



C10RS

Power supply unit with serial interface for stand-alone service

0900B0696





FOREWORD

FOR THE INSTALLER:

Comply strictly with current standards governing the installation of electrical systems and security systems, and with the manufacturer's directions given in the manuals supplied with the products.

Provide the user with full information on using the system installed and on its limitations, pointing out that there are different levels of security performance that will need to suit the user's requirements within the constraints of the specific applicable standards. See that the user looks through the warnings given herein.

FOR THE USER:

Check the system's operation thoroughly at regular intervals, making sure the equipment can be armed and disarmed properly.

Make sure the system receives proper routine maintenance, employing the services of specialist personnel who meet the requirements prescribed by current regulations.

Ask your installer to check that the system suits changing operating conditions (e.g. changes in the extent of the areas to be protected, change in access methods, etc...).

This device has been designed, built and tested with the utmost care and attention, adopting test and inspection procedures in accordance with current legislation. Full compliance of the working specifications is only achieved in the event the device is used solely for its intended purpose, namely:

Power supply unit with serial interface for stand-alone service

The device is not intended for any use other than the above and hence its correct functioning in such cases cannot be assured.

Consequently, any use of the manual in your possession for any purpose other than those for which it was compiled - namely for the purpose of explaining the product's technical features and operating procedures - is strictly prohibited.

Production processes are closely monitored in order to prevent faults and malfunctions. However, the componentry adopted is subject to an extremely modest percentage of faults, which is nonetheless the case with any electronic or mechanical product.

Given the intended use of this item (protection of property and people), we invite you to adapt the level of protection offered by the system to suit the actual situation of risk (allowing for the possibility of impaired system operation due to faults or other problems), while reminding you that there are specific standards for the design and production of systems intended for this kind of application.

We hereby advise you (the system's operator) to see that the system receives regular routine maintenance, at least in accordance with the provisions of current legislation, and also check on as regular a basis as the risk involved requires that the system in question is operating properly, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. You must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.

Work involved in the design, installation and maintenance of systems incorporating this product should be performed only by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents. It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply. If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

EU DECLARATION OF CONFORMITY

The product complies with current European EMC and LVD directives. The full text of the EU declaration of conformity is available at the following Internet address: elmospa.com – registration is quick and easy.

DISPOSAL INSTRUCTIONS - INFORMATION FOR THE USER



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In accordance with Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), please be advised that the EEE was placed on the market after 13 August 2005 and must be disposed of separately from normal household waste.

This product needs batteries for correct functioning. Exhausted batteries have to be delivered to dumping grounds authorized for battery collection. The materials used for this product are very harmful and polluting if dispersed in the environment.



1. GENERAL FEATURES

C10RS is a small size, high quality power supply unit (PSU) for intrusion detection systems that mounts the high energy efficiency AL50LRS14V5 switching A/D converter.

The microprocessor board, placed on the inside of the lid, will let you connect the PSU to all compatible EL.MO. control units over the Ultrabus RS-485 serial line thanks to its technologically advanced control and serial interface circuitry.

The PSU is protected with tamper switches against wall tearing (if the optional kit is mounted) and against opening.

C10RS works with a backup battery with solid electrolyte (up to 17 Ah) connected to the electronic board with Faston terminals. **Do not use a liquid electrolyte battery, commonly used for automotive applications.**

This manual will separately describe the stand-alone mode (used for generic applications) and the RS-485 mode (to be used with expressly compatible control units).

- Backup battery management circuit with dynamic efficiency control every 10 seconds.
- Ultrabus RS-485 serial interface that can manage up to 20 addresses.
- Compatible with control units with expressly compatible firmware and configuration browser module.
- Dedicated output for charging the backup battery of a self-powered siren.
- Can repeat the alarm signal of the control unit in order to activate a siren (using a relay or a positive voltage drop).
- Can activate a locally connected siren when the Ultrabus line gets interrupted (e.g. cut by burglars).



