

**IB INTERNATIONAL Pty Ltd**



## **OCMIS INSTRUCTION MANUAL**

### **OCMIS RAIN CONTROL 2**



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## INTRODUCTION

RAIN CONTROL 2 is a computerized electronic instrument applicable to self-propelled irrigating machines. It automatically executes the following programmable functions:

- Measurement of unwound hose in mets or ft.
- Calculation of necessary work time, continually updated.
- Program Options :
  - Programming start timer
  - Programming a cycle end timer with outlet valve or closing valve (option).
  - Programming working speed.
  - Programming total work time.
  - Programming 4 working areas with speed priority or rain mm. priority.
  - Programming deposited rain mm (only if machine is equipped with litre counter, option).
  - Programming Start at wished time.
- Connecting a GSM Modem for remote control.
- Chance of updating the programme with no need of changing electronic components.

## MAIN SYSTEM COMPONENTS

1. Computerized electronic control unit.
2. Inductive sensor placed next to the driving pinion for speed reading.
3. Electric gearbox installed to turbine by-pass or to oil diverter valve for motor-driven machines.
4. Solenoid valve controlling the outlet valve.
5. Electric actuator controlling end of work.
6. Pressure switch.
7. Electric switch controlling end of work.
8. 12 Volt 50 AH battery.
9. 3" or 4" litre counter (option) to measure the machine water flow rate.

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## GETTING TO KNOW THE RAIN CONTROL 2



**ON / OFF Key.**



**Start work cycle.**



**Stop machine during work cycle.**



**+ key to choose programmes and increase flashing values during programming.**



**- key to choose programmes and decrease flashing values during programming.**



**Key to access programming value and display.**

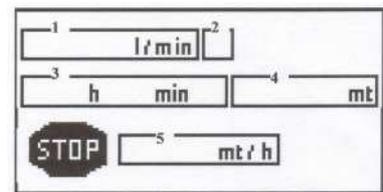


**Manual key to manually control the by-pass**

### ***Rain Control 2 Monitor***

The Rain Control 2 Monitor displays measurements according to the function being executed.

- Flow rate in LPM or GPM (with counter option).
- Number of work area.
- Work end time.
- Unwound hose, in mets. or ft.
- Working speed in mets. / h or ft / h.
- Total flow rate output in m<sup>3</sup>.

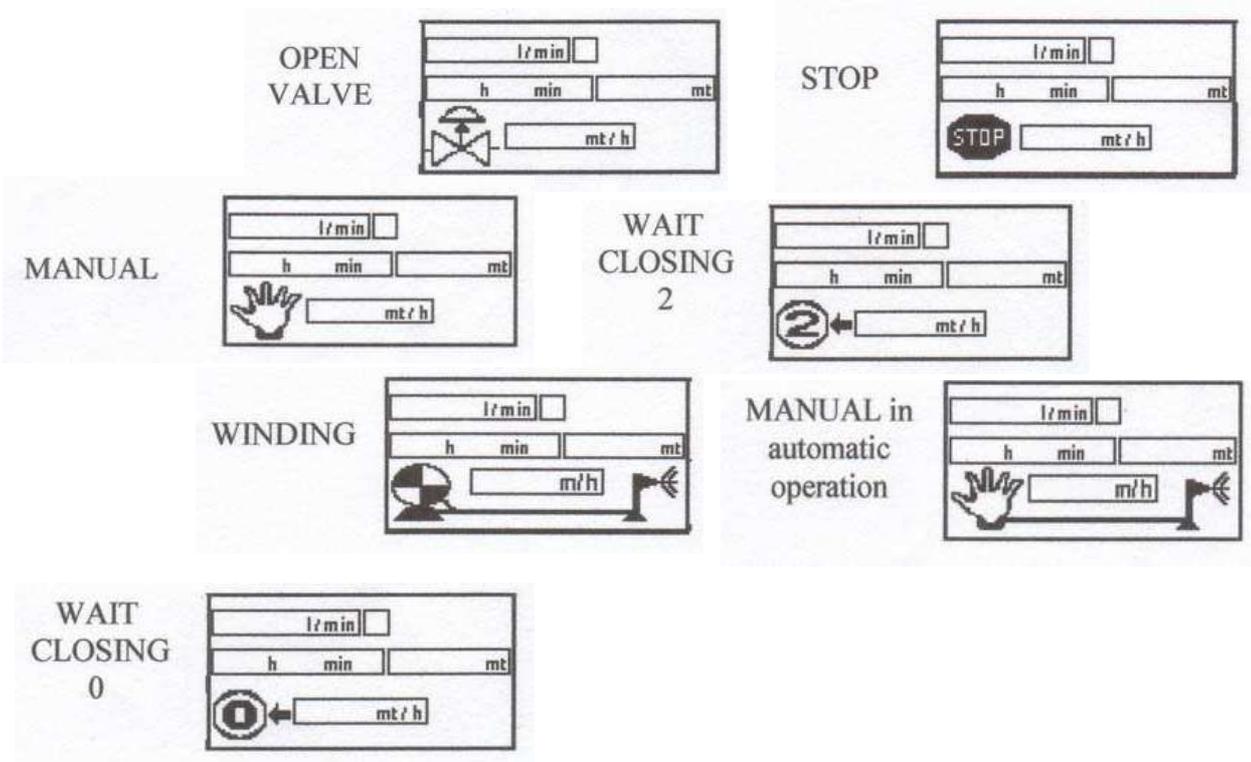


### ***Start Up***

Ensure computer is switched on before pulling the hose out.

