DISIBEINT ELECTRONIC SL

User's manual

Digital control relay SVA

DISIBEINT ELECTRONIC S.L, has been present in the field of the manufacture of components for the industrial automation for more than 35 years, and maintains in constant evolution their wide range of products structured in five families:

· Sensors, magnetic switches and transducers
· Level relays for liquids and solids
·Timers
· Control, surveillance and logic relays
· Digital control relay
· Data transmission

Our permanent preoccupation is to give a suitable answer to the problems that appear in the automation of the different industrial processes, providing the most suitable material for each application.

GUARANTEE

The products provided by DISIBEINT has a guarantee period of two years, against all defect due to the materials or to the manufacture of the equipment. It does not cover the defects caused during the transport or by a bad application, neither the elements subject to wearing down, nor the direct or indirect consequences caused in the installation by the inadequate use of the equipment.

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DISIBEINT reserves the right to modify the specifications stated in this document without previous notice.

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DESCRIPTION OF THE EQUIPMENT

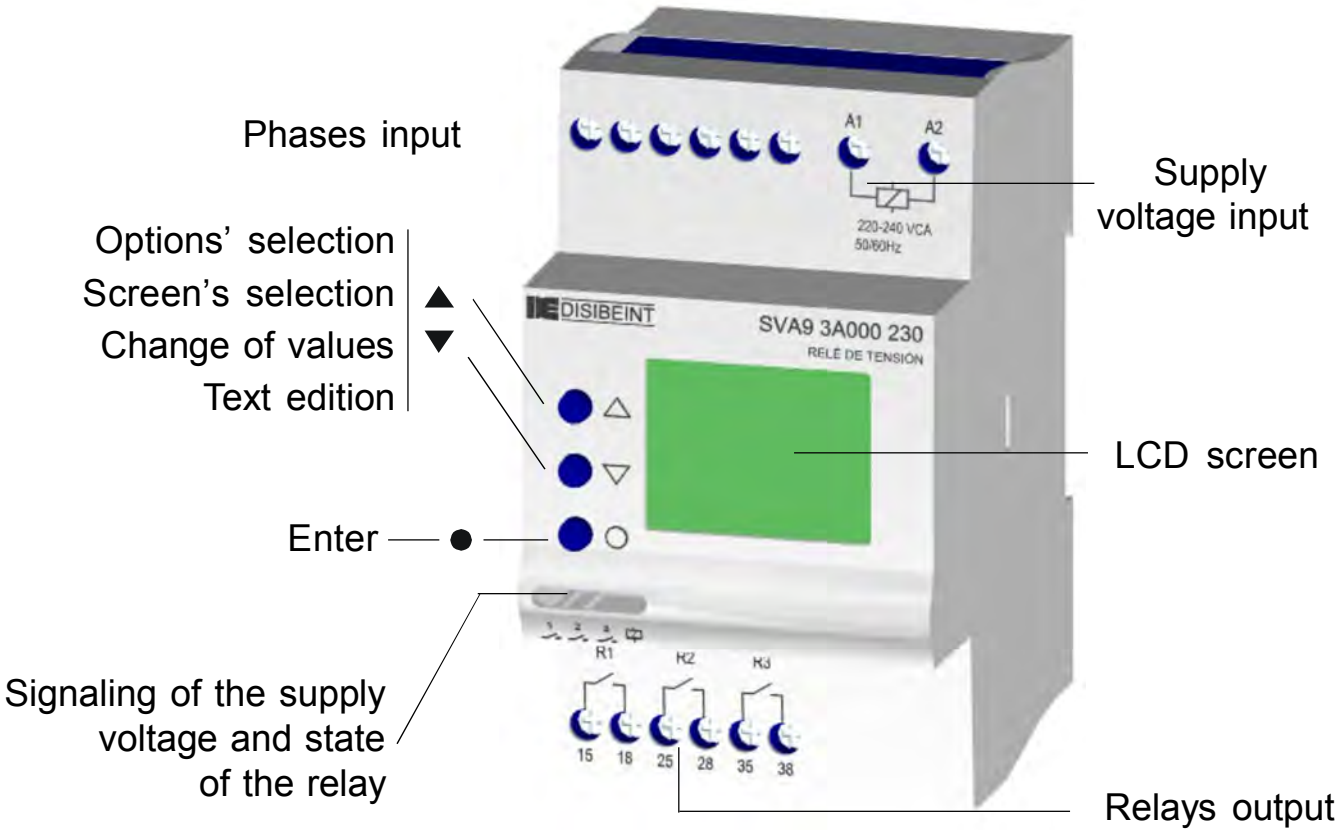
The model SVA is a digital control relay for single phase voltages.

The parameters that can be controlled are:

- Maximum and / or minimum voltage. RMS value.
- Maximum and / or minimum frequency.
- Maximum DC component.

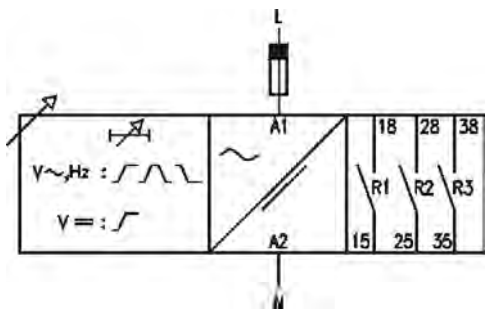
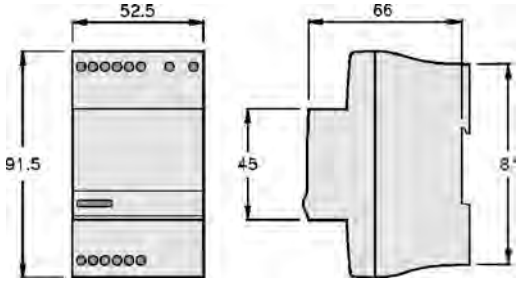
Operations under the control of different parameters can be associated with three relays, a 4-20 mA current loop or RS232/RS485 serial communication. Each of the three available relays can be assigned the shot by one or more parameters.

PARTS OF THE EQUIPMENT



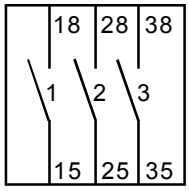
TECHNICAL DATA (1/2)

Function	Voltage relay for single-phase lines. Control of own supply voltage.
Working mode	User configurable. Each of the three relays available can be assigned its drive for one or more magnitudes, making it the first situation to occur.
Display to read value	By the following status displays: TENSION: Tension línia. FREQUENCY: Frequency of the line. DC COMPONENT: continuous component of the line
Output	- From 1 .. 3 independent relays - Analog 4-20 mA (optional) - Communication RS232 - RS485 (optional)
Detection/ Release	All figures may be designated the detect and/or replacement value.
Timer	It is associated with the action of the relay. Adjustable detection and/or replacement. Multiple functions.
Repeatibility	± 30 ppm
Time range	0,01..99,99 s 0,01..99,99 m 0,1..999,9 h
Precision	Taken on the value being measured
VAC	50 Hz: 0.7% · 60 Hz: 0.8%
Frequency	0.3%
Precision 4-20 mA	1% additional to the equipment value.

Connection	Dimensions
	

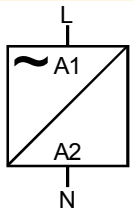
TECHNICAL DATA (2/2)

Output relays



Resistive load	AC	6 A / 240 V
	DC	6 A / 24 V
Inductive load	AC	3 A / 240 V
	DC	3 A / 24 V
Mechanical life		> 10^6 oper.
Mech. switching rate		18.000 oper. / hour
Elect. life at full load		360 oper. / hour
Contact material		AgSnO Alloy
Operating voltage		240 VAC (85 ºC)
Volt. between contacts		1000 VAC
Volt. coil/contact		4000 VAC
Isolation resistance		> 100 MW (500 VDC)
Indication		1 red led for relay

Supply voltage



Galvanic isolation	4000 V
Frequency	43..70 Hz
Operating margins	±18%
Consumption	2,5 VA
Power on time	at 50 Hz: 100 ms at 60 Hz: 96,6 ms
Detection time	at 50 Hz: 25 ms at 60 Hz: 21,6 ms
Reset	1 net cycle or -30% of the nominal voltage
Indication	Green led

Constructives and ambientals dats

Overvoltage category	I I I (EN61010)
Rated impulse voltage	4 kV
Pollution degree	2 (EN61010)
Protection	IP 20
Approximate weight	280 g
Storage temperature	-30..+80ºC
Operating temperature	-20..+50ºC
Humidity	< 95% HR
Housing	Cycoloy - Light grey
Socket	Lexan - Transparent
Leds cover	Technyl - Dark blue
Button, terminal block, clip	Brass
Pins of the terminal block	0,8 Nm

Designed and manufactured under EEC normative.
Directives referred:
Electromagnetic compatibility: EMC 2004/108/EEC.
Low voltage: LVD 2006/95/EEC.
Hazardous substances: 2011/65/EEC
Plastics: UL 91 V0

CE

CE CONFORMITY DECLARATION
QUALITY CERTIFICATE

The company

DISIBEINT ELECTRONIC S.L.
Segle XX 91
E08032 Barcelona - Spain
CIF. B - 60893849

Declares under its sole responsability that the following products:

- Float Switches with generic references INCR, INMR, INME, INMF
- Level sensors and your accessories, with generic references NS, NR, NCP, NCV, NP, SC, CNM, CNP, CNPR, CNV, IBT, BPCB, BPCBA, CBBP
- Level Magnetic Switches with generic reference IMN
- Level Magnetic Transducers with generic reference TMN
- Electronic relays embraced under the generic denomination of the series P*nnn*, D*nnn*, S*nnn, being 'nnn'* any combination of letters and/or numbers that make up a specific reference

identified with the brand DISIBEINT, have been manufactured according to the instructions of our procedure manual and are in conformity with:

Directive of Electromagnetic Compatibility
EMC 2004/108/EEC from 15/12/2004
- Emission (UNE-EN 61000 6-4/2007/A1:2011)
- Immunity (UNE-EN 61000 6-2/2006)

Low Voltage Directive
LVD 2006/95/EEC from 12/12/2007
- Machinery (UNE-EN -60204 -1/2007/A1:2009)
- Measuring Electronic Devices (UNE-EN 61010-1/2011)

Directive about certain hazardous sustances
2011/65/EEC from 0/06/2011
- Pb, Hg, Cd, Cr +6, PBB, PBDE

Barcelona, November 2015

EMILIO JOLIS OLIVA

CONVENTIONS USED IN THIS MANUAL

Symbols	
	It refers to the information own of the theme that is treated.
	Indicate important warnings to take into account.
	It refers to how the keys must be pressed to perform the actions indicated in the examples.
	General information about the controller or about this manual, too.

Screens	
	In the pages where is explained how to access to the different screens and menus (pages 18..48), it is shown the way to come to the resolution of every option. This way is highlighted by a dark background of the of the screens related in that option. The union of several screens by means of a dashed line, means that the option is valid for all of them.

GENERAL CONCEPTS

Loop 4-20 mA (optional): The value sent by the 4-20mA loop can be whichever of the following ones:
- Voltage
- Frequency
- DC component

See the page 30-31 to associate a value to the current loop.

Communication with PC (optional): It is possible to communicate to the controllers SVO and SVP with a computer via the serial port RS232 for its remote programming or to process the data that it generates. For a multiple communication (up to 31 equipments) an RS232-RS485 conversor must be used, reference SBAZ.

Display's illumination: The display remains illuminated while its is accessed to the different screens. If a key is not pressed for longer than 30 seconds, the light turns off. In order to turn the light on, it is enough to press any key once only.

Working mode: After setting up the controller's parameters, it can be back to the normal working mode by executing the option RETURN from the SET UP menu. The status screens can be also visualized if any key is not pressed for longer than 3 minutes.

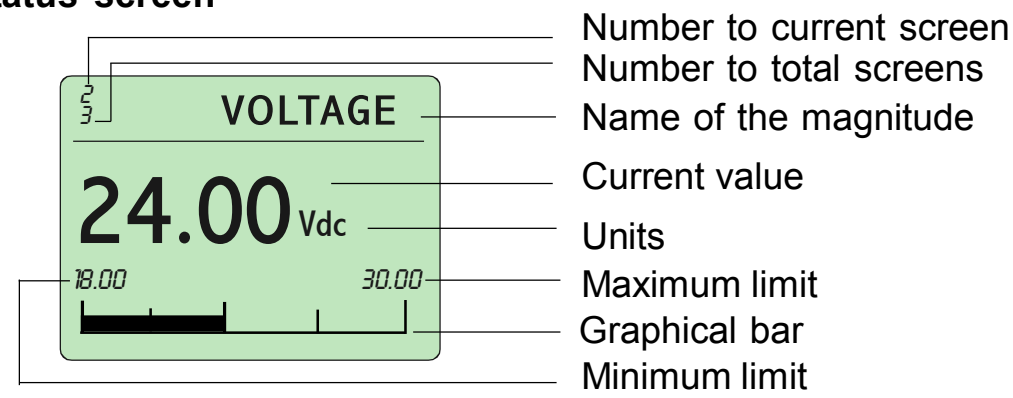
Interactive menus: Only those options that can be configured are accessible in menus, being the rest of the they no visible. This characteristic is interactive, this is, that it's produced automatically in function of the active options at each moment.

Change of values: The screens used to change a numerical value contain the margins between that value can be adjusted. These margins can depend on another options, so that they can visualize different values in function of another previous relations.

Assignation of magnitudes: Each relay can be activated by the control of one or various magnitudes. For exemple, it can be assigned to RELAY 1 the action by maximum voltage and minimum frequency, althongh when the relay is activated, it's not possible to know which magnitude has provoked it.

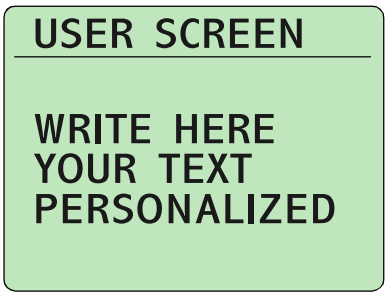
TYPES OF SCREENS (1/5)

1.1 Status screen



The status screens show the actual values of the magnitudes that the equipment controls . In the normal working mode, the equipment shows the status screen that the user has chosen like preferring magnitude of visualization.
In order to move around among the different status screens of status, press ▲ ▼. By pressing ● from anyone, it is entered to the set up menu.
The default status screen is the one shown when the equipment is powered or when any key is pressed for longer than 3 minutes. To select it, execute the option SEE SCREEN (see page 37).

1.2 User screen



The text edited in the user screen is the one that will be shown next to the status screens when the equipment is i the normal working mode. The characters that can be used are the following:

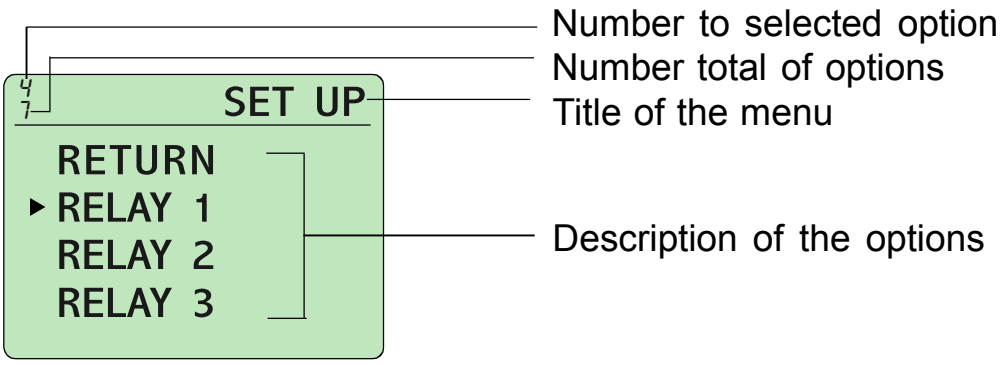
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Å Æ ß Ç Ñ Ø - / # % < = > 0 1 2 3 4 5 6 7 8 9

Pressing ▼ and ▲ the desired character is selected and becomes validated by pressing ●, moving up to the following position of the right hand or to the line below. The repeated pulsation of ● provokes the advance of the cursor.

A validated character can not get modified, that means that is not possible to move back. In order to modify a text, is necessary to enter again into the edition screen.
In order to abandon this screen is essential to advance until the last position of the last row.

TYPES OF SCREEN (2/5)

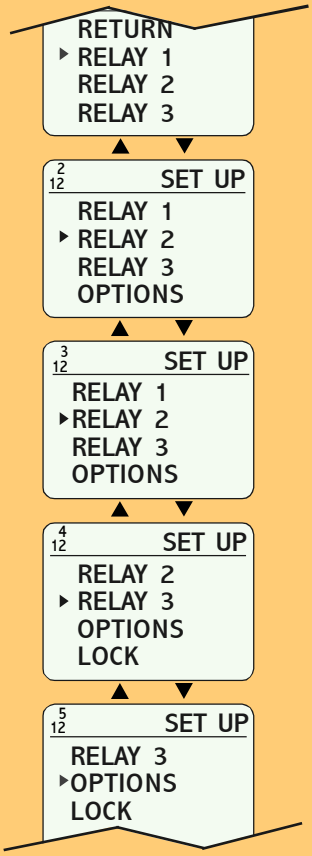
2.1 Screen of options menu



2.2 Selection of options menu

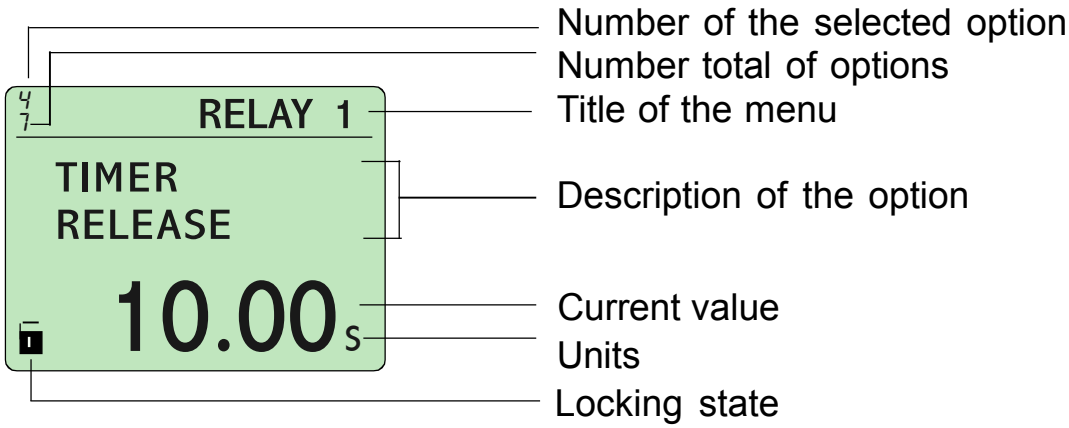
Are those in which a series of options is visualized, line by line. The selection of one option carries to a new menu. The digits placed at the top of the screen indicate, from top to down, the number of the selected option and the total number of options. The options are disposed in an endless loop, in such a way than after the last option it comes to the first one of the series. In the same way, moving back from the first option it comes to the last one of the series.

