TECHNICAL MANUAL

TITANIA and TITANIAPLUS

Intrusion detection control unit with embedded OS

090020690

EL.MO. SPA

FOREWORD

FOR INSTALLERS

Please follow carefully the specifications about electric and security systems realization further to the manufacturer's prescriptions indicated in the manual provided.

Provide the user the necessary indication for use and system's limitations, specifying that there exist precise specifications and different safety performance levels that should be proportioned to the user needs. Have the user read carefully the instructions provided in this document.

FOR USERS

Carefully check the system functionality at regular intervals making sure all enabling and disabling operations were made correctly.

Have skilled personnel make the periodic system's maintenance. Contact the installer to verify correct system operation in case its conditions have changed (e.g.: variations in the areas to protect due to extension, change of the access modes, etc.)

....

This device has been designed, assembled and tested with the maximum care, adopting control procedures in accordance with the laws in force. The full correspondence to the functional characteristics is given exclusively when it is used for the purpose it was projected for, which is as follows:

Intrusion detection control unit with embedded OS

Any use other than the one mentioned above has not been forecast and therefore it is not possible to guarantee the correct functioning of the device. Similarly, any other use of this technical manual other than the one it has been compiled for - that is: to illustrate the devices technical features and operating mode - is expressly prohibited.

The manufacturing process is carefully controlled in order to prevent defaults and bad functioning. Nevertheless, an extremely low percentage of the components used is subjected to faults just as any other electronic or mechanic product.

As this item is meant to protect both property and people, we invite the user to proportion the level of protection that the system offers to the actual risk (also taking into account the possibility that the system was operated in a degraded manner because of faults and the like), as well reminding that there are precise laws for the design and assemblage of the systems destined to these kind of applications.

The system's operator is hereby advised to see regularly to the periodic maintenance of the system, at least in accordance with the provisions of current legislation, as well as to carry out checks on the correct running of said system on as regular a basis as the risk involved requires, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. The user must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.

Design, installation and servicing of systems which include this product, should be made by skilled staff with the necessary knowledge to operate in safe conditions in order to prevent accidents. These systems' installation must be made in accordance with the laws in force. Some equipment's inner parts are connected to electric main and therefore electrocution may occur if servicing was made before switching off the main and emergency power. Some products incorporate rechargeable or non rechargeable batteries as emergency power supply. Their wrong connection may damage the product, properties and the operator's safety (burst and fire).

DISPOSAL INSTRUCTIONS - USER INFORMATIONS

According to Directive 2012/19/EU on the Waste of Electric and Electronic Equipment (WEEE), it is here specified that this Electrical-Electromechanical Device started to be commercialized after 13th August 2005, and it shall be disposed of separately from ordinary waste products.

IT08020000001624

1. GENERALS

The **TITANIA** series intrusion detection control units have been created in order to make it possible to create high quality intrusion detection systems suitable for large banks, postal offices or company sites.

TITANIA makes it possible to create complex system structures, with up to 8 separate areas each divided in 4 sectors, totalling 32 detector groups.

Users can manage the system by using the installed keypads, chosen among a wide gamma of products (e.g. NIRVA, TATTILO, TATTILOPLUS, ANIMA).

The TITANIA series control units include the **TITANIA** and **TITANIAPLUS** models, each with different technical features; they can all be connected to double-balanced inputs, while the maximum configuration can be achieved by using RIVER series concentrators connected to the two RS-485 serial lines.

The serial lines can also be connected to up to 32 different control devices (see table).

2. MAIN FEATURES

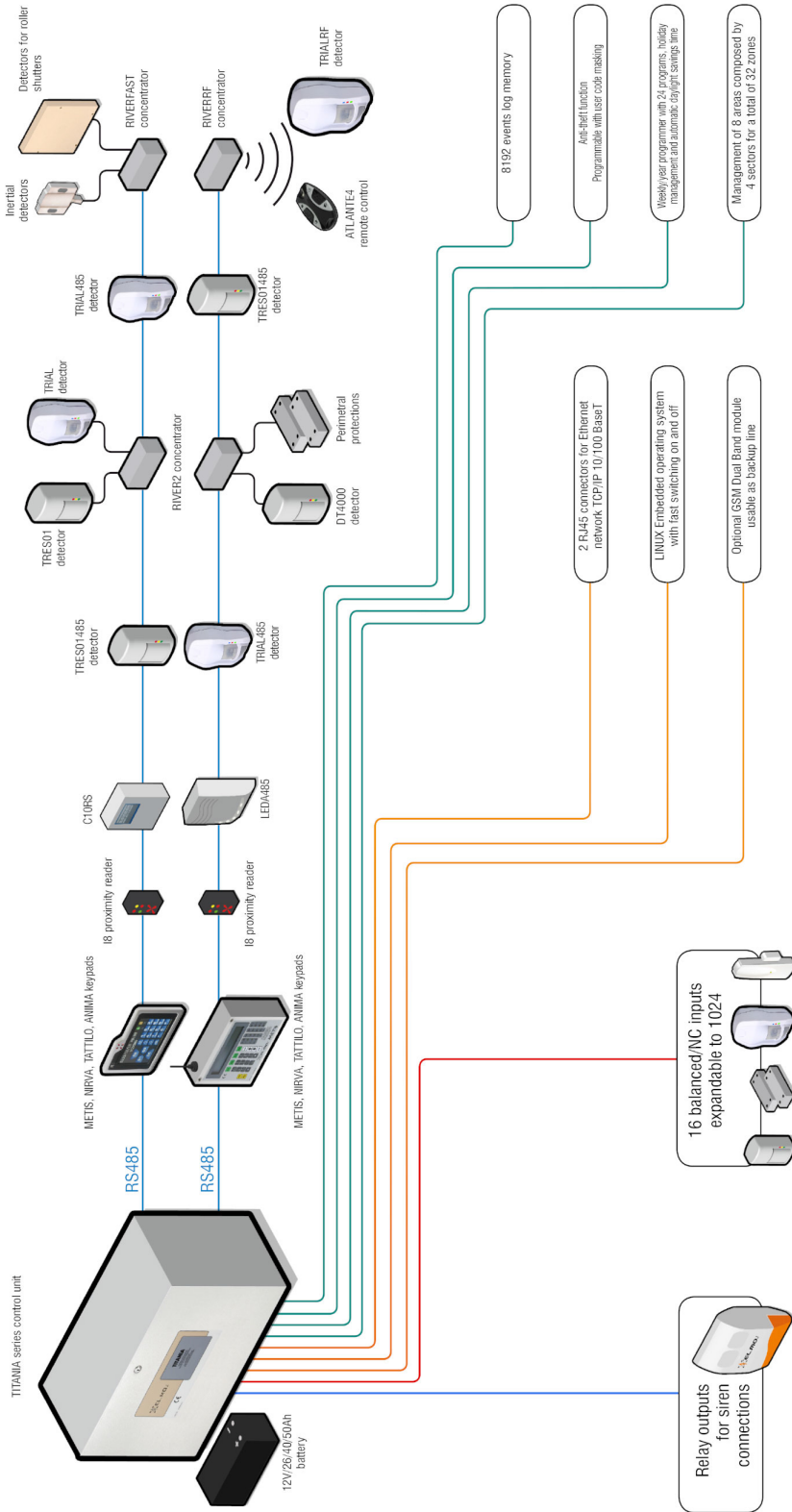|	**TITANIA**	**TITANIAPLUS**
Hard-wired/wireless control unit with 16 double/ triple balancing inputs, expandable to up to...:	512 double/triple balancing inputs.	1024 double/triple balancing inputs.
Fulfils protection class 3, environmental class II according to the EN50131 standard.	✓	
Performance level I, II, III:	✓	
Expandable with optional RIVER series concentrators:	Complete series.	
Expandable with other wireless devices through optional RIVERRF modules:	extended management with 24H sensors and remote controls.	
Can be connected to TRES01485 volumetric detectors with serial interface:	✓	
Can manage C10RS or AL3RS remote power supply units with serial interface:	up to 20.	
Can manage LEDA485 self-powered sirens with serial interface:	up to 16.	
Access control devices:	up to 32 iCON100 controllers.	
16 freely configurable outputs, that can be connected to the ETRREL module:	expandable up to 512.	expandable up to 1024.
Multi Function Timer for the optimized and programmed management of electronic outputs:	up to 32.	
Operating System:	**LINUX® Embedded** with fast power-on and power-off.	
Installer login:	6-digits password.	
User login:	up to 256 users, with 6-digits password.	
Area management:	8 areas with 4 sectors each, for a total of 32 zones.	
Control devices, up to 32 including:	METIS, NIRVA, TATTILO, TATTILOPLUS or ANIMA keypads, plus I8, IZENITH, PASSLIGHT, ETRVARCO.	
Management of electronic keys:	proximity keys with more than 72 thousand billions of possible combinations.	
Proximity key readers	4× I66 or I7 readers for each single METIS, NIRVA, ANIMA or ANIMAB keypad.	
Peripherals learning:	quick learning of peripherals (keypads and concentrators) after a total reset.	
Digital alarm transmission:	with optional MDPSTN dialler and/or with optional ETRGSM module for digital transmissions over Fast Format, ADEMCO ID-CONTACT protocol.	
Phone and remote interrogation:	Optional MDVOICE vocal synthesis module, installed along a MDPSTN and/or ETRGSM module. 40 freely programmable minutes of audio messages, divided in several messages. Transmission and reception of SMS messages.	