Ensure the correct number of metres pulled out are shown on the computer. **IF NOT CORRECT, DO NOT USE.** Correct the metres before the gearbox is used. **The Gearbox can be damaged if not correct.**

It also displays STOP - WINDING - MANUAL - MANUAL in automatic operation - CLOSE VALVE - CLOSE BY-PASS status.



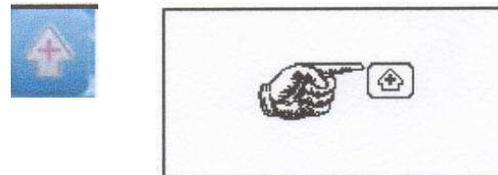
**Switch On**

Press the On/Off key to switch equipment on. The LCD displays the OCMIS - RAIN CONTROL 2 logo for a few seconds. The number to the right of the logo indicates the version of software used.

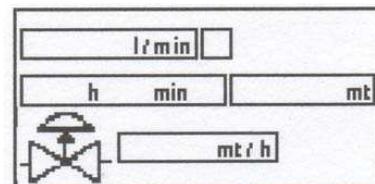


**Press Inc**

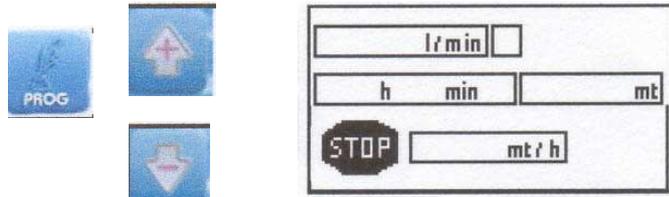
Press this key to open valve and display Stop Status.



**Open Valve**



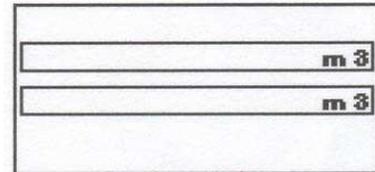
**Page: Stop Status**



**Total Litre Counters**



Read-only page. To carry on, go back to Stop Status Page.



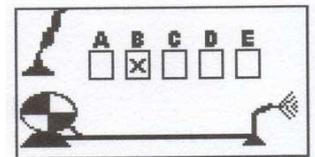
**Using the Programming Keys**



The PROG key is used to enter the programming pages and confirm the settings. + and - keys are used to increase and decrease the flashing figures.

**Choosing the Work Program**

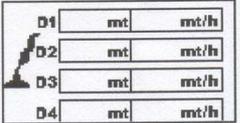
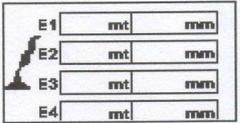
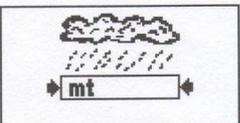
Use + and - keys to choose the letter corresponding to the selected work program. Press PROG to confirm and go to the page offset program.



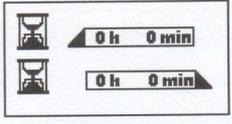
The following outlines each program option.

Program	Description	Instruction			
Program A	<b>TIME PRIORITY</b>	Use + and - keys to increase or decrease set value. Pres PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.		 	
Program B	<b>SPEED PRIORITY</b>	Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.		 	
Program C	<b>RAIN PRIORITY</b>	Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Irrigated Width.		 	

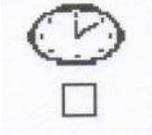
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<p><b>Program C</b></p>	<p><b>IRRIGATED WIDTH</b></p>	<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.</p>		  	
<p><b>Program D</b></p>	<p><b>ZONE SPEED PRIORITY</b></p>	<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.</p>		  	
<p><b>Program E</b></p>	<p><b>ZONE RAIN PRIORITY</b></p>	<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Irrigated Width.</p>		  	
<p><b>Program E</b></p>	<p><b>IRRIGATED WIDTH</b></p>	<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.</p>		  	

### Start and Stop Timer

<p>Program start timer with trolley stopped. Use + and - keys to set time, or leave time to zero if you wish to have the machine start immediately.</p> <p>If you wish the outlet valve or closing valve (option) to trip with a certain delay at cycle end, use + and - keys to set wished time, or leave time to zero if you wish to have the valve trip immediately at work end.</p>		  	
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### Delayed Start

<p>Use + and - keys to enable or disable machine start at set time.</p> <p>When activated, an X should be displayed in the suitable box, it can be disabled with - key.</p>		  	
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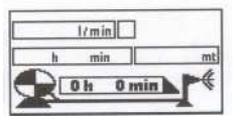
### Set Delayed Start

<p>Use + and - keys to program wised (flashing) value and press PROG to shift to next value:</p> <p>h      hours  min    minutes  gg     day  m      month  a      year</p>		 	
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### Start Timer

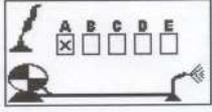
		 	
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### Stop Timer

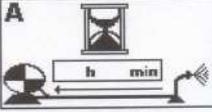
		 	
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## PROGRAM A

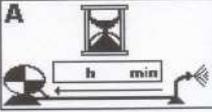
### Choosing the work Program.

