SISTEMES ELECTRÒNICS
PROGRÈS

irri5

INSTRUCTION MANUAL

PRESENTATION

We wish to take this opportunity to thank you for the confidence in us which you have demonstrated in expressing interest or acquiring the Irri5.

This confidence, for our part, stimulates our efforts to meet and surpass the expectations of our clients to justify the traditional quality of our products.

This manual will allow you to see the capacity of the unit as well as its installation and use.

However, if after reading this you still have any doubts, contact us and we will happily answer them.

SISTEMES ELECTRÒNICS
PROGRÈS

INTRODUCTION

Irri5 is a battery-operated irrigation programmer (optional to 12 Vdc). The outlets allow the activation of two-wired "latch" solenoids.

It has got a screen and three keys which are used for the configuration, consultation, programming and manual workings.

The main characteristics of the unit are:

- Outlets for 5 sectors or 4 sectors and 1 fertilizer (in both cases, plus a general outlet).
- Two inputs for breakdown and conditional stop.
- Capacity for 5 programs with 5 possible sequential irrigation sectors in every one of them.
- Several programs can be activated at the same time.
- Every program has 3 daily time starts and activation frequency in days.
- Start and stop of programs and sectors manually.
- Power is supplied by a 9 Vdc battery (3 batteries optional). There is a model with power supply of 12 Vdc battery.
- Indicator of low battery (it needs to be replaced).

Irri5 meets all the norms set by the $C \in$.

The sections of *consultation*, *programming*, *change clock time*, *manual working of programs* and *manual working of sectors* can be accessed from the main menu. The values displayed in these sections go with an identifying code.

The "**+**" and "**-**" keys are used to modify the values displayed on the screen. These keys increase o decrease the value displayed on the screen in that moment. If the key is pressed for more than two seconds the value increases or decreases faster.

Use the "**C**" key to access a section from the main menu, or to move to the next value when we are already in one of the sections.
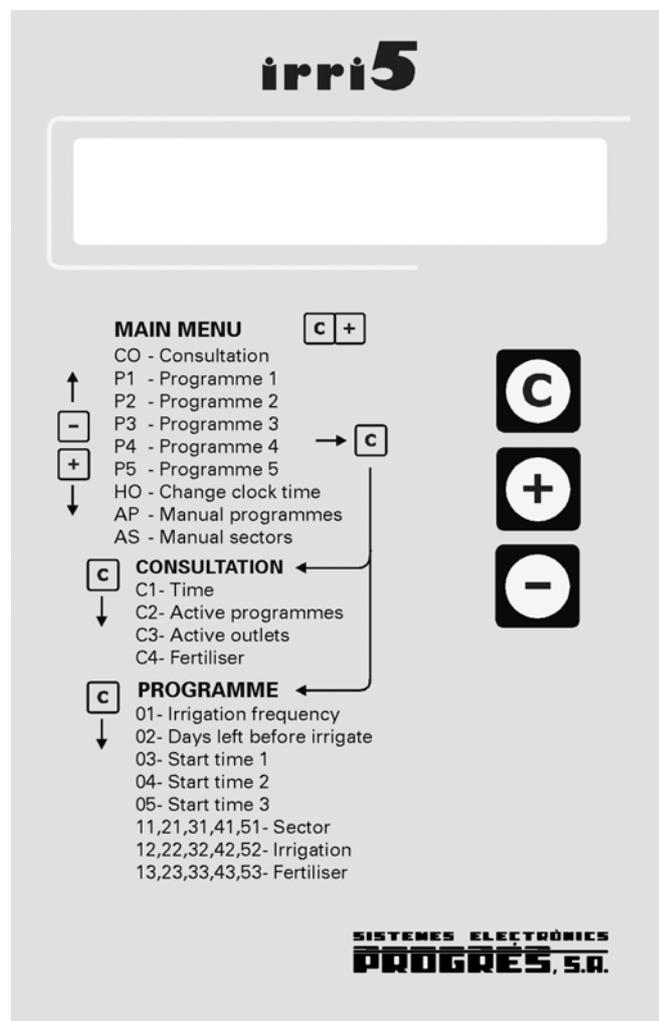
INPUTS AND OUTLETS

Inputs:

The unit is provided of two digital inputs which are used to stop the programs which are being carried out. The stop can be definitive, in case of *breakdown*, or temporal, in case of *conditional stop*.

