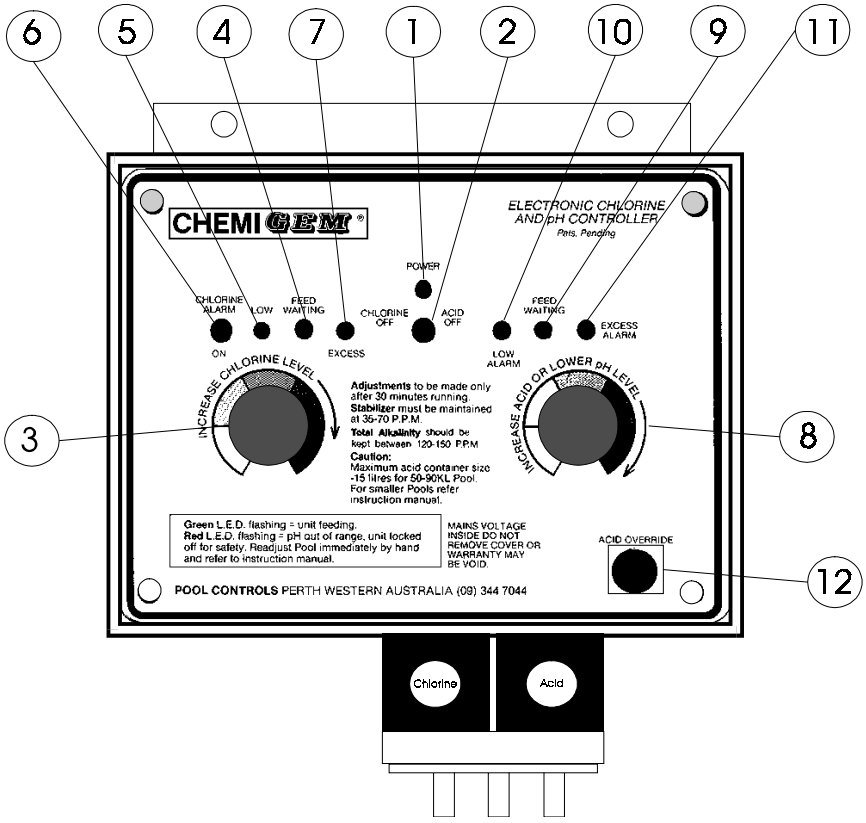
CHEMIGEM

AUTOMATIC POOL CHEMISTRY MANAGEMENT CONTROLLER

STARTING & OPERATING DM50, T60 AND TL70

POOL CONTROLS A division of Beaumar Nominees Pty Ltd
251 Balcatta Rd, Balcatta, Western Australia, 6021
Telephone (09) 344 7044 FAX (09) 345 1816

DM50 CONTROLLER



Key **Description**

1 **Power on indicator light**
Glows when power is being supplied to the controller.

2 **Switch**
Switched to left shuts off Chlorine circuit.
When switched to right shuts off pH circuit.
To operate both circuits this switch must be in the centre position.

3 **Chlorine Control Knob**
Sets the required level of sanitisation. Normally set to the "12 o'clock" position, with the white indicator vertically upright.

4 **Chlorine "Feed waiting light"**
Glows green when Chlorine levels in the pool water are lower than that set by the control knob. Will flash on and off when the Chlorine solenoid valve is open. (normally 6-8 seconds every 3 minutes)

Key **Description**

5 **Low Chlorine warning light**
Glows red when Chlorine in the pool water is considerably lower than the level set by the control knob.

6 **Switch**
Switch to turn the warning alarm for Low Chlorine on and off.
The warning alarm sounds a continuous tone when the red Low Chlorine Light (5) above is illuminated.

7 **Excess Chlorine warning light**
Glows red when Chlorine levels in the pool water are considerably higher than the levels set by the control knob (3).
NB There is no warning alarm which sounds when Chlorine is high.

