press **RESET**

Note : Total number 999.9

- f) Press and hold down **RESET** until “program” disappears to accept setting.

- g) Press **RESET** for five seconds to return the meter to the operating mode.

4. DISPLAY diSP 4

41 SLEEP MODE = SLP 41 (set sleep mode)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.

- b) Press the **DISP** button 3 times to reach “diSP 4”

- c) Press **RESET** “ SLP41” will appear.

- d) Press and hold down **RESET** for 2 seconds (program will appear)

- e) Press **RESET** to select sleep setting (no sleep, sleep1, sleep2, shelf) Note: sleep 1 = micro sleep but the LCD is awake

- f) Press and hold down **RESET** until “program” disappears to accept setting.

- g) Press **RESET** for five seconds to return the meter to the operating mode.

42 TIME = tiME 42

(set sleep time delay = works with sleep 2 only)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.

- b) Press the **DISP** button 3 times to reach “diSP 4”

- c) Press **RESET** twice “ tiME 42 ” will appear.

- d) Press and hold down **RESET** for 2 seconds (program will appear)

- e) Press **RESET** to select sleep time (1-10 minutes)

- f) Press and hold down **RESET** until “program” disappears to accept setting.

- g) Press **RESET** for five seconds to return the meter to the operating mode.

43 UNIT = unit 43 (set sleep wake up default display)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.

- b) Press the **DISP** button 3 times to reach “diSP 4”

- c) Press **RESET** 3 times “ unit 43 ” will appear.

- d) Press and hold down **RESET** for 2 seconds (program will appear)
- e) Press **RESET** to select required display (batch, reset total, total, rate)
- f) Press and hold down **RESET** until “program” disappears to accept setting.
- g) Press **RESET** for five seconds to return the meter to the operating mode.

44 TIME = tiME 44 (set time for sleep default)

Time for micro to sleep (sleep1)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button 3 times to reach “diSP 4”
- c) Press **RESET** 4 times “ tiME 44 ” will appear.
- d) Press and hold down **RESET** for 2 seconds (program will appear)
- e) Press **RESET** to select default time (5-20 seconds)
- f) Press and hold down **RESET** until “program” disappears to accept setting.
- g) Press **RESET** for five seconds to return the meter to the operating mode.

45 LIGHT = LitE 45 N/A (turn back light on or off)

Note: The back light is **not** used with this model meter

46 TIME = tiME 46 N/A (set back light time)

Note: The back light is **not** in use with this model meter

5. CALIBRATION CALI 5

Note: Provides calibration adjustment up to +/- 5% of reading. You will need to calculate the percentage adjustment you require. If the meter is reading over you will need to enter a minus figure. If the meter is reading under you will need to enter a plus figure.

Step 1. Reset the batch reading to zero.

Step 2. Dispence at least 5 liters, using a constant flow rate, into a graduated calibrated container.

Step 3. Take the reading from the IM50.

Step 4. Calculate the % error as follows.

$$\% \text{ error} = ((\text{container volume} - \text{IM50 volume}) / \text{container volume}) * 100$$

Step 5. Enter the % error into the meter as calculated, if the value is negative enter a negative number

51 CALIBRATION = CALI 51 (adjust calibration +/- 5%)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button 4 times to reach “CALI 5”
- c) Press **RESET** “CALI 51” will appear.
- d) Press and hold down **RESET** for 2 seconds (program will appear and the first digit will flash)
- e) * Press **RESET** to change number.
* Press **DISP** to change the decimal point position, or go to the next number.
* Press the **RESET** button to set the negative value.

- f) Press and hold down **RESET** until “program” disappears to accept setting.
- g) Press **RESET** for five seconds to return the meter to the operating mode.

6. CONFIGURATION CONF 6

6 CONFIGURATION = CONF 6 (configuration details)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button 5 times to reach “CONF 6”
- c) Press **RESET** “MOD” plus model number will appear.
- d) Press **RESET** “REL” plus hardware release number will appear.
- e) Press **RESET** the screen will flash between “SOFT” and the software release no’s (at 2 second intervals)
- f) Press **RESET** the screen will flash between “SEr” and the 6 figure serial number (at 2 second intervals)
- g) Press **RESET** “MAN” plus manufacturer number
- h) Press **RESET** the screen will flash between “CONFIG” and the configuration number (at 2 second intervals).
- i) Press **RESET** for five seconds to return the meter to the operating mode.

7. DIAGNOSTICS dIA 7

71 DIAGNOSTICS = dIA 7 (diagnostic mode)

- a) Press and hold down **RESET** for 5 seconds until “MEtr 1” appears.
- b) Press the **DISP** button 6 times to reach “dIA 7”
- c) Press **RESET** “ dIA 71” will appear.
- d) Press and hold down **RESET** for 2 seconds (Program will appear then all the segments should be displayed).
- e) Press the **DISP** button “diSP” (to check that the display button is working properly).
- f) Press the **RESET** button “RESEt” (to check that the reset button is working properly).
- g) Press and hold down **RESET** for 2 seconds (Program will disappear (check the condition of the reed switch).

Note: The condition of the reed switch can only be checked when there is liquid flowing through the meter. The reed switch should be reading between 50 - 80.

- h) Press **RESET** for five seconds to return the meter to the operating mode.

NOTES:

TROUBLE SHOOTING GUIDE

TROUBLE	CAUSE	REMEDY
Register not visible	a) Low battery voltage	a) Replace batteries
	b) LCD sun damaged	b) Replace register assembly, protect LCD from direct sunlight
Register visible but not reading flow	a) Faulty reed switch connection	a) Check connection into meter terminal block
	b) Reed switch faulty	b) Replace reed switch - refer to meter manual
Meter inaccurate	a) Incorrect k Factor	a) Correct k factor, contact local distributor for details if required
	b) Display units set incorrectly	b) Check display units and correct if necessary

SPECIFICATIONS

Battery Type	2 x AAA Alkaline
Batch	999999 (ltr, qts or gal etc)
Resettable Totalizer	999999 (ltr, qts or gal etc)
Non-Resettable Totalizer	999999 (ltr, qts or gal etc)
Input device	Reed switch only
Display units	BBL, Ton, Tonne, M ³ , kg, gm, Lb, OZ, Gl, Qt, Pt, Lt, none
Rate units	sec, MIN, HR
Maximum Temperature	55 deg C (131 deg F)
Minimum Temperature	-5 deg C (23 deg F)