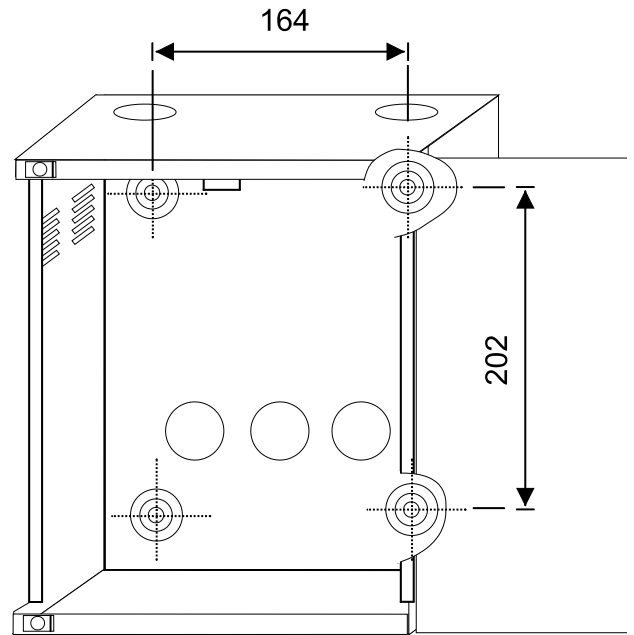
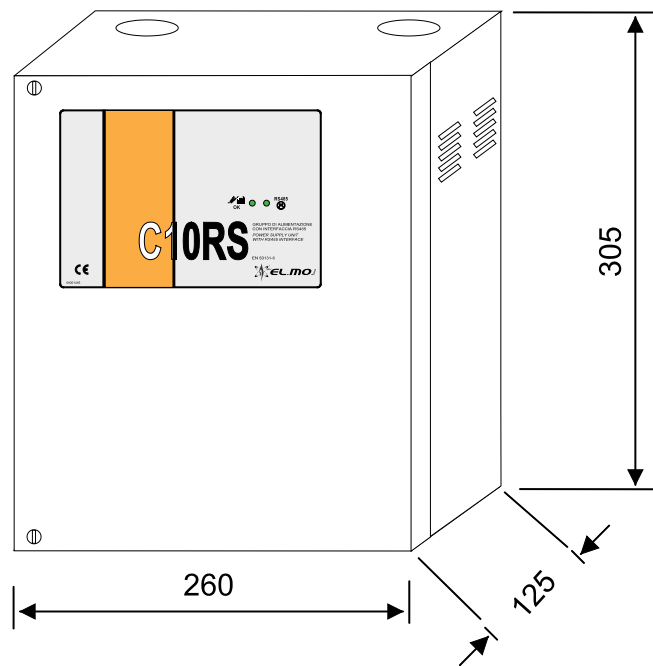
2. TECHNICAL SPECIFICATIONS

| | |
|-------------------------------------|---|
| Model: | C10RS |
| Certification: | IMQ-Alarm EN 50131-6 grade 2, environmental class II |
| Mains power supply: | AC 230 V, 50 Hz +10%-15% |
| Mains current draw: | 0.51 A with a 3 A load. |
| Power: | 51.8 W (0.45 power factor) |
| Maximum ripple: | 120 mV peak-to-peak |
| Output voltage and load | |
| LOAD output: | DC 13.6 V with a 2 A load. Output voltage range: DC 13.8 V \pm 5%. |
| +14V SIR output: | DC 12.6 V with a 200 mA load. |
| +RIF SIR output: | DC 13 V with a 50 mA load. |
| Backup battery cables: | DC 13 V with a 250 mA load (13.9 V with no load). |
| Max total current provided: | 3 A |
| Output protection | |
| LOAD output: | 3.15 A delayed fuse F1 for short-circuit or overvoltage with backup battery connected; 4.5 A self-limited for short-circuit or overvoltage with backup battery disconnected. |
| +14V/+RIF SIR outputs: | PTC protected. |
| Backup battery: | PTC protected for short-circuit or against reverse polarity; Automatic battery disconnection on very low (<9 V) charge, with bypass/re-arm jumper. |
| Control board current draw: | 50 mA @ 12 V with no line voltage. |
| Current distribution: | For grade 2 (12 h autonomy): - 0.05 A board self-consumption; - 1.37 A for external devices (17 Ah battery); - 0.53 A for external devices (7 Ah battery); - 0.6 A for battery recharge. Distribution with power supply automatic change (4 h autonomy): - 0.05 A board self-consumption; - 2.35 A for external devices (17 Ah battery); - 1.70 A for external devices (7 Ah battery); - 0.6 A for battery recharge. |
| Automatic controls: | Overvoltage at the A/D converter input and output; undervoltage/overload at the A/D converter input and at load/+14SIR/+RIFSIR outputs; no line voltage at the A/D converter input. |
| Connections: | Backup battery cables with faston connector, JST power-in connector, terminal blocks (tamper input, three relay outputs, local siren activation and backup battery charge, Ultrabus line) |
| Battery control thresholds: | Charge levels (OK 11 V, Low <10.5 V, very low <9 V), short-circuit, no battery. |
| Battery recharge time (80%): | 10 h for 7 Ah battery (providing 0.6 A for battery recharge); 23 h for 17 Ah battery (providing 0.6 A for battery recharge) |
| Operating temperature: | -10 to +55 °C |
| Weight: | 3050 g |
| Dimensions: | L260 × H305 × D125 mm |
| Parts supplied: | AL50LRS14V5 switching A/D converter, anti-opening tamper microswitch, technical manual. |