Press the keys▲▼until the cursor indicate the desired value and ● to validate it and jump to a new menu. In order to abandon a menu of options and to return the preceding screen, the option RETURN must selected.

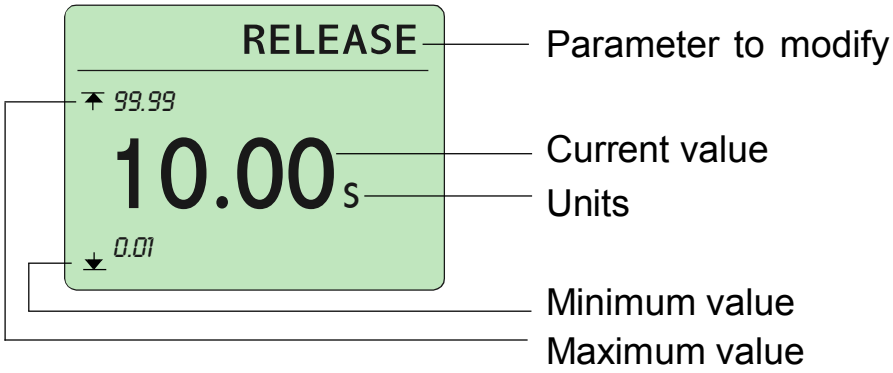


TYPES OF SCREENS (3/5)

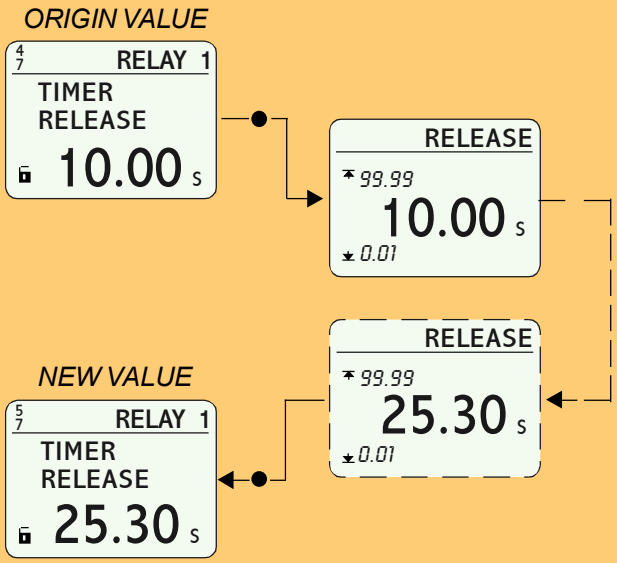
3.1 Informative screen of numerical value



3.2 Screen for changing a numerical value

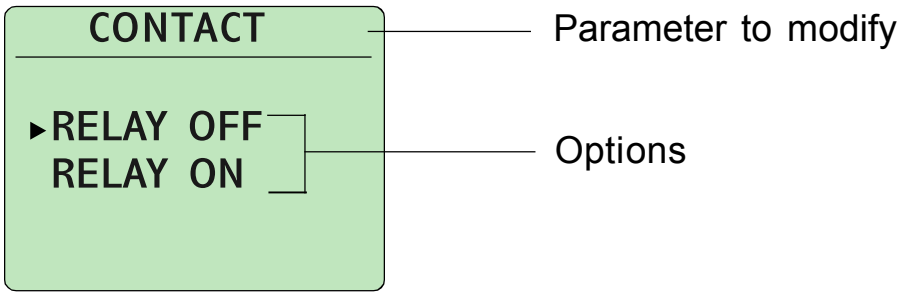


Once placed on the screen that shows the parameter we want to modify its value, press ● in order to access to the screen for changing the value. Since the modification is done digit by digit and not like a complete value, the first digit at left remains blinking. Press ▲▼ to modify the value and ● to validate it and to advance to the following digit. When the last digit becomes validated the preceding screen is visualizated again.

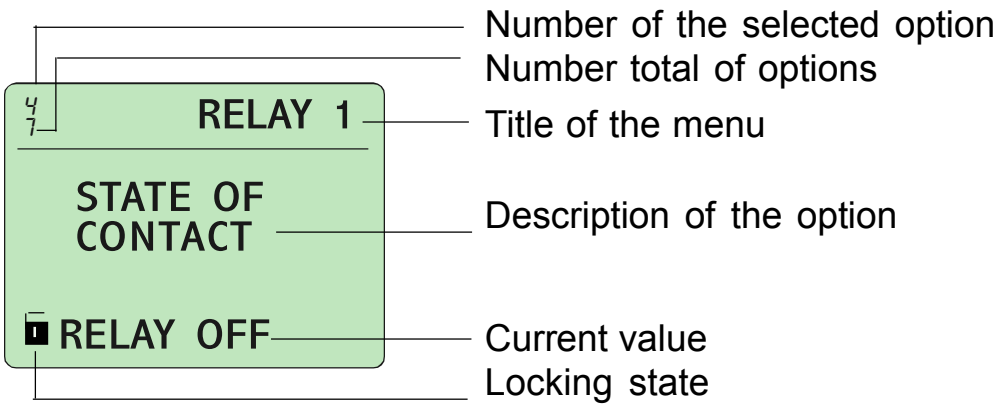


TYPES OF SCREENS (4/5)

4.1 Informative screen of alphanumeric value

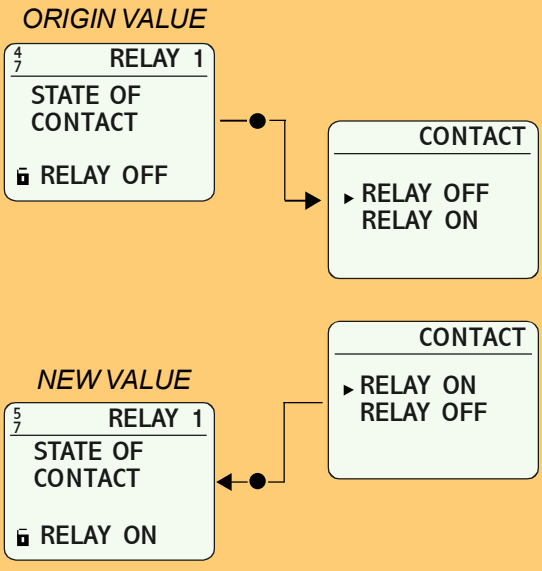


4.2 Screen for changing an alphanumerical value



Once placed on the screen that shows the parameter we want to modify its value, press ● in order to access to the screen for changing the value.

Press ▲ ▼ until the cursor indicates the desuired value and ● to validate it and return to the preceding screen.

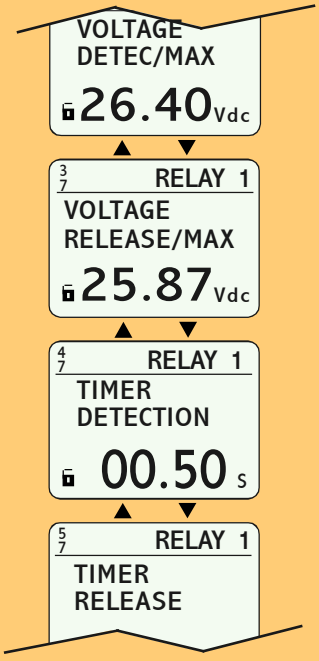


TYPES OF SCREENS (5/5)

5.1 Screens menus

Are those in which is visualized a series of screens, all them related under the same concept. The digits placed at the top of the screen indicate, from top to down, the number of the selected screen and the total number of screens. The screens are disposed in an endless loop, in such a way than after the last screen it comes to the first one of the series. In the same way, moving back from the first screen it comes to the last one of the series.

Each one of the screens usually displays the definition of a parameter and its actual value. Press the keys ▲▼ to move to a new screen and ● to modify the value visualized in it. If no-one value is visualized on the screen, pressing ● it is accessed to a new menu. In order to abandon a screens menu and return to the preceding one, the RETURN screen must be selected.



QUICK START

1 - Apply supply voltage to terminals A1 and A2. Be sure to match with the value marked on the equipment. The green LED is lit. Now it does not matter if the red LEDs for relays or not illuminated.

2 - Set the parameters that your application needs. You can now choose between two solutions: set each parameter individually (see Advanced Programming, pg. 17) or use the "user programs" which, by way of example, contain most of the parameters already configured for some applications "type" and where you only need to modify those that do not fit your application. Please read the description of these programs to see if it suits your needs. (See pages 14 .. 16).

3 - Verify that the relay status is desired, checking the red LEDs on the front.

4 - If correct, disconnect the power supply and connect the output relays under the terms of their application. Reapplying voltage, the team will be ready to work.

USER PROGRAMS (1/3)

User programs are permanent in the device SVA.

In order to modify them, load the program you desire (for example, number 1) into memory by means of the sequence SET UP-OPTIONS-PROGRAM 1. Modify the parameters, values, timers, etc. and do the opportune checkings until everything work correctly.

Bear in mind that the disconnection of the supply voltage does not provoke the loss of data. For your safety, save your changes by means of the sequence SET UP-OPTIONS-SAVE PROG. (see page 34).

Remember than every time that Program 1 is loaded into memory, the default factory parameters will be restored. If the User Program is loaded (SET UP-OPTIONS-PROG USER), you will obtain the parameters that you modified (see page 35).

It is not required to load any user program when the equipment turns on: it is kept the same configuration that was operative the last time that the equipment was turned off.

USER PROGRAMS (2/3)

PROGRAM 1: Control for overvoltage and undervoltage. It is suposed a voltage of 400 v.

RELAY 1: Control for overvoltage.

STATE OF CONTACT	= ON
DEFINITION WORKING MODE	=
V DETEC / MAX	= 440 Vac
V RELEASE / MAX	= 431 Vac
DETECTION TIMER	= 0,5 s
RELEASE TIMER	= 0,5 s

→

ALARM STATE	= OFF
V MAXIMUM	= OPERATIVE
V MINIMUM	= NON OPERATIVE
FREQUENCY MAXIMUM	= NON OPERATIVE
FREQUENCY MINIMUM	= NON OPERATIVE
DC COMPONENT MAXIMUM	= NON OPERATIVE
DETECTION MODE	= DELAYED
TIME RANGE DETECTION	= SECONDS
RELEASE MODE	= DELAYED
TIME RANGE RELEASE	= SECONDS

RELAY 2: Control for minimum.

STATE OF CONTACT	= ON
DEFINITION WORKING MODE	=
V DETEC / MIN	= 360 Vac
V RELEASE / MIN	= 367 Vac
DETECTION TIMER	= 0,5 s
RELEASE TIMER	= 0,5 s

→

ALARM STATE	= OFF
V MAXIMUM	= NON OPERATIVE
V MINIMUM	= OPERATIVE
MAXIMUM FREQUENCY	= NON OPERATIVE
MINIMUM FREQUENCY	= NON OPERATIVE
DC COMPONENT MAXIMUM	= NON OPERATIVE
DETECTION MODE	= DELAYED
TIME RANGE DETECTION	= SECONDS
RELEASE MODE	= DELAYED
TIME RANGE RELEASE	= SECONDS

RELAY 3: Control for overvoltage and minimum

STATE OF CONTACT	= ON
DEFINITION WORKING MODE	=
V DETEC / MAX	= 440 Vac
V RELEASE / MAX	= 431 Vac
V DETEC / MIN	= 360 Vac
V RELEASE / MIN	= 367 Vac
DETECTION TIMER	= 0,5 s
RELEASE TIMER	= 0,5 s

→

ALARM STATE	= OFF
V MAXIMUM	= OPERATIVE
V MINIMUM	= OPERATIVE
MAXIMUM FREQUENCY	= NON OPERATIVE
MINIMUM FREQUENCY	= NON OPERATIVE
DC COMPONENT MAXIMUM	= NON OPERATIVE
DETECTION MODE	= DELAYED
TIME RANGE DETECTION	= SECONDS
RELEASE MODE	= DELAYED
TIME RANGE RELEASE	= SECONDS

NOTE: Options in italics are only available according to the ones selected in DEFINITION WORKING MODE.

USER PROGRAMS (3/3)

PROGRAM 2: Control for overvoltage, DC component, undervoltage and frequency. It is supose a voltage of 400 v.

RELAY 1: Control for overvoltage and minimum.

STATE OF CONTACT	= ON
DEFINITION WORKING MODE	=
V DETEC / MAX	= 440 Vac
V RELEASE / MAX	= 431 Vac
V DETEC / MIN	= 360 Vac
V RELEASE / MIN	= 367 Vac
DETECTION TIMER	= 0,5 s
RELEASE TIMER	= 0,5 s

→

ALARM STATE	= OFF
V MAXIMUM	= OPERATIVE
V MINIMUM	= OPERATIVE
FREQUENCY MAXIMUM	= NON OPERATIVE
FREQUENCY MINIMUM	= NON OPERATIVE
DC COMPONENT MAXIMUM	= NON OPERATIVE
DETECTION MODE	= DELAYED
TIME RANGE DETECTION	= SECONDS
RELEASE MODE	= DELAYED
TIME RANGE RELEASE	= SECONDS

RELAY 2: Control for DC component

STATE OF CONTACT	= ON
DEFINITION WORKING MODE	=
DC DETEC / MAX	= 1.00 Vdc
DC RELEASE / MAX	= 0.50 Vdc
DETECTION TIMER	= 0,5 s
RELEASE TIMER	= 0,5 s

→

ALARM STATE	= OFF
V MAXIMUM	= NON OPERATIVE
V MINIMUM	= NON OPERATIVE
FREQUENCY MAXIMUM	= NON OPERATIVE
FREQUENCY MINIMUM	= NON OPERATIVE
DC COMPONENT MAXIMUM	= OPERATIVE
DETECTION MODE	= DELAYED
TIME RANGE DETECTION	= SECONDS
RELEASE MODE	= DELAYED
TIME RANGE RELEASE	= SECONDS

RELAY 3: Control for frequency

STATE OF CONTACT	= ON
DEFINITION WORKING MODE	=
FREQUENCY DETEC / MAX	= 52.0 Hz
FREQUENCY RELEASE / MAX	= 51.0 Hz
FREQUENCY DETEC / MIN	= 48.0 Hz
FREQUENCY RELEASE / MIN	= 49.0 Hz
DETECTION TIMER	= 0,5 s
RELEASE TIMER	= 0,5 s

→

ALARM STATE	= OFF
V MAXIMUM	= NON OPERATIVE
V MINIMUM	= NON OPERATIVE
FREQUENCY MAXIMUM	= OPERATIVE
FREQUENCY MINIMUM	= OPERATIVE
DC COMPONENT MAXIMUM	= NON OPERATIVE
DETECTION MODE	=DELAYED
TIME RANGE DETECTION	= SECONDS
RELEASE MODE	= DELAYED
TIME RANGE RELEASE	= SECONDS

NOTE: Options in italics are only available according to the ones selected in DEFINITION WORKING MODE.

ADVANCED PROGRAMMING

If you want to program by your own the device SVA, it is not necessary to load any program. Set the parameters showed in the screens that appear when putting the equipment on for the first time. Follow the steps below before beginning to program:

1 - Determine what action will make each relay (Ex.: relay 1 to control the overvoltage, relay 2 to control the phases cycle, …). Bear in mind the following characteristics:

1.1 - Different relays can control relés the same magnitude (Ex.: To set up two set points for a minimum voltage, active the detection by minimum voltage for the relays 1 and 2, and set a different value to each one of them).

1.2 - Diferent magnitudes can be associated to the same relay.

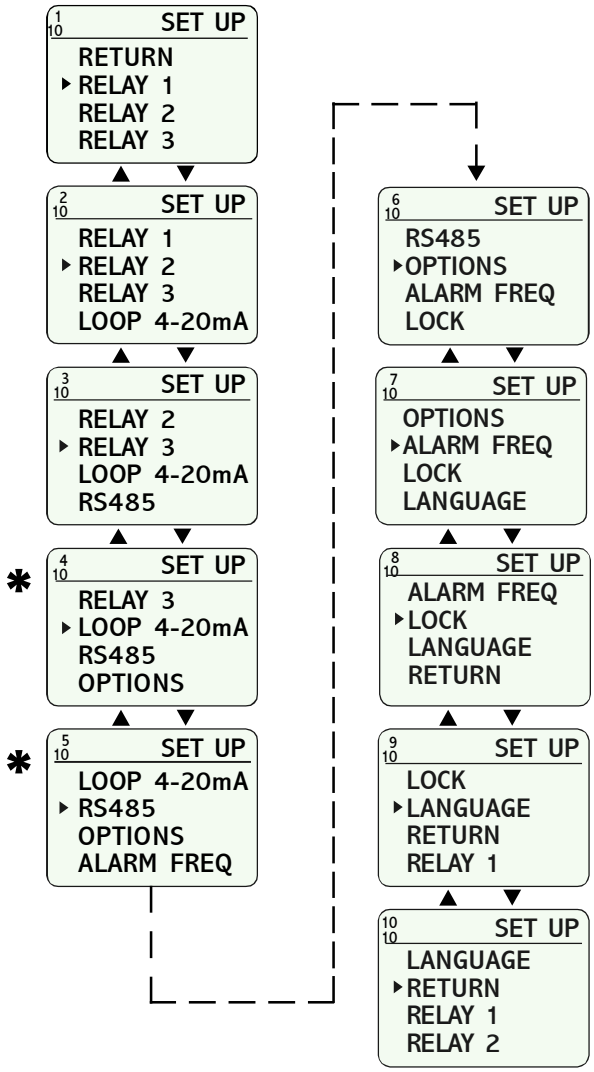
2 - Determine what actions will have timing (Ex.: 3 seconds when detecting overvoltage, 5 seconds if the phases are unbalanced, …).

