



IRRIGATION CONTROLLER 4/6/8 ZONE TYPE : "CHRONO"

USER MANUAL CHRONO





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INSTRUCTION MANUAL

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NB: this manual is valid for all CHRONO 9V battery operated controllers (8 zones, 6 zones, 4 zones) and for all CHRONO 24VAC controllers (8 zones, 6 zones, 4 zones).



1. GENERAL DESCRIPTION

1.1 - CONTROLLER SPECIFICATIONS

The controller Chrono is able to switch the irrigation cycles for a maximum of 8 (or 6 or 4, depending on the control unit chosen) stations on a weekly-basis. Watering times range from a minimum of 1 second to a maximum of 9 hours (8 hours : 59 minutes : 59 seconds) with up to 16 events per day. Manual override is also possible.

1.2 - SYSTEM CHARACTERISTICS

- Power supply: 9V alkaline battery or 24VAC transformer
- Battery Life: 1 year
- Operation: 9V latching solenoid or 24VAC solenoids
- Programs: up to 4 for each area
- Solenoid valve manual override
- Installation: wall mounted
- Inputs: for rain, humidity, wind, & temperature sensors
- Memory: non-volatile. Removal of the battery from the unit will not erase the programs
- Output: Optional with a pump control latching relay or master valve
- Safety features: battery charge control and irrigation prevention when battery is low





2. USER INTERFACE

2.1 - USER INTERFACE

The CHRONO user interface consists of an LCD display and 4 function keys that allow both the creation and modification of irrigation programs (4 programs) and the management of manual overrides.

The display turns off automatically if no keys are pressed for more than two minutes. To reactivate the display press one of the four function keys. The LCD display will then display the status page. (display 5 - paragraph 2.1.5).

NOTE FOR 24 VAC VERSION

- 1) With the unit powered by the external adapter 24 VAC, the display remains lit.
- 2) In case the 24V external power is not available the system will continue to operate with the internal 9V battery: after two minutes, the display will turn off and the unit switches to energy-saving mode. To turn the display press and hold any of the four function keys.
- 3) If a programmed watering cycle or manual mode is running and the external 24 VAC power network shuts down, the cycle is not interrupted. The solenoid valves are not powered but the internal battery allows the cycle to continue running and after power is restored the cycle is restored too.





2.1.1 - SCREEN AT POWER ON (display 1)

When switched on the following will be shown:

For 9V version

CHRONO X ZONE
WWW.RPESRL.IT

For 24V version

CHRONO xZ 24 VAC
WWW.RPESRL.IT

After 5 seconds the controller switches to basic settings:

- selection of default language (paragraph 2.1.2)
- setting day of the week (paragraph 2.1.3)
- setting the Clock (paragraph 2.1.4)





2.1.2 - SELECTING THE DEFAULT LANGUAGE (display 2)



Row 1: Current default language.

Row 2: Options available

Function key definition:

F1 - Select English language.

F2 - ---

F3 - Select Italian language.

F4 - ---.





2.1.3 - SETTING THE DAY OF THE WEEK (display 3)

Set Day: xxx
(+) (-) OK

F1

F2

F3

F4

Row 1: Day of the week.

Function key definition:

F1 - No function.

F2 [+] - Day selection

(xxx = Mon, Tue, Wed, Thu, Fry, Sat, Sun).

F3 [-] - Day selection

(xxx = Mon, Tue, Wed, Thu, Fry, Sat, Sun).

F4 [OK] - Confirm and advance to clock preset page.



2.1.4 - SETTING THE CLOCK (display 4)

hh : mm : ss
HOUR MIN SEC OK

F1

F2

F3

F4

Row 1: Hour, min, sec.

Function key definition:

F1 [HOUR] - Hour setting.

F2 [MIN] - Minutes setting.

F3 [SEC] - Seconds setting.

F4 [OK] - Confirm setting and advance to main menu.





2.1.5 - STATUS PAGE [RUN] (display 5)

Status page is displayed when unit is reactivated from standby, or selecting [RUN].

Mon hh : mm : ss xxx
MENU EV : 1 2 3 4 5 6 7 8

F1

F2

F3

F4

Row 1: Day of week, time and method of irrigation (xxx)

Irrigation methods are indicated as follows:

MAN = Manual irrigation.

