

# OEM Manual

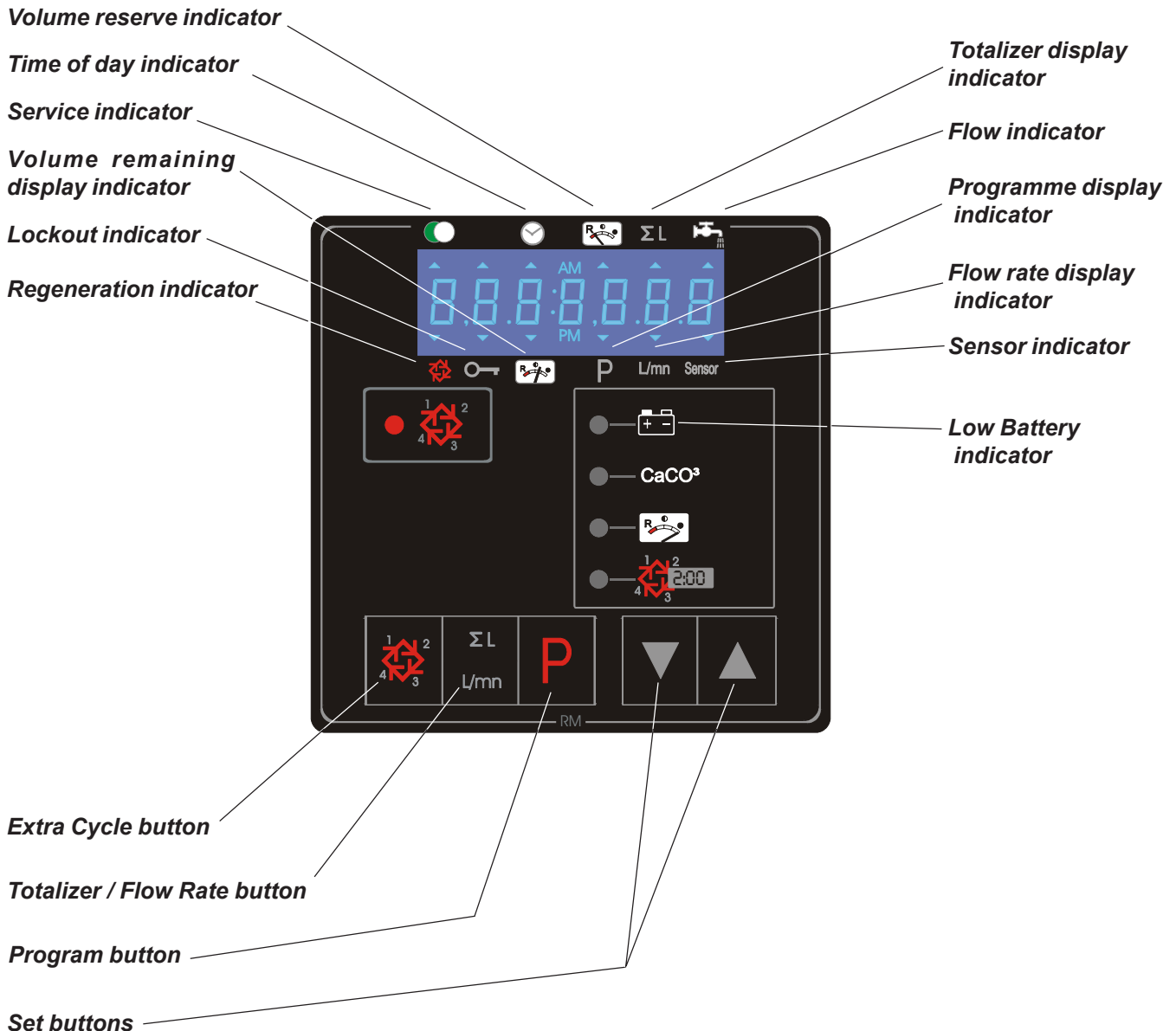


# MODEL RMC-ET control

## Important preliminary notes

The RMC-ET timer assembly is pre-fitted to the enclosure which should be connected via the cable supplied with the Fleck duplex valve system to the appropriate valve assembly. The control must be set up for use. This is a two stage process that requires that you first define what the unit is - level #2 setting, and then subsequently define the site/system operating conditions - level #1 setting. **You must start with level #2 settings.** When taken out of the box, some options have already been established. Like so many “electronic gadgets”, the RMC-ET has a lot of “features” that are irrelevant to the real world in that they were included in the design specification to satisfy specialised situations. On initial programming, if you see a display not shown on the following pages, ignore those displays by simply pressing the programme button until you get to the next display that is on the following pages. Having gone through the process once and having set up the device as recommended, if you repeat the process you will find that the unwanted displays no longer appear. We strongly advise you not to stray from the following guidance notes - you do so at your own risk !