<p>Use + and - keys to choose the letter corresponding to desired work program. Press PROG to confirm and go to the page of set program.</p>			
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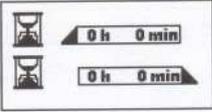
### Time Priority - Program A

<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start / Stop, Delayed Start, and then to Stop Status Page.</p>			
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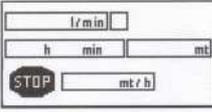
### Start and Stop Timer

<p>Program start timer with trolley stopped. Use + and - keys to set time, or leave time to zero if you wish to have the machine start immediately.  If you wish the outlet valve or closing valve (option) to trip with a certain delay at cycle end, use + and - keys to set wished time, or leave time to zero if you wish to have the valve trip immediately at work end.</p>			
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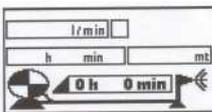
### Delayed Start

<p>Use + and - keys to enable or disable machine start at set time. When activated, an X should be displayed in the suitable box. It can be disabled with - key.</p>			
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### Page: Stop Status

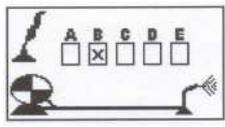
<p>In this position, if all operations have been performed correctly, press START to start the work cycle.</p>			
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### Page: Winding Status

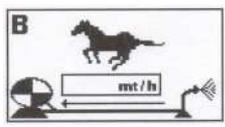
<p>Once START has been pressed, the work cycle starts and cycle end day and time, hose winding speed, metres (ft) of unwound hose and machine flow rate of l/min (if litre counter is fitted) are displayed.</p>			
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## PROGRAM B

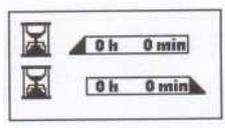
### Choosing the work Program.

<p>Use + and - keys to choose the letter corresponding to desired work program. Press PROG to confirm and go to the page of set program</p>			
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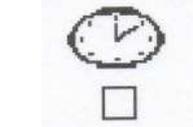
### Speed Priority - Program B

<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start / Stop, Delayed Start, and then to Stop Status Page.</p>			
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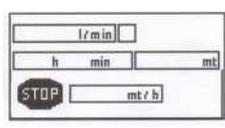
### Start and Stop Timer

<p>Program start timer with trolley stopped. Use + and - keys to set time, or leave time to zero if you wish to have the machine start immediately.  If you wish the outlet valve or closing valve (option) to trip with a certain delay at cycle end, use + and - keys to set wished time, or leave time to zero if you wish to have the valve trip immediately at work end.</p>			
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### Delayed Start

<p>Use + and - keys to enable or disable machine start at set time. When activated, an X should be displayed in the suitable box. It can be disabled with - key.</p>			
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### Page: Stop Status

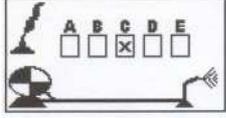
<p>In this position, if all operations have been performed correctly, press START to start the work cycle.</p>			
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### Page: Winding Status

<p>Once START has been pressed, the work cycle starts and cycle end day and time, hose winding speed, metres (ft) of unwound hose and machine flow rate of l/min (if litre counter is fitted) are displayed.</p>			
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## PROGRAM C

### Choosing the work Program.

<p>Use + and - keys to choose the letter corresponding to desired work program. Press PROG to confirm and go to the page of set program.</p>			
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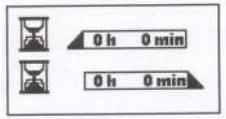
### Rain Priority - Program C

<p>Use + and - keys to increase or decrease set value in mm of rain. Press PROG to confirm set value and go to Irrigated Width. <i>His program can be used only if the machine is fitted with litre counter.</i></p>			
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### Irrigated Width

<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.</p>			
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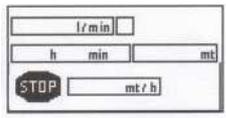
### Start and Stop Timer

<p>Program start timer with trolley stopped. Use + and - keys to set time, or leave time to zero if you wish to have the machine start immediately.  If you wish the outlet valve or closing valve (option) to trip with a certain delay at cycle end, use + and - keys to set wished time, or leave time to zero if you wish to have the valve trip immediately at work end.</p>			
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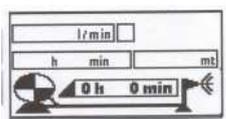
### Delayed Start

<p>Use + and - keys to enable or disable machine start at set time. When activated, an X should be displayed in the suitable box. It can be disabled with - key.</p>			
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### Page: Stop Status

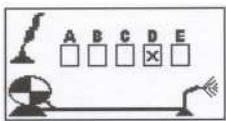
<p>In this position, if all operations have been performed correctly, press START to start the work cycle.</p>			
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### Page: Winding Status

<p>Once START has been pressed, the work cycle starts and cycle end day and time, hose winding speed, metres (ft) of unwound hose and machine flow rate of l/min (if litre counter is fitted) are displayed.</p>			
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## PROGRAM D

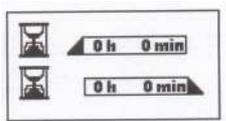
### Choosing the work Program.