	TITANIA	TITANIAPLUS
GSM module:	Optional ETRGSM Dual Band module that can be used as a backup line for the CEI 79-5, 79-6, 79-7 (CEI/ABI) protocol.	
Remote assistance:	via PSTN modem: optional MDPSTN module (33600bps). via GSM modem: optional ETRGSM module (9600bps).	
Communication interfaces:	2× RS-485 serial lines for optional RIVER series concentrators, control devices and other explicitly compatible devices.	
	1× RS-232 serial interface configurable for CEI/ABI or for PC programming.	
	2× RJ45 connectors for Ethernet-TCP/IP, 10/100Base-T networks and PC connection via network cable.	
CEI/ABI connections:	3 at the same time, independently configurable: 2 over LAN network and 1 via RS-232 serial line, with 64bit and 128bit FEALNX cryptography.	
System check:	Reminder function for periodic checks and tests of zones, outputs and dialler (up to 52 weeks).	
Internal programming timer:	with backup battery and up to 24 yearly/weekly programs, festivity management and automatic daylight savings and overtime management.	
"Patrol round" function:	✓	
History log:	8192 events with FIFO management.	
Power supply monitoring:	Via browser, in real time, with informations on the power level of the local power supply units, of the backup battery, of the power supply towards the detectors, of the charge of the siren battery and of the remote power supplies.	
Housing:	metallic.	
Protection class:	IP3X	
Housing protection:	anti-opening and anti-removal microswitch tampers; three-axis SI/3 inertial detector against drilling.	
Ready for:	19" rack mount.	
Dimensions, in mm:	W485 × H305 (no antenna), H404 (with antenna) × D225.	W525 × H380 × D280.
Weight, in Kg, batteries excluded:	9	12
Allowed battery:	12V / 24Ah max. See note.	
Power supply from 230Vac network:	high efficiency switching power supply.	
In according to:	EN50131-1, EN50131-2, EN50131-3, EN50131-6, EN50131-10:2014, EN50136-2:2013.	

Note: it is possible to house larger batteries in the metallic housings: up to 40Ah for TITANIA, up to 50Ah for TITANIAPLUS.

3. BLOCK DIAGRAM FOR A TITANIA SYSTEM

The diagram exemplifies a TITANIA system using some compatible products

Note: zones from 513 to 1024 of TITANIAPLUS control units require RIVER or RIVERRF series concentrators.

Note: wirings shown and described in this manual are valid for TITANIAPLUS control units.
Differences with the TITANIA control units are explicitly signalled.

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4. TECHNICAL FEATURES

Models:	**TITANIA and TITANIAPLUS.**
CEI safety class:	3
Environment class:	class II
Protection class:	Class I (against electrical contact).
Protection class:	IP30 (housing).
Power supply:	mains AC 230 V ±10% 50 Hz
Internal power supply:	type A, 100 W for batteries, load and logic unit.
Backup battery:	24 Ah. (over 80% charge in 24 hours). **Note:** it is possible to use higher capacity batteries, up to 40Ah for TITANIA, up to 50Ah for TITANIAPLUS.
Battery recharging voltage:	DC 13.8 V ±5%
Nominal output voltage:	DC 13.5 V ±5%
Regular functioning:	From DC 9 V to DC 15.5 V
Output current:	6.7 A
Current allocation:	with 24 Ah battery, for 12 h autonomy (safety class 2): 0.25 A main board. 3.7 A battery charge. **1.75** A left.
	with 24 Ah battery, for 30 h autonomy (safety class 3): 0.25 A main board. 3.7 A battery charge. **0.55** A left.
Max current to loads:	3 A (protected with 3.15 A fuse F3).
Current limit:	7 A.
Residual ripple:	AC 100 mV
V_{OUT} stabilization:	±2%, variable with the load.
Maximum current draw:	0.58 A.
Low charge warning:	10.5 V (reset at 12.5 V).
Protection from battery polarity inversion:	F4 red fuse (10 A).

"Device supply fault" event:	any power output provides less than 9 V (event reset at >12 V).
"Local power supply unit fault" event:	any power input from switching power units receives less than 12 V (event reset at >13 V).
Battery disconnection:	under 9 V.
Over-voltage protection:	max 16.5 V.

Loads @ 12 V	
Main board:	250 mA max.
METIS / METIS2 keypad:	300 mA max (without proximity reader).
RIVERRF inside METIS:	45mA max.
RIVER, RIVER2, RIVER3 concentrators:	40 mA with no connected outputs.
MDVOICE vocal synthesis:	5 mA, 20mA with speaker on.
MDPSTN phone module:	2 mA idle, 56 mA max (with digital transmission).
ETRGSM module:	15 mA idle, 110 mA max.
SI3 inertial sensor:	10mA max.
Working temperature:	-10 / +55 °C (class II) 95% r.h.

Housing dimensions	
TITANIA:	W485 × H305 (no antenna), H 404 (antenna) × D225 mm
TITANIAPLUS:	L525 × H380 × P280 mm
TITANIA weight:	~9 Kg, except batteries.
TITANIAPLUS weight	~12Kg, except batteries.

User and installer default codes	
Users:	No. **001** = 111111, No. **002** = 222222, No. **003** = 333333.
Installer:	No. **000** = 888888.

Managed zones	
TITANIA:	512
TITANIAPLUS:	1024

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Parts supplied: 33× 1500 Ω end of line resistors for the zones; 4× 680 Ω resistors; packet with screws and wall plugs to screw the housing to the wall, Tamper microswitches against opening and tear, screws for fixing a RIVER device on the inside of the housing; KITRACK19 (TITANIA only); technical manual; user manual; CD-ROM with management software (TITANIA16 and TITANIAPLUS2 only); 3-axis SI3 inertial sensor with installation instructions.

Note: all accessories have to be mounted by the installer. Concentrators have to be wired directly to the terminal boards A and B and they can be powered from the nearby terminals. Use shielded, flame-resistant cables for intrusion detection systems, min 0.75 mm^2 section for short routes, 1 mm^2 or higher for longer routes. Max route length between the control unit and the last concentrator on the line: 1000 m with evenly distributed devices along the route length.

In order to optimize the load distribution and the autonomy of the system, consider using remote power supply boxes, e.g. C11/K, when the control unit is used along several keypads, concentrators and volumetric detectors; in order to protect the power supply units, use accessory distribution modules like MAV6 or MAV12.

The TITANIA series control units comply with the following standards: EN50131-1, EN50131-2, EN50131-3, EN50131-6, EN50131-10:2014, EN50136-2:2013.

Note: the METIS keypad, the RIVERRF and RIVERNANO2 concentrators, the radio devices from the HELIOS system, the C10RS and AL3SW power supply units, the LEDA485 siren, the iCON100 controller, the MAV6 and MAV12 modules and the TRIAL485 and TRIALRF detectors are not certified by the Italian IMQ certifier.