3 - Begin to program. Remember that certain options will be available according to which are settled in other previous options. Enter to the menu SET UP and select RELAY 1. Look for the screen DEFINITION WORKING MODE and select it. Active and deactive the options of the screens of this menu according to your previous planning. If you want to add timing to the detection or to the release, set the screens MODE DETECTION or MODE RELEASE like DELAYED, respectively. In the following screen you will be able to set the time units. Select the screen RETURN to return to the previous menu and program the rest of the options that you have actived for RELAY 1.

4 - Proceed in the same way for the rest of relays, in case that you are going to use them.

5 - Consult the following pages to know the rest of programming possibilities offered by the devices SVA.

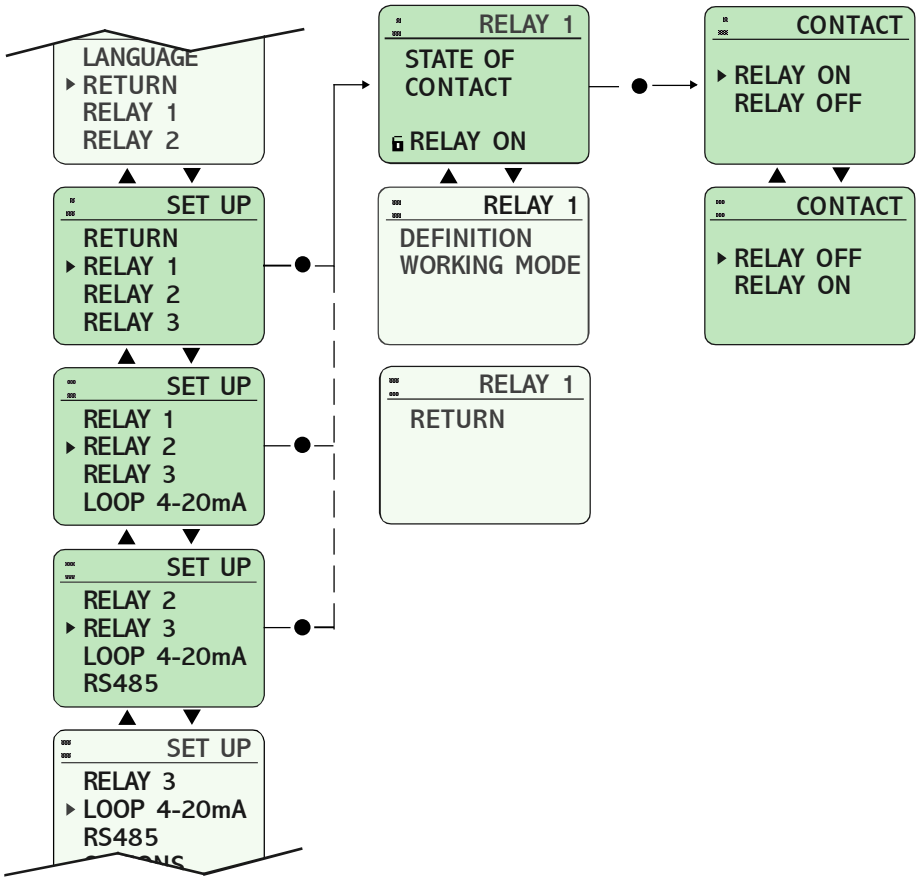
SET UP MENU



ⓘ	Is the main menu from which is possible to set up all the parameters involved in the equipment. It is accessed from the status screens when pressing the button “Enter”. It is also possible to arrive by chosing the succesives options RETURN included in whichever of the rest of menus or screens.

*	These options depend on the selected equipment, it means that they cannot be available in the one you have.

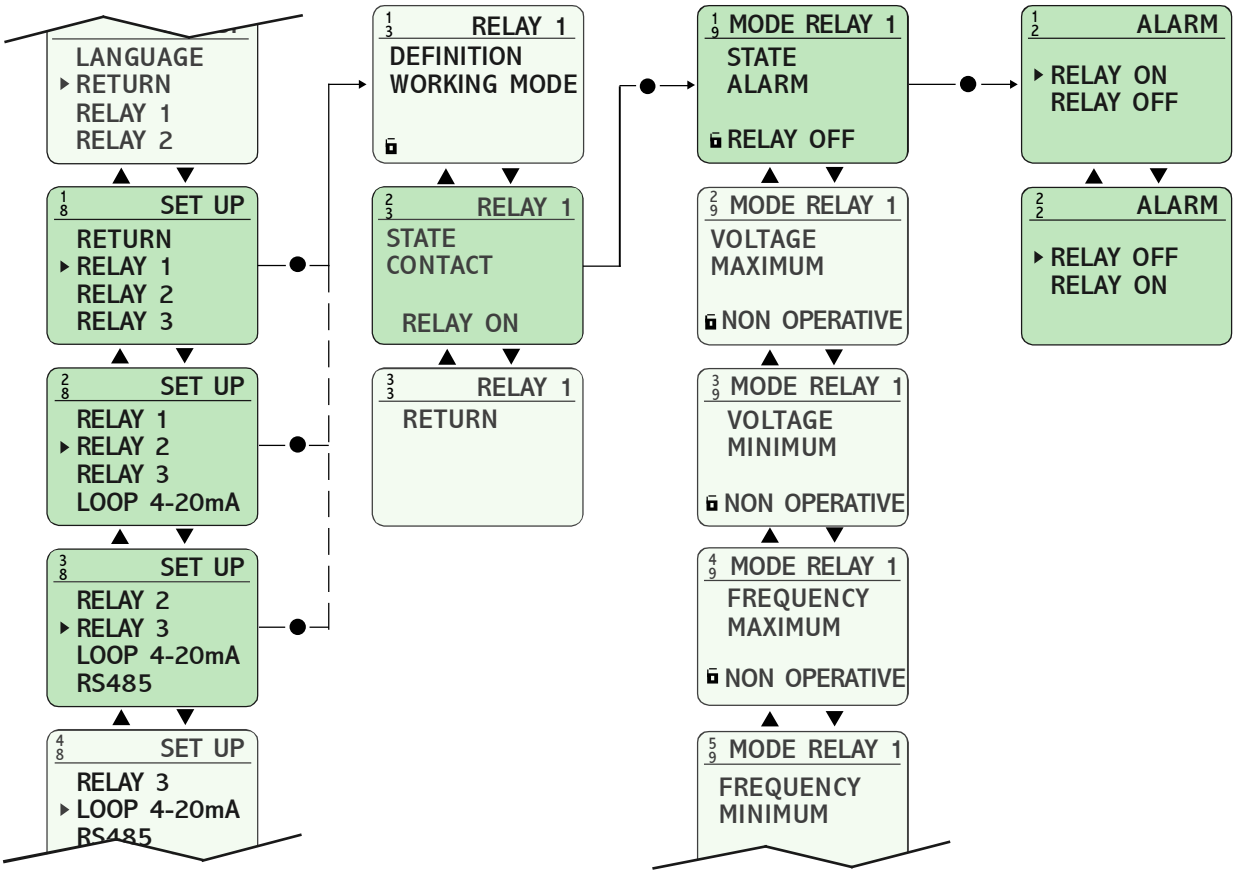
STATE OF THE RELAY CONTACTS



Existing information on this page and in the subsequent configuration referred RELAY 1, RELAY extend to RELAY 2 and 3, being necessary to set the parameters of each relay independently.

The state of the relay (OFF/ON) indicates the position of the contacts of the relay when the controller is turned on. The state of the contact of the relay must be set up according to the required operation you need to perform.

STATE OF CONTACT IN ALARM



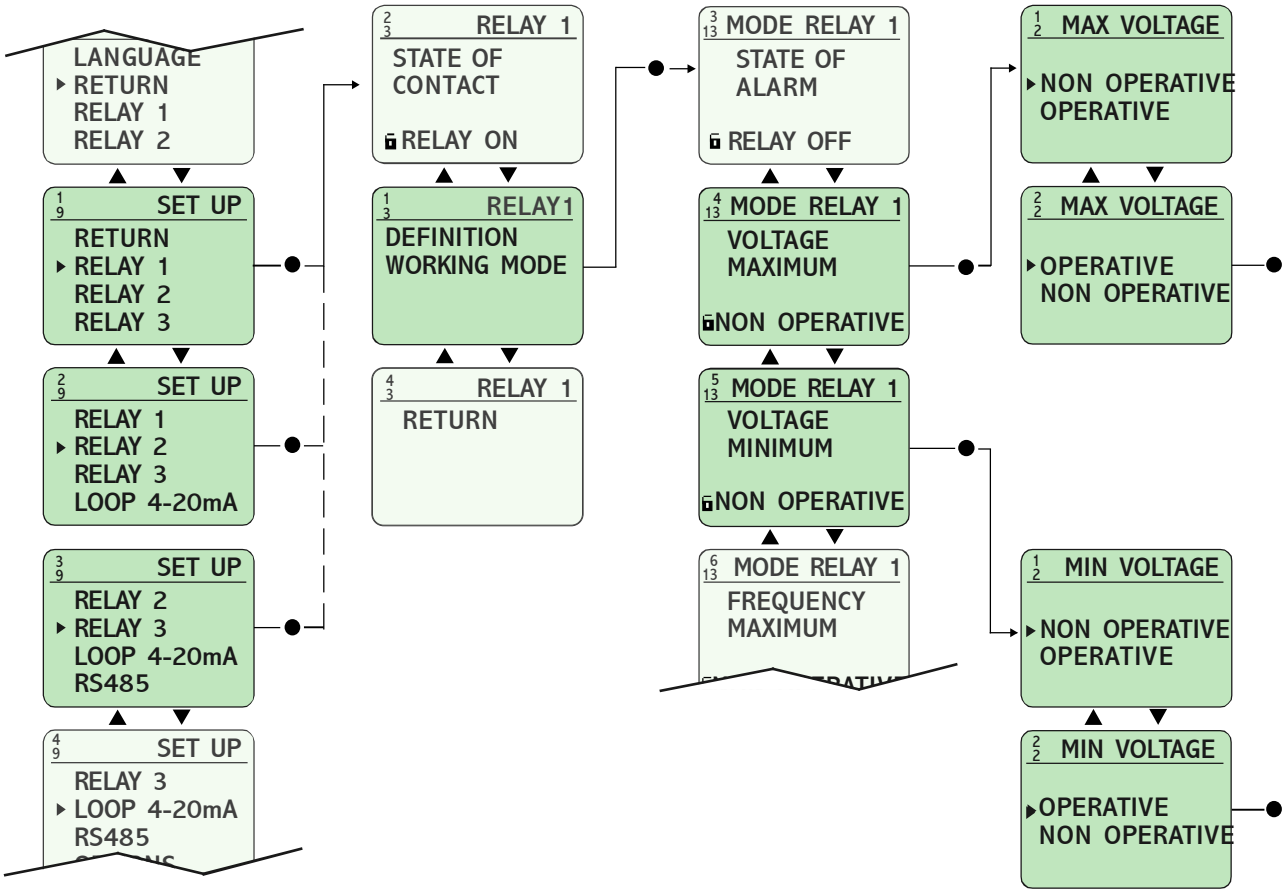
Is defined as "alarm condition" that happens in any of the following cases:

- There was an error in the internal memory of the computer or other component that alters the normal functioning.

- The frequency of the network varies to such an extent that it loses the accuracy of work indicated (See 'Technical Data' on page 3. This will put the relay in alarm only when it has any active voltage parameter, and the option of"frequency deviation alarm is activated". (See page 39)

Since the computer could be left with conflicting information using this option you can set the status relay contacts when there are such circumstances.

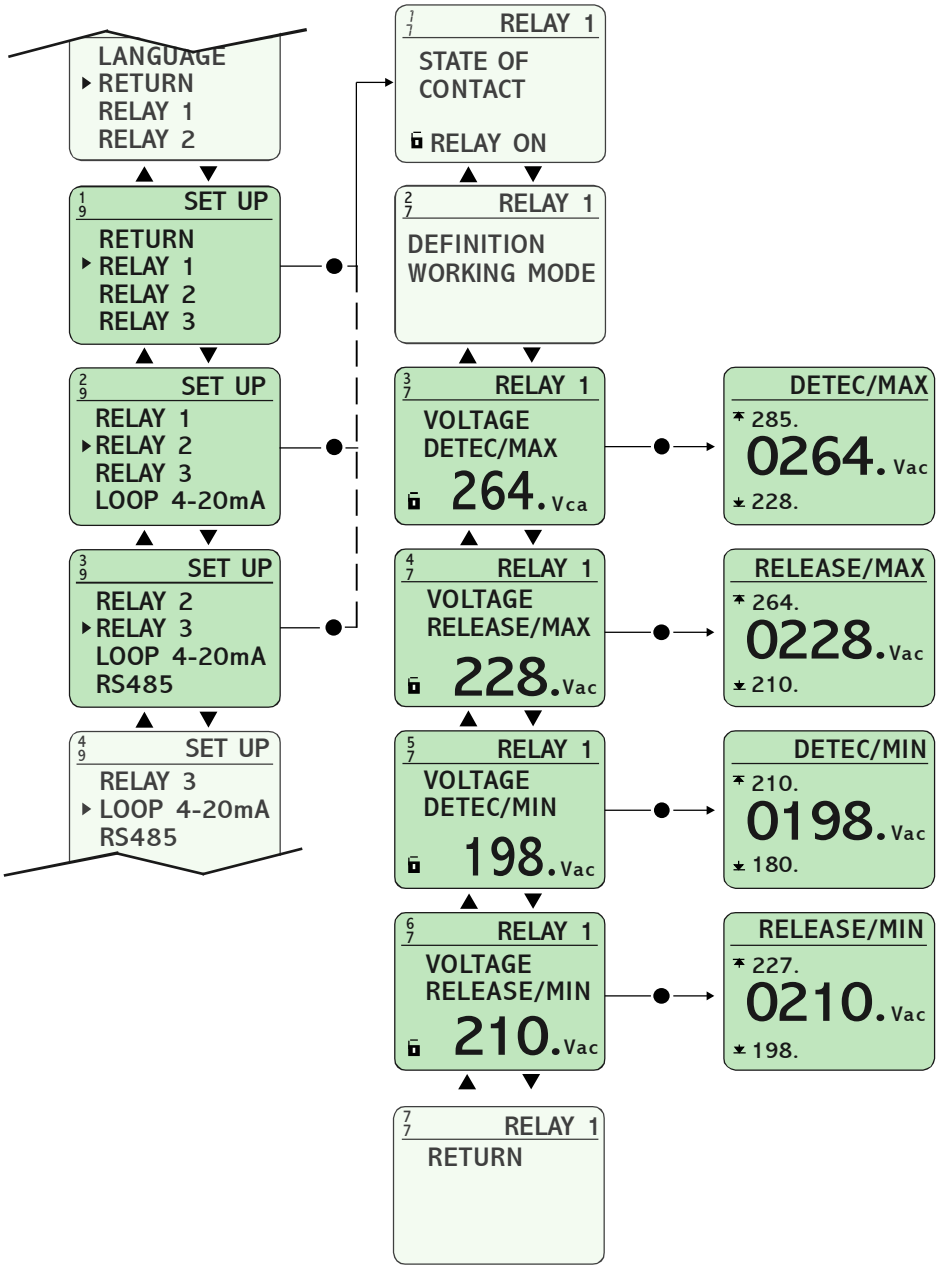
MAX. AND/OR MIN. VOLTAGE (1/2)



Activation

To make the relay operates when the controller detects a determinate maximum and/or minimum voltage, set this option as OPERATIVE.