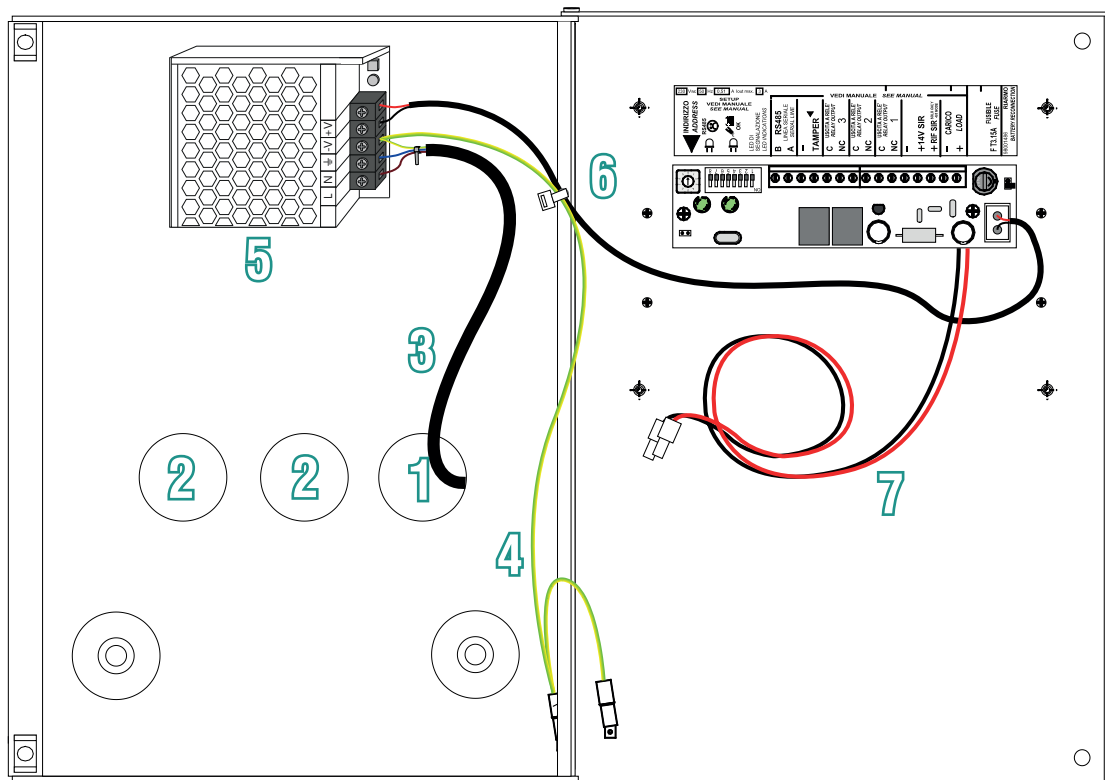
3. MEASUREMENTS

- ▶ Distance between fixing holes
- ▼ External dimensions



All measurements in mm

4. VIEW OF THE INTERNAL PARTS



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Entry hole for the mains cable 2. Entry holes for all other cables 3. AC 230 V (mains) cable 4. Ground cable | <ol style="list-style-type: none"> 5. AL50LRS14V5 switching A/D converter 6. Cable tie 7. Battery cables |
|--|---|



5. INSTALLATION

Before installing the PSU, familiarize yourself with the standards regarding the installation of intrusion detection system and low voltage devices applicable in your country.