The facility is provided for the installation of a standard 9v Alkaline battery. If this battery is not fitted or if the battery power is low then the battery indicator will illuminate. Use of this facility allows retention of current operating data for approx 24 hours with a fully charged battery. Programming data is permanently retained by the unit, regardless of battery status.



# MODEL RMC-ET control

---

## Quick Start - Level 2 Programming

---

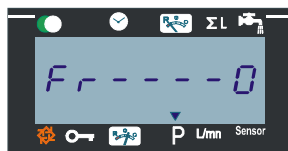
This level of setting actually defines what the system is and how it functions.

### Entering level #2 programming:

Depress the **Programme** button for 5 seconds. The Programme arrow on the lower edge of the display will illuminate and the display will show the default Water Hardness ( *usually 2.4* ). Now depress the **Extra Cycle** button for 5 seconds and you will get into level #2 programming.

### Flow rate Display

The display will show

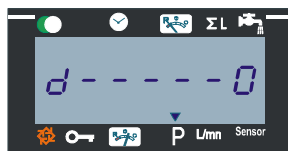


which represents the flow rate through the system.  
It is not adjustable.

Depress the **Programme** button

### Days Since Last Regeneration

This display will show

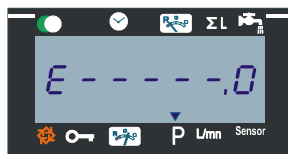


which represents the number of days since the last regeneration.  
It is not adjustable.

Depress the **Programme** button

### Prior Service Volume

This display will show

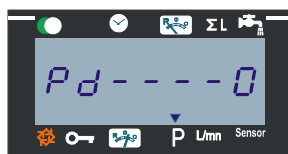


which represents the volume of water used to between the previous two regenerations (up to the limits of the display memory capacity, after which it resets to zero).  
It is not adjustable.

Depress the **Programme** button

### Previous Days Water Usage

This display will show



which represents the volume of water used during the previous day.  
It is not adjustable.

Depress the **Programme** button

# MODEL RMC-ET control

---

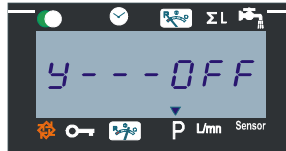
## Quick Start - Level 2 Programming

---

Depress the **Programme** button

### Timed Auxiliary Output

This display will show

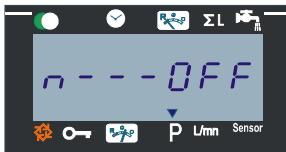


It is VERY important that this is set to OFF. If the display indicates anything else then use the **Set** arrow buttons to ensure that it is set to OFF. *Explanation: This provides for the operation of an auxiliary output relay which is not normally relevant to simple installations*

Depress the **Programme** button

### Dosing Pump Output

This display will show

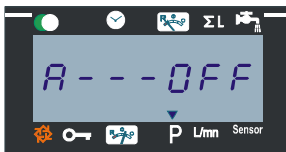


It is VERY important that this is set to OFF. If the display indicates anything else then use the **Set** arrow buttons to ensure that it is set to OFF. *Explanation: This provides for the operation of an auxiliary output relay which is not normally relevant to simple installations.*

Depress the **Programme** button

### Regeneration Day Override

This display will show

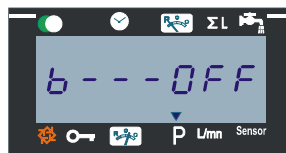


It is VERY important that this is set to OFF. If the display indicates anything else then use the **Set** arrow buttons to ensure that it is set to OFF. *Explanation: This facility can force a regeneration, regardless of volume throughput or programmed time frequency. It is not normally relevant to simple installations.*

Depress the **Programme** button

### Volume Override

This display will show



It is VERY important that this is set to OFF. If the display indicates anything else then use the **Set** arrow buttons to ensure that it is set to OFF. *Explanation: This facility can force a regeneration, regardless of reserve volume allowances used in delayed meter initiation applications. It is not normally relevant to simple installations.*