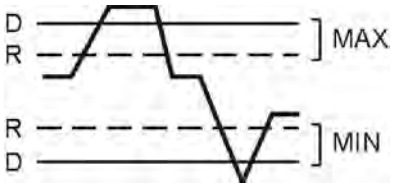
MAX. AND/OR MIN. VOLTAGE (2/2)



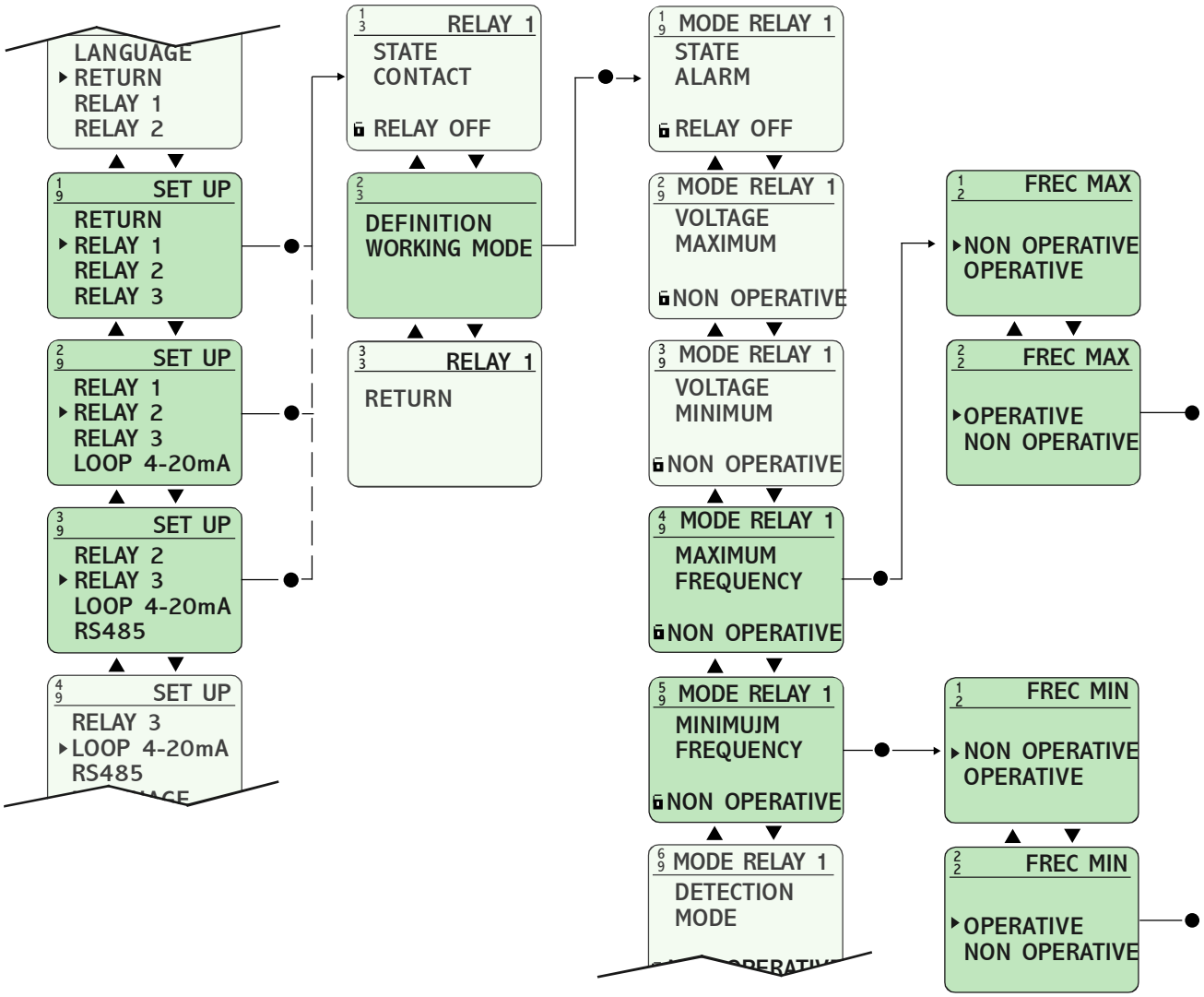
Previous condition	VOLTAGE MAXIMUM = **[** OPERATIVE **]** VOLTAGE MINIMUM = **[** OPERATIVE **]**

Adjustement

It allows to set the value (VAC) for the detection and/or the release of the max. and/or min. voltage.
When setting the working values for Maximum, the release value must be lower than the detection value.



MAXIMUM AND/OR MINIMUM FREQUENCY (1/2)

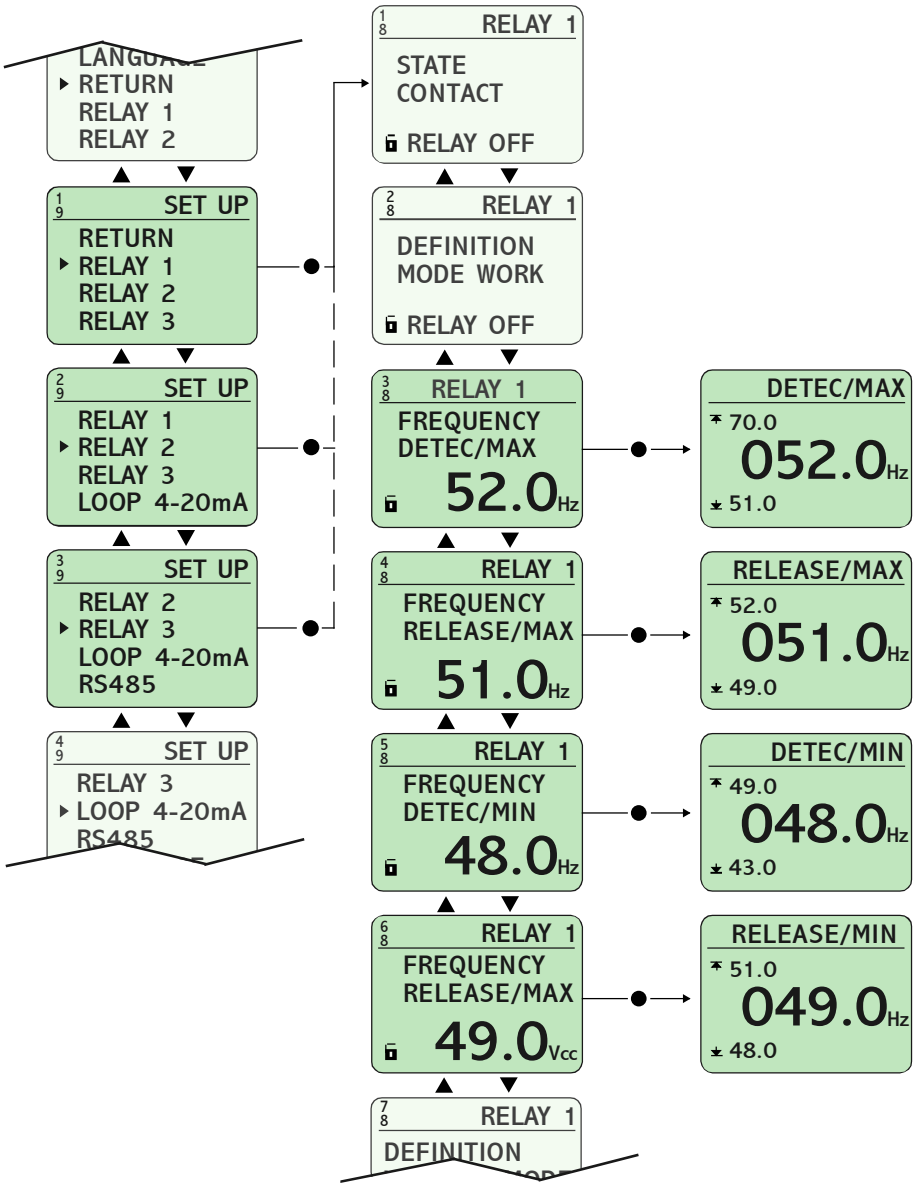


Activation

For the relay to act when your computer to read a certain maximum frequency and/or minimum frequency, set this option to OPERATIVE.

Regardless of the status of this option, if the frequency varies to such an extent that it loses the specified precision (see 'Technical Data' on page 3), the relay has an active tension parameter, and the option of 'frequency deviation alarm' is active, it switches to alarm state. See page 20 for details.

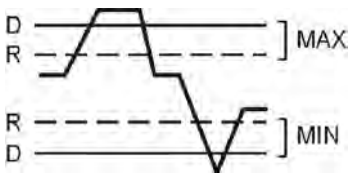
MAXIMUM AND/OR MINIMUM FREQUENCY (2/2)



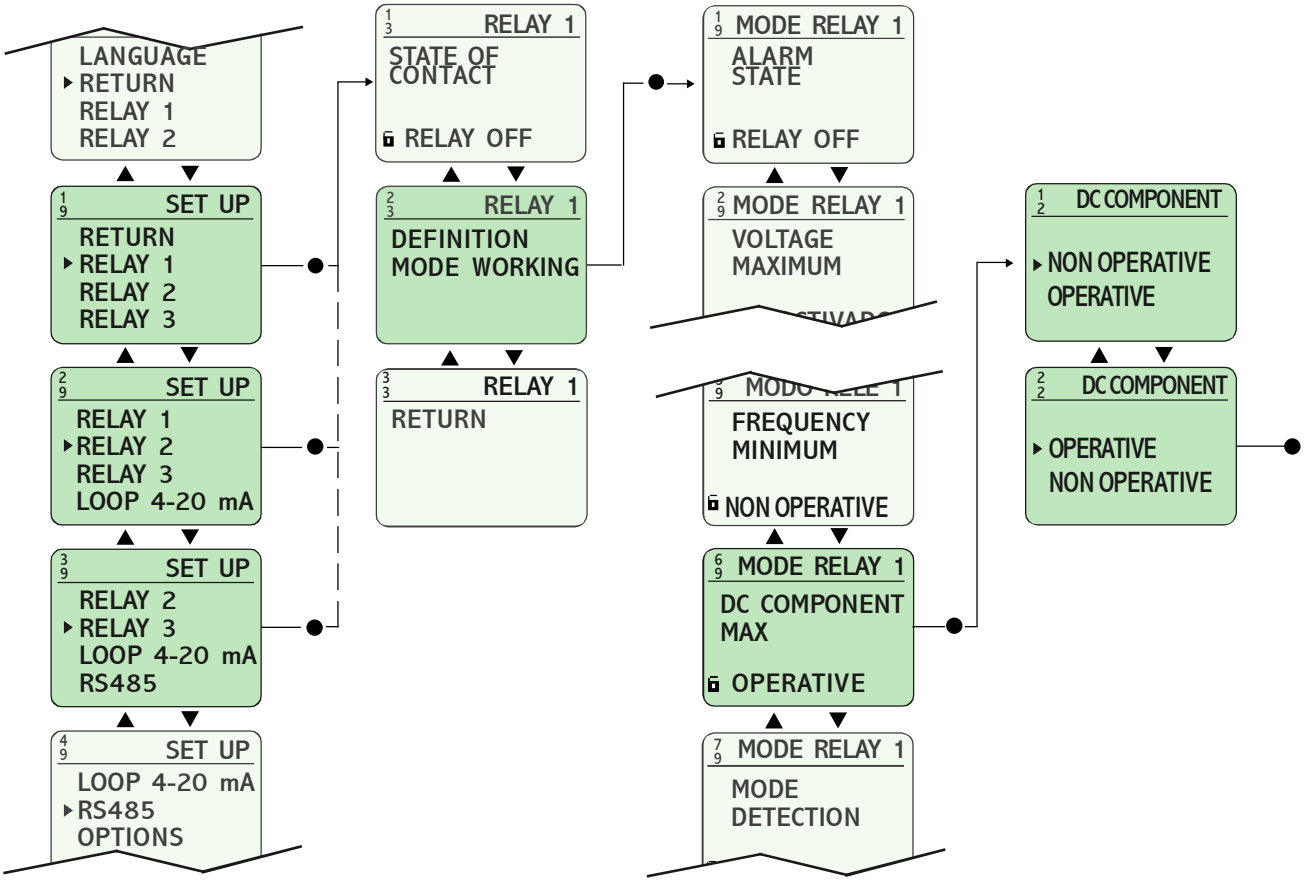
Previous conditions	MAXIMUM FREQUENCY = **[** OPERATIVE **]** MINIMUM FREQUENCY = **[** OPERATIVE**]**

Adjustment

It allows to set the value (Hz) for the detection and/or the release of the maximum and/or minimum frequency.
When setting the working values for Maximum, the release value must be lower than the detection value.
When setting the working values for Minimum, the release value must be higher than the detection value.



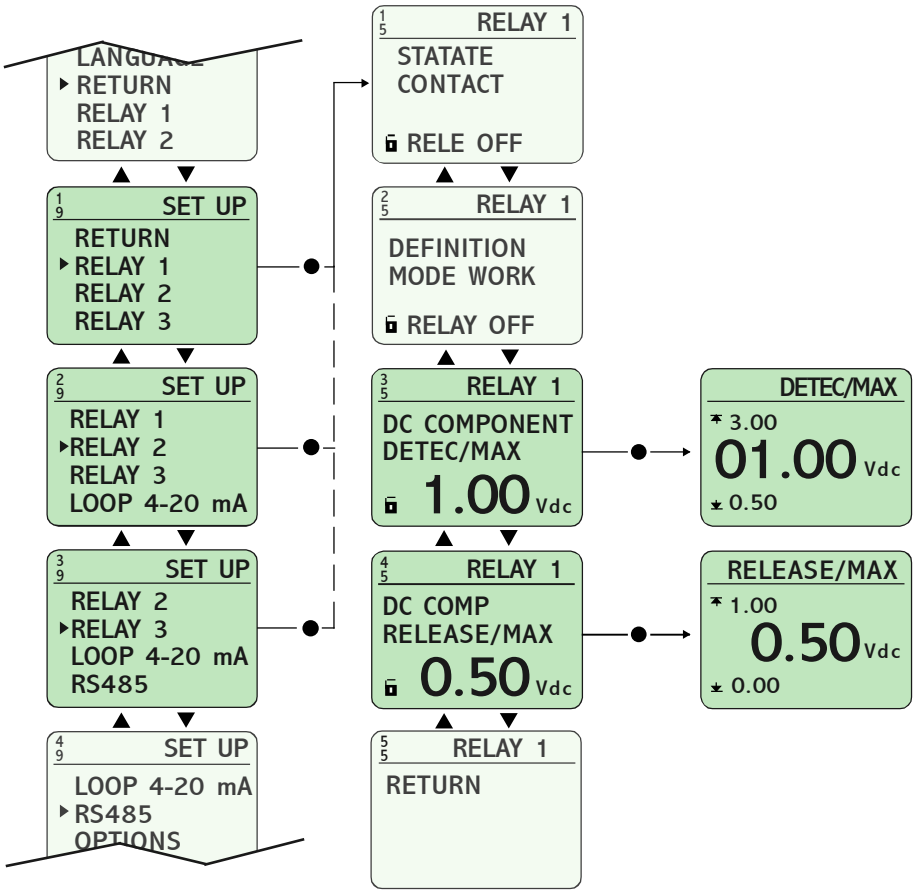
DC COMPONENT MAXIMUM (1/2)



Activation

For the relay to act when your computer to read a certain maximum continuous component, set this option to OPERATIVE.

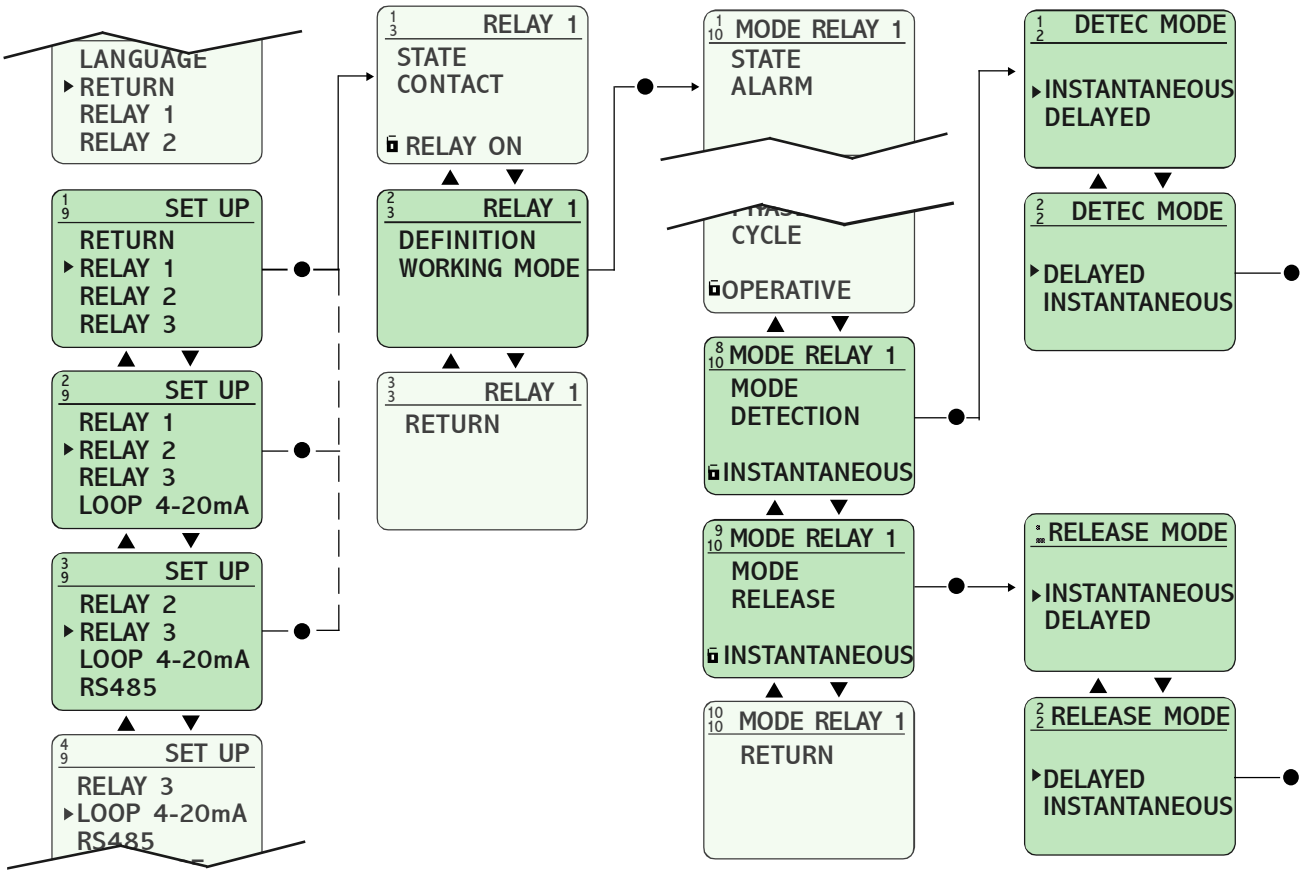
DC COMPONENT MAXIMUM (2/2)



Previous conditions	MAXIMUM DC COMPONENT = **[** OPERATIVE **]**

Ajuste	Set the value (Vdc) for the detection and/or replacement of the maximum continuous component. When you set values for maximum work, the replacement value should be below detection.