P.A = Irrigation program "A" running.

P.B = Irrigation program "B" running.

P.C = Irrigation program "C" running.

P.D = Irrigation program "D" running.

Row 2: Operating status of the irrigation areas [EV].

The number of open area flashes (active irrigation)

Function key definition:

F1 - Advance to MENU programming.

F2 - No function.

F3 - No function.

F4 - No function.



2.1.6 - MAIN MENU PROGRAMMING (display 6)

Bat : OK	Rain : ON		
RUN	TIME	PRG	MAN

F1	F2	F3	F4
----	----	----	----

Row 1: Battery charge [Bat] and rain sensor status [Rain]

Bat :OK - Battery charged (steady light)
:KO - Low battery (flashing)
Rain :ON - Dry terrain (sensor closed)
:OFF - Wet terrain (sensor open)

Row 2: Function key definition:

F1 [RUN] - Return to status page (paragraph 2.1.4) .
F2 [TIME] - Setting the clock (paragraph 2.1.2).
F3 [PRG] - Create irrigation schemes (paragraph 2.2.0).
F4 [MAN] - Manual function (paragraph 2.3.0).





2.2 - CREATION / MODIFICATION OF IRRIGATION PROGRAMS [PRG]

Press F3 [PRG] from the main menu to create or modify irrigation programs.
Procedure for creating programs include the following steps:

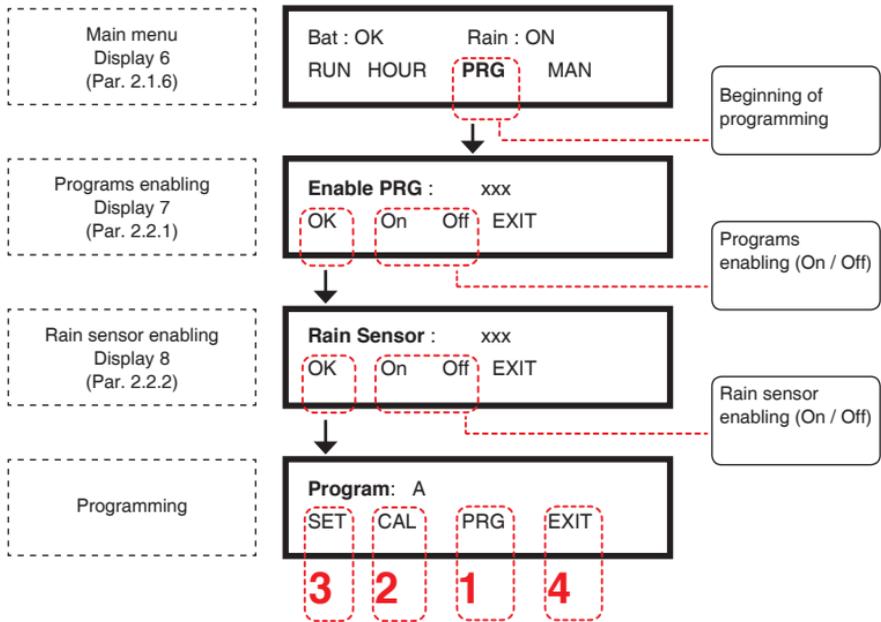
- 2.2.1 Enabling programs set or to be set (on-off)
- 2.2.2 Enabling rain sensor (on-off)
- 2.2.3 Selection letter / program name (a-b-c-d)
- 2.2.4 Frequency setting, or day of week of irrigation
- 2.2.5 Selection of start number (1-2-3-4)
- 2.2.6 Time setting for each start
- 2.2.7 Zone selection to be irrigated
- 2.2.8 Setting the time of irrigation for each zone
- 2.2.9 Program save

The programing process is shown below in the “STANDARD PROGRAMMING”





STANDARD PROGRAMMING





1

Program selection
Display 9
(Par. 2.2.3)

Program: A

SET CAL

PRG

EXIT

1

Program
selection:
A, B, C, D





2

Calendar setting
Display 10
(Par. 2.2.4)