- Input 1: Corresponds to *breakdown*. If the input is active longer than it was programmed at "configuration - code 03", ±15 seconds, all the programs which are working are stopped, the programmer is set at code 01 of *consultation* and the letters "AA" are displayed on the screen. The programs will stop definitely and they will not be restarted when the breakdown ends. No program can be started until the "C" key is pressed, as it will deactivate the breakdown. This input is only taken into account while an irrigation is taking place and the input of conditional stop is not active.

- Input 2: Corresponds to *conditional stop*. If the input is active longer than it was programmed at "configuration - code 04", ±15 seconds, all the programs which are working are affected by a conditional stop, the programmer is set at code 01 of consultation and the letters "P CO" are displayed on the screen. While the unit is at conditional stop, the programs stop discounting the irrigation time, outlets are stopped until the stop is deactivated. If, during this period any program would be started by timetable, it would not be activated until the equipment is out of conditional stop. Programs can not be activated manually when there is a conditional stop. When the input is deactivated, programs will be reactivated at the same point where they were.

Outlets:

The unit has six outlets to activate two-wired "latch" solenoids. Outlet number 6 is the general and it is activated whenever any of the sectors is activated. Number 5 will be for the fertilizer, if one has been configured, if there is none, this outlet becomes sector number 5. The other outlets correspond to the irrigation sectors that go from 4 to 1. The distance between the "latch" valves and the programmer can not be superior to 1.5m.
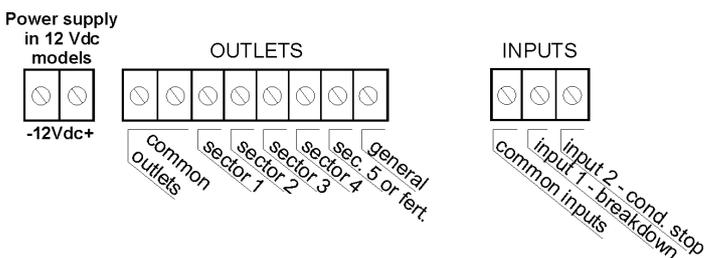
MAIN MENU

The main menu is the first screen displayed when we switch on the unit. From it we can access all the options of the unit, except configuration.

Two letters identifying the option they represent appear in the center of the screen. The "+" and "-" keys are used to change from an option of the menu to another. The "C" key is used to access the option displayed on the screen.

The following table shows the meaning of the letters which appear in the main menu.

MENU	FUNCTION
CO	Consultation
P1	Enter the values of program 1
P2	Enter the values of program 2
P3	Enter the values of program 3
P4	Enter the values of program 4
P5	Enter the values of program 5
HO	Change the clock time
AP	Activate or stop programs manually
AS	Activate or stop sectors manually

Press the "C" and "+" keys at the same time to go back to the main menu.

In every option of the menu, an identifying number or code is going to be used for every section, to identify the values that appear on the screen. These numbers appear on the two digits on the left of the screen and they start at 01. The meaning of everyone of these numbers or codes is going to be explained in detail in the following sections of this manual.

CONSULTATION

In *consultation*, we can see everything to do with the evolution of the irrigation programs which are activated (active programs, sectors which are being irrigated, fertilizer, etc.), and the general state of the programmer (breakdown, conditional stop, time).

The codes of the *consultation* are shown in the following table:

CODE	FUNCTION
C1	Unit time, breakdown, conditional stop.
C2	Which programs are irrigating.
C3	Which valves are activated.
C4	Which program has the control of the fertilizer.

The "C" key is pressed to go from one code to another. Press the "C" and "+" keys at the same time to go back to the main menu.

- Code C1: Normally displays the time of the unit clock. "AA" will be displayed if there is a breakdown and "P CO" if there is a conditional stop. It

also indicates if the level of the battery is low and it has to be replaced, by switching on the upper line of the third digit of the screen. The battery is tested after each deactivation by the controller.

- Code C2: Shows the programs which are working. There is a digit of the screen for every program. If a program is working, the number of the program is displayed, if it is stopped a dash is displayed.

- Code C3: Shows the valves which are active. There is a digit of the screen for every valve, with the exception of number 6, which corresponds to the general. If a valve is activated, the number of valve is displayed, if it is stopped a dash is displayed. If the valve has been activated manually, a spot which is on the left of the number is switched on.

- Code C4: Shows whether it is fertilizing or not. If it is fertilizing, the number of the program which is doing so will be displayed, otherwise a dash is displayed.