<p>Use + and - keys to choose the letter corresponding to desired work program. Press PROG to confirm and go to the page of set program.</p>			
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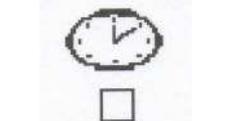
### Zone Speed Priority - Program D

<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start / Stop, Delayed Start, and then to Stop Status Page.</p>			
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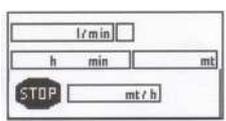
### Start and Stop Timer

<p>Program start timer with trolley stopped. Use + and - keys to set time, or leave time to zero if you wish to have the machine start immediately. If you wish the outlet valve or closing valve (option) to trip with a certain delay at cycle end, use + and - keys to set wished time, or leave time to zero if you wish to have the valve trip immediately at work end.</p>			
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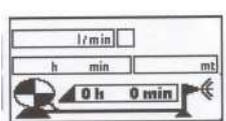
### Delayed Start

<p>Use + and - keys to enable or disable machine start at set time. When activated, an X should be displayed in the suitable box. It can be disabled with - key.</p>			
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### Page: Stop Status

<p>In this position, if all operations have been performed correctly, press START to start the work cycle.</p>			
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### Page: Winding Status

<p>Once START has been pressed, the work cycle starts and cycle end day and time, hose winding speed, metres (ft) of unwound hose and machine flow rate of l/min (if litre counter is fitted) are displayed.</p>			
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### Program D - Zone Speed

Up to 4 zones (speed) can be programmed on the same tube section.

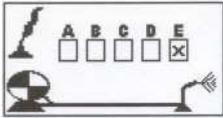
1. Zone D1: set for how many metres (eg 60) a certain speed is to be maintained (eg 20 mt/h).
2. Zone D2: set for how many metres (eg 20) a certain speed is to be maintained (eg 20 mt/h).
3. Zone D3: same as previous point.
4. Zone D4: same as previous point.

It is important that when adding all metres set for the above zones, the total corresponds to the total metres of unwound hose. If only two zones are needed, such as D1 and D2, do not program zone D3, and carry on with next steps.

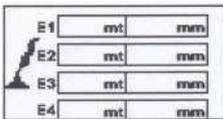
*Note: When using the zone priority to set only 2 zones for instance, simply do not program zone 3 and the computer will automatically not show zone 4.*

## PROGRAM E

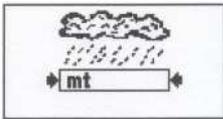
### Choosing the work Program.

<p>Use + and - keys to choose the letter corresponding to desired work program. Press PROG to confirm and go to the page of set program.</p>			
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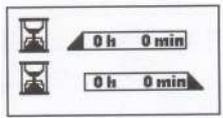
### Zone Rain Priority - Program E

<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Irrigated Width.</p>			
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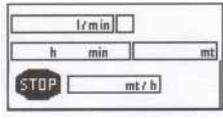
### Irrigated Width

<p>Use + and - keys to increase or decrease set value. Press PROG to confirm set value and go to Timers for Start/Stop, Delayed Start, and then to Stop Status Page.</p>			
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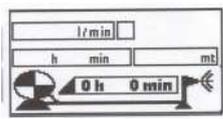
### Start and Stop Timer

<p>Program start timer with trolley stopped. Use + and - keys to set time, or leave time to zero if you wish to have the machine start immediately.  If you wish the outlet valve or closing valve (option) to trip with a certain delay at cycle end, use + and - keys to set wished time, or leave time to zero if you wish to have the valve trip immediately at work end.</p>			
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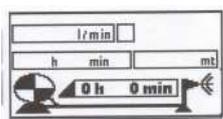
### Delayed Start

<p>Use + and - keys to enable or disable machine start at set time. When activated, an X should be displayed in the suitable box. It can be disabled with - key.</p>			
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### Page: Stop Status

<p>In this position, if all operations have been performed correctly, press START to start the work cycle.</p>			
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### Page: Winding Status

<p>Once START has been pressed, the work cycle starts and cycle end day and time, hose winding speed, metres (ft) of unwound hose and machine flow rate of l/min (if litre counter is fitted) are displayed.</p>			
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## Program E - Zone Rain

This program allows you to program up to 4 zones and set different rain mm. (inch), for the same hose section. Zone E1, set for how many mt. (ft) you want to deposit a certain quantity of water in mm. (inch). Use + and - keys to set value. Press PROG to confirm set value and go to next Zone E2. Set it in the same way.

*Note: When using the zone priority to set only 2 zones for instance, simply do not program zone 3 and the computer will automatically not show zone 4.*

*It is important that total metres set in the various zones correspond to total metres unwound from machine and displayed by the computer.*

## ALARM MESSAGES



**Alarm Messages** are displayed at the centre of the LCD in case of machine malfunction.

Alarm message can be deleted from display by pressing after having eliminated its cause. Every alarm refers to the following codes:

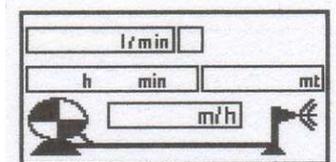
1. Battery voltage below 8 Volts
2. Short-circuit on external power supply.
3. Litre counter error.
4. Speed alarm.
5. No pressure.
6. End of work cycle.