DELAY ON DETECTION AND/OR ON RELEASE (1/3)

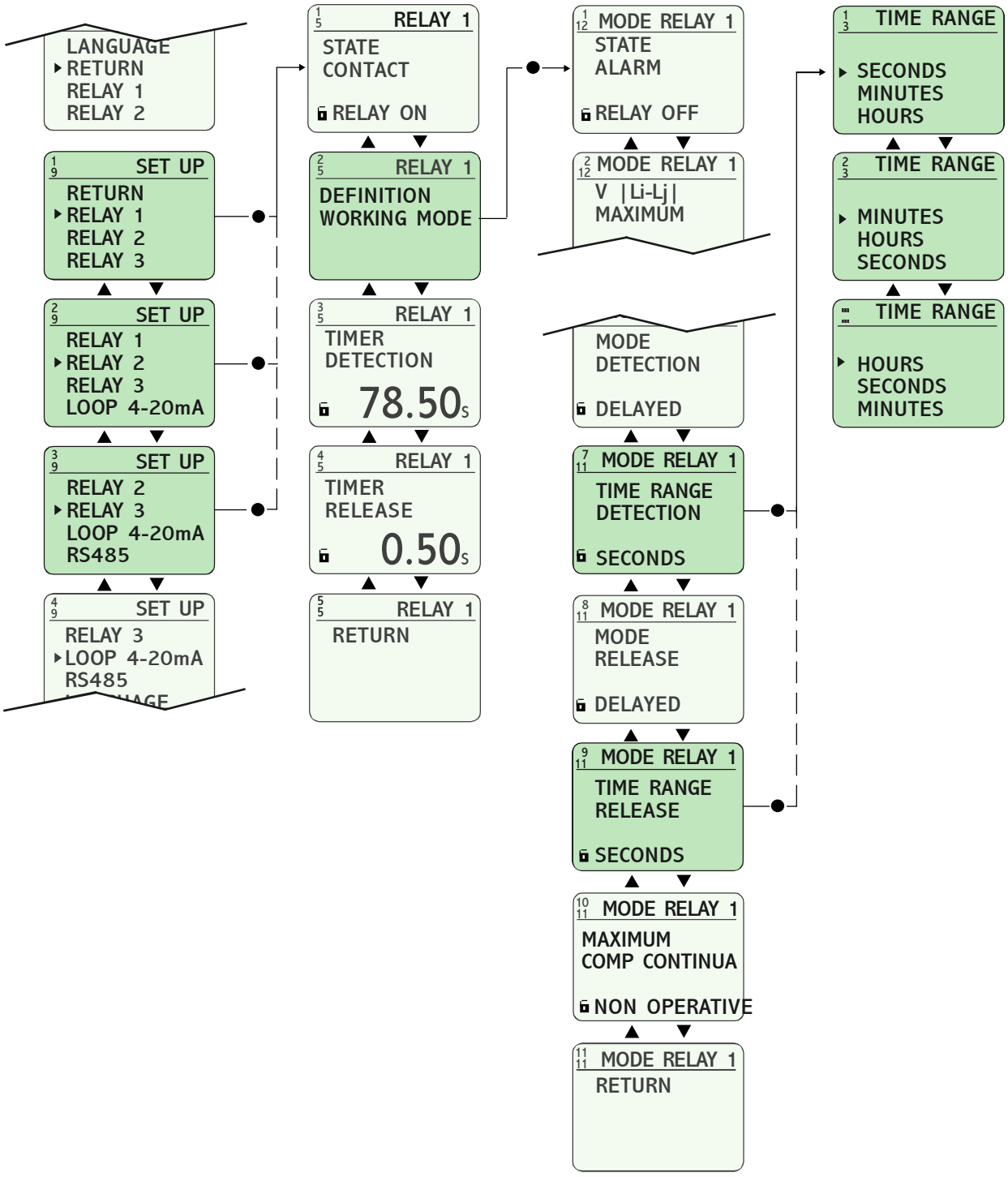


Activation

To incorporate a time delay to the detection and/or to the release the options MODE DETEC and/or MODE RELEASE must be set as DELAYED. The relay will not operate until the signal will be kept (at the detection) and/or lost (at the release) for a time longer than the adjusted one.

The time delay is related to the relay and not to the magnitude associated to the relay. It means that a timed relay with two magnitudes associated (for example, overvoltage and frequency) will start the timer for whichever of them, the first who occurs. It means, too, that in the case that both magnitudes occurs at the same time, the delay will be unique.

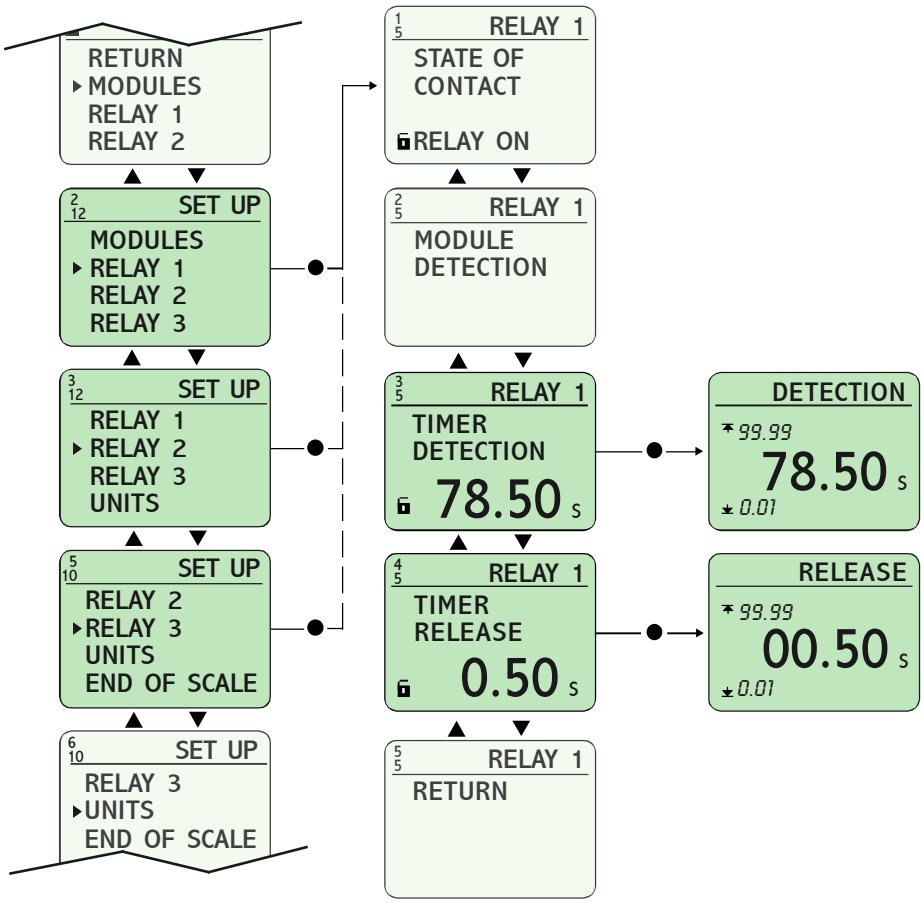
DELAY ON DETECTION AND/OR ON RELEASE (2/3)



Ranges

The time ranges for the detection and/or for the release can be set as SECONDS, MINUTES or HOURS.

DELAY ON DETECTION AND/OR ON RELEASE (3/3)



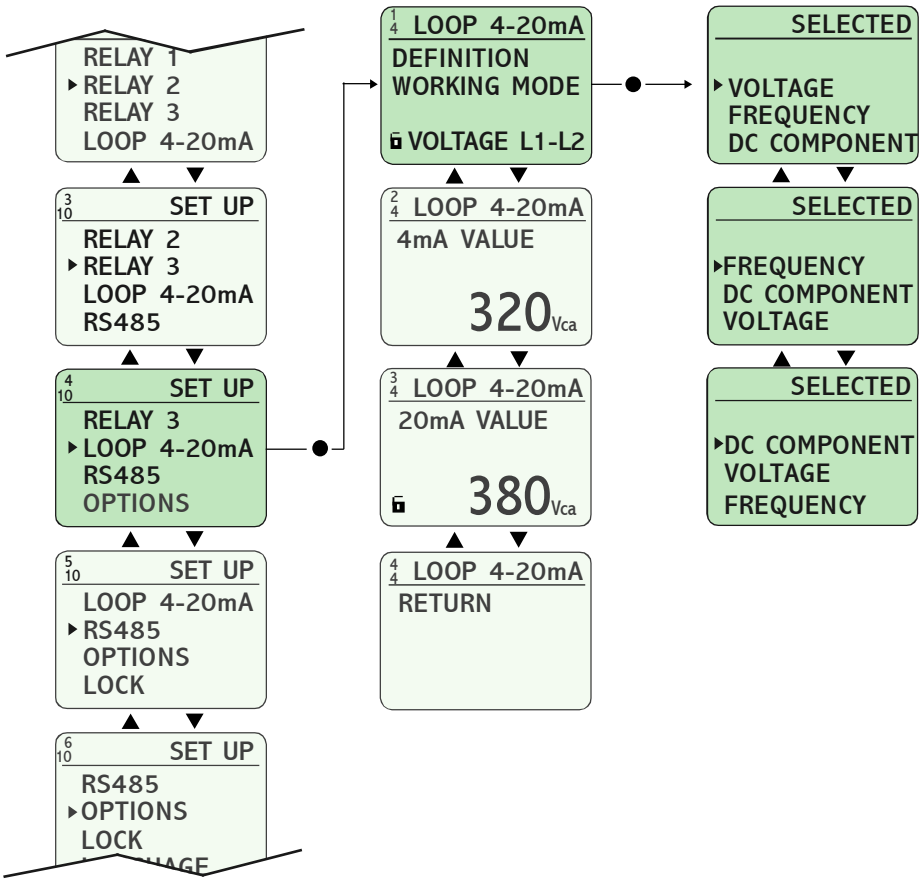
Time

It allows to set the exact time for the detection and/or the release.

The time margins depend on the previously selected range, and can be adjusted between the following values:

0.01..99.99 SECONDS
0.01..99.99 MINUTES
0.1..999.9 HOURS

LOOP 4-20 mA (1/2)



Assignation

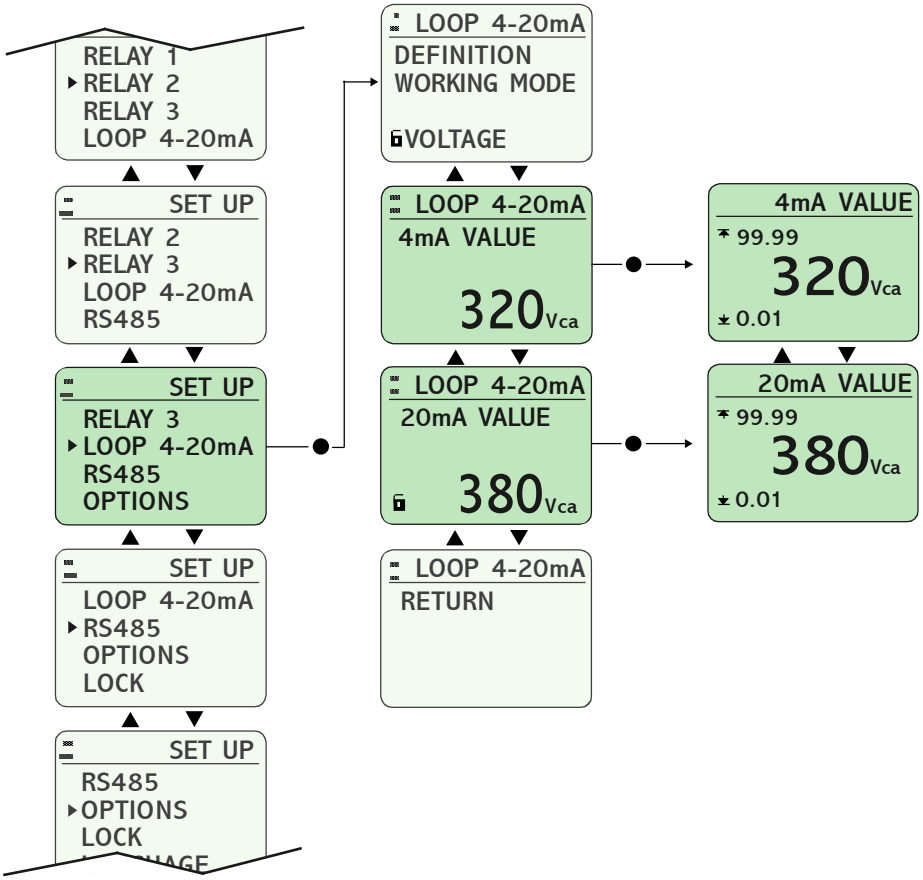
Throught this option is set the magnitude related with the 4-20 mA current loop, and it can be whichever of the following ones:

· Voltage
· Frequency
· DC Component

This feature is unique to models with this method of communication.

Consult the connection at page 50.

LOOP 4-20 mA (2/2)

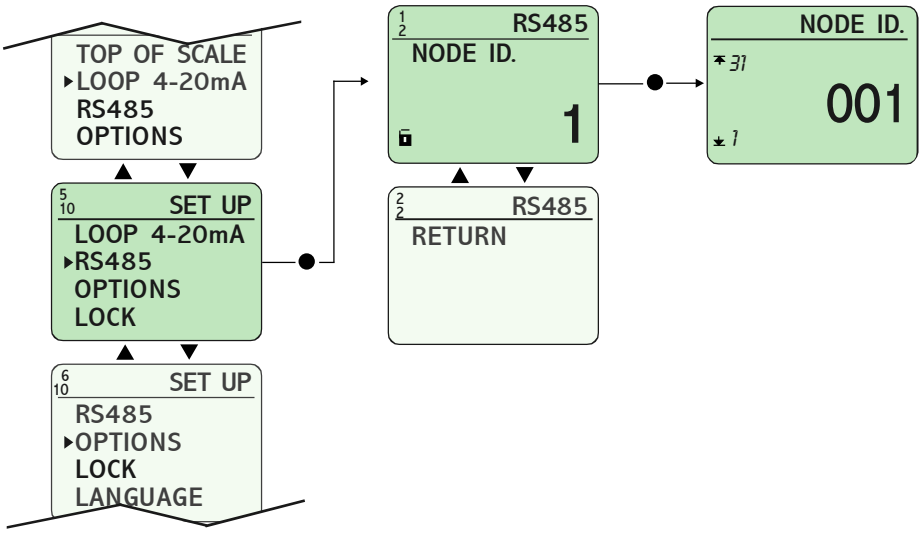


Adjustment

This option allows to define the operating margins for the 4-20 mA loop current. It is required to set by separate a countervalue for 4 mA and for 20 mA. It is possible to invert the loop sense by setting to 4 mA a countervalue higher than to 20 mA.

This feature is unique to models with this method of communication.

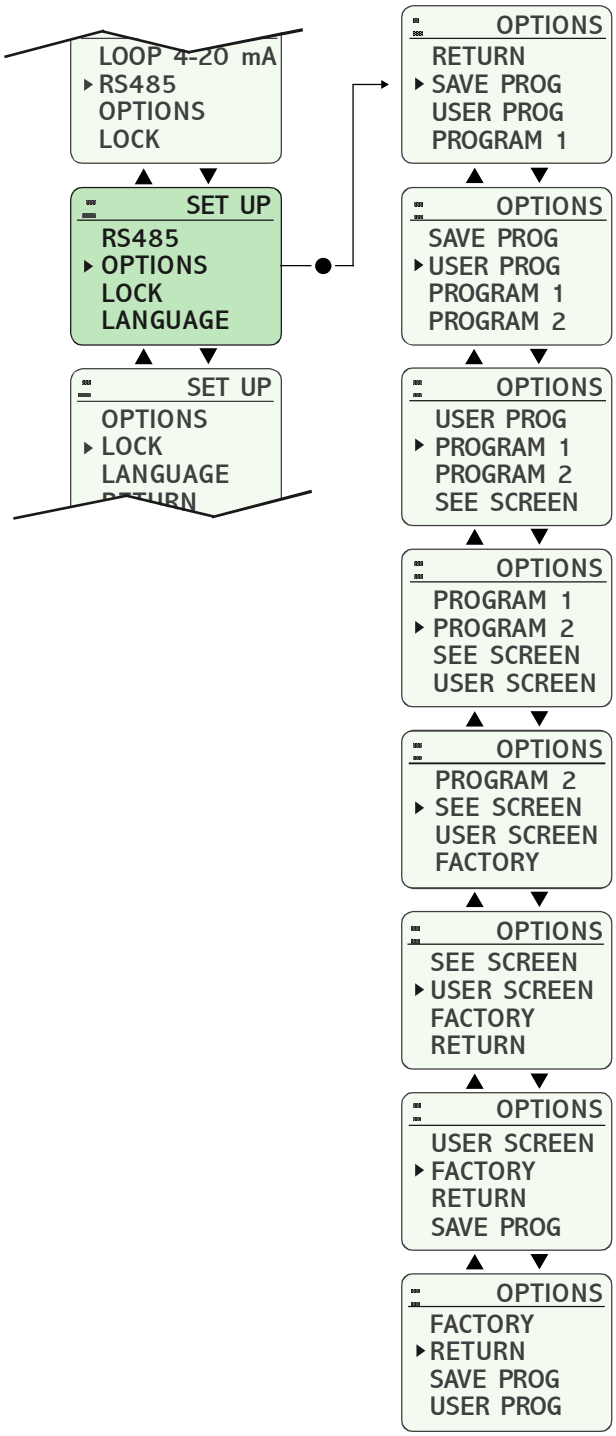
RS485



Is possible to communicate the controller SVA with a computer via the serial port RS232 for the remote programming or to process the generated data.
With the option RS485 can be connected up to 31 equipments in the same net, being equal or different among them. A node number, exclusive identification number, must be assigned to each equipment.
Is essential to employ the converter RS232-RS485 (reference SBAZ).
For extended information relative to programming with a computer, consult the manual deCom.

