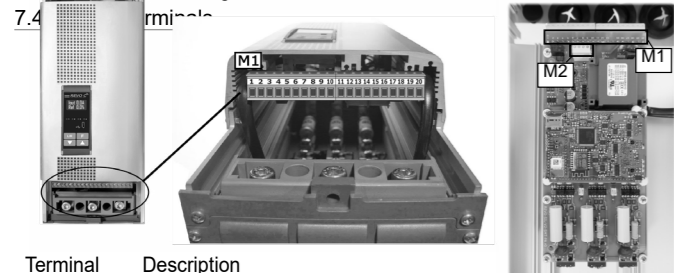


7.2. Cable dimensions (suggested) of Earth and of the Command Terminals

Current	Earth			Command Terminals	
	Cable	AWG	Screw	mm ²	AWG
300A (S14)	50	1	M8	0,50	18
400A (S14)	50	1	M8	0,50	18
450A (S14)	70	1/0	M8	0,50	18
500A (S14)	70	1/0	M8	0,50	18
600A (S14)	70	1/0	M8	0,50	18
700A (S14)	70	1/0	M8	0,50	18
800A (S16)	70	1/0	M8	0,50	18

7.3. Terminal Positions

Warning: Before connecting or disconnecting the unit check that power and control cables are isolated from voltage sources.



Terminal	Description
L1	Line Input Phase 1
L2	Line Input Phase 2 (only S14)
L3	Line Input Phase 3
T1	Load Output Phase 1
T2	Load Output Phase 2 - Not controlled by the thyristor (only S14)
T3	Load Output Phase 3

7.5. Control Terminals

Warning: Before connecting or disconnecting the unit check that power and control cables are isolated from voltage sources.

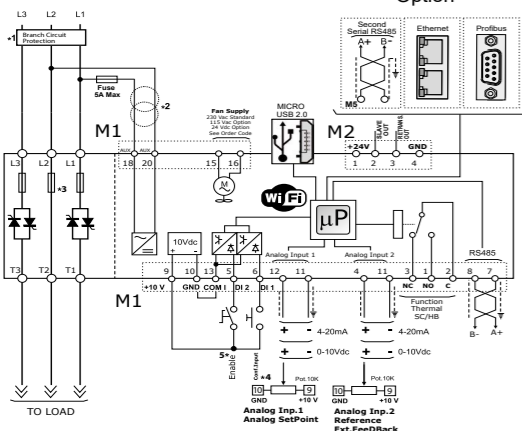
Terminal	Description
1	NO - Normally Open contact alarm relay output (HB)
2	C - Common contact alarm relay output
3	NC - Normally Close contact alarm relay output (HB)
4	+ Analog Input2 (0-10Vdc/4-20mA Reference/ext.feed-back)
5	DI 2 - Enable Digital Input
6	DI 1 - Configurable Input
7	RS485 A
8	RS485 B
9	Output +10Vdc stabilized 1 mA MAX
10	0V GND

Terminal	Description
11	- Analog Input 1 (0-10Vdc/4-20mA Analog Setpoint)
12	+ Analog Input 1 (0-10Vdc/4-20mA Analog Setpoint)
13	COM I - Common Digital Input
14	Not Connected
15	Fan supply (230V Standard - 115 Option - for DC Fan Option +24Vdc)
16	Fan supply (230V Standard - 115 Option - for DC Fan Option -24Vdc)
17	Not Connected
18	Aux - Voltage Supply for electronic boards and synchronization (See order code for the Value)
19	Not Connected
20	Aux - Voltage Supply for electronic boards and synchronization (See order code for the Value)

Terminal	Description
1	24V Out Max 5mA
2	Slave Output
3	Retransmission Output
4	0V GND

7.6. Schematic

NOTE:
*1 The user installation must be protecting by electromagnetic circuit breaker or by fuse isolator. The Fuse must be branch circuit protection. For UL any listed UL brand Option



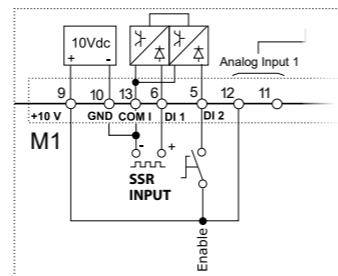
ch circuit fuse would be acceptable as an external fuse, following national electric code guide for resistive heating of 125% load current rating to protect external wires.

*2 The auxiliary voltage supply of the Relay C unit must be synchronized with load voltage power supply. If the Auxiliary Voltage (written on the identification label) is different from Supply Voltage (to the load), use an external transformer as designated.

*3 For SSR input connection follow next schematic.