PROGRAMMING

The desired values for everyone of the 5 irrigation programs are entered at *programming*. At the main menu, the programming is divided into five options /programs: P1, P2, P3, P4 and P5. Depending on the program we want to access, one option or another will be chosen. Everyone of them contains the same data.

CODE	FUNCTION
01	How often it irrigates (in days)
02	Days left before irrigation
03	Starting time 1
04	Starting time 2
05	Starting time 3
11	First sector to be activated
12	Irrigation time
13	Fertilization time
21	Second sector to be activated
22	Irrigation time
23	Fertilization time
31	Third sector to be activated
32	Irrigation time
33	Fertilization time
41	Fourth sector to be activated
42	Irrigation time
43	Fertilization time
51	Fifth sector to be activated
52	Irrigation time
53	Fertilization time

Press the "C" key to move from one code to another; the "+" and "-" keys are used to modify the values; press the "C" and "+" keys at the same time to go back to the main menu.

- Code 01: The frequency of the irrigation days is entered here, that is to say, how often this program is to be activated. If number 1 is set, the program will be activated every day, if a 2 is set, it will activated on alternate days, if a 3 is set it would irrigate one day and it would not irrigate the following two, etc. The maximum can be every 15 days. If a 0 is set, the program will never be activated.

- Code 02: The days which are left before the program is active are entered here. For example, if it has to be activated every 7 days, but we want it to irrigate tomorrow, a 1 will be set here (1 day is left before the irrigation). The day when the irrigation is due, the value of this counter will be 0. This field is the only one which is updated by the programmer.

- Codes 03, 04 and 05: The three starting times that the program can have are entered in these three codes. When the clock of the programmer reaches one of the set times, the program will be activated. The starting time 00:00 is used to indicate that there is no starting time. If the program is to be activated at midnight, the starting time will be 23:59 or 00:01.

- Code 11: The sector of the program irrigation sequence that is to be activated first is entered here. If a 0 is entered, the program will go to the next sector of the sequence.

- Code 12: The desired irrigation time, in hours and minutes, for the sector entered in the previous code is entered here. The maximum can be 24 hours. If a 0 is entered, the program will go to the next sequence.

- Code 13: The fertilizing time, in hours and minutes, is entered here. The maximum can be 10 hours.

In the codes 21, 22, 23; 31, 32, 33; 41, 42, 43 and 51, 52, 53, the same as in the codes 11, 12 and 13 is repeated, but for the following sectors of the sequence.

CHANGE CLOCK TIME

In this option, the time of the programmer clock is changed, using the "+" and "-" keys. Press the "C" and "+" keys at the same time to go back to the main menu.

MANUAL PROGRAMS

In this option, programs can be activated or stopped manually. To do so, enter the number of the program and then press the "C" key and, if the selected program was stopped it will be activated, and if it was activated it will be stopped. After the program is activated or stopped, the number on the screen will go back to 0 and it will be ready for another program to enter. Press the "C" and "+" keys at the same time to go back to the main menu.

MANUAL SECTORS

In this option, sectors can be activated or stopped manually. To do so, enter the number of the sector to be activated or stopped and then press the "C" key. If the selected sector was stopped it will be activated, and if it was activated it will be stopped. If the general outlet is not activated when a sector is activated, it will also be activated. If there is fertilizer, outlet 5 (which corresponds to the fertilizer) can also be activated or stopped manually, but when it is activated the general outlet is not activated. At code 03 of *consultation*, where active sectors are shown, the ones, which have been activated manually, are shown with a spot on their left. Press the "C" and "+" keys at the same time to go back to the main menu.