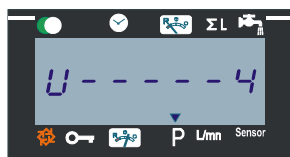
Depress the **Programme** button

# MODEL RMC-ET control

## Quick Start - Level 2 Programming

### System Measurement Display

This display will show



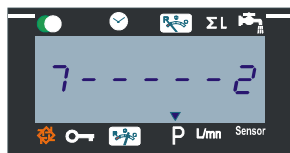
If the display shows anything else then use the **Set** arrow buttons to ensure that it is set to 4. This is the only configuration relevant to UK installations and uses:

- ⇒ m<sup>3</sup> for volume display
- ⇒ litres per minute for flow rate data displays
- ⇒ 24 hour clock format
- ⇒ Water hardness in mg/l as CaCO<sub>3</sub>
- ⇒ System Capacity in grams CaCO<sub>3</sub>

Depress the **Programme** button

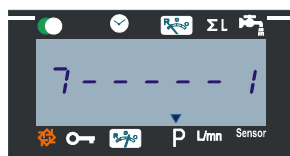
### Regeneration Initiation Type

This display will show



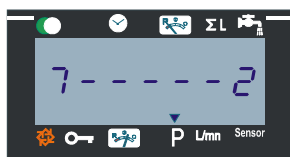
This is the most commonly used setting but the following list details the various options which can be selected using the **Set** arrow buttons:

### Timeclock



Sets the control to initiate regeneration based on time only parameters. The day frequency was programmed OFF by default A - - - OFF earlier so if the system is to be regenerated based on time considerations only then you will need to go back to that option later and set the day frequency you require. For example A - - - - 3 would provide regenerations every three days. The actual time of regeneration is established later in the programming sequence in level #1.

### Immediate Meter

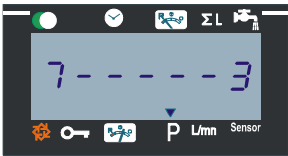


Sets the control to initiate regeneration immediately the set volume has been reached

# MODEL RMC-ET control

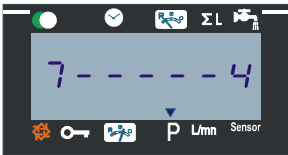
## Quick Start - Level 2 Programming

### Delayed Meter

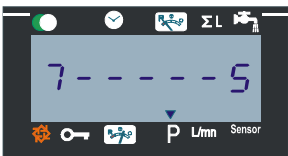


Sets the control to initiate regeneration at a pre-defined time, after the set volume has been reached. If at that pre-set time there is any service flow detected then regeneration will be deferred by up to a maximum of 20 minutes, after which time regeneration will commence regardless of any service demand. Use of this option normally requires approximately 24 hours reserve capacity although the system automatically adjusts itself to actual water usage.

### Not currently available

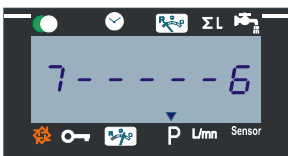


### Immediate Sensor



Sets the control to initiate regeneration immediately on receipt of a valid external sensor signal. If this option is selected then pressing the Programme button again takes you to a sub setting for the required duration of the sensor signal. If the signal has to be maintained for 5 minutes then use the Set arrow buttons to provide the following display 7 - 5 - - 5.0

### Delayed Sensor



Sets the control to initiate regeneration at the Time of Day (set later in the programming sequence) following a valid external sensor signal. If this option is selected then pressing the Programme button again takes you to a sub setting for the required duration of the sensor signal. If the signal has to be maintained for 5 minutes then use the Set arrow buttons to provide the following display 7 - 6 - - 5.0

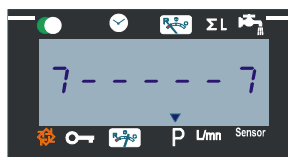
# MODEL RMC-ET control

## Quick Start - Level 2 Programming

### Immediate Meter with Day Override

*To be used only with great caution.*

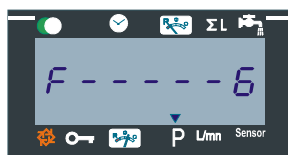
*AVOID if possible.*



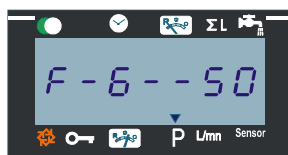
Sets the control to initiate regeneration in the same way as option 2 but with an automatic 4 day override. In other words, if a regeneration has not occurred within 4 days then regardless of water volume, it will initiate. However, regeneration will pause after the Brine / Rinse cycle and will remain paused until there is service flow detected. It will then complete the regeneration sequence and return the system to the service position. IMPORTANT: If this option is used then you cannot install a "No hard water to service" prevention device or option (e.g. 3150 or 3900 NBP pistons or external shut down valves).