8 **pH Control Knob**
Sets the required level of pH. Normally set to the "12 o'clock" position, with the white indicator line vertically upright.

Key **Description**

9 **Acid "Feed waiting light"**
Glows green when the pH level in the pool water is higher than that set by the control knob (8). Will flash on and off when the Acid solenoid valve is open. (Normally 5 -7 seconds every 3 minutes)

10 **High pH warning light**
Glows red and flashes on and off when pH in the pool water rises above pH 8.7. When this light flashes the pH circuits are locked and Acid will not feed - See (12) Acid override button.

A warning alarm sounds an intermittent tone in step with the flashing of the red light.

11 **Low pH warning light**
Glows red and flashes on and off when pH in the pool water falls below pH 6.7. When this light flashes the pH circuits are locked and again Acid will not feed.

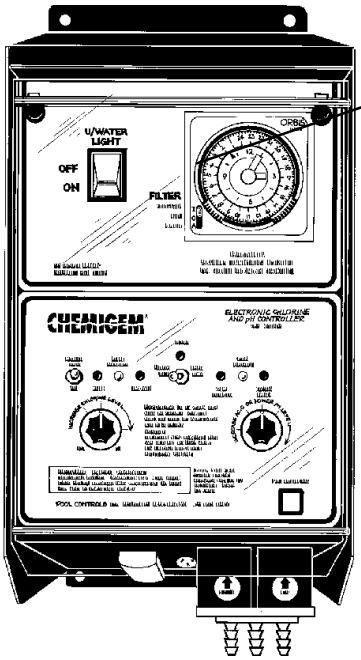
A warning alarm sounds an intermittent tone in step with the flashing of the red light. To turn off warning tones see section on setting Chemical Levels.

Key **Description**

12 **Acid override button**

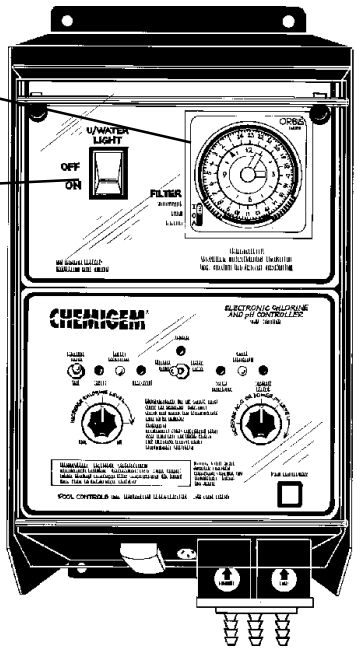
When pressed will disengage the pH lock-out mechanism in the case of high pH only - thus permitting the Chemigem to feed Acid again. Overriding the lockout mechanism will only last until the main pump for pool water circulation is turned off next.

When pressed this button also opens the Acid valve which allows the owner to manually add Acid.



TIME CLOCK

UNDERWATER LIGHT SWITCH
Transformers available in 22V or 32V



T60 CONTROLLER **TL70 CONTROLLER**

Please note that the same controller used for the DM50 is used on both the TL70 and T60 - see diagram for DM50 for more details on that face.

Introduction

The Chemigem controller is designed to measure and automatically adjust the free Chlorine and pH (Acid) levels in your water. These levels will be set by You using the control knob(s) on your Chemigem. Once you have set your levels you should leave the controller to adjust them automatically.

Setting the levels

To begin with, set the control knobs with the white indicator lines in the 12 o'clock position. This will give approximately 3.00 parts per million (ppm) Chlorine and pH 7.7.

Note a) The 12 o'clock position gives approximately 3.0 ppm Chlorine level when stabiliser is 50 ppm, but if stabiliser is less than 30 ppm the same setting will only maintain approximately 1.0 ppm Chlorine.

Chlorine and Acid will feed for a period of 5 - 8 seconds every 3 minutes until the required levels are reached. The first time a Chemigem operates on a pool it will take 45 - 60 minutes to fully adjust the level of pH and Chlorine. Thereafter it will normally restore the required levels in 15 - 20 minutes, so ensure that the pump is running for long enough to carry out these adjustments.