FERTILIZATION TIME

The time, that the fertilizer outlet has to be active for each sector, is set at *programming*, but it is not determined when this outlet is going to be activated. To determine so, a *post-irrigation* value, which is going to be common for all the programs (we call *post-irrigation* to the time the unit irrigates without fertilizer, in order to clean the pipes) is entered at *configuration*. The total of the post irrigation and the fertilizer time can not be higher than the irrigation time. The fertilizer will be activated when the fertilizer time plus the post irrigation time to end the irrigation is left.
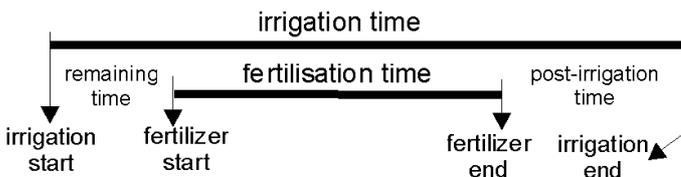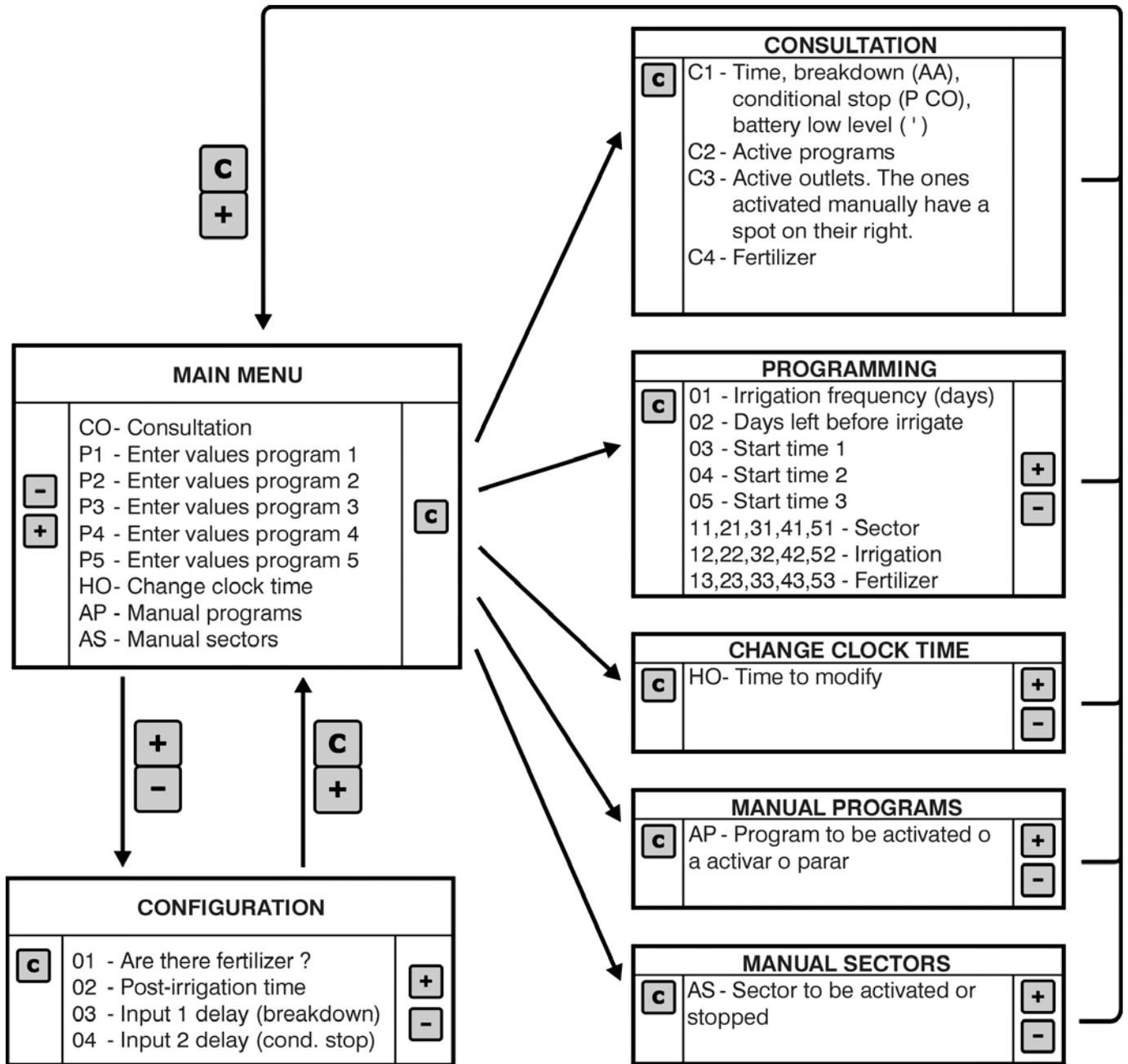

CONFIGURATION

In *configuration*, we determine whether there is fertilizer, the post-irrigation time and the input delays. The installer does the configuration when setting the unit. The "+" and "-" keys are pressed at the same time to access it. The "C" key is used to change the code and the "+" and "-" keys are used to modify the values. The "C" and "+" keys are pressed at the same time to escape configuration, and the main menu will be displayed.