Depress the **Programme** button

### Flow Meter Size / Type Definition



**NOTE:** If option 6 is selected, indicating the use of a non Fleck meter, then when you next depress the **Programme** button you must set the volume value ( in litres ) represented by each meter pulse. For example, if the meter pulse signal represents 50 litres then using the **Set** arrow buttons, establish the display F - 6 - - 50

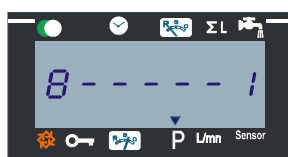


This display will show F - - - - 6 which tells the control that an external pulse meter is installed. However, there are selectable pre-defined parameters that apply to various Fleck "Hall Effect" meters which can be selected using the **Set** arrow buttons to make any changes.

F - - - - 0	Fleck 3/8in. meter assy.
F - - - - 1	Fleck 3/4in. meter assy.
F - - - - 2	Fleck 1in. meter assy.
F - - - - 3	Fleck 1½in. meter assy.
F - - - - 4	Fleck 2in. meter assy.
F - - - - 5	Fleck 3in. meter assy.
F - - - - 6	Other pulse type meter

Depress the **Programme** button

### Blending Valve Facility / Location



This display will show 8 - - - - 1 which sets the system to assume that no hard water is being blended.

Optionally, you can change this using the Set arrow buttons as follows:

8 - - - - 2 Sets the system to assume that blending occurs **BEFORE** the meter system. In this case the control calculates the volume of hard water required to achieve the blended supply based on parameters that are set later in this programming sequence - level #1

8 - - - - 3 Sets the system to assume that blending occurs **AFTER** the meter system. NOTE: As far as the control is concerned, this is identical to option 1 but it can be used as a reminder that blending is provided but that it does not form part of the control functionality.

# MODEL RMC-ET control

---

---

## Quick Start - Level 2 Programming

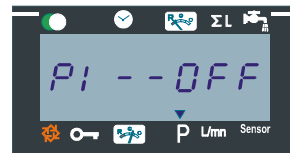
---

Depress the **Programme** button

### Programme Protection

This display will show P1 - - OFF

This option can be toggled ON or OFF by using the Set arrow buttons.



**NOTE:** OFF is the recommended option here because if you set it to ON then the only way to subsequently cancel that setting requires clearing ALL programmed settings. However, if site circumstances dictate that Programme Protection should be active then the following results will apply:

Available Level #1 adjustable settings:-

- ⇒ Raw Water Hardness
- ⇒ Treated Water Hardness After Mixing
- ⇒ Regeneration Time
- ⇒ Time of Day

Available viewable displays:-

- ⇒ Flow Rate display
- ⇒ Days since last regeneration
- ⇒ Previous service volume used display
- ⇒ Reserve capacity display
- ⇒ Previous days volume used display

Think very carefully before setting protection ON. If you do and you subsequently need to reprogramme the protected settings then depress the Programme button for 25 seconds. This will wipe all previous settings which must then be re-established.

Depress the **Programme** button one last time.

You are now returned to the service mode and you should now proceed to setting the Installation level #1 parameter programming.



# MODEL RMC-ET control

---

---

## Trouble Shooting - Level 2 Programming

---

### PROBLEM

If, after setting up your control, you find that on completion of a regeneration cycle the system immediately starts another cycle then if a meter system was defined in level #2 you need to check that the system capacity setting is greater than the water hardness setting - both defined in level #1 programming.

*Explanation: If you have made a mistake in button operation or you have mixed up your units of measurement then you might have created a situation when the control calculates whereby system capacity is always below the input water hardness. This causes the system to continually cycle.*

**Solution:** Putting a jumper wire across low voltage terminals 7 & 8 creates a lockout signal. After completion of a regeneration cycle it will be "held" and you can now enter level #1 programming and recheck your settings. When you have completed the check, remove the jumper and the system will go through another cycle and then stop in the service position as it should normally do.