7.7. SSR Control Input schematic

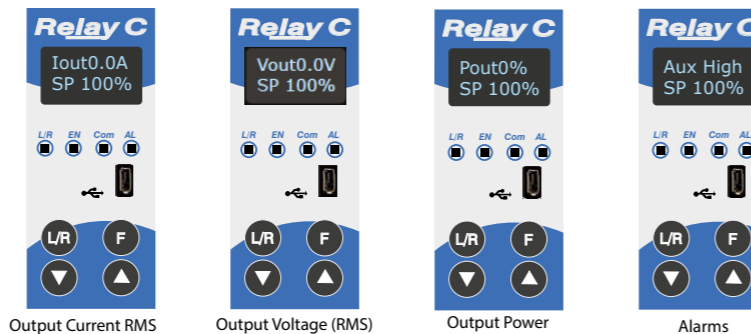
For SSR input use follow the schematic and configure Digital Input 1 as Fast Enable.



* SSR Input: 4 + 30Vdc 5mA Max (ON >4Vdc OFF <1Vdc)
3HZ Max on time min. 100 ms

8. Control Panel

The Control Panel is placed on the front of the thyristor unit, on his display you can visualize the alarms, the input and output signals and all the configuration parameters.



On the home page the keys are used as follows:

Press...	to...
F	Function
L/R	Local/Remote
▲	Up
▼	Down
F + L/R	Press and hold for about two seconds to access the menus

To view the status parameters:

Press Function **F** once to advance from one parameter to the next

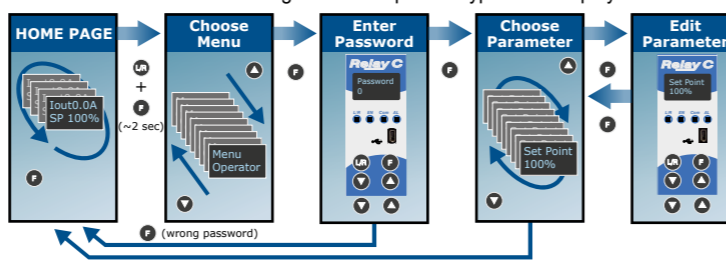
To set the set point locally:

Press Local/Remote **L/R** (Note: indicator 1 flashes steadily when set point is set locally)

Use Down **▼** and/or Up **▲** to set the local set point.

8.1. Menu navigation

The menus are accessible using the control panel keypad and display.



To access a menu and edit a setting:

- Press and hold Local/Remote and Function together **L/R + F** until the upper display flashes Menu.
- Press Up **▲** to choose the menu. (Press down **▼** if you overshoot the menu you want).
- Press function **F** to advance to the password prompt.
- Use up **▲** and/or down **▼** to set the password (see the table).
- Press function **F** to enter the password and advance to the first parameter of the menu.
- Press Up **▲** to advance to the next parameter and repeat to reach the desired parameter.
- Press function **F** to start editing the parameter. The parameter name flashes in the upper display.
- Use Up **▲** and/or down **▼** to edit the parameter setting.
- Press function **F** to enter the new setting. The parameter name stops flashing.
- Press and hold local/remote and function together **L/R + F** for about two seconds to exit the menus.

Menu	Password	Parameter used to...
Operator	0	View measured values and basic settings including current, voltage and set point
Setup	2	Configure the power controller for the load
Adv Setup	10	Configure the operation and performance of the power controller in the application
Hardware	5	Configure the functions of the analog and digital inputs and outputs, and the re-transmission parameters
Comm	3	Configure field bus communicating parameters
Monitoring	0	View measured and calculated values and other read-only parameters

8.2. Control Panel Led

The four indicators on the control panel show the general state of the power controller.

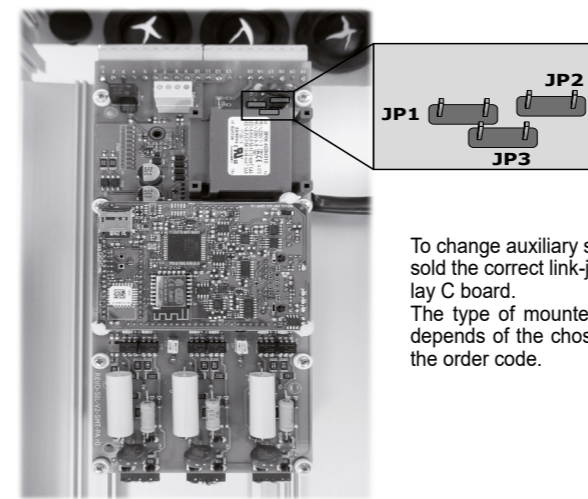
Indicator	State	Meaning
1 Local/Remote	Flashing	Power output set locally or via communications
	Off	Power output set remotely (via analog input)
2 Enable	On	Output enabled
	Off	Output disabled
3 Communications	Flashing	Active communications
	Off	No alarm
4 Alarm	On	Active alarm
	Off	No alarm

9. Supply the electronic board

The Relay C thyristor unit, to work, requires a voltage supply for the electronic boards. The Max consumption is 8VA. The voltage supply for the electronic boards is configured in line with customer requirements that are defined in the Order Code. The Order Code is written on the identification label.