This feature is unique to models with this method of communication.
Consult the connection at page 51.

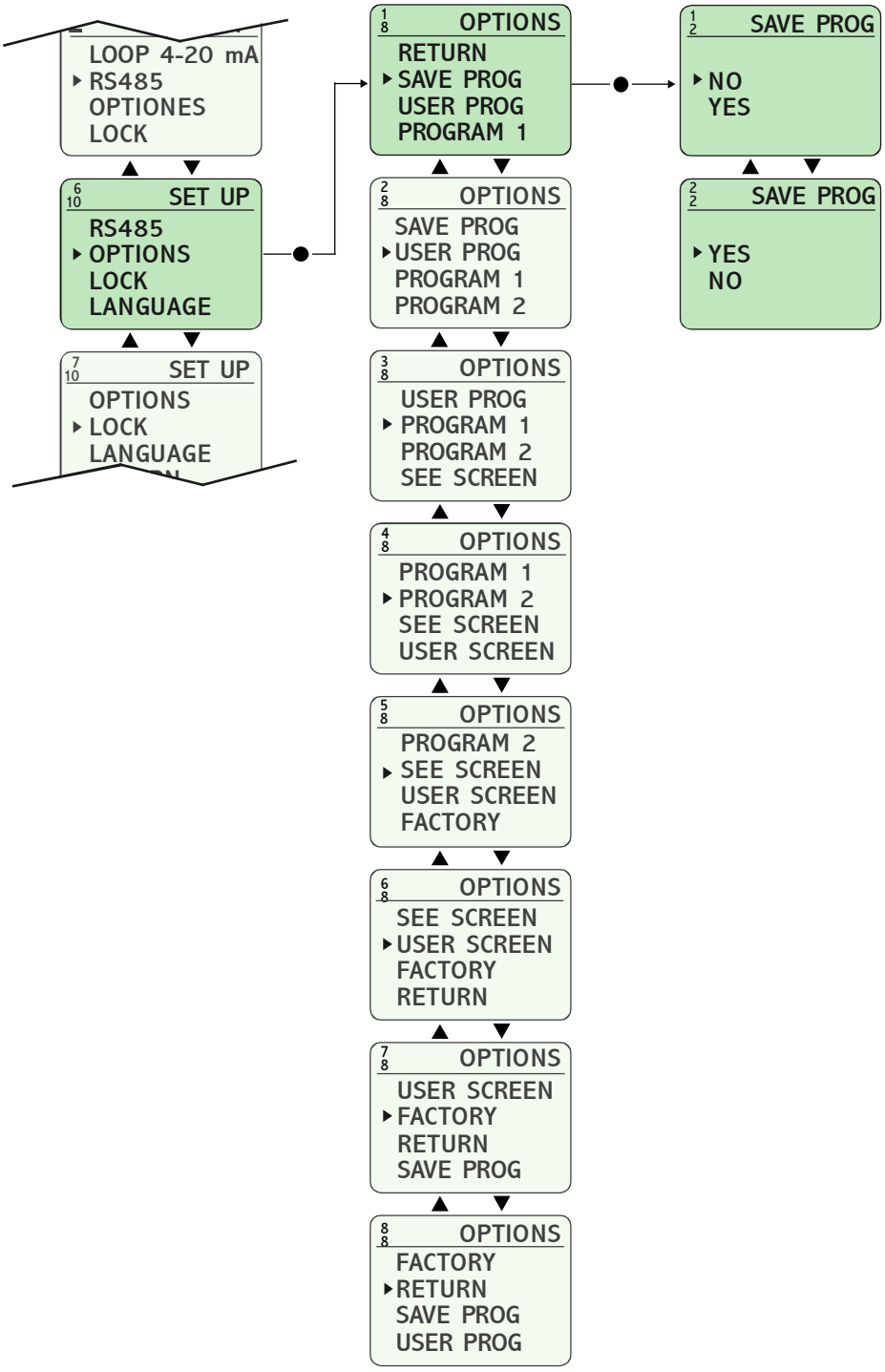
OPTIONS MENU



Using the menu options are configured parameters that are not basic to the functioning of the team.

Screens are also accessed for information.

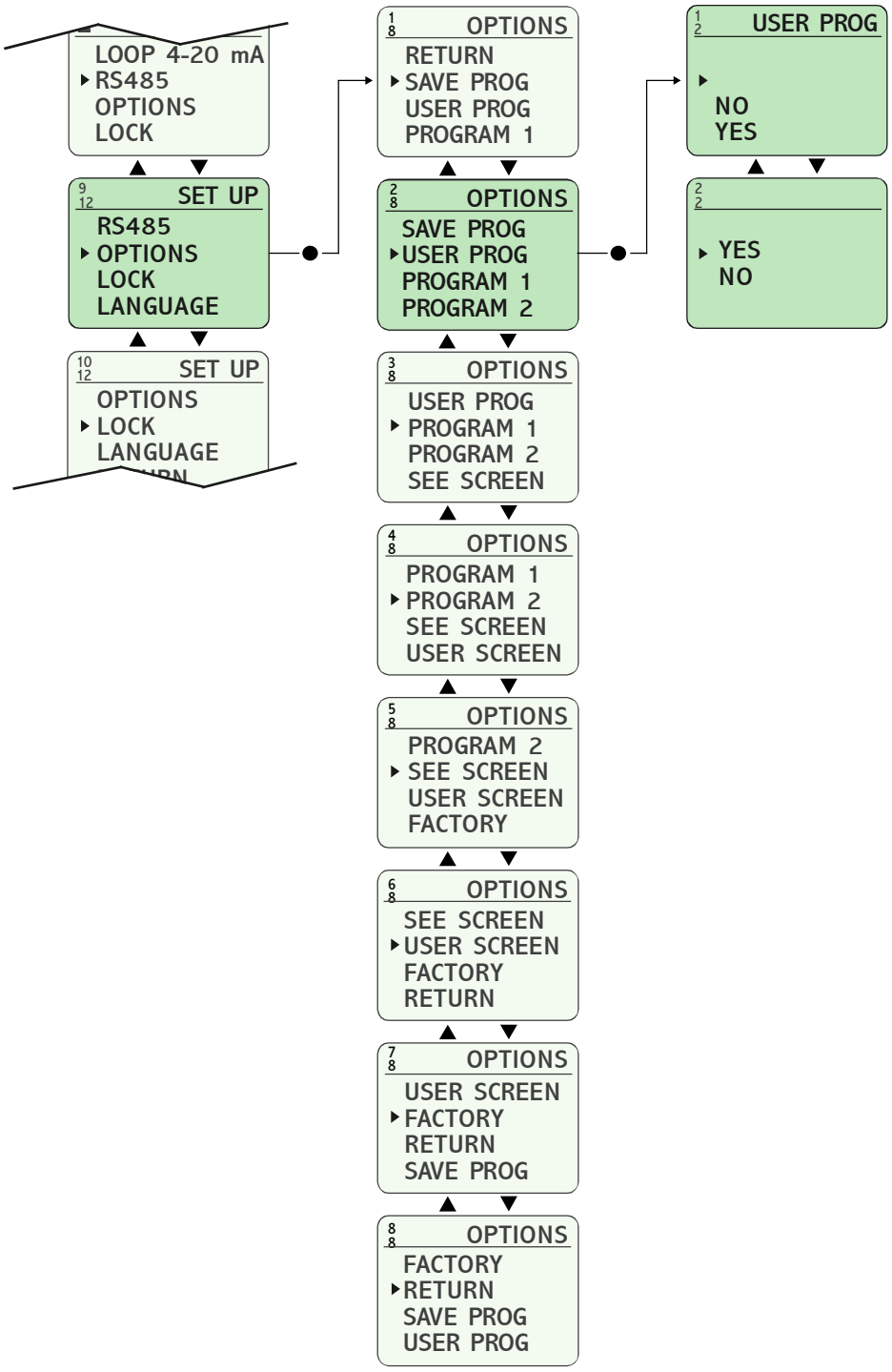
SAVE PROGRAM



It stores the changes done in the different parameters and options. Each time that SAVE PROGRAM is executed, the values stored in the user program are overwritten.

You will find more information related to the user program in the pages 14..16.

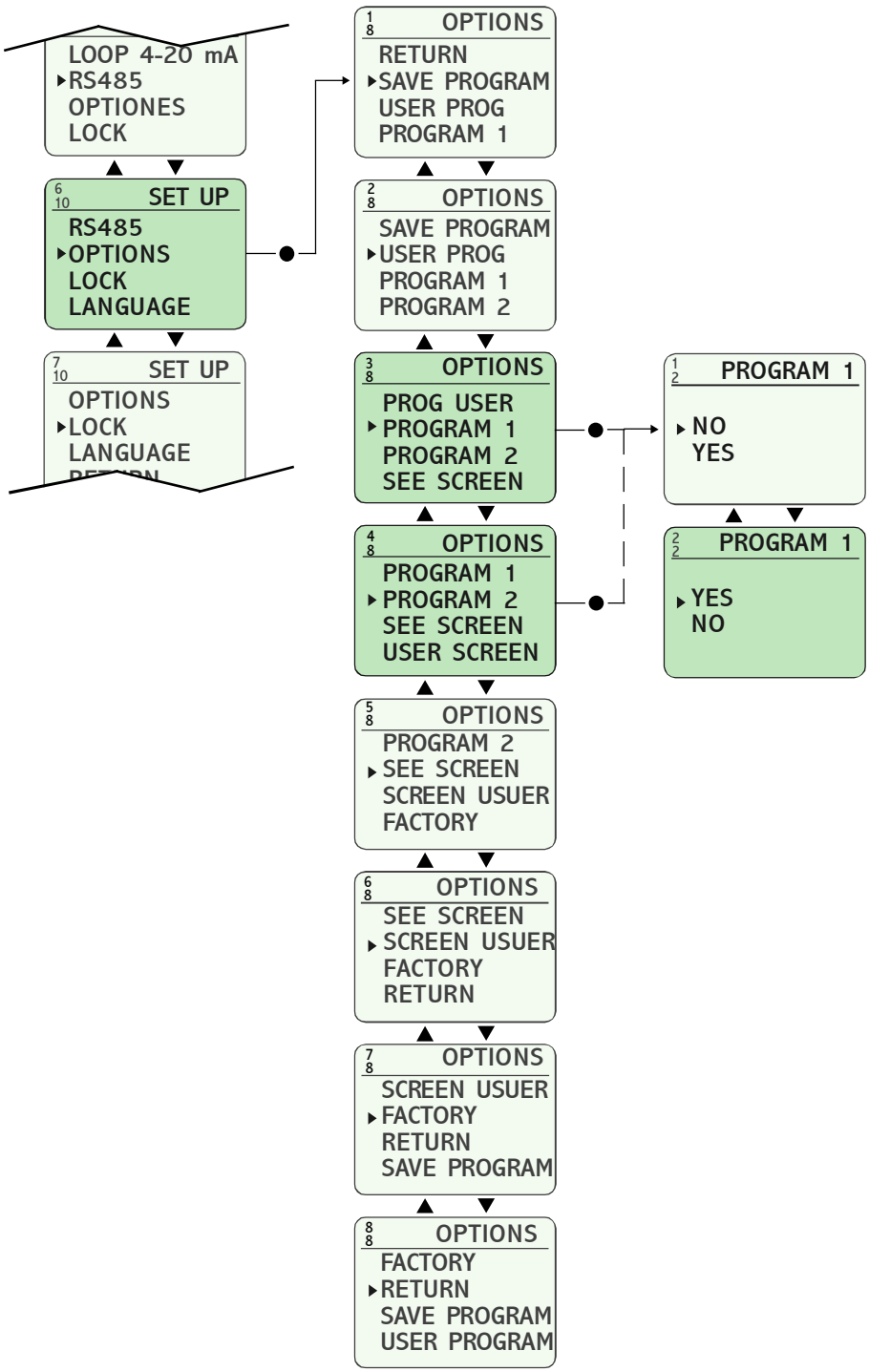
USER PROGRAMS



It loads into memory the program that was stored with the option SAVE PROGRAM, becoming the working program. Each time that this option is executed, the values stored in the memory are overwrtten.

You will find more information related to the user program in the pages 14..16.

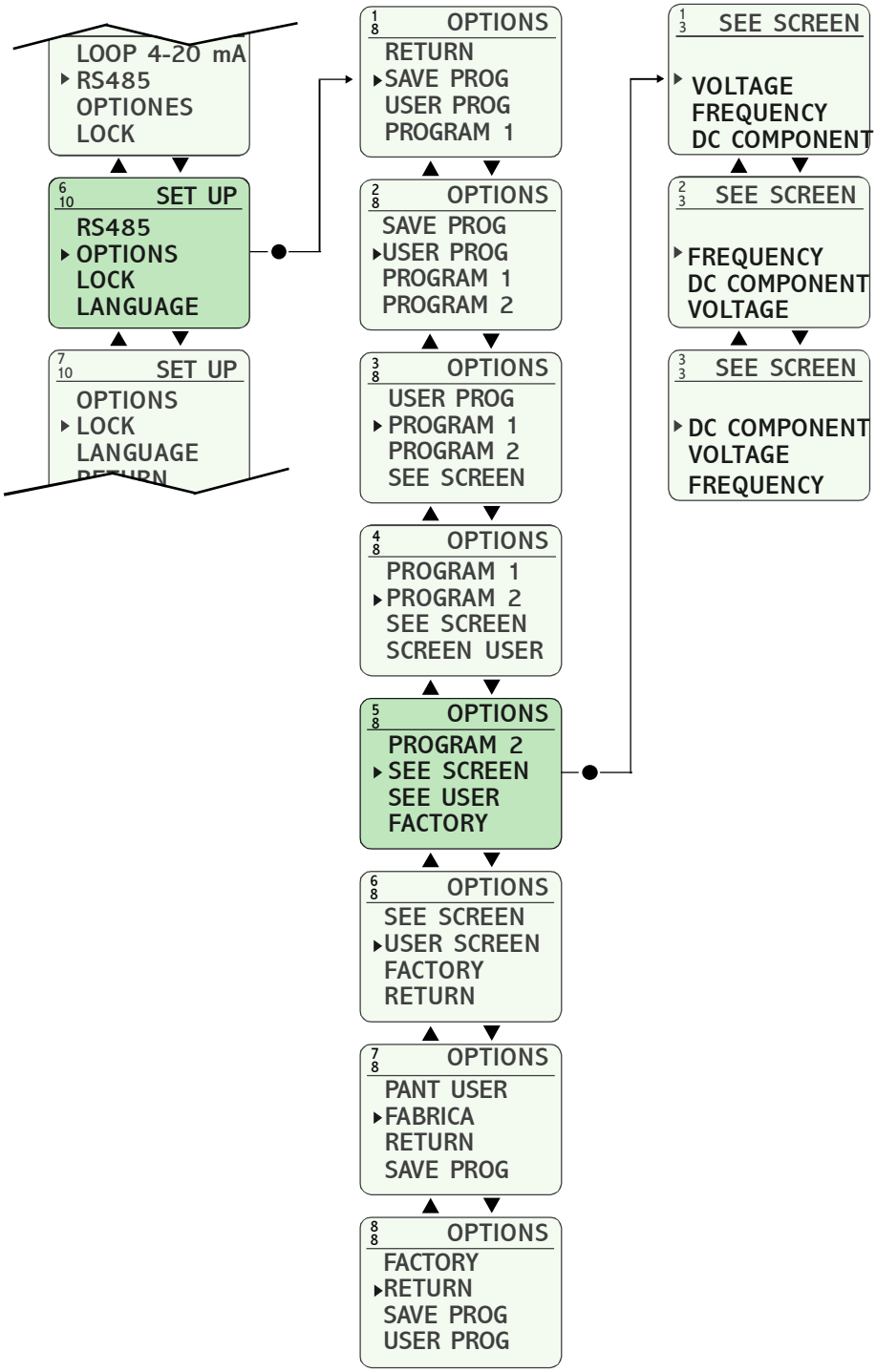
PROGRAM 1 AND 2



It loads into memory the selected program, becoming the working program. Each time that this option is executed, the values stored in the memory are overwritten.