## CHANGING PROGRAM DURING OPERATING

**Rain Control 2** allows you to change programmed working parameters even during operation. Change parameters as follows:

1. The monitor displays machine winding status.
2. Press PROG: programmed priority is displayed.
3. Press + and - keys to set new value.
4. Press PROG to confirm and go back to machine winding status page.



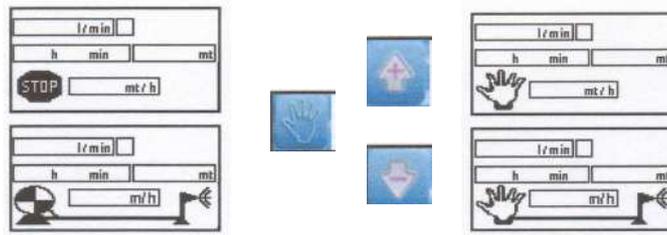
The equipment will automatically set to new program and correct all parameters.

## ADDITIONAL FUNCTIONS

### Manual Function

This function allows you to manually pilot the turbine by-pass so as to check (with machine running) the minimum and maximum speeds the machine can reach when engaging the various speeds of the gearbox. It is possible to use the Manual Function in two ways:

1. Machine Stop Status.
2. Machine Winding Status.
3. Press Manual Key.
4. Press + to increase speed or - to decrease it. In this way you change turbine by-pass opening or closing and therefore the speed.
5. Press again Manual key to go back to Machine Stop or winding Status page.

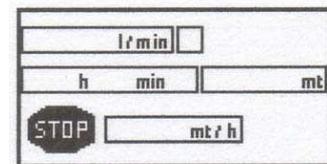


*Note: Speed value is calculated and refreshed once a minute. To see the current speed you should then wait at least 1 minute.*

### Manually Entering the Unwound Metres of Hose

When hose is laid down with computer off or with limit switch tripped, unwound metres of hose are not calculated. Manually enter unwound Metres of hose as follows:

1. The machine should be STOPPED.
2. **Press + and - keys at the same time.** The number inside met or ft box will be flashing, then use the + and - keys to enter unwound hose length.
3. Press + and - keys at the same time to confirm. Entered figure will no longer be flashing.

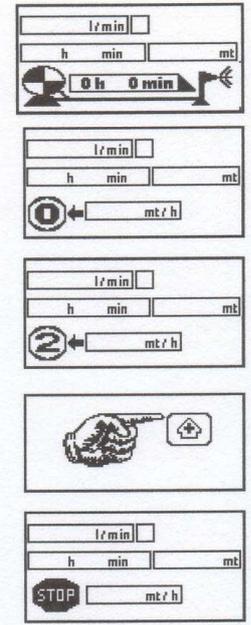


## End of Work

When machine gets to the end of working run, the gearbox is automatically set into neutral, and the limit microswitch is pressed. The LCD will then display:

- A. **Final pause** in minutes, is enabled.
- B. **Wait speed 0**: the control unit opens turbine by-pass r closes oil diverter valve (only for machines with motor-driven hose winding).
- C. **Wait closing 2**: the outlet valve opens or the closing valve closes, if fitted.
- D. The LCD will display the symbol of a hand and + key.

Press  and Stop is displayed.  
The machine is now ready for a new working cycle.



**Note:** To start a new working cycle after positioning the machine and laying down the hose, simply push **Start**.

## TROUBLE SHOOTING

- A. **The machine does not start when I push START and the monitor displays machine status: wait speed zero for 30'' then press +.**
  1. The limit switch is tripped and should be reset. Manually enter hose meters (ft).
  2. Press + key.
  3. Press again START.
- B. **The machine does not start if I press START and alarm 5 is displayed. i.e. no pressure.**
  1. The machine is not under pressure. The equipment will start automatically as soon as it is under pressure.
  2. Pressure switch is no connected or it is wrongly connected. Check that pressure switch is connected to pos 1 and 4.
  3. Pressure switch is faulty (change it). In this case it is possible to start the equipment by connecting the two pressure switch wires.
  - 4.
- C. **The machine starts very slowly if I press START. After 11 minutes the monitor displays alarm 4.**
  1. Set potentiality value s too high. Correct it.

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2. Press - key to delete alarm from LCD.
3. Hold down PROG key to enter the parameter page.
4. Press PROG up to Potentiality (flashing) value Pt.
5. Press - key and decrease the value, such as 150.
6. Press again PROG key and go back to machine winding status page.

**D. While working, the machine sets to security mode and the LCD displays alarm 4, ie Speed fault.**

1. A wrong speed is engaged for the type of program set. Change speed and reprogram.
2. The sensor reading speed does not output the correct value. Check for proper operation.

Verify that the sensor is mounted properly and is approx 6 mm from the pinion gear on the reel. Slowly wind the reel so that the yellow light-ray illuminates from the back of the sensor when it passes a gear tooth and in between each tooth the light-ray goes off. Having tested these two items, you are now ready to use the machine.

**E. While working, the machine sets to safety mode and the LCD displays alarm 3, ie Litre counter fault.**

1. Rain priority program was enabled and machine is not fitted with litre counter. Change program.
2. Litre counter is jammed. Clear and clean it. Press - key to delete alarm from display and then press Start to restart the machine.