Warning: Before connecting or disconnecting the unit check that power and control cables are isolated from voltage sources.

Terminal M1	Description
18	Voltage Supply for Electronic Boards (Auxiliary Voltage)
19	Not Used
20	Voltage Supply for Electronic Boards (Auxiliary Voltage)



To change auxiliary supply voltage sold the correct link-jumper on Relay C board. The type of mounted transformer depends of the chosen Voltage in the order code.

Order Code	As ordered		Change to	
	Jumper JP1 + JP2 are linked	Line voltage	Link only Jumper JP3	Line voltage
RC2___-1	90:135V	100/120V	180:265V	200/208/220/230/240V
RC2___-2	180:265V	200/208/220/230/240V	342:528V	380/400/415/440/480V
RC2___-3	238:330V	277V	540:759V	600/690V
	Only Jumper 3 is linked		Link Jumper JP1 + JP2	
RC2___-5	342:528V	380/400/415/440/480V	180:265V	200/208/220/230/240V
RC2___-6	540:759V	600V	238:330V	277V
RC2___-7	540:759V	690V	238:330V	277V

If the Auxiliary Voltage (written on the identification label) is different from Supply Voltage (to the load), use an external transformer with primary equal to load voltage and secondary equal to the Auxiliary Voltage.

Attention! never link all the jumpers JP1+JP2+JP3 at the same time or JP3 + any other jumper, JP3 must be always alone, follow only the configuration shown.

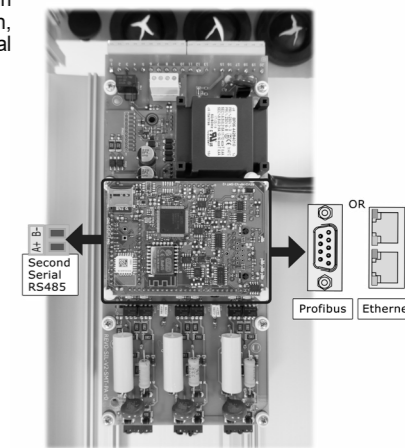
10. RS485 Serial port

Terminal M1	Description
7	RS485 A+
8	RS485 B-

The serial communication port RS485 is available on the Command Terminals. On this port may be done a network up to 127 Relay C.

11. Fieldbus communication option

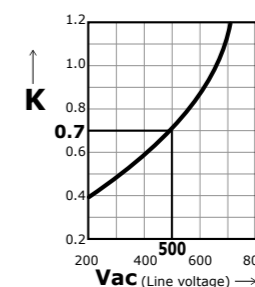
Other serial communication port are available as option, see Communication Manual for details.



12. Internal Fuse

The thyristor unit have internal fuse extrarapid at low I²t for the thyristor protection of against the short-circuits. The Fuses must have I²t 20% less than thyristor's I²t. The warranty of thyristor is null if no proper fuses are used.

Size	200 kARMS Symmetrical A.I.C.				Qty
	Fuse CODE	Current (A RMS)	FUSE I ² T value Suggested A2s (at500V)*	FUSE I ² T value Suggested A2s (at660V)	
300A (S14)	FMM450	450	73500	105000	660
400A (S14)	FMM550	550	149000	215000	660
450A (S14)	2x FM315	2 x 315	215600	308000	660
500A (S14)	2x FM315	2 x 315	215600	308000	660
600A (S14)	2x FMM450	2 x 450	294000	420000	660
700A (S14)	2x FMM450	2 x 450	294000	420000	660
800A (S16)	4x 20 559 20.250	4 x 250	246400	352000	660



*I²T are multiplied for K value in function of Vac at 500V K is equal to 0,7 (ex:105000 X 0,7 = 73500). At 660Vac K is equal to 1.

Fuses replacement: Open the cover and remove the screws, then replace it with the correct fuse, use the screws with a proper suggested torque indicated below.

Type	Screw	Torque Lb-in (N-m)
300-800A	M8	133.7(15.0)

Caution: High speed fuses are used only for the thyristor protection and can not be used to protect the installation.

Caution: The warranty of thyristor is null if no proper fuses are used. See tab.

Warning: When it is supply, the Thyristor unit is subject to dangerous voltage, don't open the Fuse-holder module and don't touch the electric equipments.

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