Power down the mains cable before installing the control unit.

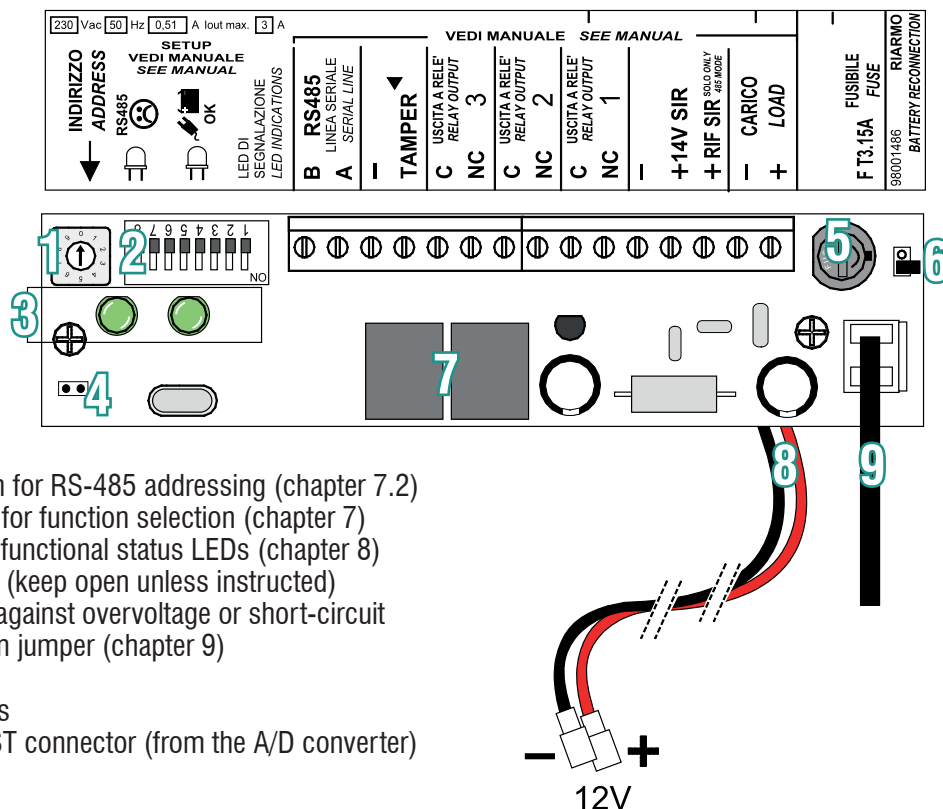
Note: do not weld the wires.

1. Remove the screws that keep the lid shut and open the housing.
2. Fix the housing to a flat, stable wall that can withstand the weight of the PSU, battery included, by driving screws through the fixing holes seen in chapter 3. Use screws and plugs suitable to the material of the wall.
3. Feed the cables through the openings seen in chapter 4 or punch out the pre-cut holes on the upper and lower side of the box, feeding the cables through conduits made of materials with flammable rate UL94-HB or above.
4. Remove the plastic cover on top of AL50LRS14V5 terminal board. Connect the phase, neutral and ground wires to AL50LRS14V5 terminal board.

Note: another wire connects AL50LRS14V5 ground terminal to the metal housing. Pay attention not to pull it out while connecting the mains cable wire to this terminal.

5. Use a cable tie to fasten the mains cable wires connected to AL50LRS14V5 terminals.
6. Set the dip switches as needed for the intended behaviour and connect all other wires, following the diagrams available in this manual. Use cable ties to prevent the low tension cables from touching the 230 V cables.
7. If using the RS-485 mode, select the address.
8. Check the polarity of all connections, then **power the device**.
9. Connect the battery cables to a battery whose housing has flammable rate UL94-HB or above. If the battery uses screw terminals instead of faston connectors, use a crimping tool to replace the faston connectors on the cable with spade contacts (not provided). Connecting the battery to the system before powering the mains cable disconnects the circuit and requires a re-arm.
10. Test the system.
11. Screw the lid closed.