Calibration

The day following the installation of your Chemigem, and after the pool pump has been running for 30 minutes, check the level of Chlorine and pH with a good quality test-kit. If either of the levels are not exactly where you want them, alter the settings of the control knobs a little. Clockwise will direct the Chemigem to raise the chemical levels and vice versa.

Notes : -

a) Altering the settings tells the controller what You want. The controller will only bring about the changes as the pump circulates the pool water.

b) Chemigems are able to add chemicals quickly to adjust levels upwards, but cannot remove any chemicals which are in excess. High levels may take several days to reduce.

c) Remember increasing the level of Acid reduces the pH values.

What the Chlorine indicator lights mean

Note : If any red warning lights are on - test with a reliable test kit.

Green feed light "on"
This indicates that the free Chlorine level in the pool is below the level set by the control knob and feeding will take place every 3 minutes until the required level is reached. When the green feed light is flashing the Chlorine valve is open and Chlorine is being sucked from the drum into the line.

Red low light "on" and Chemigem alarm sounding. (Left hand light)
This indicates the free Chlorine level in the pool is considerably lower than the settings but the Chemigem will still be able to restore the level in a short period of time. The warning tone (alarm) may be switched off if it is annoying, but remember to switch it back on again when the levels of Chlorine have been restored.

Low Chlorine levels could be due to the following : -

1) Initial switching on of the unit
2) Chlorine drum is empty.
3) The control knob having been turned clockwise to increase the Chlorine level.
4) The filter has been off for a long period of time on a hot day.
5) The stabiliser level is very low or non existent and causing a high rate of Chlorine loss.
   NB : Stabiliser level is recommended to be 50 - 70 ppm.
6) Poor circulation.

If the symptoms persist (the low alarm continues) then the following could be the cause:-

1) Poor suction because of :
   a) Filter in need of a backwash.
   b) The pump lint pot clogged.

If symptoms still persist check with the supplier.

Red excess light 'on' (right hand light)
The level of free Chlorine in the pool water returning to the filter is well above the level set by the dial. Should this be due to an intentional overdose of Chlorine it may be some days before the level of Chlorine drops and the red light goes off.

NB : Re-positioning the control knob to a higher setting will switch the excess light off but will of course continue maintaining the pool at the higher levels of Chlorine.

An excess Chlorine light showing occasionally, may be due to :

1) The control knob being changed to a lower setting.
2) Poor circulation in the pool leading to overdosing.
3) The pH having been lowered.
4) The pouring into the pool of the last litre or two of Chlorine from a nearly empty drum about to be replaced.

Should the excess Chlorine warning persist, the causes are possibly:

1) pH in the pool is too low..
2) Poor circulation

What the Acid indicator lights mean (pH)

Note : If any red warning lights are on - test with a reliable test kit.

Green light 'on'

This indicates that the pH level in the pool is above the level set by the control knob and feeding of Acid will take place every 3 minutes to reduce it until the required level is reached. When the green feed light is flashing the Acid valve is open and Acid is being sucked from the drum into the line

Either of the Red lights 'flashing' and Chemigem alarm sounding intermittently.

This indicates that the pH is either below 6.7 (right hand light) or above 8.7 (left hand light). The pH section differs from the Chlorine section in that it has a lock-out mechanism and the Acid will not feed if either of the red lights are flashing. (Altering the knobs will not make any difference)

Low Acid level (left hand light)

If the left hand light is flashing the pH is above 8.7 and the pool water is low in Acid. (see Acid override button below).

Low Acid levels could be due to the following : -

1) Initial switching on of the unit, especially in a new concrete pool.
2) Acid drum is empty.

Excess Acid level (right hand light)

If the right hand light is flashing the pH is below 6.7 and the pool water has excess Acid. The Chemigem will be unable to restore the levels and the lock-out mechanism will be operating.