Program: A
SET CAL PRG EXIT

2

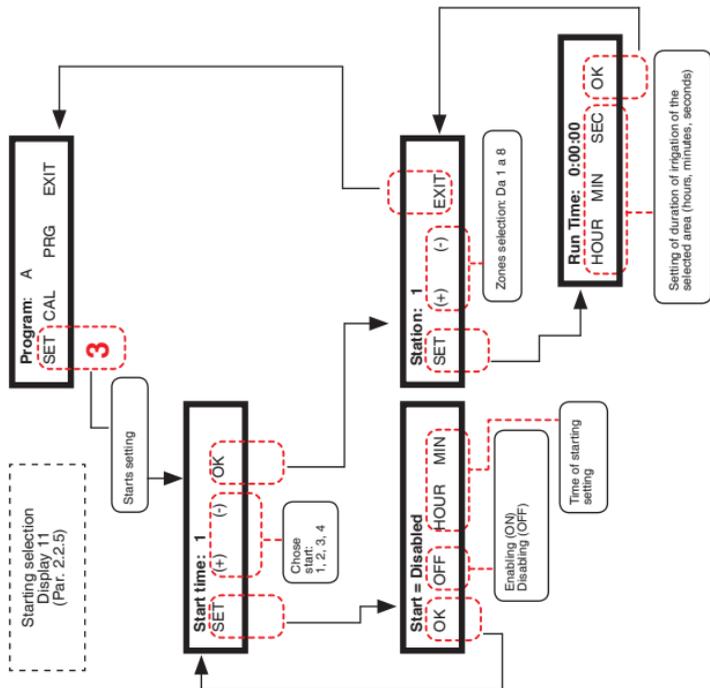
Frequency
setting

24h = NO
(+) (-) SET OK

Setting frequency / calendar:
24h,48h,72h,96h,
Mon,Tue,Wed,Thu,Fry,Sat Sun



3





4

Program save
Display 15
(Par. 2.2.9)

Program: A

SET CAL PRG

EXIT

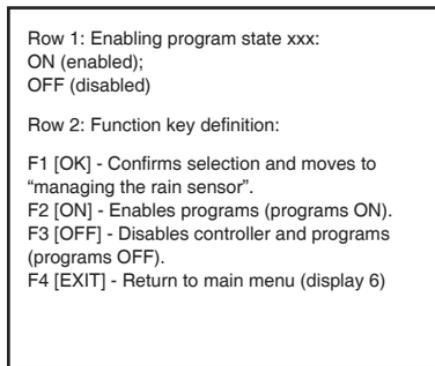
4

Save
programs





2.2.1 - ENABLING OR DISABLING THE PROGRAMS (display 7)

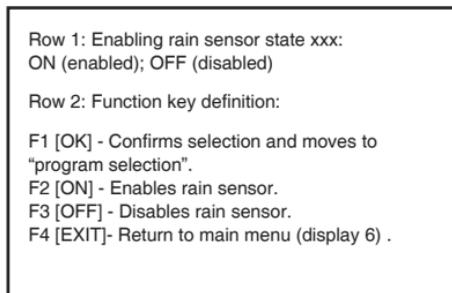
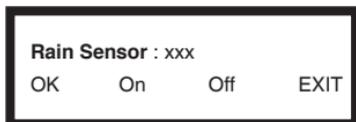


If the programs are disabled when an irrigation cycle is running, the valves are immediately closed and system does not run any other pre-set irrigation programs. F1 [OK] confirms selection and advances display to the rain sensor setting.





2.2.2 - ENABLING OR DISABLING THE RAIN SENSOR (display 8)

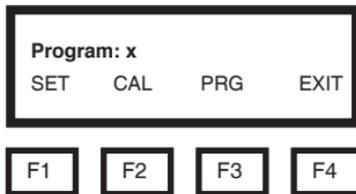


F1 [OK] confirms the selection and advances to program number setting.





2.2.3 - SELECTION OF PROGRAM NUMBER (A-B-C-D) (display 9)



Row 1: Program selected (x = A-B-C-D).

Row 2: Function key definition:

F1 [SET] - Start & irrigation time setting (display 11)

F2 [CAL] - Calendar or frequency of irrigation setting (display 10)

F3 [PRG] - Program number selection (program A-B-C-D)

F4 [EXIT] - Return to main menu (display 6).