**F. While working, the LCD displays alarm 1, ie Battery fault**

1. Battery voltage is below 8 V. It is necessary to charge the battery.

*Note: The battery shall be charged with correctly set battery charger and for 24 hours. Battery will IRREPARABLY damage if charged with battery charger set at maximum value.*

**G. While working, the machine does not settle working speed, ie speed continuously increases and decreases.**

1. A program requiring high speed was set (100-200 m/h) and the equipment is set to a low potentiality value. Increase potentiality value (see pos C).

**H. The machine ends working cycle but the LCD displays alarm 4, ie Speed fault.**

1. At work end, the cycle end electric contact was not activated. Press - key to delete the fault and set the limit switch activation plate.
2. Too high a speed is engaged with respect to the program set. At work end, the equipment completely opens the turbine by-pass but speed is higher than program set. Press - key to delete the fault and change speed.
3. If measured winding speed is 0 and No pressure alarm is not displayed, the equipment automatically closes turbine by-pass to reach the programmed speed.

If the problem persists for more than eleven minutes the machine alarm trips and machine sets to Stop. Check the causes, that might be:

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1. Turbine jammed
2. Trolley jammed
3. Insufficient pressure
4. Sensor faulty
5. Sensor cable torn off
6. Battery flat

Fix the problem, press - key to delete alarm from LCD and press Start to restart the machine.

### I. The Computer Does Not Read The Feet (Meters) Unwound, Working Speed, And Accelerates To Themaximum Speed

- a) The sensor is too far away from the pinion gear (move closer).
- b) The sensor light ray is always on, the battery falls under 10 volts (recharge), or grease on the pinion gear (clean off).

### J. The Computer Does Not Regulate The Working Speed

- a) Verify if the motor that regulates the by-pass motor works correctly.
- b) Check to see if turbine has foreign object inhibiting the by-pass.

### K. The Computer Does Not Regulate The Speed - It Accelerates When It Should Reduce The Speed

The electrical wires that go to the by-pass motor are reversed - switch wires.

## IRRIGATION END

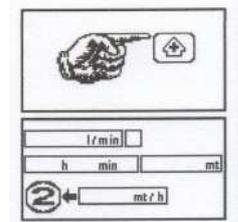
At the end of the work stage (once stop timer has timed out, if programmed) the machine can end irrigation in two ways:

1. Opening the outlet valve by controlling the solenoid valve.
2. Closing the throttle valve by controlling the electric piston.

## Operating Faults At Work End

### Outlet Valve Does Not Open

- A. The solenoid valve is jammed with a foreign body. Open and clean it.
- B. The outlet valve control piston does no close:
  1. The control unit is set for outlet valve. Only one electric pulse is sent to piston and the LCD displays Press +. It is necessary to set the correct function from parameters. Press PRO to enter the program and choose M2-1 for outlet valve, M2-0 for closing valve.
  2. The status page displays wait closing 2 but electric piston does not close. In tis case the piston is jammed or damaged. Remove jamming or change it.



## WARNINGS

1. Never let the battery get completely flat. It will damage if charge gets below 9 volts.
2. At the end of the season remove the battery and periodically charge it.
3. When assembling the battery, check the wire connections. The equipment might damage if they are reversed.
4. Do not carry out any welding operations on the machine when it is powered or it might damage.

## INSTRUCTIONS FOR USE OF THE BATTERY

### ***Warning:***

Consider that electrolyte is a solution of diluted sulphuric acid. Wash with abundant water if it gets in contact with your skin.

In case of contact with your eyes, wash with water and contact a doctor with no delay.

All batteries issue flammable gasses while charging. They might cause battery explosion.

### ***Precautions:***

#### **Battery installation:**

When assembling, removing, inspecting, starting with temporary connections and with auxiliary batteries or equipment, keep away from parks and fire. Do not smoke.

#### **Battery Charge**

Battery charge on bench. Ensure to correctly connect the battery to battery charger (+ with + and - with -). Charge the battery in a well-ventilated room. Use not too high current and keep away from sparks or fire. Do not smoke close to the battery.

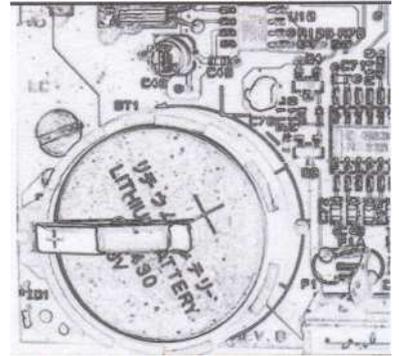
Never set metal tools on to the battery.

Keep away from children.

### Clock Battery

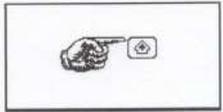
Rain Control 2 electronic board fits a lithium battery of the CR2430 3V type, that powers the clock data memory. It shall be changed in case of errors or malfunctions in date and time display.

It is quite easy to change it, but be careful and ensure polarity is respected. Change battery with equipment off.



## PROGRAMMING THE MAIN PARAMETERS

Programming is usually performed in-house, but user can gain access to this section to check or edit values if needed.