CODE	FUNCTION
01	Is there any fertilizer?
02	Post-irrigation time
03	Delay input 1 - breakdown
04	Delay input 2 - conditional stop

- Code 01: Here it is asked whether there is going to be any fertilizer in the unit. If there is, the "+" key is used to set "YES". If there is no fertilizer, two dashes "- -" must appear instead of yes, using the "-" key.

- Code 02: The post-irrigation time is shown here. The function of this timing is explained in the section "Fertilization time". The maximum post-irrigation time is 10 hours.

- Code 03: Corresponds to the breakdown detection delay, in seconds. The breakdown input must be active at least during the time here indicated for the unit to detect the breakdown. The delay goes from 15 to 15 seconds, which is the minimum time unit used by the equipment. The maximum is 990 seconds (16 minutes approximately). There can be an error in the detection of ±15 seconds.

- Code 04: The same as the previous code but for conditional stop.

FUNCTION CHART

MAIN MENU

[-] [+]	CO- Consultation P1 - Enter values program 1 P2 - Enter values program 2 P3 - Enter values program 3 P4 - Enter values program 4 P5 - Enter values program 5 HO- Change clock time AP - Manual programs AS - Manual sectors

[C] [+]

[+] [−]   [C] [+]

CONSULTATION

| [c] | C1 - Time, breakdown (AA),
conditional stop (P CO),
battery low level (')
C2 - Active programs
C3 - Active outlets. The ones
activated manually have a
spot on their right.
C4 - Fertilizer | |

PROGRAMMING

| [c] | 01 - Irrigation frequency (days)
02 - Days left before irrigate
03 - Start time 1
04 - Start time 2
05 - Start time 3
11,21,31,41,51 - Sector
12,22,32,42,52 - Irrigation
13,23,33,43,53 - Fertilizer | [+] [−] |

CHANGE CLOCK TIME

| [c] | HO- Time to modify | [+] [−] |

MANUAL PROGRAMS

| [c] | AP - Program to be activated o
a activar o parar | [+] [−] |

MANUAL SECTORS

| [c] | AS - Sector to be activated or
stopped | [+] [−] |

CONFIGURATION

| [c] | 01 - Are there fertilizer ?
02 - Post-irrigation time
03 - Input 1 delay (breakdown)
04 - Input 2 delay (cond. stop) | [+] [−] |

PROGRAM PATTERN

PROGRAM 1			
How often it irrigates			
Start time 1			
Start time 2			
Start time 3			
Sequence	Sector	Irrigation	Fertilizer
1			
2			
3			
4			
5			

PROGRAM 2			
How often it irrigates			
Start time 1			
Start time 2			
Start time 3			
Sequence	Sector	Irrigation	Fertilizer
1			
2			
3			
4			
5			

PROGRAM 3			
How often it irrigates			
Start time 1			
Start time 2			
Start time 3			
Sequence	Sector	Irrigation	Fertilizer
1			
2			
3			
4			
5			

PROGRAM 4			
How often it irrigates			
Start time 1			
Start time 2			
Start time 3			
Sequence	Sector	Irrigation	Fertilizer
1			
2			
3			
4			
5			

PROGRAM 5			
How often it irrigates			
Start time 1			
Start time 2			
Start time 3			
Sequence	Sector	Irrigation	Fertilizer
1			
2			
3			
4			
5			

TECHNICAL CHARACTERISTICS

Power			
	Power source	9 V alkaline battery	12 Vdc
	Energy consume	Average consume: 0,7 mW	Average consume: 0,7 mW

Outlets				*Inputs*		
	Number	6			Number	2
	Type	By relay contact with 15 Vac potential			Type	To connect to free potential contacts

Environment			*Weight* (approximate)			*Memory backup*	
Temperature	0° C a 45° C		Battery included	0,5 Kg		Parameters, programs	Non erasable
Humidity	< 85 %						
Height	2000 m.						
Pollution	Grade II						

DECLARATION OF CONFORMITY
It follows the 89/336/CEE Guidelines for the Electromagnetic compatibility and the 73/23/CEE Guidelines of Low Tension for the Fulfillment of the Product Security. The Fulfillment of the following specifications was demonstrated as indicated in the Official Diary of the European Communities.