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.

5. COMPLIANCE

In order to comply with the EN50131 standard, the system has to follow the guidelines below.

5.1 For class 1

- The system must comply to at least one of the following:

    A) 2 external, not self-powered sirens.
    B) 1 external self-powered siren.
    C) Connection to the PSTN line with MDPSTN module or ETRGSM module and MDVOICE vocal synthesis board.

- RIVERRF can be used, provided it is programmed like later detailed.

- Grant a 12 hours autonomy in case of mains failure. It has to be possible to recharge the 80% of the battery over 72 hours.

5.2 For class 2

- The system must comply to at least one of the following:

    A) 2 external, not self-powered sirens and connection to the PSTN line or ETRGSM module.
    B) 1 external self-powered siren and connection to the PSTN line or ETRGSM module.
    C) Connection to the PSTN line or ETRGSM module and external dialler.
    D) ATS2/SP guaranteed by connection with the PSTN line with MDPSTN module and MDVOICE vocal synthesis board.
    E) CEI/ABI connection with 128 bit cryptography.

- Use a digital telephonic dialler for alarm transmissions.

- No radio device is allowed.

- Grant a 12 hours autonomy in case of mains failure. It has to be possible to recharge the 80% of the battery over 72 hours.

5.3 For class 3

- The system must comply to at least one of the following:

    A) 2 external, not self-powered sirens and CEI/ABI connection with 128 bit cryptography.
    B) 1 external self-powered siren and CEI/ABI connection with 128 bit cryptography.
    C) 2 CEI/ABI connections with 128 bit cryptography.
    D) ATS4/SP4 guaranteed by the ETRGSM module and by LAN connection using the CEI/ABI protocol.

- Grant a 60 hours autonomy in case of mains failure, or 30 hours if the fault is notified to an alarm reception centre. It has to be possible to recharge the 80% of the battery over 24 hours.

- RXX485, ETRREL, ETRREL4, RIVER, RIVERPLUS, RIVERMINI4 and RIVERMICRO2 have to be installed inside the housing of the control unit, or inside a RIVER2 or a RIVER3, that is inside a housing with opening and tear tamper switcher that grants the protection of the wires.
  The ETRZENITH, I8, I66 or I66B, I7, IZENITH or IZENITHB proximity key readers and PASSLIGHT have to be installed inside housings protected by anti-opening and anti-tear tampers housings that also grant the protection of the wires.

5.4 For all classes

- If using I66 proximity readers, connect only a single one to each keypad and activate the I66 tamper detection.

- All wired detectors have to use a double balanced connection.

- The fault output of each outdoor siren has to be connected to a control unit zone programmed with the fault event.

- In the configuration software, browse to the "Zones" page and flag the "24H" column for each zone which event is "Assault Alarm". Associate each of those zones to a telephone number.

5.5 Browser configuration for EN50131 conformity

In order to comply with the EN50131 standard, open the configuration software, connect the control unit and set it as follows:

5.5.1 Settings - System Options - General Options

- Flag "Check Keypad Tamper".
- Flag "Repeat Tampering on General Alarm Relay".
- Flag "Lock Keypad for 15 mins after 3 incorrect codes".

5.5.2 Settings - System Options - 50131 Options

- Flag every option in the list.

5.5.3 Settings – Time Settings

- Set the System General Alarm to 90 seconds or higher.
- Set the System Tampering Alarm to 90 seconds or higher.
- Set the Power Alarm Delay to 1 hour or higher.

5.5.4 Settings – CEI 79 / 5 – 6

- Set "CEIABI # - Protection Level" to "Level 3 - Authenticated encrypted data (128bit)".
- In "CEIABI # - Master Key", set a 128bit key.
- In "CEIABI # - Options", flag "Disable degraded communication"
- In "CEIABI # - Options", set the "Connection timeout" to 3 minutes at most.

5.5.5 Zones - General

- Do not use the "Fire Fault" or "Fire Alarm" events.
- For each wired siren, set a zone with the "- FAULT -" event.
- For each zone with the "- FAULT -" or "Assault Alarm" event, flag "24 Hrs" and unflag "Exit Time".
- For each zone, unflag "Bypass Tamper" and "Key".
- For each zone, set the pre-alarm "Timer (sec)" to 45 seconds at most.
- Use "Technological" events for managing...
    - detectors with the anti-blinding output
    - the separate anti-masking output of volumetric detectors without a RS-485 interface

5.5.6 Areas - Areas

- For areas where a timer is used for arming, set an "Exit Time (sec)" of at least 30 seconds.

5.6 RIVERRF configuration for EN50131 conformity

When using RIVERRF concentrators, the following settings must be used for the system to be compliant with the EN50131 standard:

- Set the supervision time to 30 min.

- Activate the supervision of all RF detectors.

- Use RF series IV or higher devices.

- Activate the RF interference control.

To comply with class 2, only level 2 or higher users can force the arming.

To comply with class 3, the forced arming can only be issued by level 2 or higher users in the following cases:

Level 2 or higher:

- Intrusion or Assault detector active.
- Blinded movement detector.
- Movement detector with reduced range.
- Intrusion detector in fault condition.
- Primary or secondary power supply source in fault condition.
- Other faults.

To comply with class 3, the forced arming can only be issued by level 3 users in the following cases:

Level 3:

- Tampering condition.
- Interconnection fault.
- Fault of an alarm transmission system.
- Fault of a signalling device.
- Fault of the ATS and of the WD.

6. INSTALLATION

6.1 Access levels

The TITANIA system can be set as:

- **With Administrators** (specific for the Italian postal offices).
- **Without Administrators** (standard).

In both cases, the following access levels are available:

- Level 1: Anybody can access.
- Level 2: Only users can access.
- Level 3: Only installers or maintenance operators can access.

6.2 Access codes

Initially, only users 1, 2 and 3 are set, with the following codes:

user 001 - code 111111   **user 002 - code 222222**   **user 003 - code 333333**

Users from 004 to 256 have to be activated via software.

The installer can access the keypad menus with this login code:

user 000 - code 888888

6.3 Installation process

> **WARNING**
> Ensure that the electrical network is properly grounded.
> Install a FAR protection module on the mains cable, right outside the metallic box of the control unit.
> Before installing, please read the local standards about the installation of security systems and about the installation of low voltage systems.

A. Check that the electrical system is grounded and that the grounding is working properly.

B. Check that the electrical system has no over-voltage problems, such as those that might happen when an electrical generator is occasionally used to feed the system.

C. If the mains is not stable, install a saturated iron voltage stabilizer.

D. It is strongly suggested to install a device for disturbance suppression (such as a FAR module) outside the metal housing of every internal or auxiliary power supply unit.

E. An easily accessible bipolar 16A curve C magnetotermic switch must be existent. Considerations about both people safety (equipment after the switch operates at low-voltage) and surveillance systems continuous operation lead to the use of a magnetothermic switch only, so to grant mains power stability, though directives would indicate the use of a differential switch to avoid people electrocution.

F. If a MDPSTN optional module for telephone communications is installed in a TITANIAPLUS control unit, it is strongly suggested to install a filter for telephonic disturbance suppression (such as a PTN module).
The filter should be installed near to the fuse box of the telephone line, allowing to feed both dialler cables (in and out) through the same conduit since the IN cable would be already free of disturbances.
If the PTN module is installed near to the control unit, use two separate conduits for the cables entering and exiting the dialler in order to avoid mutual induction problems upstream of the PTN module.

> The PTN and FAR modules NEED to be installed OUTSIDE the metallic housings of the control unit and of the auxiliary power supply units.

G. Plan the paths of the electrical connections to the various devices (detectors, keypads, sirens...) to the control unit, in order to decide the best position for the unit itself.

H. If using a METIS keypad, check the range of the included RIVERRF radio concentrator.

I. Mount the control unit to a suitable wall, where all the necessary cables (mains, telephone, system alarms, potential printer,...) can reach it and where it will be possible to run future maintenance operations.

THE WALL HAS TO BE ABLE TO HOLD THE CONTROL UNIT WEIGHT WITHOUT FAILURES.