In the event that you get programming really screwed up then by keeping the **P** programme button depressed for 25 seconds, you clear all programming back to the default factory values. You can then start back at the beginning with system programming, maybe after re-reading these instructions first.

**Remember, any time the programme button is held over 25 seconds, a complete default reset will occur and the timer will need to be reprogrammed - BEFORE DOING THIS, READ THE NOTES BELOW.**

Anytime the program button is pushed and held over 25 seconds, the control will reset all programming to default values. One of the options that is reset is Valve Type. It changes to **[0 - - - - 2]** indicating 6700 Valve Type. When this valve type is selected the timer looks for a home/step input as if it were a regeneration valve. A Remote Meter has no such input, and a jumper wire is installed for the home input. If the user goes into the program level #2 and resets the valve type to **[0 - - - - 5]** Remote Meter operation of the timer will operate as it should.

### PROBLEM

If the user initiates an Extra Cycle before resetting the valve type, the display will show a flashing **[1 - - - - -]**. When this happens the timer is looking for a signal from the step switch which it will not receive and so the device is locked.

**SOLUTION:** You must follow this procedure:-

1. Remove the rear cardboard back panel from the timer.
2. Locate the **P8** connector and remove the jumper (Labelled **Home/Step**)
3. With the screwdriver tip touch the left and centre pin. NOTE: (This is only a 5 volt DC connection)
4. The display should show **[1 - - - 10.0]** and start counting down the time shown.
5. Remove the screwdriver and push the **Extra Cycle Button**. The display should show **[2 - - - 60.0]** and count down from there.
6. Push the **Extra Cycle button**, and with the screwdriver touch the left and centre pins again. The display should show **[3 - - - 10.0]** and count down from there.
7. Remove the screwdriver and push the **Extra Cycle Button**. The display should show **[4 - - - 12.0]** and count down from there.
8. Before the display reaches **[4 - - - 0.0]**, reinstall the original jumper and push the Extra Cycle Button. The display should show the time of day and you have put the device into normal valve mode.
9. At this point you need to tell the device that it is in fact a meter controller. Enter programme level #1 then level #2 and change the US / METRIC format setting to **[U - - - - 4]** metric format and then change the valve type to **[0 - - - - 5]** remote meter.
10. Exit the program level #2 and you have reestablished the device as a meter controller.
11. Re-enter programming level #2 and follow the instructions from the start of this manual.

**Remember, anytime the program button is held over 25, seconds a complete default reset will occur and the timer will need to be reprogrammed before an extra cycle is initiated otherwise the above steps will be necessary.**

# MODEL RMC-ET control

## Quick Start - Level 1 Programming

This is where you define the system operating environment. The options you are presented with are determined by your definitions in level #2 programming under Regeneration Initiation Type. In each case you will get a series of parameters relevant to your previous selection, followed by a common series of parameters. The three primary front end options are dealt with first, followed by the guidance for the common parameters.

### Entering level #1 programming

Depress the Programme button for 5 seconds.

If immediate meter options were defined then you will get the following sequence of options:

The Programme arrow on the lower edge of the display will illuminate and the display will show the default Water Hardness ( usually 17.1 )

### Water Hardness

The red Water Hardness indicator will be illuminated. Adjust the value to the actual site water hardness using the Set arrows. The unit of measurement MUST be mg/l as  $\text{CaCO}_3$  ( ppm )



Depress the **Programme** button

### System Capacity

The red System Capacity indicator will illuminate. Adjust the value to the calculated softening capacity of the system using the Set arrow buttons. The unit of measurement MUST be in Grams of  $\text{CaCO}_3$



Depress the **Programme** button  
You now go to the common parameters

# MODEL RMC-ET control

## Quick Start - Level 1 Programming

If time only related options were defined then you will get the following sequence of options:

The Programme arrow on the lower edge of the display will illuminate and the display will show the default Regeneration Time ( usually 2:00 )

### Regeneration Time

The red Regeneration Time indicator will be illuminated and the display will show 2:00 which represents 2:00am. Adjust the required time if required using the Set arrow buttons.