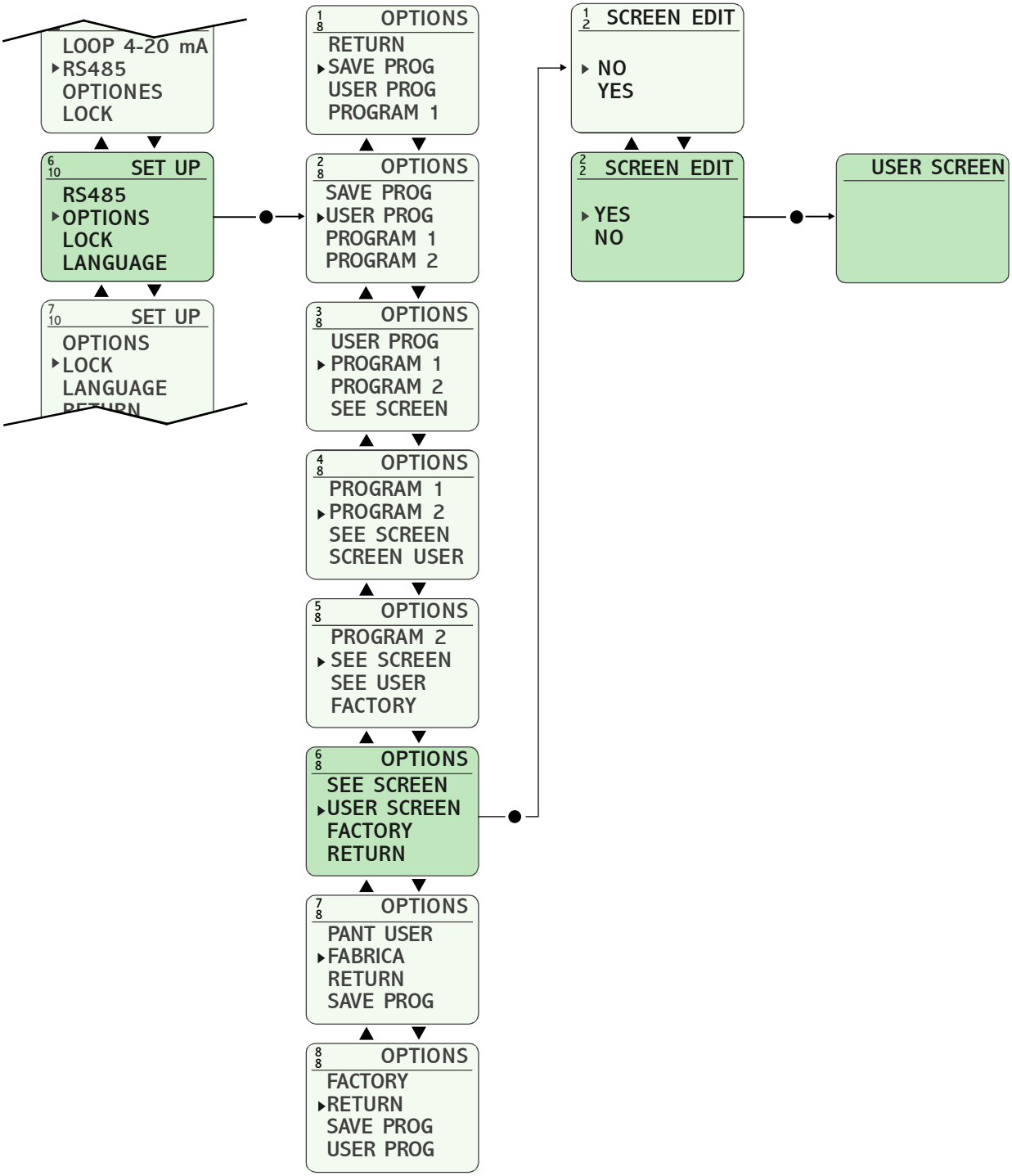
You will find more information related to the user program in the pages 14..16.

SEE SCREEN



This option allows to set which will be the default screen in the status screens menus (normal working mode).

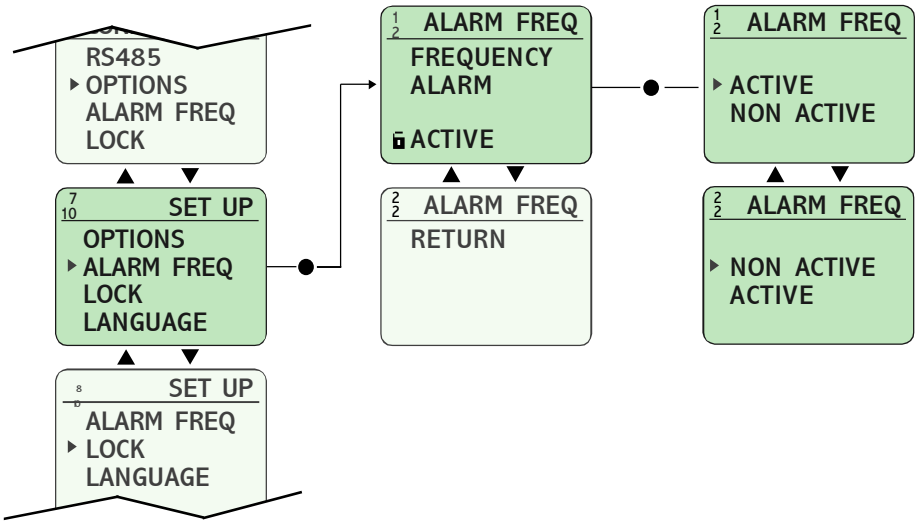
EDIT USER SCREEN



In this screen it can be edited any text to identificate the equipment. It can be used 4 lines and 13 characters each.

To learn which are the available characters and the way to edit them see “1.2 USER SCREEN” at page 8.

FREQUENCY DEVIATION ALARM

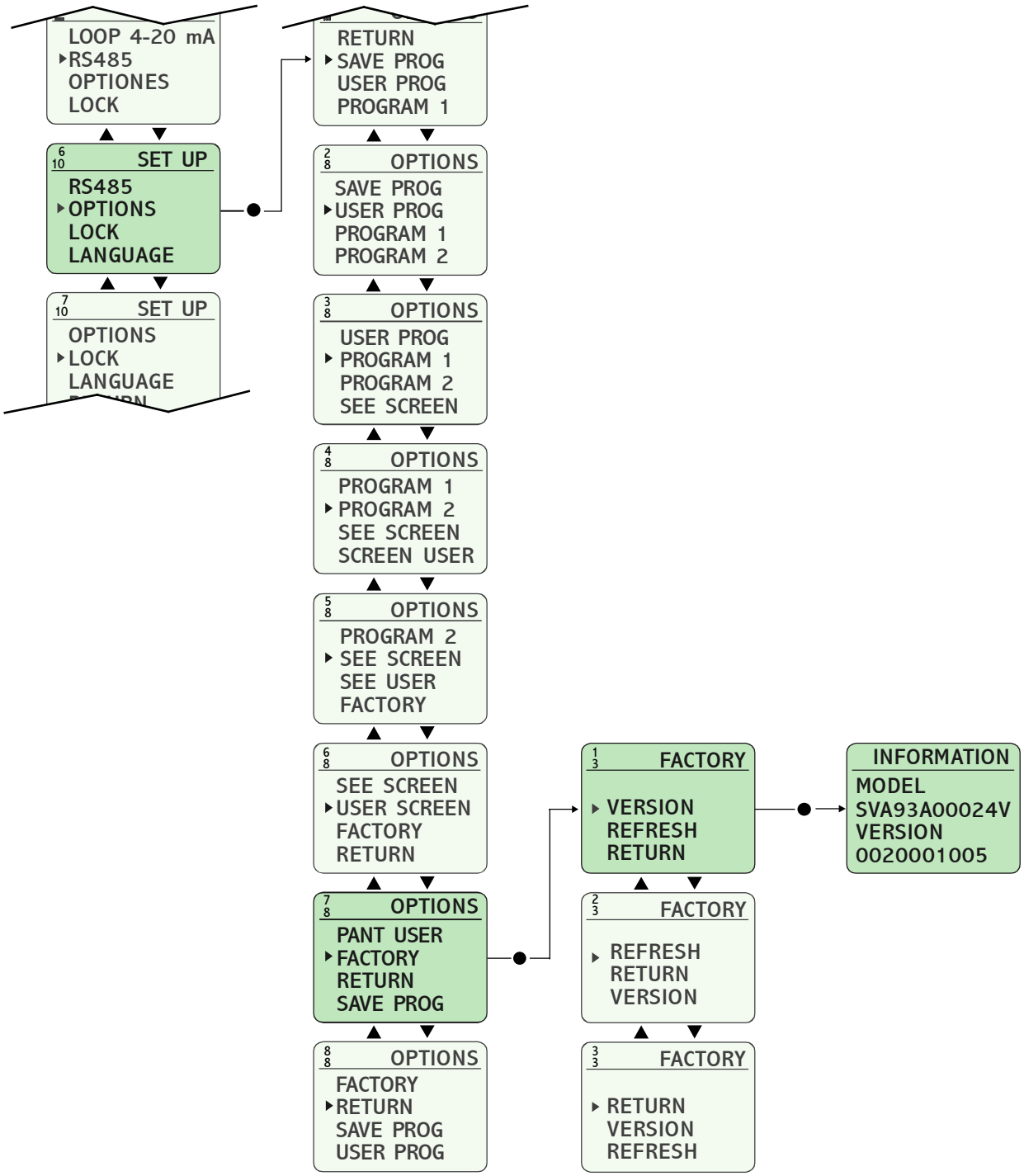


Previous condition	This option affects the relays that have enabled some tension parameter. By default, this option is activated.

Place the relay in alarm when a frequency deviation of ± 0.4 Hz in the detection process, and ± 0.3 Hz for the replacement. For these deviations in the frequency of the network the working precision is reduced. A greater deviation in the frequency of the network, worse reading accuracy of your voltage.

If this option is off, remember that reading the details of stress parameters decrease when the frequency wavers from their nominal values (50 Hz / 60 Hz). You should consider this reduction in accuracy when setting the values of detection and/or replacement.

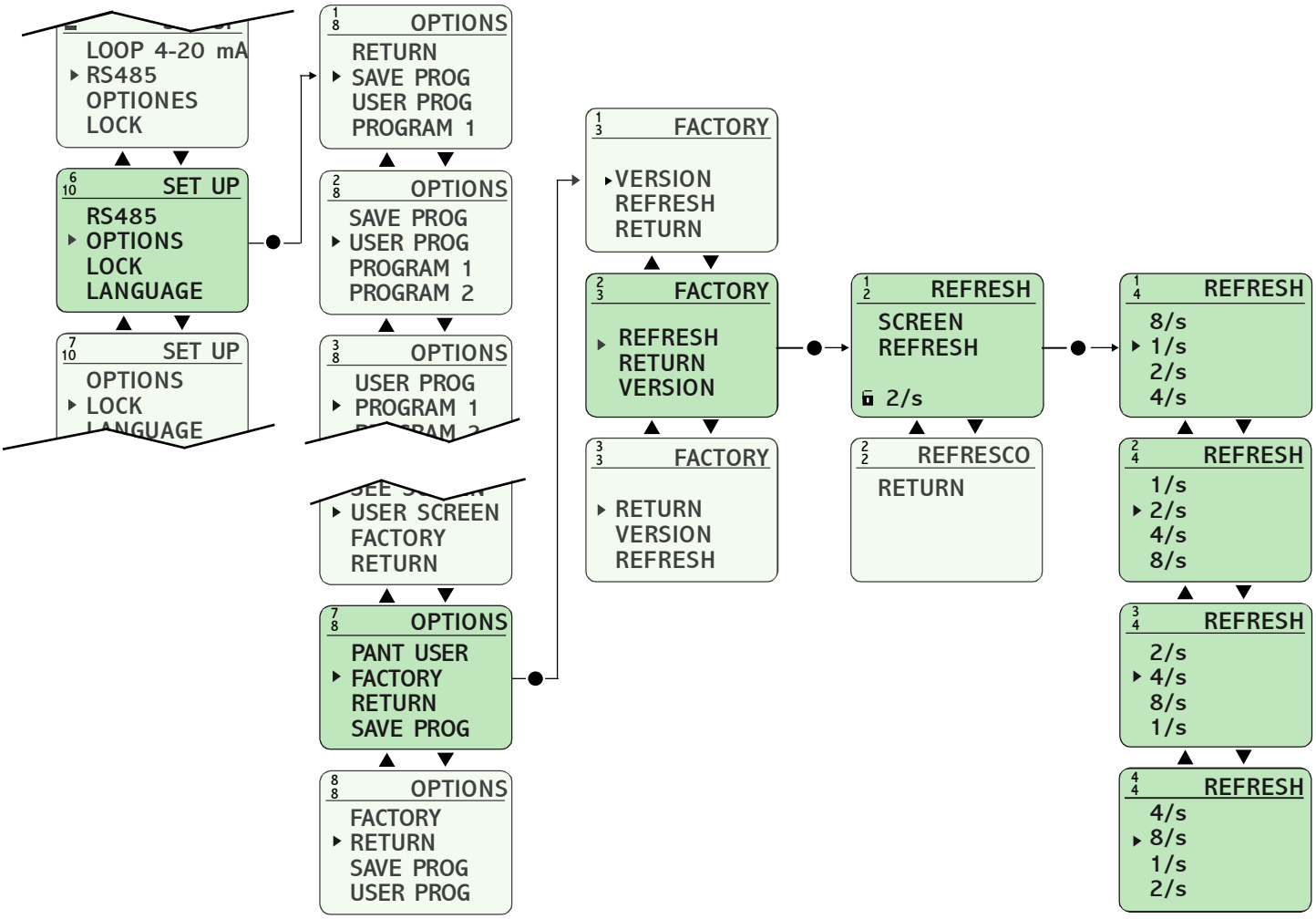
INFORMATION OF MODEL AND VERSION



Access to this option if you want to know the exact reference of the model and the version of the built-in software.

This is an informative screen. It is active for 3 seconds and returns automatically to the previous screen once the time has elapsed.

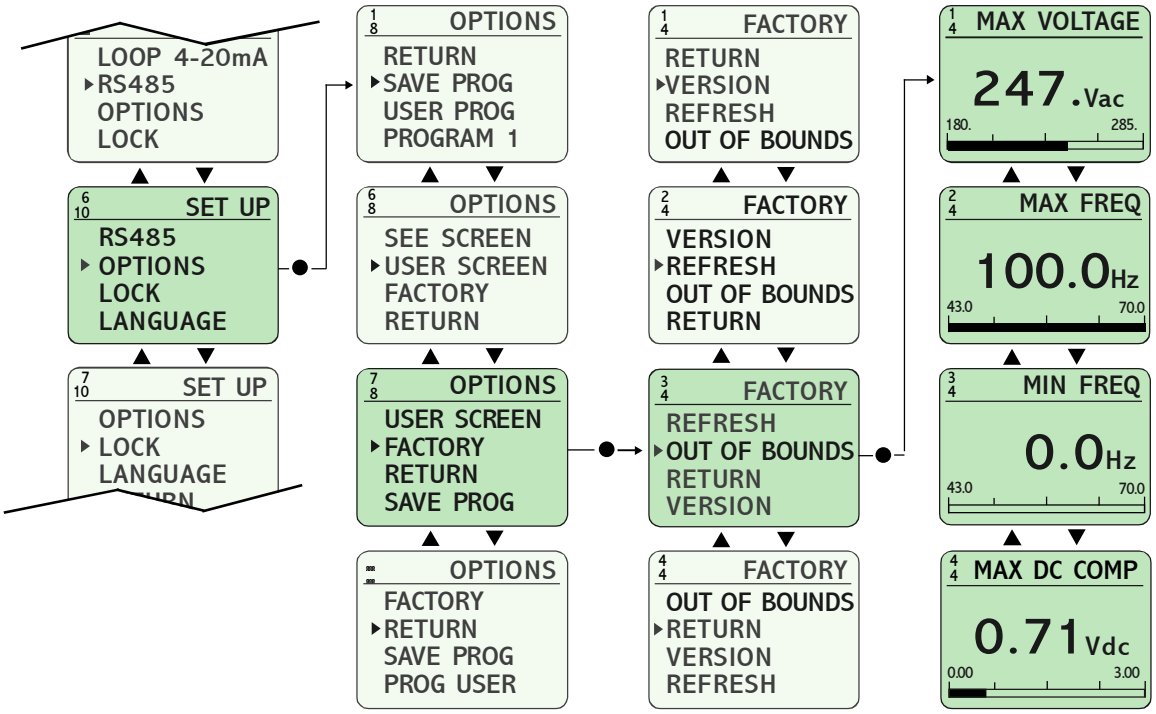
SCREEN REFRESH



It is defined as the time of regeneration of the information showed in the LCD. Only the status screens are affected for this option.

The value indicates the times that the screen is regenerated each second. So, with the value 1/s the screen is regenerated 1 time per second, and with the value 8/s it is done 8 times per second.

OUT OF BOUNDS VALUES



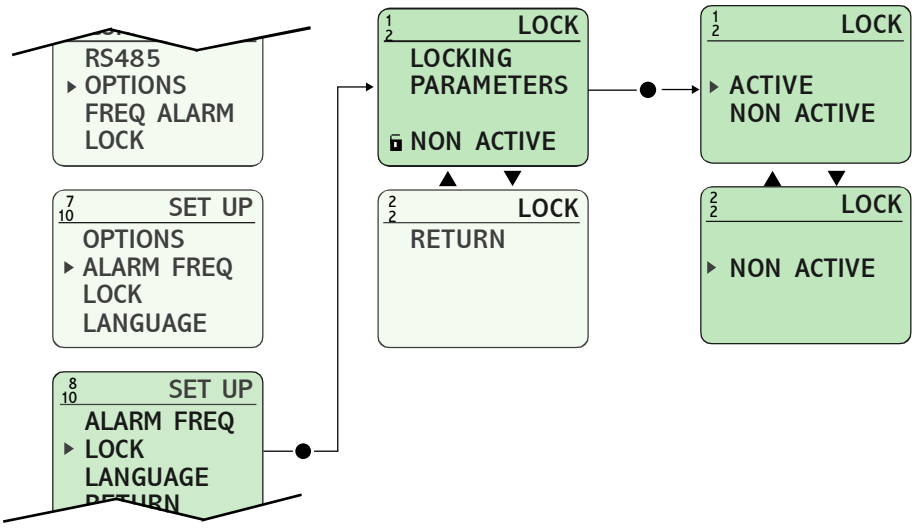
By means of this option is possible to read the highest values registered since the first time that the controller was turned on. A value higher than the stored one overwrites it. The magnitudes to be controlled are:

- Voltage
- Frequency

The stored values do not depend of the controller's operation margins and they can be higher than them. If a value overtakes the displaying capacity of the controller, it will show the text 9999. in the case of the voltage and 99.99 in the case of the frequency.

This screen's just informative and the values can't be modified using neither the buttons nor the programing software.