Key F3 [PRG] selects the active program (A, B, C, D)



2.2.4 - CALENDAR OR IRRIGATION FREQUENCY SETTING (display 10)

Selecting F2 [CAL] from display 9 advances into weekly calendar setting and/or irrigation frequency times.

Pressing F1 [+] or F2 [-] irrigation frequency or day of week is selected (the selection is shown in the data field XXX).

F3 [SET] enables or disables day or frequency setting (the selection is showed in data field YYY).

xxx = yyy			
(+)	(-)	SET	OK

F1	F2	F3	F4
----	----	----	----

Row 1: xxx displays the day of week or irrigation frequency.
 yyy displays operating state enabling or disabling (ON/ OFF) day or frequency displayed in the field xxx.

Data field xxx
 Programmable irrigation frequency:
 24h : Irrigation enabled every day (24 hours).
 48h : Irrigation enabled every 2 days (48 hours).
 72h : Irrigation enabled every 3 days (72 hours).
 96h : Irrigation enabled every 4 days (96 hours).





Weekly calendar

Mon : Enabling on Monday.
Tue : Enabling on Tuesday.
Wed : Enabling on Wednesday.
Thu : Enabling on Thursday.
Fri : Enabling on Friday.
Sat : Enabling on Saturday.
Sun : Enabling on Sunday.

Data field yyy

Enabling or disabling:

YES : Irrigation enabled.
NO : Irrigation disabled.

Row 2: Function key definition:

F1 [+] - Increases day or frequency.
F2 [-] - Decreases day or frequency.
F3 [SET]- Enables irrigation on selected day (ON/OFF).
F4 [OK] - Confirmation and return to programming main page (n.9).



F4 [OK] to confirm selection and return to first page for programming (Display 9) to move to number of starts to be programmed.

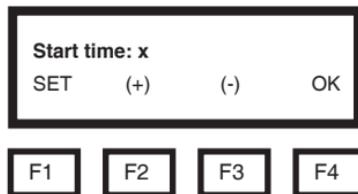
NOTE: If a fixed frequency is chosen (e.g. 24 hours), the calendar is automatically excluded (and vice versa).





2.2.5 - SELECTION OF START PROGRAM NUMBER (display 11)

Keys F2 [+] and F3 [-] select the start program number(1-2-3-4)



Row 1: Start number to be programmed (x = 1-2-3-4).

Row 2: Function key definition:

- F1 [SET] - Sets selected starting hour (display12).
- F2 [+] - Selects start program number (x = 1-2-3-4).
- F3 [-] - Selects start program number (x = 4-3-2-1).
- F4 [OK] - Confirms selection and advances to time programming for irrigation of the zones (display 13).

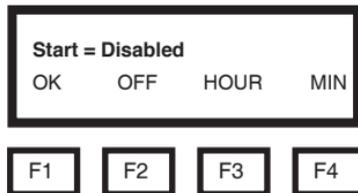
F1 [SET] advance to selection of the hour of start programming (display 12)
F4 [OK] advances directly to zone programming (display 13).



2.2.6 - ENABLES START AND PROGRAMMING HOUR START(display 12)

F2 [ON] enables and disables [OFF] the management of the start program or to be programmed.

If the start is disabled [OFF] the following screen is shown:



Row 1: Starting state disabled.

Row 2: Function key definition:

F1 [OK] - Confirms the selection and back to previous page (display 11).

F2 [OFF] - Enables start and advances to ON mode.

F3 [ORA] - No function key when in OFF mode.

F4 [MIN] - No function key when in OFF mode.





F2 [ON] enables start and the hour setting to be activated.

Start = hh : mm			
OK	ON	HOUR	MIN
F1	F2	F3	F4

Row 1: Start time in hours (hh) and minutes (mm).

Row 2: Function key definition:

F1 [OK] - Confirms selection and back to start selection (display 11).

F2 [ON] - Disables start and goes into OFF mode.

F3 [ORA] - Start hour programming.

F4 [MIN] - Minutes programming.

F3 [HOUR] and F4 [MIN] start time setting in hours and minutes.

F1 [OK] to confirm data programmed and return to the page of starts selection (display 11).