Do not install the control unit and its accessories in places with extreme temperature and humidity conditions. For instance, keypads have to be placed far from heat sources and from sunlight (which compromises the readability of the LCD); avoid placing the control unit in dusty rooms and do not cover the ventilation openings.
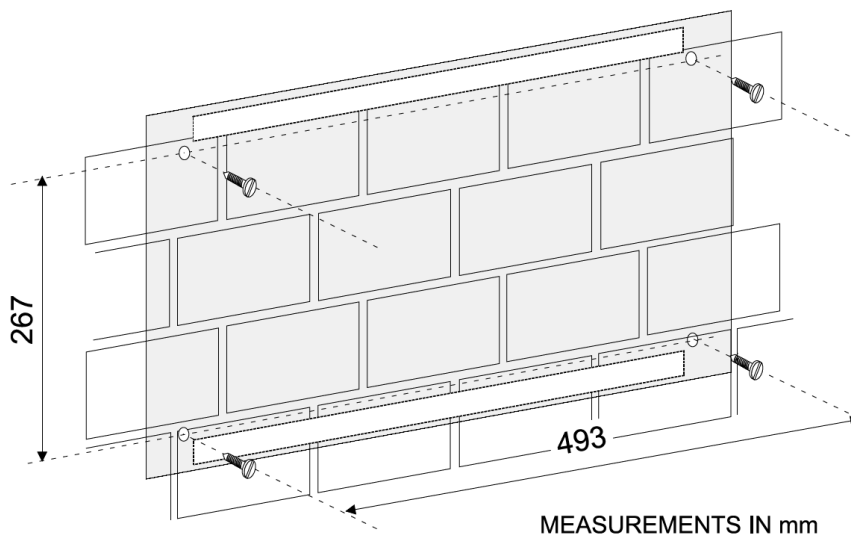
0.1 <u>Wall mounting</u>

Drill distances for TITANIA.

MEASUREMENTS IN mm

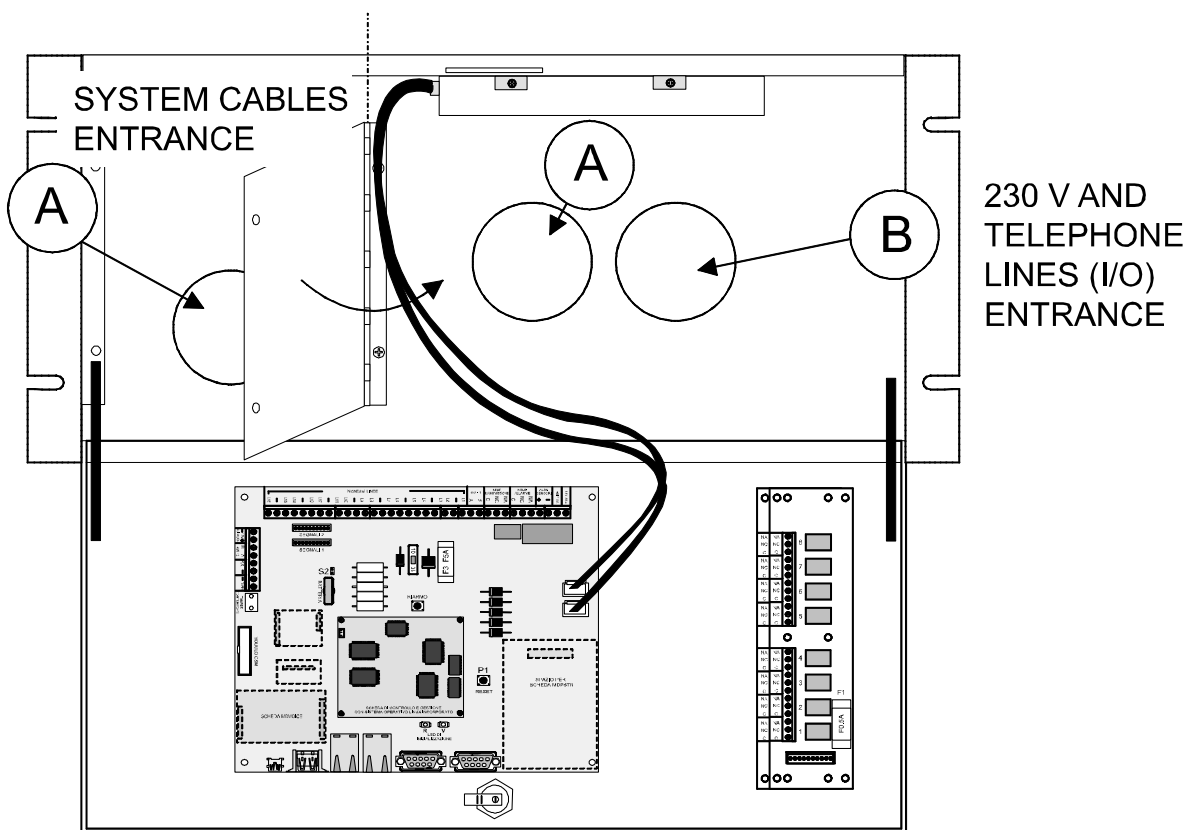For TITANIAPLUS.

MEASUREMENTS IN mm
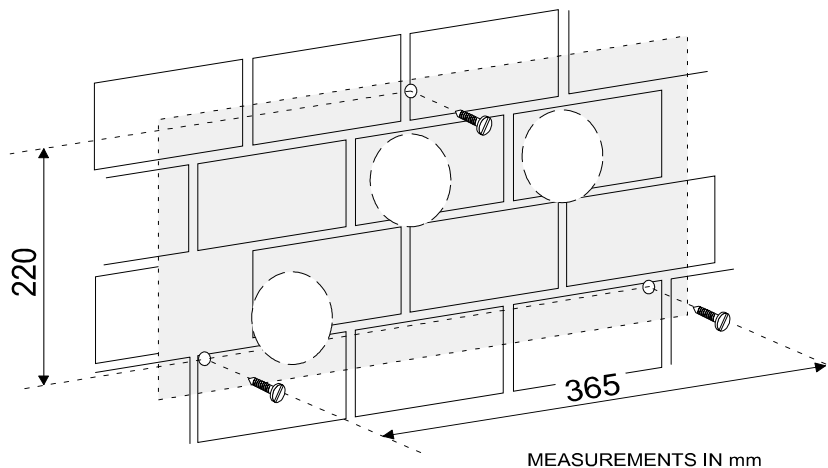
1. Open the control unit by turning the key or by unscrewing the front cover.

2. Open the front panel, remove the pack with the supplied parts and ready the control unit for the wall mounting.

3. Fix the control unit to a vertical and even wall, without tilting it and using the provided screws and plugs, unless the wall material calls for different ones.

4. Install all the accessories that have to be placed and wired inside the housing (such as RIVER concentrators, the ETRGSM module, the GSM antenna, the MDVOICE board, the PSTN module), then wire and configure them if necessary.

5. Feed the unpowered cables through the entry holes on the back of the control unit (marked **A**) or through the pre-cut holes on the upper and lower side of the housing. In this latter case, use conduits made of HB flammable rate or above materials.

6. Feed the unpowered mains cable, with a minimum section area of 1.5 mm^2, including the ground wire, through the entry hole marked **B**. Plug its other to the **FAR** filter.
   Make sure that the low tension cables do not touch the mains cable, using the provided cable tie to fix the mains cable to the housing. Do not solder the naked wires before placing them in the terminal.

7. Perform the wirings of the various devices as shown in the diagrams in this manual.

8. Connect the input and output cables of the dialler, passing them through the entry hole marked **B**.

9. Connect the command devices, keypads, proximity key readers and dialler. If using a METIS keypad, install the stylus antenna of the RIVERRF wireless concentrator.

10. Check the performed wirings, then connect the red and black cables with FASTON terminals to the battery, using the correct polarity.
    Note: the material of the battery casing has to have a HB flammable rate or above.

11. Turn the power on and follow the instructions in the programming manual.

12. Install the provided configuration browser in a PC, connect it using an USB mini-B cable to the special connector and start a direct connection with the control unit.