AUTONOMY

The following table shows the approximate autonomy of the different batteries that may be found on the market:

| Manufacturer	Model	Maximum capacity (mAh)	Without activation or connected input	1 input plus 5 sole-noids and 2 activations /solenoid per day	2 inputs plus 5 sole-noids and 5 activation /solenoid per day
Varta	4022-8022-4922-4822	550	10 months	9 months	8 months
Duracell	Ultra	580	10 months	9 months	8 months
Panasonic	PowerMax	680	12 months	11 months	10 months
Panasonic	PowerMax3	700	12 months	11 months	10 months
Energizer	EN22	640	11 months	10 months	9 months
Rayovac	A1604	565	10 months	9 months	8 months

The calculations of the table have been calculated considering the following parameters:
- ✓ IrriFiltros consumption at rest: 78 µA
- ✓ Consumption by each connected input: 6 µA
- ✓ Activation and deactivation of valve per day: 3 µA

Considerations of use: Given that the 9v batteries have +/- poles next to each other, the must be handled carefully so they do not create short circuits. Auto-discharge may be 20% over 5 years.

Disposal: Deposit used batteries in battery recycling containers. Alkaline batteries respect the environment, as they are mercury-free.

HYDRAULIC VALVES CONNECTED UP WITH LATCH SOLENOID TO "IRRI5"
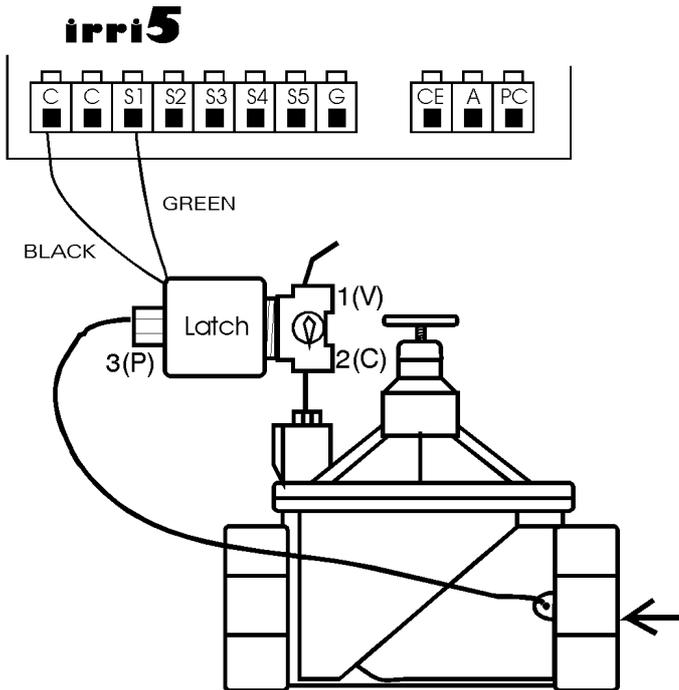
LATCH SOLENOID 3W NO, THREE-WAYS AND NORMALLY OPEN,WHICH GOVERN ONE HYDRAULIC VALVE NC.
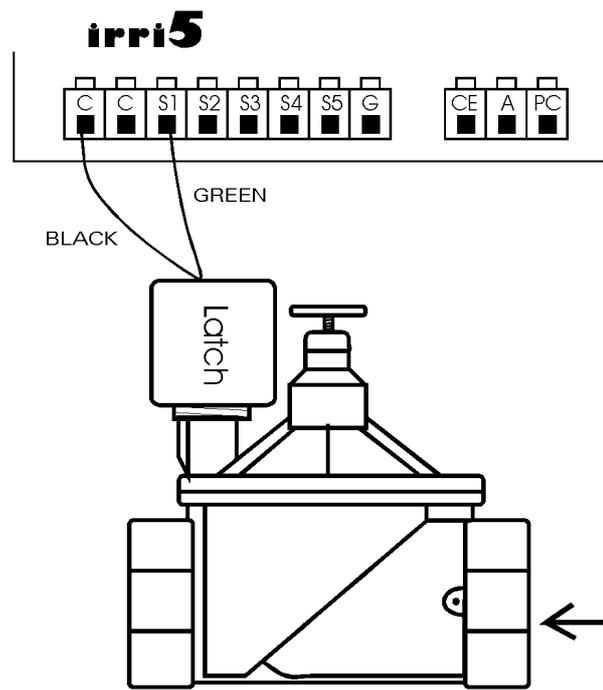
THREAD LATCH SOLENOID 2W NC, TWO-WAYS AND NORMALLY CLOSED, ABOVE HYDRAULIC VALVE NC

R-901-1