<p>After switch-on, when Press + is displayed, hold down PROG until parameter page is displayed. It is possible to enter the parameter environment, even from status page.</p>			
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### Parameter Page

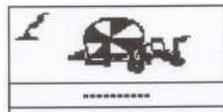
Use PROG + and - keys to set:

- um: unit of measurement
- ton: time (sec) of piston pulse
- toff: time (sec) o pulse-to-pulse pause
- step: number of pulses to output to piston
- pt: potentiality
- m2: set 1 for outlet valve  
set 0 for closing valve
- imp/l: set used litre counter value

		<table border="1"> <thead> <tr> <th>um</th> <th>ton</th> <th>toff</th> <th>step</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>20</td> <td>80</td> <td>23</td> </tr> <tr> <th>Pt</th> <th>m2</th> <th colspan="2">imp/l</th> </tr> <tr> <td>80</td> <td>1</td> <td colspan="2">9,0</td> </tr> </tbody> </table>	um	ton	toff	step	0	20	80	23	Pt	m2	imp/l		80	1	9,0	
um	ton		toff	step														
0	20	80	23															
Pt	m2	imp/l																
80	1	9,0																
																		

### Type of Structure

Press + and - keys to display and choose the ype of structure used.

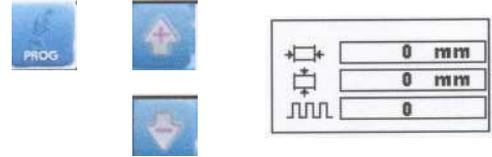
### Data of Structure Chosen

It is possible to enter hose length, ovalization and hose diameter.

		<table border="1"> <tr> <td></td> <td>350</td> <td>mt</td> </tr> <tr> <td></td> <td>866</td> <td>1/1000</td> </tr> <tr> <td></td> <td>110</td> <td>mm</td> </tr> </table>		350	mt		866	1/1000		110	mm
	350		mt								
	866	1/1000									
	110	mm									
											

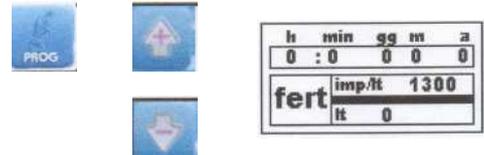
### User Structure

If the “user” structure used, it is possible to enter: roller width, diameter and number of teeth of rack.



### Setting Date and Time

It is possible to set current hours (h), minutes (min), day (gg), month (m) and year (a).



The **fert** function is not active and shall not be set.

Um: Unit of measurement  
 Set 0 to measure in metres  
 Set 1 to measure in feet

Ton - Time (sec) of pulse to piston. If time is decreased, stroke is shorter and closing movement is slower.

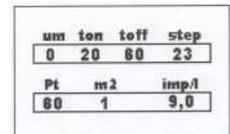
Toff: It is time (sec) of pulse-to-pulse pause.

Step: It is the number of pulses to be sent to piston

Pt: Potentiality.

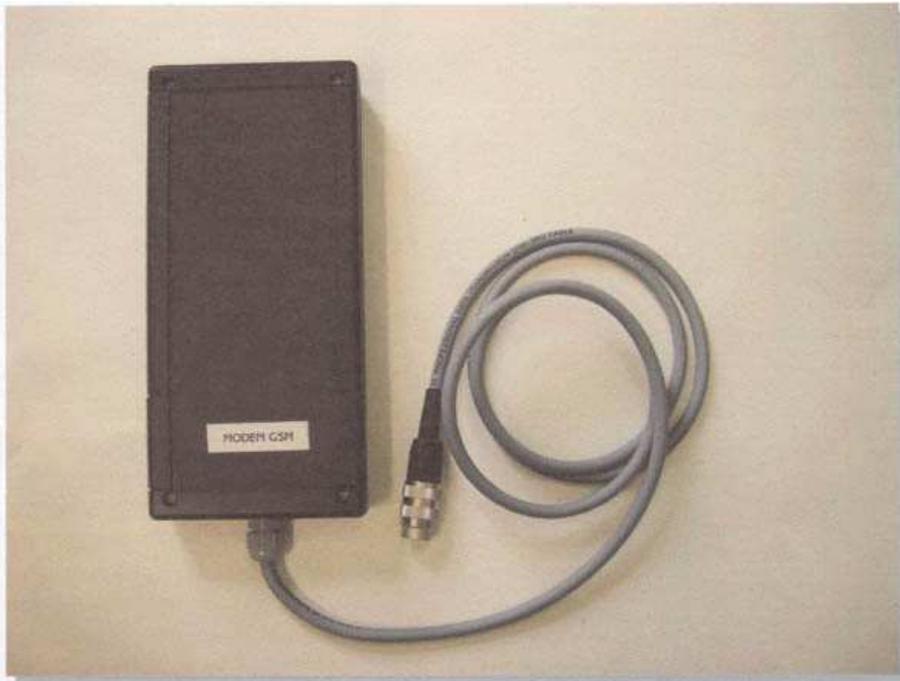
M2: Set 1 for outlet valve  
 Set 0 for closing valve.

Imp/l - 9.0 pulses/l is the standard setting. Set the value according to used litre counter.





## MODEM GSM



**DCMIS**

## INTRODUCTION

The GSM Modem used in combination with RAIN CONTROL 2 is a GSM Dual Band modem (EGSM900/DCS1800). It was designed to work with any GSM operator, either directly or in roaming mode. It complies to class 4(900 Mhz) and class 1 (1800 Mhz). The dual band function depends on the network. Please refer to the local GSM telephone network operators to check for service availability.