13. Learn the M4 keys from the pertaining keypads.

14. Program the RIVERRF concentrator contained in the possible METIS keypad, learning the medical remotes.

15. Check the effective range of the RIVERRF concentrator, then close the cover.

16. Test the system.

17. Connect the sirens and run the final test.

18. Close the frontal panel of the control unit with the provided screws or key.

Cable holes for the TITANIA model.

Cable holes for the TITANIAPLUS model.

SYSTEM CABLES
ENTRANCE   A

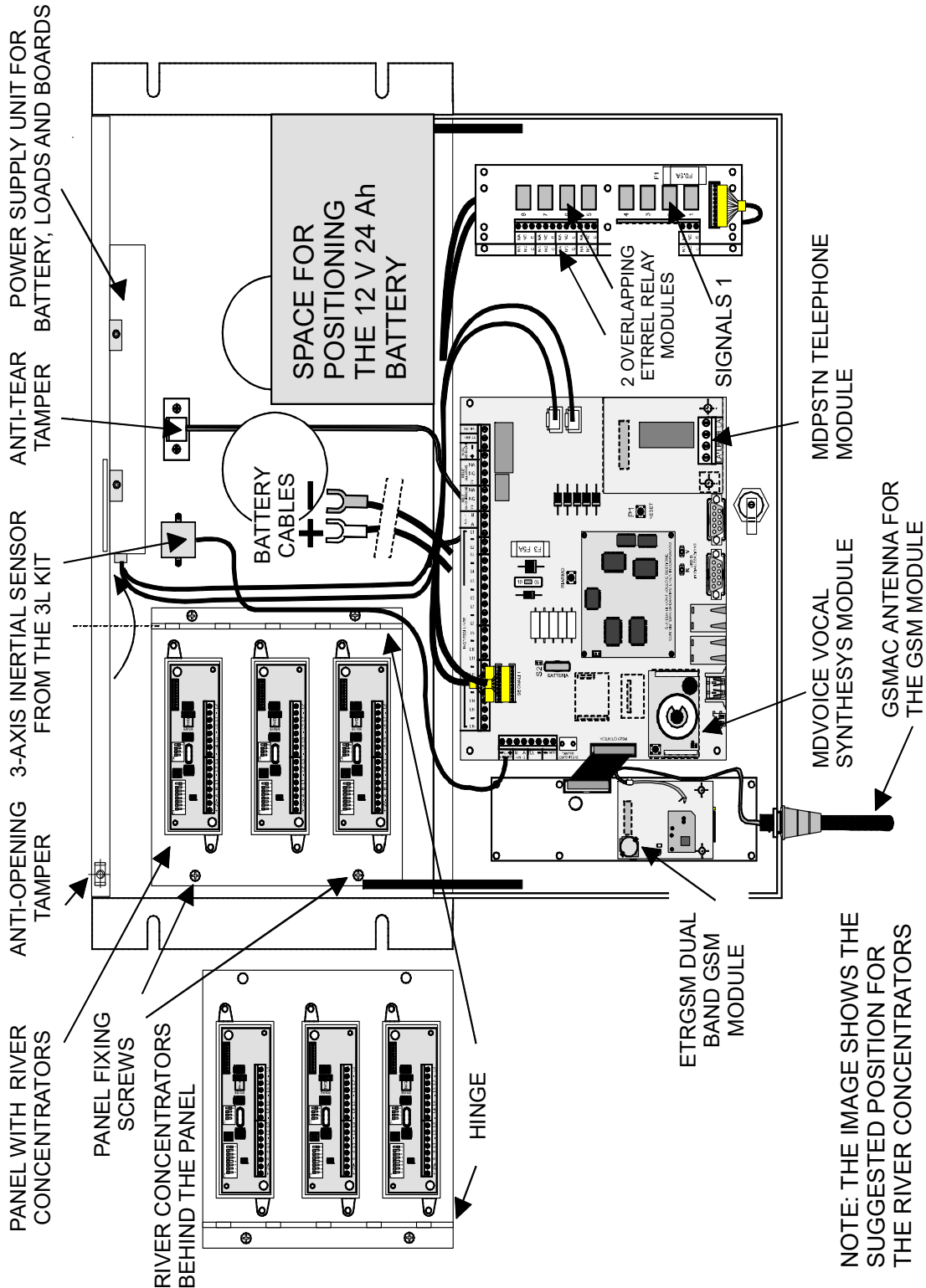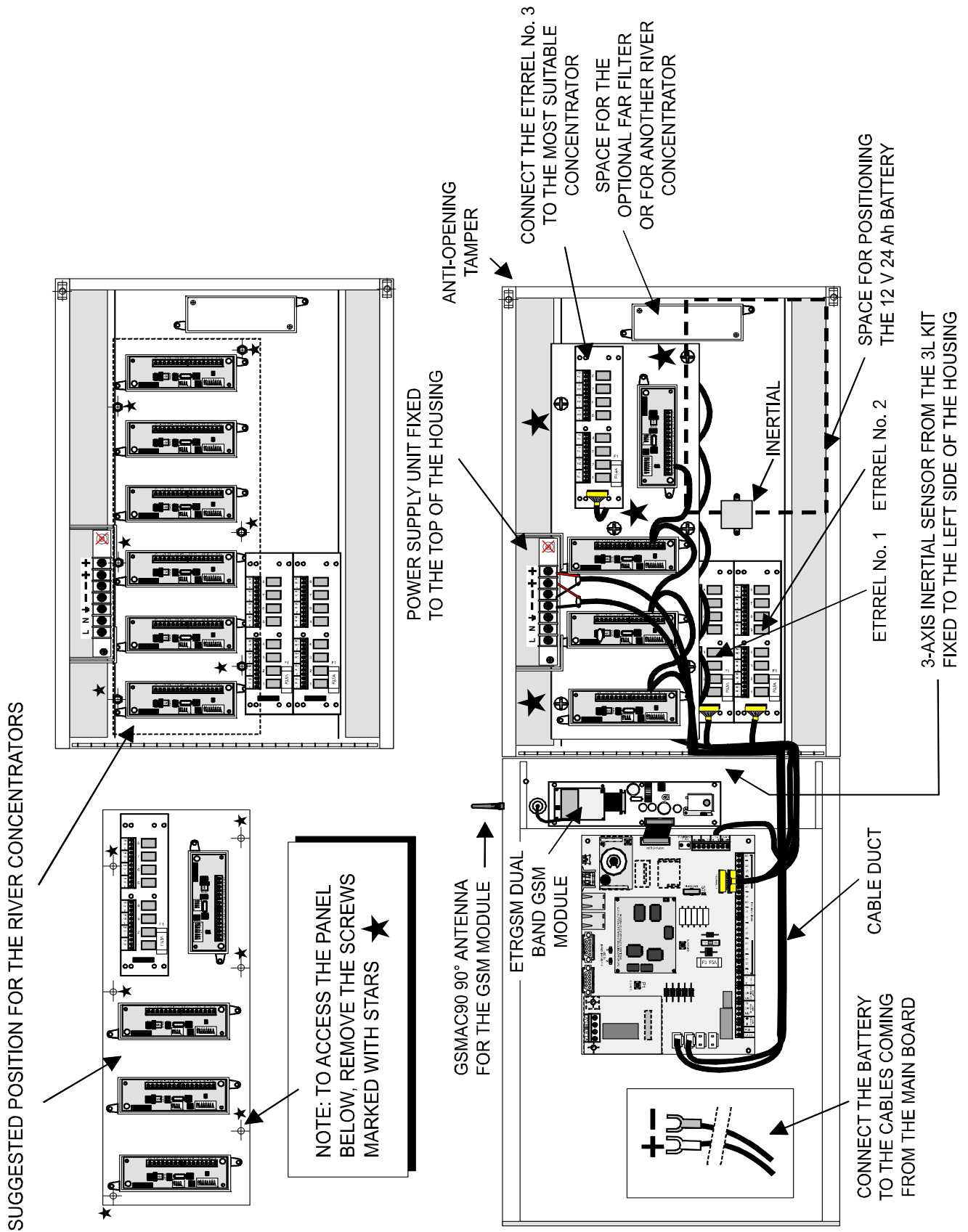230 V AND
TELEPHONE
LINES (I/O)
ENTRANCE   B
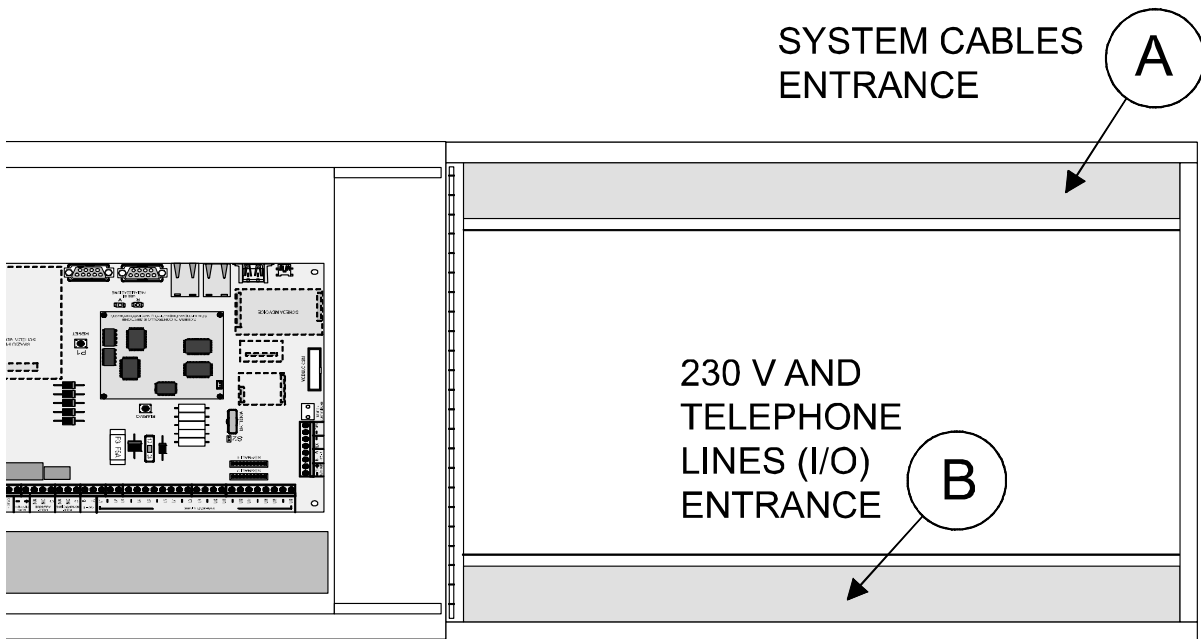
1. HOOK-UPS