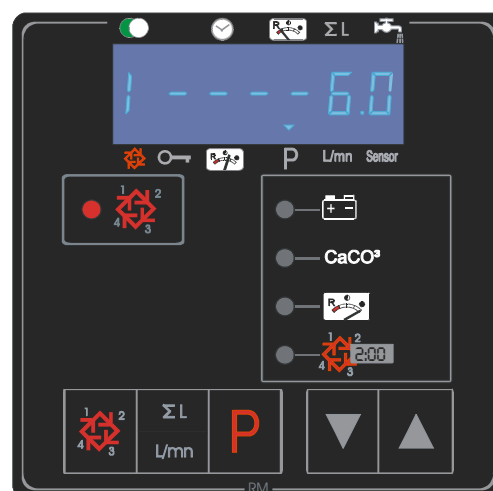


Depress the **Programme** button  
You now go to the common parameters

If time and meter related options were defined ( *delayed meter for example* ) then you will get a combination of the previous options which you set up as described above.

### Regeneration signal

The red Regeneration indicator will now illuminate and the display should show 1 - - - -6.0 which represents cycle #1 and 6 minutes cycle duration. Adjust the cycle duration to the required time using the Set arrow buttons



Depress the **Programme** button

# MODEL RMC-ET control

---

## *installation information*

---

**RMC-ET CONTROLLER**

Electrical: 24 volt 50 Hz 65VA

JOB NO:

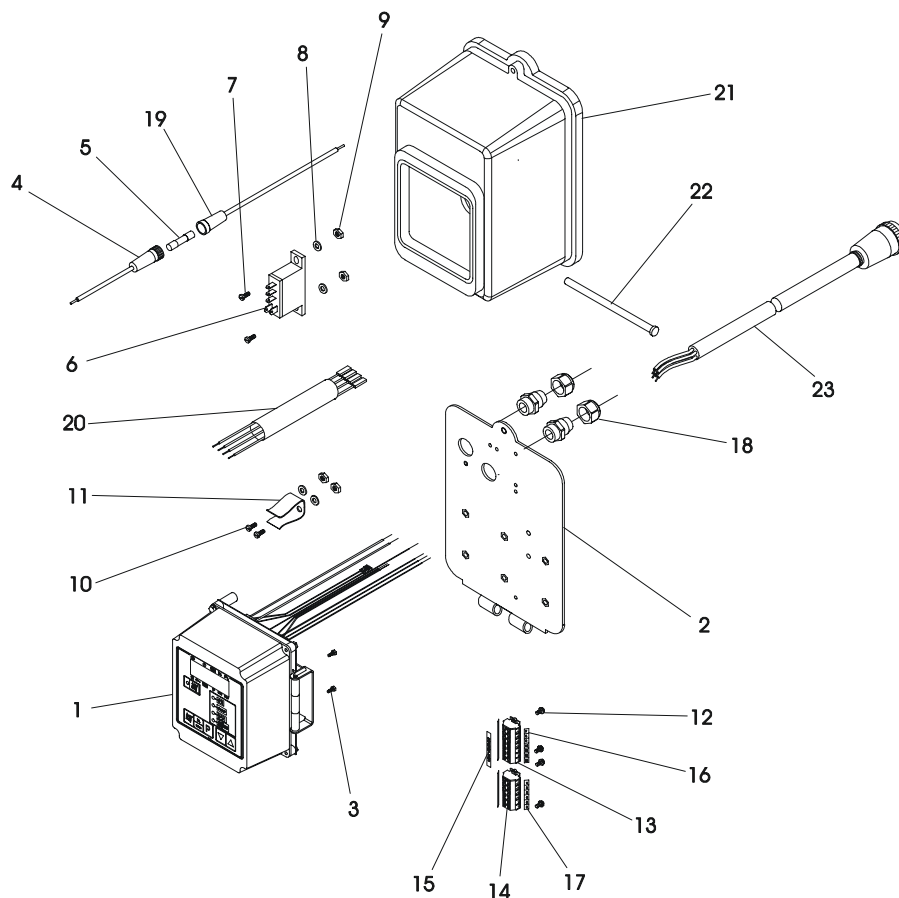
MODEL NO:

DESIGN HARDNESS: \_\_\_\_\_ mg/l as CaCO<sub>3</sub>

CAPACITY PER UNIT: \_\_\_\_\_ kg. CaCO<sub>3</sub>

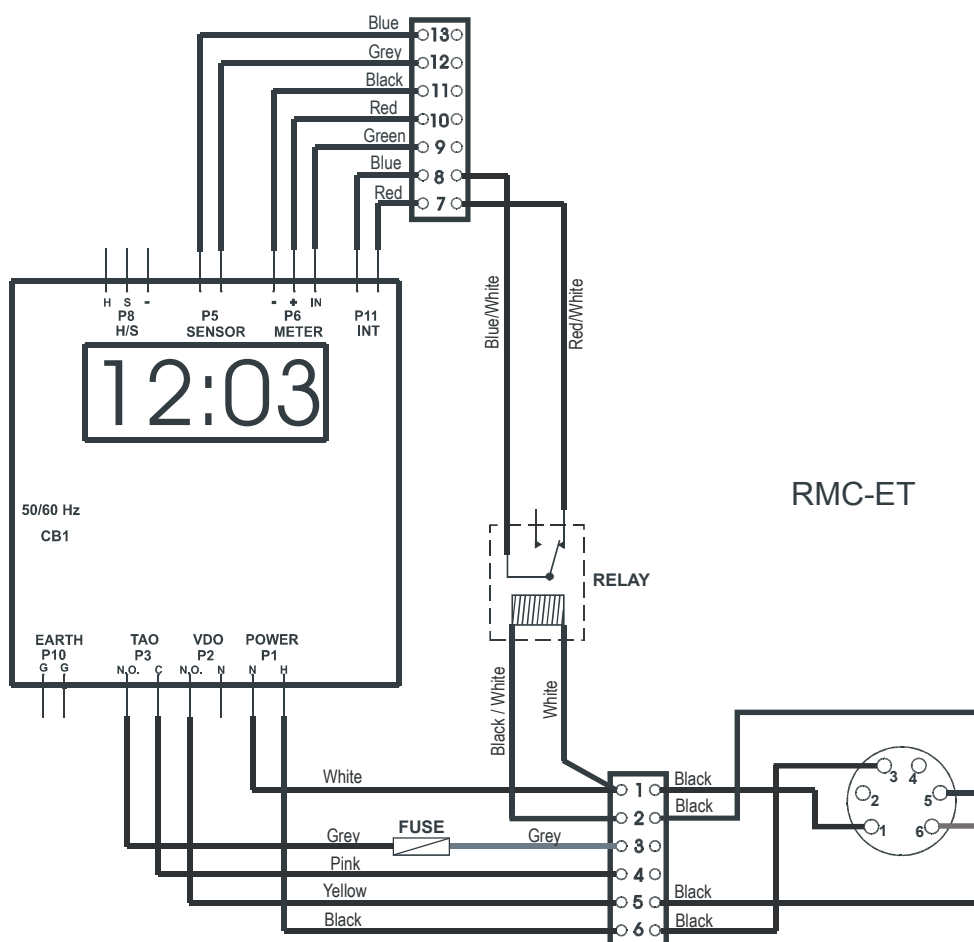
# MODEL RMC-ET control

## Parts list



Item	Qty	Part No.	Description
1	1	27727	Timer assy - Series ET
2	1	19073	Backplate
3	2	10300	Screw
4	1	19675	Fuse holder
5	1	19676	Fuse
6	1	17749-00	Relay, SPDT 24v
7	2	11086	Screw M3
8	4	11663	Washer
9	4	11085	Nut
10	2	11358	Screw M3
11	1	17831	Battery clip
12	4	13296	Screw
13	1	15226-6	Terminal strip - 6 way
14	1	18707	Terminal strip - 7 way
15	1	18694	Low voltage label
16	2	15250	Terminal strip label
17	2	16187	Terminal strip label
18	2	17967	Gland assembly
19	1	28012	Fuse wire
20	1	28013	Relay harness
21	1	26583	Cover assembly
22	1	17845-01	Hinge pin
23	1	24664	Meter harness
24	1	19121-04	Meter harness - 7.7m - Not shown

## wiring diagram



The electrical supply and return signal for this assembly is provided by the meter harness p/n 24651 supplied with the main control valve assembly. This cable assembly plugs into the socket on the backpanel of valve A. The cable should be attached to the terminal strip according to the table below:

- Tag 1 to terminal 1  
Tag 3 to terminal 6  
Tag 5 to terminal 2  
Tag 6 to terminal 5