RAIN CONTROL 2 combined with Rain allows you to send the following messages to a preset mobile phone number:

Battery flat (voltage below 8 volts)  
Short-circuit on external power supply.  
Litre counter error.  
Speed fault.  
O pressure.  
End of work cycle.

## Specifications

Power supply	9 to 28 V
Dimensions	
Weight	
Operating temperature	-5°C to +45°C
Stocking temperature	-20°C to +70°C
Data interface	RS232 9 pin (V24/V28)
Antenna Connector	Connector SMA type, fem.

## Warning

The GSM Modem is a low-power transmitter/receiver.

When in operation, it sends and receives radio frequency (RF).

The modem creates magnetic fields and should then be kept away from any magnetic objects.

Operating the GSM Modem close to electric and electronic devices such as radios, phones, TVs and computers might cause interference.

The GSM Modem, like any other wireless device, could undergo interference that might affect the device efficiency.

## Setting the GSM Modem to Work

The first operation to be performed before using the GSM Modem is inserting the SIM card in its housing. This is to be carried out with RAIN CONTROL 2 and GSM Modem OFF.

1. Carefully undo the four screws with rubber seal and remove the cover from GSM Modem case.
2. Spot the SIM card housing and slightly press on the release pin with the tip of a pencil or another similar object.

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3. Insert the SIM card in its holder with contacts up. Ensure that the cut-off corner is correctly positioned. To avoid malfunction, it is recommended not to touch the SIM card gold area.
4. Close the holder by pushing it fully in. In case of problems do not force on the holder. Ensure that Power and Status LEDs are on.
5. Switch on the RAIN CONTROL 2 and ensure that Power and Status LEDs are on.
6. After a few seconds, the Status LED will start flashing. Should LED stay on, switch off RAIN CONTROL 2 and check -
  - That SIM card is correctly inserted in holder;
  - That pin code request is disabled; and
  - That GSM signal reaches the equipment. Insert the SIM card in a mobile phone to check this.
7. Ensure the LED operates correctly and close the GSM Modem case.

### ***Programming the Mobile Phone Number to be Contacted***

The addressee for the alarm messages is programmed by sending SMS messages from a standard mobile phone to the phone number of the SIM card inserted in the GSM Modem.

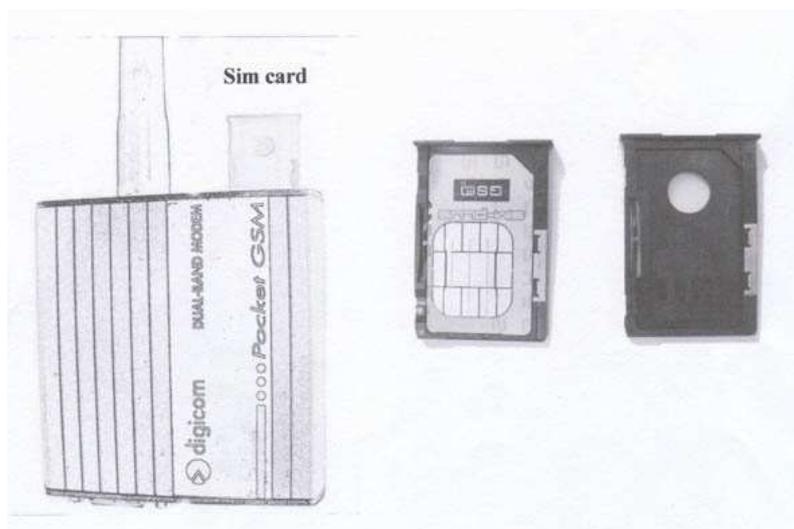
The phone number to be contacted shall be entered with + followed by the international code (for example, +39 for Italy).

Send the following message to the inserted SIM phone number: #1#+39mobile phone number#

The GSM Modem will be ready to operate at best only once registered with the GSM network and when GSM signal quality is good.

### **Important Note**

When installing a prepaid SIM card, never let balance credit get to zero and “recharge” your account balance credit in time or the GSM Modem will not work.



## **Alarm Messages Sent by RAIN CONTROL 2**

Codes 1 to 6 are displayed on the RAIN CONTROL 2 LCD and are sent via a SMS message to the preset mobile phone number.

Battery voltage below 8V  
Short-circuit on external power supply  
Litre counter error  
Speed alarm  
No pressure  
End of work cycle



Request for Unwound Metres, Winding Speed, Working Time.

To request this data, just send the message: #2#2# to phone number of inserted SIM card. The device will answer with an SMS message containing currently displayed data on RAIN CONTROL 2:

1. Unwound metres
2. Winding speed
3. Working time

## **RAIN CONTROL 2 Stop Control**

To control RAIN CONTROL 2 Stop, send the message #3## to the phone number of inserted SIM card. The device will answer with a short message containing unwound metres, winding speed and working time. One last SMS message with number 6 will inform of work cycle end.

## **GSM Modem Error Codes Displayed on RAIN CONTROL 2 LCD**

These codes might be displayed in case of faults in the communication between GSM Modem and RAIN COINTROL 2 or between GSM Modem and telephone operator.

To delete error code press  on RAIN CONTROL 2 and select the appropriate button.

- SIM card error
- Registration error
- Signal error
- Str check error
- Rts error
- SMS reset error
- SMS sending error
- Ate0 error
- Atz error at start-up
- Error - phone # to be contacted not programmed