The **suggested internal position** of the devices, shown in the image below for a TITANIA control unit, allows for the connection of all 512 zones/outputs with external RIVER concentrators.
The installer shall position and wire the internal accessories.

Note: the METIS keypad is provided with a RIVERRF concentrator that sports a stylus antenna to be placed on the outside of the housing, in order to receive signals from a TYROS medical remote or from other HELIOS system devices. When programming the max number of concentrators, include this RIVERRF in the count.
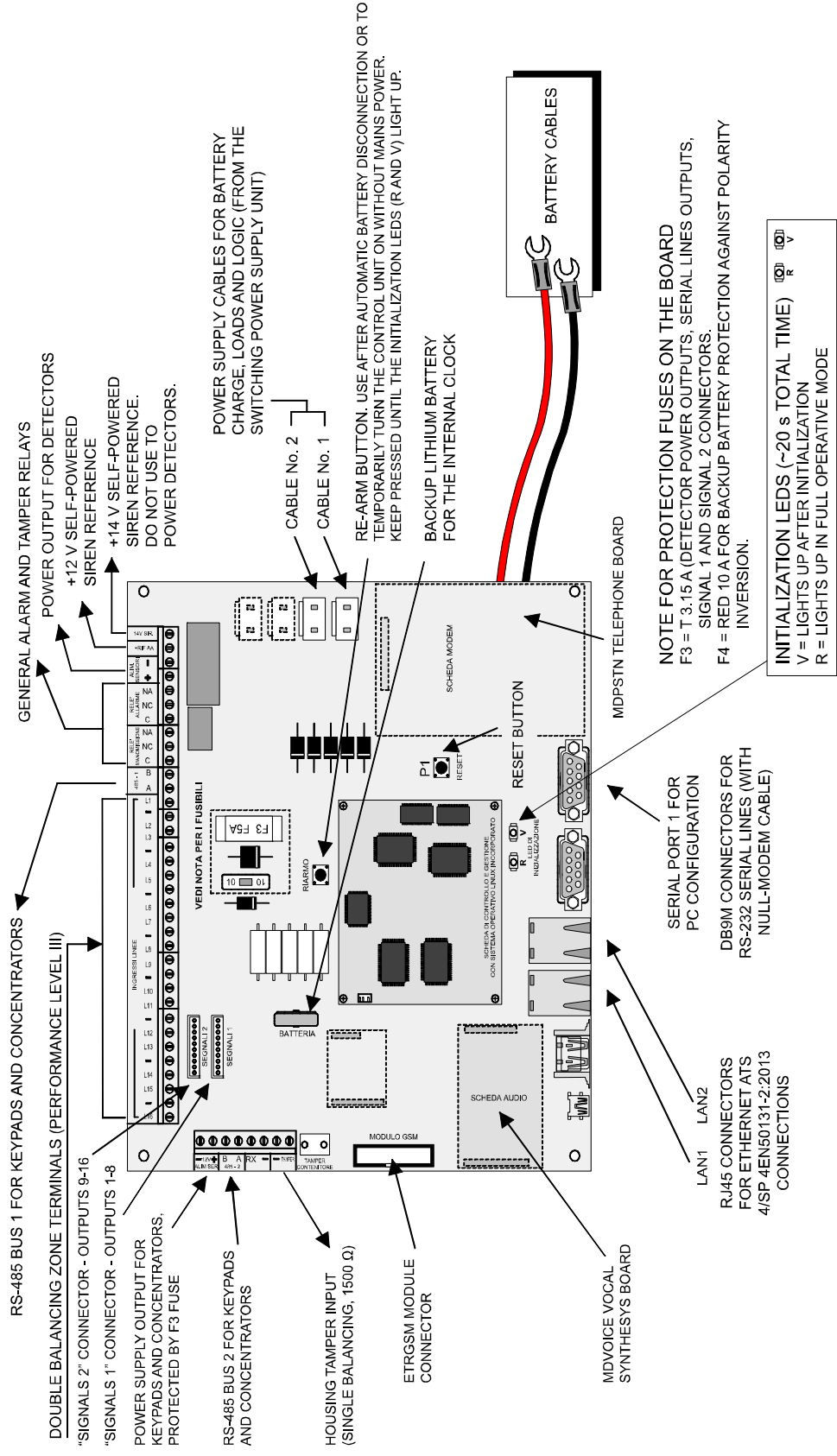
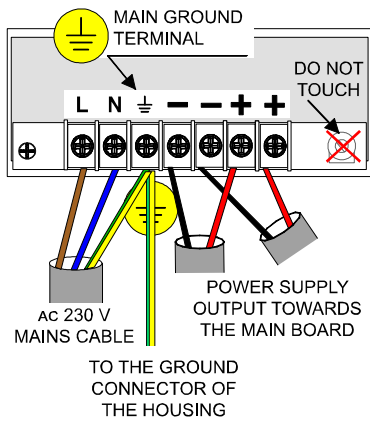The **suggested internal position** for the TITANIAPLUS model.