6. CONTROL BOARD DESCRIPTION

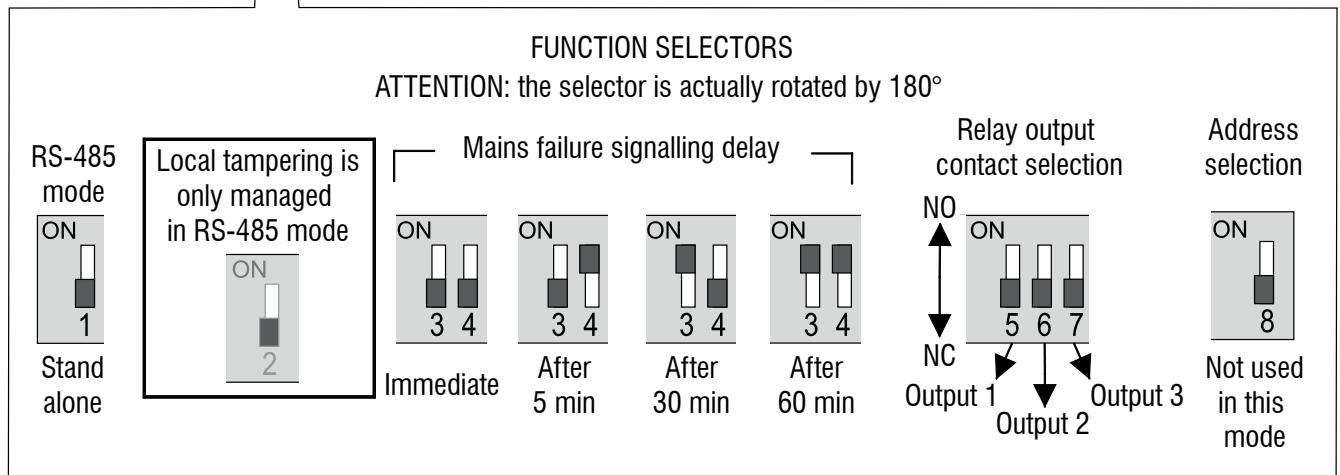
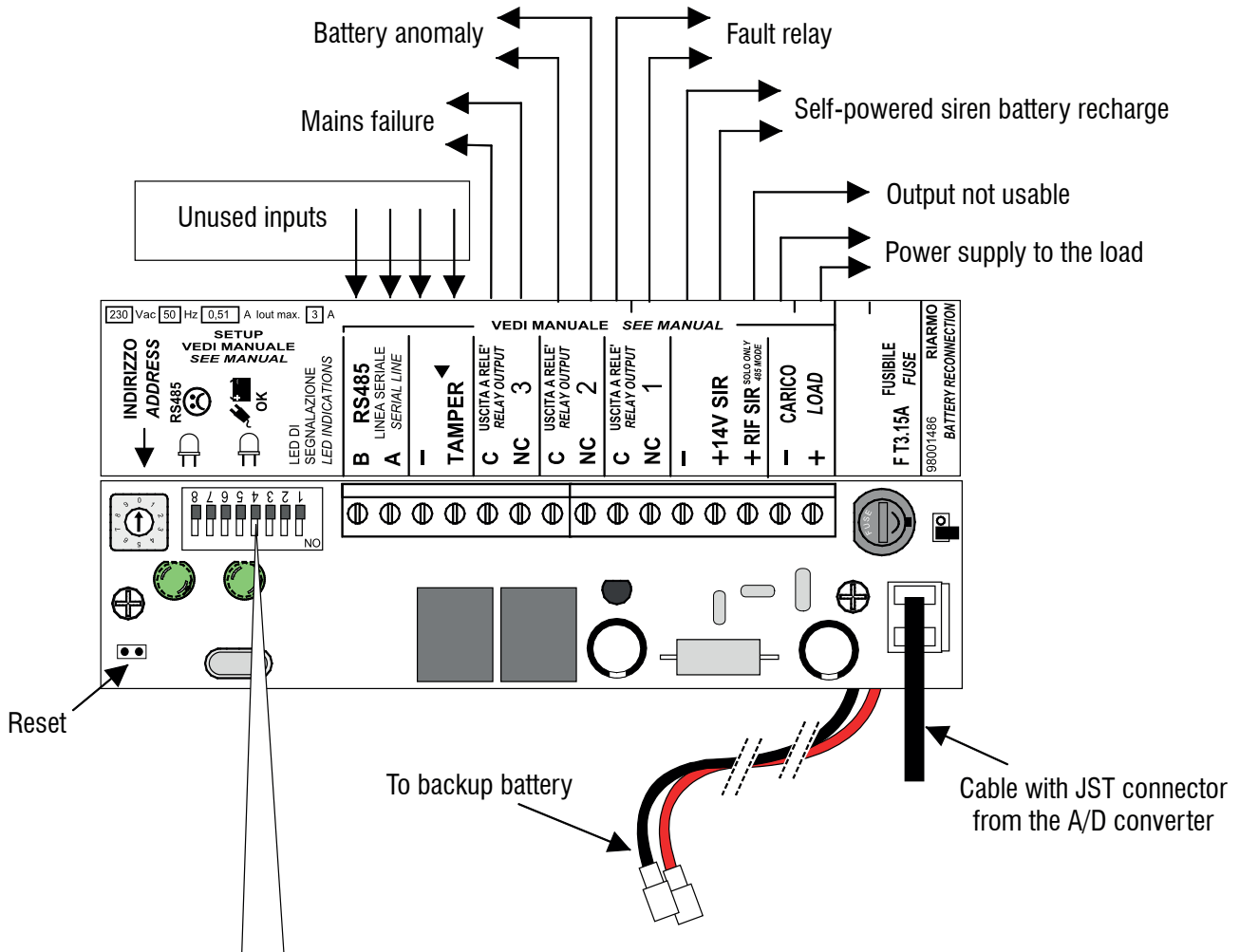