2.2.7 - SELECTION OF IRRIGATION ZONE (display 13)

F2 [+] and F3 [-] selects the zone to be programmed.

Station: x			
SET	(+)	(-)	EXIT



Row 1: Zone number (x = 1,2,3,4,5,6,7,8).

Row 2: Function key definition:

F1 [SET] - Programs time for irrigation (display 14).

F2 [+] - Selects zone program number.

F3 [-] - Selects zone program number.

F4 [EXIT] - Confirms and returns to page for program number selection (display 9).

F1 [SET] advances to the duration of the irrigation program.

F4 [EXIT] to confirm selection and return to the first page of programming "program number selection" (display 9).





2.2.8 - SETTING THE IRRIGATION TIME (display 14)

F1, F2, F3 sets hours, minutes and seconds from a minimum of 1 second to a maximum of 9 hours (8 hours : 59 minutes : 59 seconds).

Run Time: hh : mm : ss			
HOUR	MIN	SEC	OK

F1	F2	F3	F4
----	----	----	----

Row 1: Irrigation duration in hours, minutes and seconds (hh:mm:ss).

Row 2: Function key definition:

F1 [HOUR] - Sets irrigation duration (hours).

F2 [MIN] - Sets irrigation duration (minutes).

F3 [SEC] - Sets irrigation duration (seconds).

F4 [OK] - Confirms selection and returns to zone selection page.

F4 [OK] confirms selection and returns to previous page (display 13) for the selection of another zone or to abandon irrigation time programming procedure.

From display 13, pressing F4 twice (EXIT – EXIT) set programs are saved and programming procedure is finished.





2.2.9 - SAVING PROGRAMS AND EXITING FROM THE PROGRAMMING SYSTEM (display 15)

On the first page of programming (display 9) select F4 [EXIT] to exit from the programming procedure: before returning to the main menu (display 6) the following message is shown:



Function key definition:

- F1 - No function associated with the key.
- F2 - No function associated with the key.
- F3 - No function associated with the key.
- F4 - No function associated with the key.

On each exit from the programming system all data is saved in the non-volatile controller memory. This prevents programs being lost if the battery is disconnected. Data will be restored when the system is switched on again.





2.3 - PROGRAMS CANCELLATION (display 16)

To delete a program press F3 [PRG] and hold for 5 seconds on the main menu page (display 6 paragraph 2.1.6) until the following message is displayed:



The first row is displayed in a flashing message asking for a cancellation of programs.

Function key definition:

F1 [OK] - Confirmation and cancellation of programs.

F2 - No function associated with key.

F3 - No function associated with key.

F4 [EXIT] - Abandonment of procedure and return to main menu (display 6).

F4 [EXIT] to abandon the deletion process and return to main menu (display 6 paragraph 2.1.6).
F1 [OK] to confirm the cancellation of all programs in memory: "ERASE PROGRAMS" message is displayed.

The programs are cancelled, and after two seconds the display returns to the main programming menu. (Display 6)



2.4 - MANUAL OVERRIDE

The manual override allows the operator to drive (open / close) independently each of the eight zones (or 6 or 4, depending on the control unit chosen): this allows the possibility to overlap at will the opening or closing of the solenoid valves.

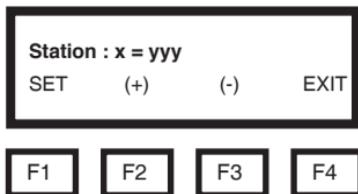
To access the management procedure of manual override functions, press F4 [MAN] in the main menu (display 6 paragraph 2.1.6).





2.4.1 - MANAGEMENT OF MANUAL OVERRIDE FUNCTIONS (display 17)

F1, F2, F3 to set hours, minutes and seconds from a minimum of 1 second up to a maximum of 9 hours (8 hours: 59 minutes: 59 seconds).



Row 1: Number of zone (x = 1,2,3,4,5,6,7,8) and operative state of valve (yyy = ON or OFF).

Row 2: Function key definition:

F1 [SET] - Opening (ON) or closed (OFF) of selected area.

F2 [+] - Select area to be managed manually (x = 1,2,3,4,5,6,7,8).

F3 [-] - Select area to be managed manually (x = 1,2,3,4,5,6,7,8).