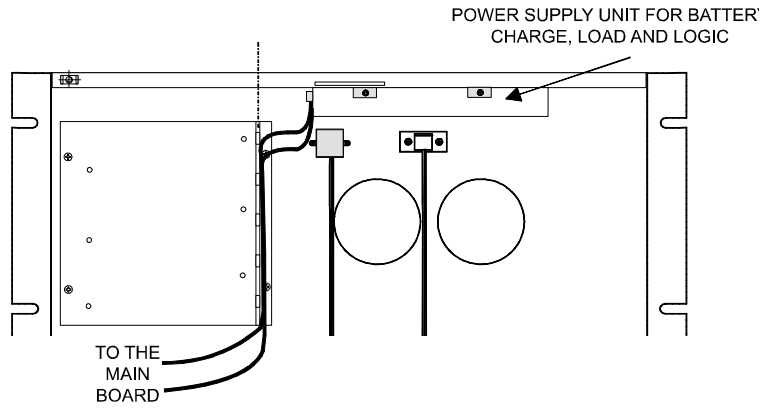SUGGESTED POSITION FOR THE RIVER CONCENTRATORS

NOTE: TO ACCESS THE PANEL BELOW, REMOVE THE SCREWS MARKED WITH STARS ★

GSMAC90 90° ANTENNA FOR THE GSM MODULE

ETRGSM DUAL BAND GSM MODULE

POWER SUPPLY UNIT FIXED TO THE TOP OF THE HOUSING

ANTI-OPENING TAMPER

CONNECT THE ETRREL No. 3 TO THE MOST SUITABLE CONCENTRATOR

SPACE FOR THE OPTIONAL FAR FILTER OR FOR ANOTHER RIVER CONCENTRATOR

SPACE FOR POSITIONING THE 12 V 24 Ah BATTERY

INERTIAL

ETRREL No. 2

ETRREL No. 1

3-AXIS INERTIAL SENSOR FROM THE 3L KIT FIXED TO THE LEFT SIDE OF THE HOUSING

CABLE DUCT

CONNECT THE BATTERY TO THE CABLES COMING FROM THE MAIN BOARD

2. MAIN BOARD DESCRIPRTION

BATTERY CABLES

POWER SUPPLY CABLES FOR BATTERY CHARGE, LOADS AND LOGIC (FROM THE SWITCHING POWER SUPPLY UNIT)

CABLE No. 2
CABLE No. 1

RE-ARM BUTTON. USE AFTER AUTOMATIC BATTERY DISCONNECTION OR TO TEMPORARILY TURN THE CONTROL UNIT ON WITHOUT MAINS POWER. KEEP PRESSED UNTIL THE INITIALIZATION LEDS (R AND V) LIGHT UP.

BACKUP LITHIUM BATTERY FOR THE INTERNAL CLOCK

GENERAL ALARM AND TAMPER RELAYS

POWER OUTPUT FOR DETECTORS

+12 V SELF-POWERED SIREN REFERENCE

+14 V SELF-POWERED SIREN REFERENCE. DO NOT USE TO POWER DETECTORS.

MDPSTN TELEPHONE BOARD

RESET BUTTON

NOTE FOR PROTECTION FUSES ON THE BOARD
F3 = T 3.15 A (DETECTOR POWER OUTPUTS, SERIAL LINES OUTPUTS, SIGNAL 1 AND SIGNAL 2 CONNECTORS.
F4 = RED 10 A FOR BACKUP BATTERY PROTECTION AGAINST POLARITY INVERSION.

INITIALIZATION LEDS (~20 s TOTAL TIME)
V = LIGHTS UP AFTER INITIALIZATION
R = LIGHTS UP IN FULL OPERATIVE MODE

SERIAL PORT 1 FOR PC CONFIGURATION

DB9M CONNECTORS FOR RS-232 SERIAL LINES (WITH NULL-MODEM CABLE)

LAN1   LAN2

RJ45 CONNECTORS FOR ETHERNET ATS 4/SP 4EN50131-2:2013 CONNECTIONS

MDVOICE VOCAL SYNTHESYS BOARD

RS-485 BUS 1 FOR KEYPADS AND CONCENTRATORS

DOUBLE BALANCING ZONE TERMINALS (PERFORMANCE LEVEL III)

"SIGNALS 2" CONNECTOR - OUTPUTS 9-16

"SIGNALS 1" CONNECTOR - OUTPUTS 1-8

POWER SUPPLY OUTPUT FOR KEYPADS AND CONCENTRATORS, PROTECTED BY F3 FUSE

RS-485 BUS 2 FOR KEYPADS AND CONCENTRATORS

HOUSING TAMPER INPUT (SINGLE BALANCING, 1500 Ω)

ETRGSM MODULE CONNECTOR

1. WIRINGS

1.1 Power supply connection

MAIN GROUND TERMINAL

DO NOT TOUCH

L N

AC 230 V MAINS CABLE

POWER SUPPLY OUTPUT TOWARDS THE MAIN BOARD

TO THE GROUND CONNECTOR OF THE HOUSING

In some models, the power supply unit is placed on the side

POWER SUPPLY UNIT FOR BATTERY CHARGE, LOAD AND LOGIC

TO THE MAIN BOARD

CORRECT CONNECTOR ORIENTATION

MAIN BOARD

POWER SUPPLY CHECK LEDS

L N

1.2 Zones connection

Double balancing connection (default).

Note: programming inputs as NC lowers the EN50131 level from 3 to 1.
In order to grant the higher performance level, any zone that has to be assigned to the "KEY" function has to be connected to an external control device that has the same EN50131 level of the control unit.
Place the electronic board inside the housing of the control unit.

IMPORTANT

IF IT IS NOT POSSIBLE TO BALANCE THE LINE, CONFIGURE THE CONTACT AS NC.
ONLY USE SHIELDED CABLE AND CONNECT THE SHIELD TO THE NEGATIVE ON PANEL SIDE.

Other connection types that can be programmed for zones.
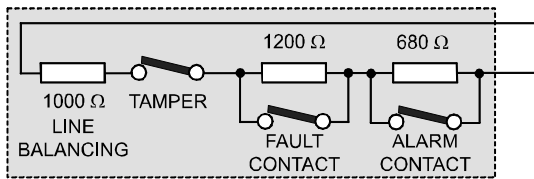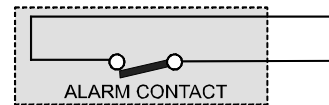
1.3 Zone connection example

Connection of different kind of detectors to the zones.
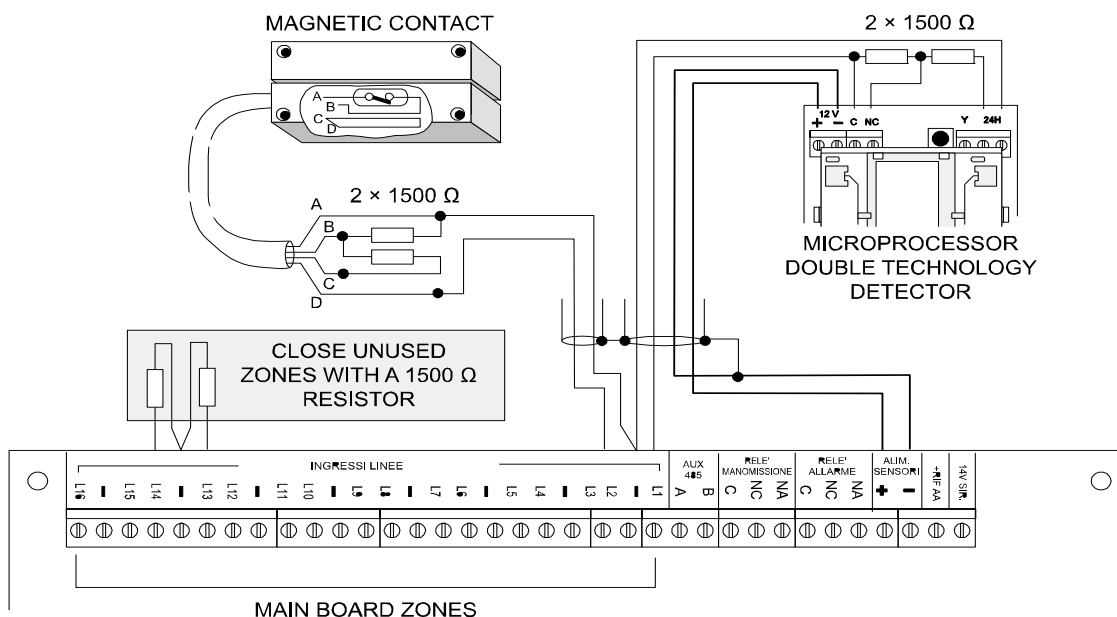
1.4 Control unit tamper and 3-axis inertial sensor connection