1. Rotary switch for RS-485 addressing (chapter 7.2)
2. Dip switches for function selection (chapter 7)
3. Three-colour functional status LEDs (chapter 8)
4. Reset jumper (keep open unless instructed)
5. T3.15A fuse against overvoltage or short-circuit
6. Disconnection jumper (chapter 9)
7. Relays
8. Battery cables
9. Cable with JST connector (from the A/D converter)



7. WIRING

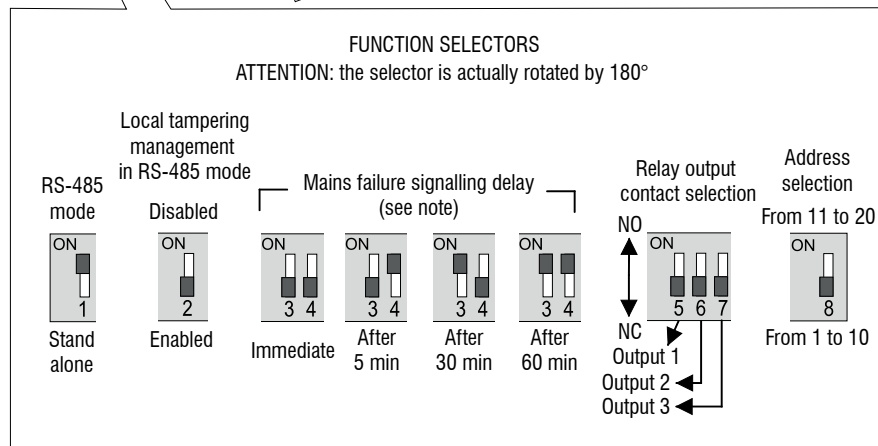
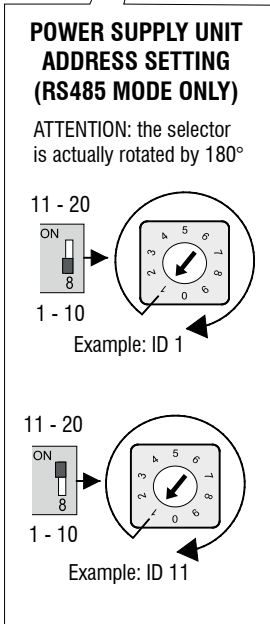
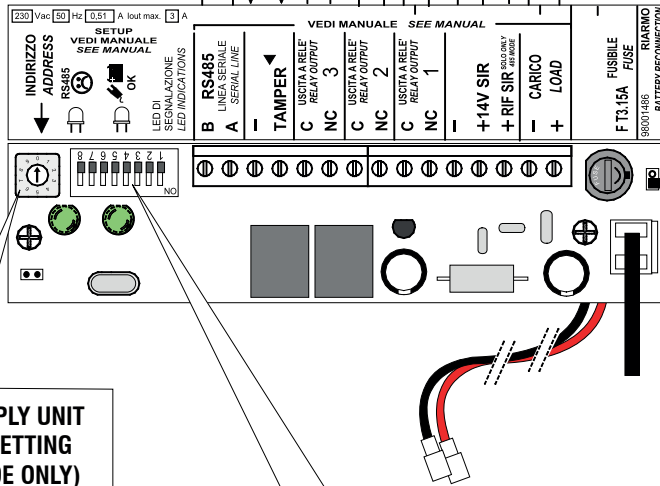
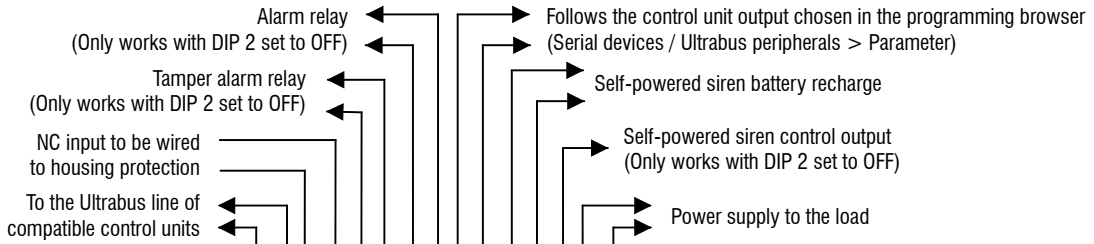
7.1 Stand-alone mode