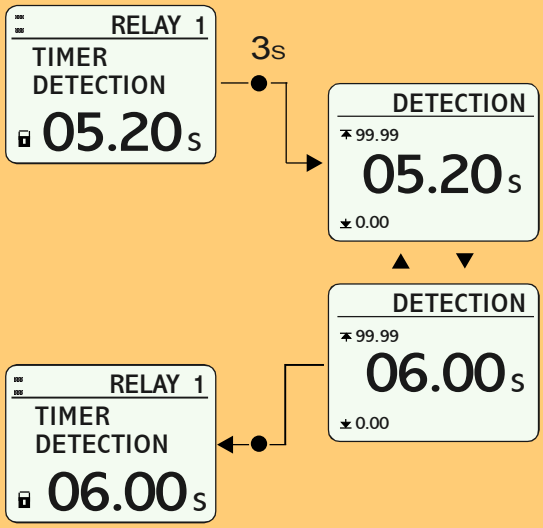
LOCKING PARAMETERS



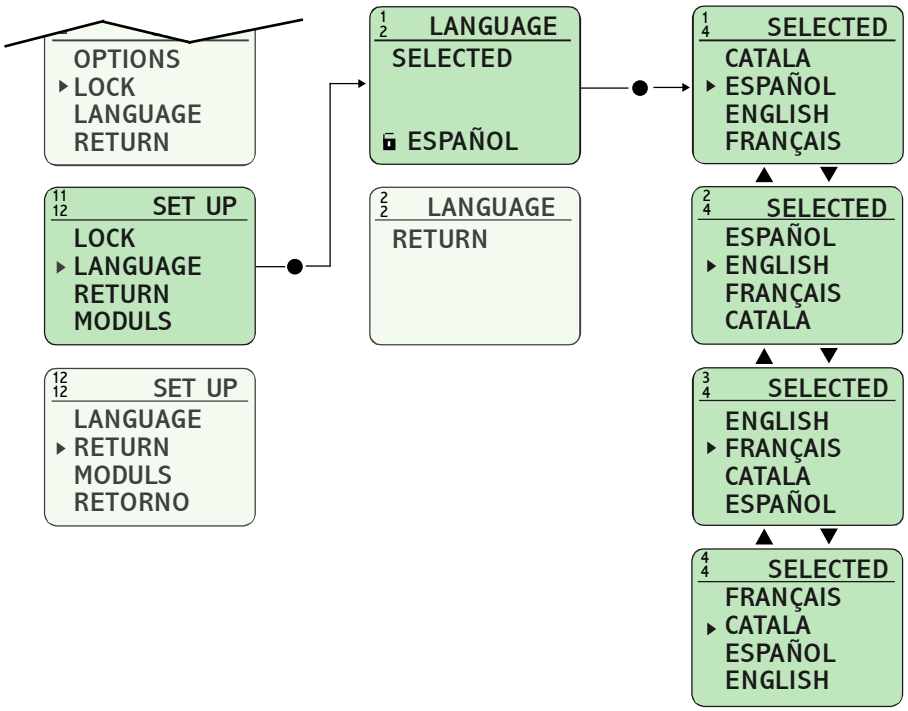
All device parameters can be locked so that it can not be changed accidentally.

The LCD status parameters indicated by the following symbols:
- Locking parameters:
- Unlocking parameters:

You can change the value of a parameter that is blocked without having to access the above sequence. To do this, once located on the screen that shows the parameter whose value has to change, hold the button ● for 3 seconds to access the screen for changing the value.
Once validated the change back to the screen from becoming blocked again parameter.



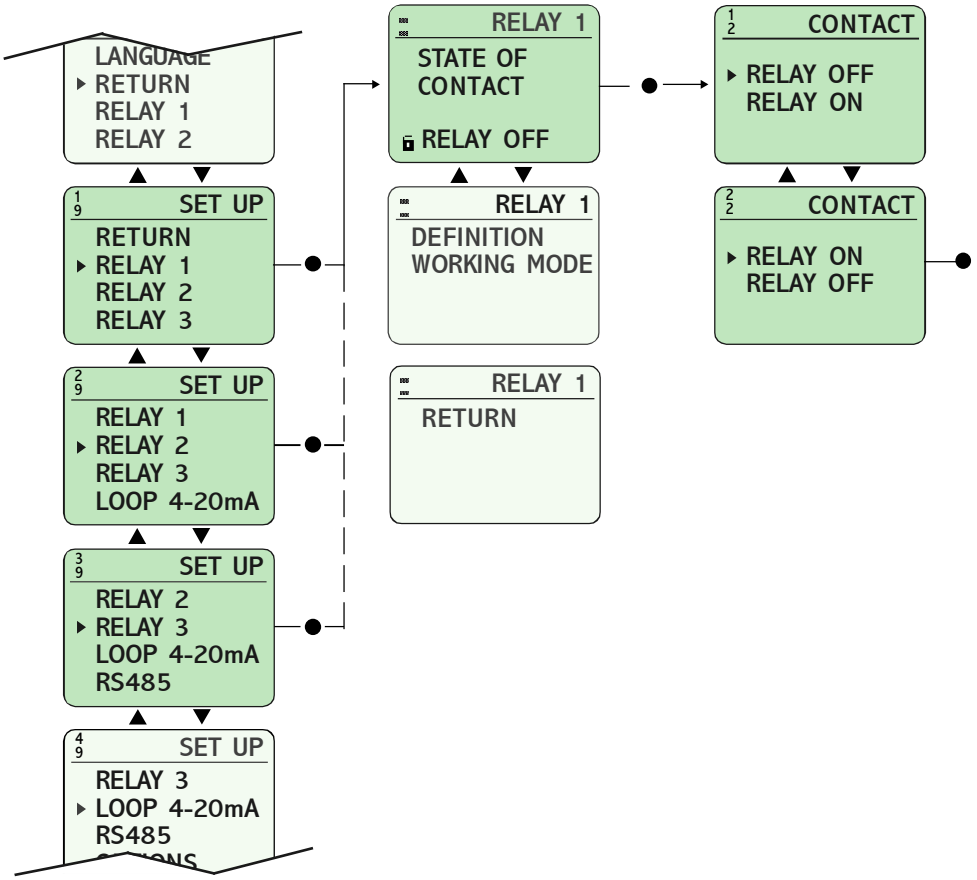
LANGUAGE



The SVA model incorporates four different languages with which to display the text on the screen. Three of them are always present in every team: English, Spanish and French, the fourth option on request.

Complementary Functions (1/4) AUXILIARY CONTACT

The relays that are not related with any magnitude can be used to perform complementary functions.

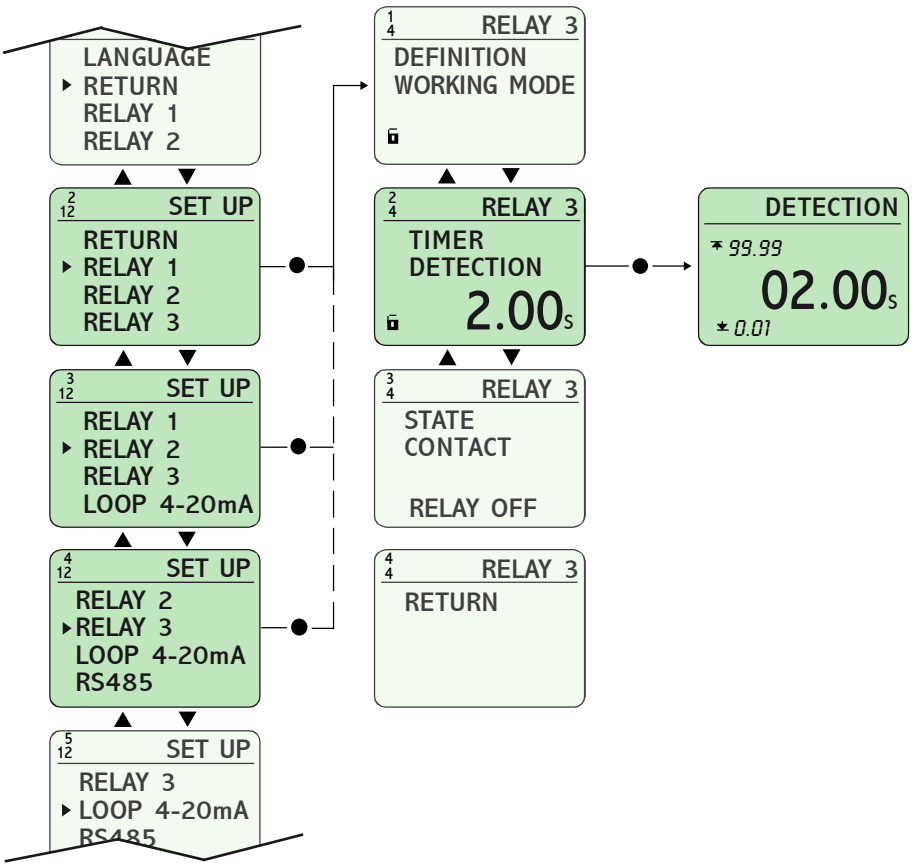


Previous conditions

STATE OF CONTACT = **[** RELAY ON **]**
VOLTAGE MAXIMUM = **[** NON OPERATIVE **]**
VOLTAGE MINIMUM = **[** NON OPERATIVE **]**
FREQUENCY MAXIMUM = **[** NON OPERATIVE **]**
FREQUENCY MINIMUM = **[** NON OPERATIVE **]**
MODE DETECTION = **[** CANCELED **]**
MODE RELEASE = **[** CANCELED **]**
MAXIMUM DC COMPONENT = **[** NON OPERATIVE **]**

When the supply voltage is connect the contact of the relay operates instantaneously and remain in this state until the supply voltage disconnects.

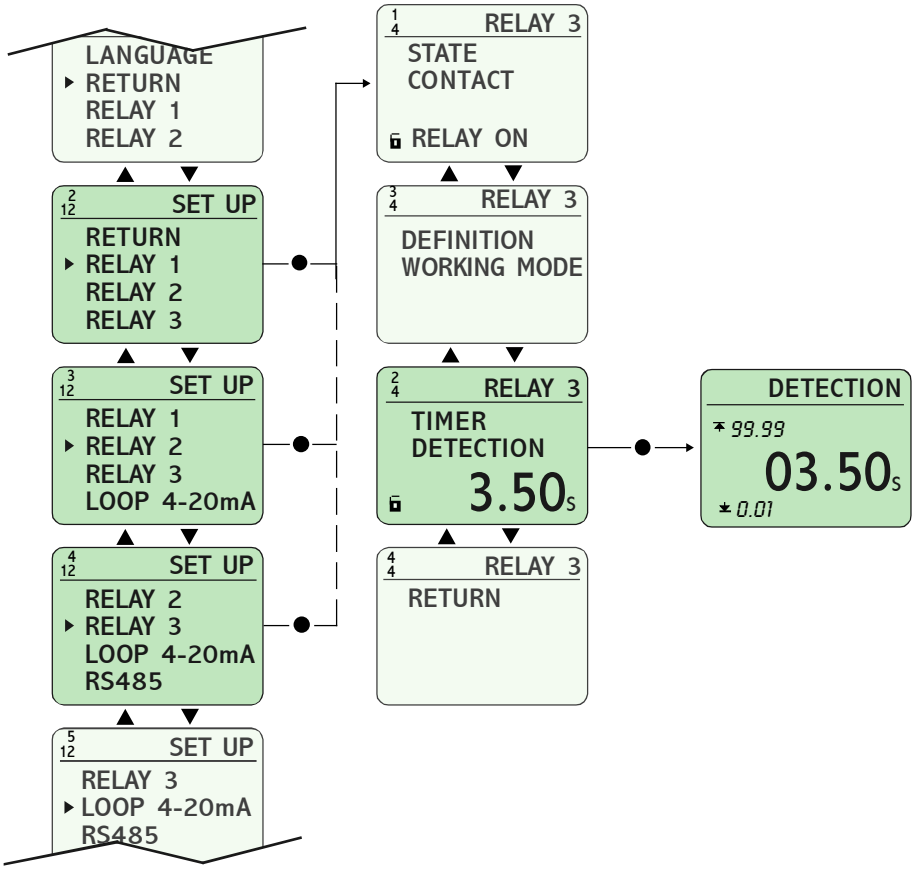
Complementary Functions (2/4) DELAY ON CONNECTION



Previous condition	STATE CONTACT = **[** RELAY OFF **]** VOLTAGE MAXIMUM = **[** NON OPERATIVE **]** VOLTAGE MINIMUM = **[** NON OPERATIVE **]** FREQUENCY MAXIMUM = **[** NON OPERATIVE **]** FREQUENCY MINIMUM = **[** NON OPERATIVE **]** MODE DETECTION = **[** DELAYED **]** MODE RELEASE = **[** CANCELED **]** MAXIMUM DC COMPONENT = **[** NON OPERATIVE **]**

ⓘ	When the supply voltage is connected the relay remains released and the time circuit starts up. Once the time has elapsed the relay operates. It can remain in this state for an undefined time.

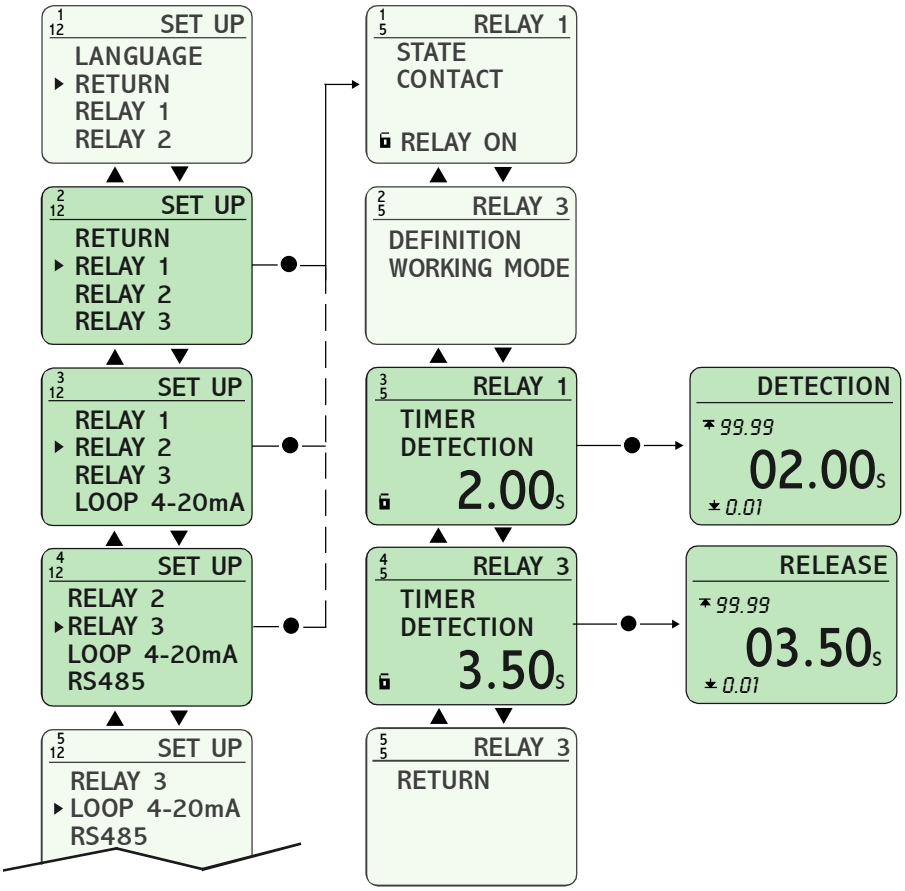
Complementary Functions (3/4) DELAY ON INTERVAL



Previous conditions	STATE CONTACT = **[** RELAY ON **]** VOLTAGE MAXIMUM = **[** NON OPERATIVE **]** VOLTAGE MINIMUM = **[** NON OPERATIVE **]** FREQUENCY MAXIMUM = **[** NON OPERATIVE **]** FRECUENCY MINIMUM = **[** NON OPERATIVE **]** MODE DETECTION = **[** DELAYED **]** MODE RELEASE = **[** CANCELED **]** MAXIMUM DC COMPONENT = **[** NON OPERATIVE **]**

When the supply voltage is connected the relay operates instantaneously and the time circuits starts up. Once the time has elapsed the relay releases. It can remain in this state for an undefined time.

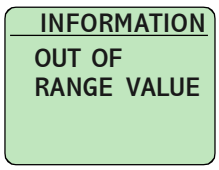
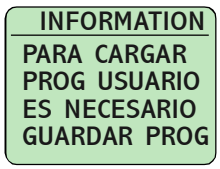
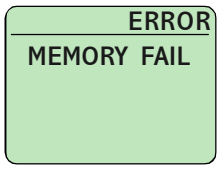
Complementary Functions (4/4) RECYCLER TIMER



Previous conditions	Same as to page 47 except: MODE DETECTION = **[** DELAYED **]** MODE RELEASE = **[** DELAYED **]**
Cycle OFF-ON	STATE OF CONTACT = **[** RELAY OFF **]** When the supply voltage is connected the time adjusted in TIMER DETECTION starts up. Once the time has elapsed the relay operates until the time adjusted in TIME RELEASE elapses. The cycle repeates non-stop itself.
Cycle ON-OFF	STATE OF CONTACT = **[** RELAY ON **]** When the supply voltage is connected the relay operates instantaneously and the time circuit adjusted in TIMER DETECTION starts up. Once the time has elapsed the relay releases and remains in this state until the time adjusted in TIME RELEASE elapses. The cycle repeates non-stop itself.

ERROR SCREENS AND INFORMATION

In front of certain situations the controller SNI displays informative screens, usually related with errors or unapropiated actions.

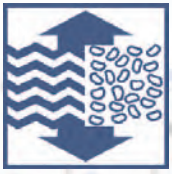
	Cause	Solution
	It has been introduced a value out of the allowed limits in the magnitude which is being adjusted.	Introduce whichever value between the allowed limits.
	It has attempted to load into memory the user program, but this was not loaded previously.	Save an user program.
	An error in the internal memory of the controller has been produced.	Contact with the manu-facturer.

Your Notes

Manufacturing program

Sensors

A wide variety of types of sensors allows an easy way to find out the efficient solution for the control of the level in a large number of products.



Level relays

Its combination with the level sensors is the suitable complement for the control of the level in wells, tanks and reservoirs.

Timers

From the common functions of timing and passing through the multifunction models, it is arrived to elements with specific functions

Control relays

This wide family who contributes to confidence and yield in complex installations where the security is the essential element.

Digital control relays

This family of controllers combines the own characteristics of the classic relays and improve them by adding new benefits.

Data transmission

This family of controller combines the own characteristics of the classic relays and them improvement adding sophisticated benefits.

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