An excess Acid light showing occasionally, may be due to :

1) Poor circulation in the pool leading to overdosing.
2) The pouring into the pool the last litre or two of Acid from a nearly empty drum about to be replaced.

When the excess Acid light is flashing, a water test should be done immediately to check the pH - if it is low, the appropriate amount of Soda Ash (Sodium Carbonate) or pool Buffer (Sodium Bicarbonate) should be added straight away. (see table in the Appendix)

Acid override button

In the event of the Chemigem being locked out in a Low Acid (high pH) condition, due to the Acid drum being empty for a few days, it may be easily restored to an active state by depressing the override button. Overriding the lockout mechanism will only last until the main pump for pool water circulation is turned off next.

NB : When this button is being pressed the green light flashes and the Acid valve is held open, which allows the owner to manually add Acid.

Turning the Chemigem's Alarms off

Chlorine

Use the switch (6) displayed in the diagram of “DM50 Controller Face ”. (see Fig 1.)

Acid (pH)

a) Low Acid alarm - press the Acid override button momentarily.

b) Excess Acid alarm - Turn the pH completely off by moving the centre switch (see Fig 1 “DM50 Controller Face ” diagram, switch No 1) to the right.

NB - Remember, the alarms are there to warn you of significant chemical imbalances. Check the water with a test-kit straight away and follow the fault finding programme or call your pool technician. Also, do not forget to switch the alarm back on again when the water is back to normal.

Pool Circulation

To enable the Chemigem controller to work at its most efficient, the mixing of the pool water has to be as quick and complete as possible. By positioning the return nozzles (eyeballs) to the pool so that the main pool water body rotates (swirls) is the best way to achieve this. Under no circumstances should the eyeballs be positioned to produce opposing flow patterns.

The Multi electrode senses the Chlorine and pH levels as the water travels towards the pump, so if the mixing of the pool water is slow the Multi electrode will not receive the signal until large amounts of chemicals have been added to the pool. When the Multi Electrode finally receives the signal the pool will be overdosed and the excess lights may be lit.

This problem could occur in the following situations:

1) When the pool plumbing is arranged with the skimmer box at one end of the pool and the two inlets in the opposite end wall discharging down both sides, thereby effectively preventing any swirling action. This can be overcome by pointing both inlet nozzles to the same side of the pool to create the required swirl.

2) When suction type automatic cleaners are fitted so the water is being drawn from the bottom of the pool and inlets are pointing upwards causing a layering effect. The water returning from the filter with the added chemicals will take a long time to mix and reach the bottom of the pool under these conditions and again overdosing will result. The problem can be overcome by pointing one return nozzle downwards, but taking care not to create an opposing current to the main swirl.

To Set Time

You need to use the large hand of the clock and move it clockwise until you get to the correct time. Make sure you have set it to the current time as it has a 24 hour clock. To check this set the time and make sure that the time set indicator is pointing to the correct time as well. eg - for 9.00 am the time indicator should also point to 9.00 not 2100 as this would be 9 o'clock in the evening.

Automatic Programming (Switch must be set to Automatic)

Once you have set the correct time you are then able to set the clock to turn the pump on automatically. This is done by pushing the yellow tags to the outside of the clock. Select the time (or times) you want the pump to start. Push out these tags, making sure that you push enough tags out for the period of time you want to run the pump for. Eg: If you want it to run for 2 hours from 6am all the yellow tags between 6am and 8am must be pushed to the outside of the clock. When the first tag which has been pushed out reaches the Time Set Indicator the pump will automatically turn on. When the last tag which has been pushed out passes the Time Set Indicator the pump will automatically turn off.

Please note that your clock has been factory set to start the pump at 8am and turn off at 10am and on again at 6pm and off at 8pm.

NB : 1. Do not turn clock anti clockwise.
2. The minimum setting time is 15 minutes.