Connect the tamper protections of the housing to the tamper line of the control unit.



7.2 RS-485 mode



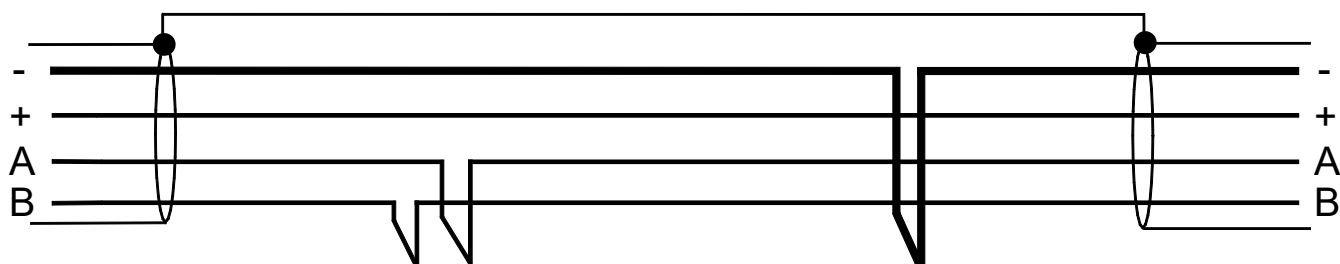
Warning: only set the address while the system is not powered.

When the “local tampering management” is enabled (dip switch 2 OFF):

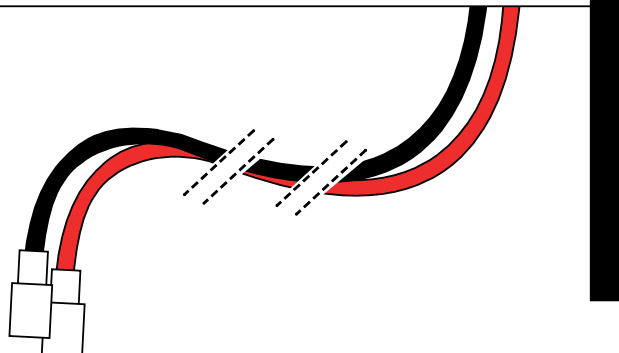
- any interruption of the Ultrabus line for at least 10 seconds activates the tamper relay (3) for 10 seconds;
- any activation of the local tamper is signalled to the control unit which activates relay 3 (and, if the “Repeat tamper alarm to general alarm relay” system option is active for the control unit, relay 2), using the mode and time set from the control unit.

Note on dipswitches 3 and 4: the management of the mains failure signalling delay is done differently for different control units: some look at the position of dip switches 3 and 4 on the PSU, some have a setting in their keypad menu, some have a setting in the programming browser and some do not manage it at all. See the technical documentation of the control unit.