F4 [EXIT] - Return to Main Menu programming (Display 6).



F1 [SET] to open (ON) or close (OFF) in manual mode the selected area by pressing F2 [+], and F3 [-].

The number of selected area is indicated in the data field x, while the operating state in the currently selected zone (ON or OFF) is indicated in data field yyy.

F4 [EXIT] to confirm selection and return to main menu page. (Display 6).

Manual opening of zones can be used at any time but it is not accessible if there is an ongoing programmed watering cycle.

If a solenoid valve is manually opened a programmed watering cycle starts (PA, PB, PC or PD), at the end of the run time set in the program, the solenoid valve closes and terminates either the automatic or manual cycle.





3. PROGRAMS

3.1- PROGRAM MANAGEMENT

The programming procedure allows **four start points** to be set as, defined by the time clock system, for each of the **four programs** covered (PA, PB, PC, PD).
 For each start is also possible to adjust the **irrigation time of the zones** which are activated sequentially from first to last: To bypass a zone program set the run time to zero; depending on the control unit chosen, 4 or 6 or 8 zones can be controlled.
 The watering cycles can be defined for each program, by frequency mode or by programming the weekly calendar.

PROGRAMS	IRRIGATION MODE FOR EACH PROGRAM	START TIMES PROGRAMMABLE FOR EACH PROGRAM	IRRIGATION TIMES PROGRAMMABLE FOR EACH START	NOTES
PROGRAM "A"	FREQUENCY (24H, 48H, 72H, 96H) or WEEKLY CALENDAR	STARTING TIME N.1 STARTING TIME N.2 STARTING TIME N.3 STARTING TIME N.4	IRRIGATION TIME ZONE 1 IRRIGATION TIME ZONE 2 IRRIGATION TIME ZONE 3 IRRIGATION TIME ZONE 4 IRRIGATION TIME ZONE 5 IRRIGATION TIME ZONE 6 IRRIGATION TIME ZONE 7 IRRIGATION TIME ZONE 8	



PROGRAM "B"	FREQUENCY (24H, 48H, 72H, 96H) or WEEKLY CALENDAR	STARTING TIME N.1 STARTING TIME N.2 STARTING TIME N.3 STARTING TIME N.4	IRRIGATION TIME ZONE 1 IRRIGATION TIME ZONE 2 IRRIGATION TIME ZONE 3 IRRIGATION TIME ZONE 4 IRRIGATION TIME ZONE 5 IRRIGATION TIME ZONE 6 IRRIGATION TIME ZONE 7 IRRIGATION TIME ZONE 8	
PROGRAM "C"	FREQUENCY (24H, 48H, 72H, 96H) or WEEKLY CALENDAR	STARTING TIME N.1 STARTING TIME N.2 STARTING TIME N.3 STARTING TIME N.4	IRRIGATION TIME ZONE 1 IRRIGATION TIME ZONE 2 IRRIGATION TIME ZONE 3 IRRIGATION TIME ZONE 4 IRRIGATION TIME ZONE 5 IRRIGATION TIME ZONE 6 IRRIGATION TIME ZONE 7 IRRIGATION TIME ZONE 8	
PROGRAM "D"	FREQUENCY (24H, 48H, 72H, 96H) or WEEKLY CALENDAR	STARTING TIME N.1 STARTING TIME N.2 STARTING TIME N.3 STARTING TIME N.4	IRRIGATION TIME ZONE 1 IRRIGATION TIME ZONE 2 IRRIGATION TIME ZONE 3 IRRIGATION TIME ZONE 4 IRRIGATION TIME ZONE 5 IRRIGATION TIME ZONE 6 IRRIGATION TIME ZONE 7 IRRIGATION TIME ZONE 8	





PROGRAM TRACKING FORM

To be completed and kept in order to trace the setting stored in the controller.

PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		





PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		



PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		





PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		

PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		



PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		



PROGRAM NAME	IRRIGATION START TIME	ZONE	IRRIGATION DURATION	DAYS ENABLED or FREQUENCY
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		





**IRRIGATION CONTROLLER 4/6/8 ZONE TYPE:
"CHRONO"
Rev. 2**



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MADE IN ITALY

Do not dispose with normal household waste