Warning: setting the mains fault signal delay to a different value than Istant. will cause the IMQ - Security Systems certification to decay.



| | | | | | | | |
|---|-------------------------------------|--|----------|---------------------------------------|---------------------------------------|--|--|
| 230 Vac 50 Hz 0,51 A Iout max. 3 A | | VEDI MANUALE SEE MANUAL | | | | FUSIBILE FUSE 98001486 RIARMO BATTERY RECONNECTION | |
| INDIRIZZO ADDRESS RS485 LED DI SEGNALAZIONE LED INDICATIONS | SETUP VEDI MANUALE SEE MANUAL OK | B RS485 LINEA SERIALE SERIAL LINE A | - TAMPER | C USCITA A RELE' RELAY OUTPUT NC 3 | C USCITA A RELE' RELAY OUTPUT NC 2 | C USCITA A RELE' RELAY OUTPUT NC 1 | - +14V SIR + RIF SIR SOLO ONLY 485 MODE - CARICO LOAD + |



Connect the PSU to any point of the serial line.
 Wire the cable shields of the two sections of the line together.

Every PSU on the serial line has to have a different address.
 See the technical manual of the control unit for possible notes on compatibility with other PSUs.



8. LED MEANING

8.1 Stand-alone mode

Fault LED (left):

| | Fast blink | Slow blink | 1 blink | 2 blinks | 3 blinks | OFF |
|---------------|------------------------------|---|--|------------------|-----------------|---------------------|
| RED | Overvoltage at LOAD terminal | Overvoltage at control module input | Batter polarity inversion or short-circuit | Very low battery | F1 fuse fault | Regular functioning |
| GREEN | Overload at LOAD terminal | | +14SIR overload | | | |
| YELLOW | | Undervoltage / overload at control module input | | | Other overloads | |

Power status LED (right):

| | ON | Slow blink | OFF |
|---------------|-----------------------------|-----------------------------|-----------------|
| RED | Battery fault or no battery | | Battery working |
| GREEN | Mains and battery OK | No mains (less than AC 9 V) | No power |
| YELLOW | Mains OK and low battery | No mains and low battery | Battery > 11V |

8.2 RS-485 mode

Fault LED (left):

| | ON | Blinking at each polling cycle | OFF |
|--------------|--|--------------------------------|----------------------------------|
| RED | First power up with disconnected RS-485 line | Regular functioning | Serial line fault, no connection |
| GREEN | Regular functioning | | |

Power status LED (right):

| | ON | Slow blink | Fast blink | OFF |
|---------------|-----------------------------|-----------------------------|------------|-----------------|
| RED | Battery fault or no battery | | | Battery working |
| GREEN | Mains and battery OK | No mains (less than AC 9 V) | | No power |
| YELLOW | Mains OK and low battery | No mains and low battery | Tamper | Battery > 11V |



9. BATTERY DISCONNECTION AND RE-ARM

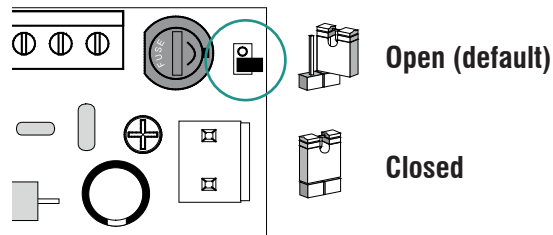
Batteries can be severely damaged by over-discharge.

For this reason, C10RS has a disconnection circuit that stops drawing power from its backup battery once it reaches the “very low battery” threshold (less than 9 V provided).

The disconnection automatically ends (re-arm) as soon as the mains failure ends.

While the disconnection circuit can be bypassed, **we do not recommend it**: a long-lasting mains failure will irreparably damage the battery.

If your operative needs really *require* you to bypass the disconnection circuit, do so by closing the Disconnection jumper on the right side of the control board:



If you want the system to start using the battery again even if the mains is still OFF, you can force the re-arm by closing the Disconnection jumper for at least 5 seconds.

If the battery voltage is at least 9.5 V, the battery will not disconnect immediately upon opening the jumper again.

10. REPLACING THE BATTERY

Replace a dead battery (or a battery that can not power up the PSU for the necessary time anymore) with brand new battery with the same rating.

Dispose of the dead battery as stated on page 2 of this manual.

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