Diagram for connecting the control unit tamper (single balancing) and the anti-drilling 3-axis inertial sensor, as shown in the general diagrams.
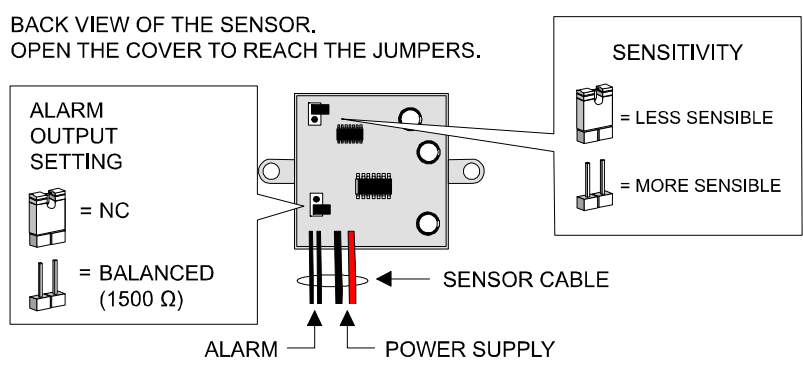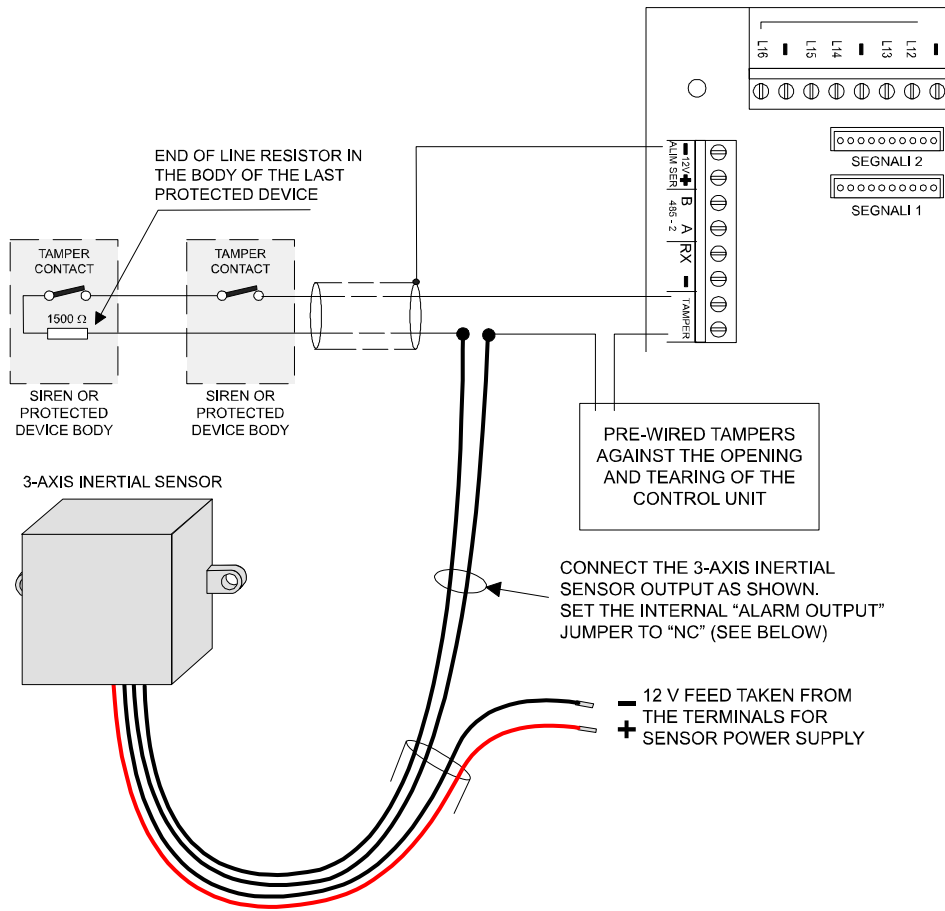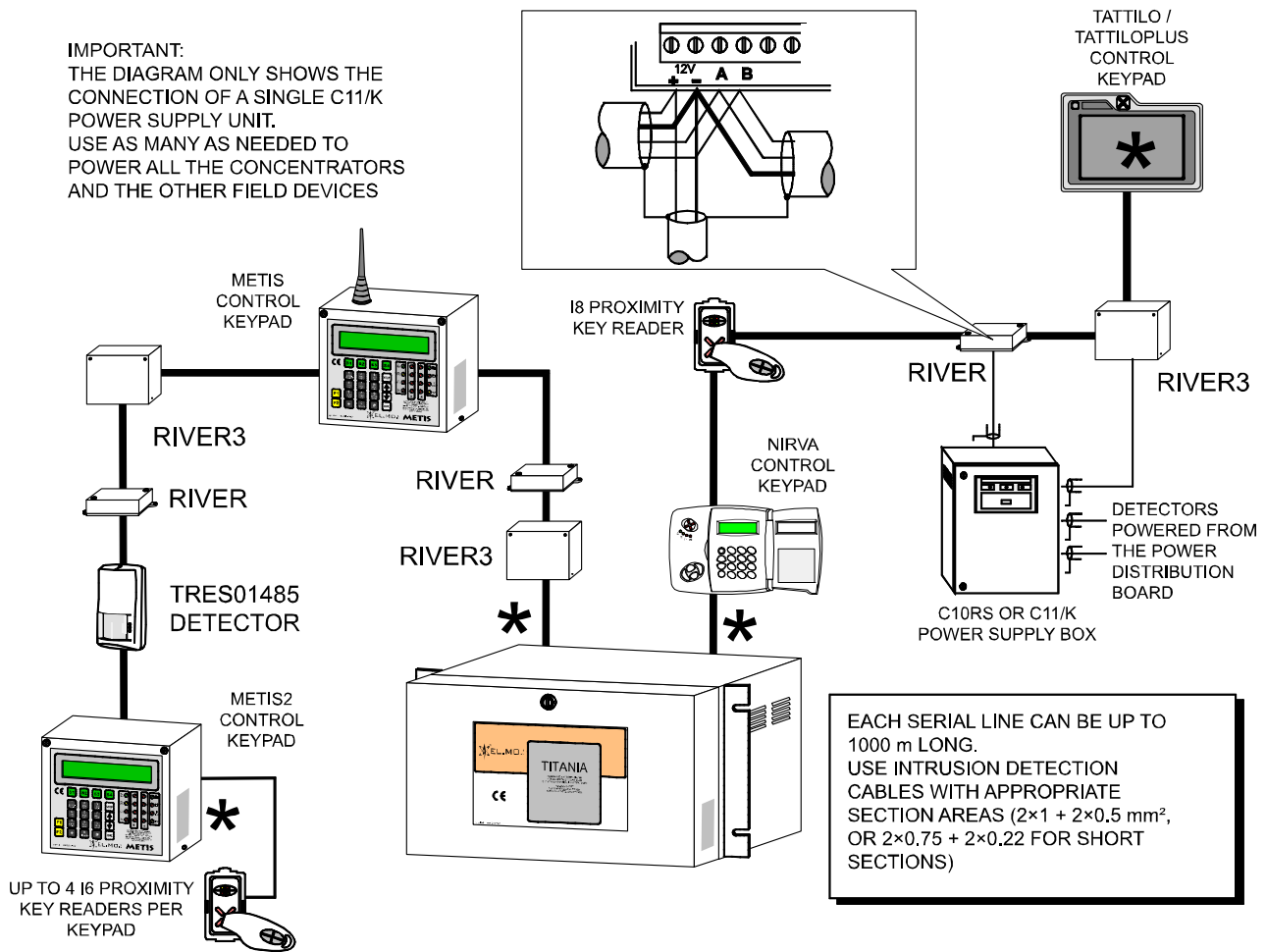

Note: in order to keep the tamper button pressed, place a screw and plug on the wall behind the control unit, in axis with the button.
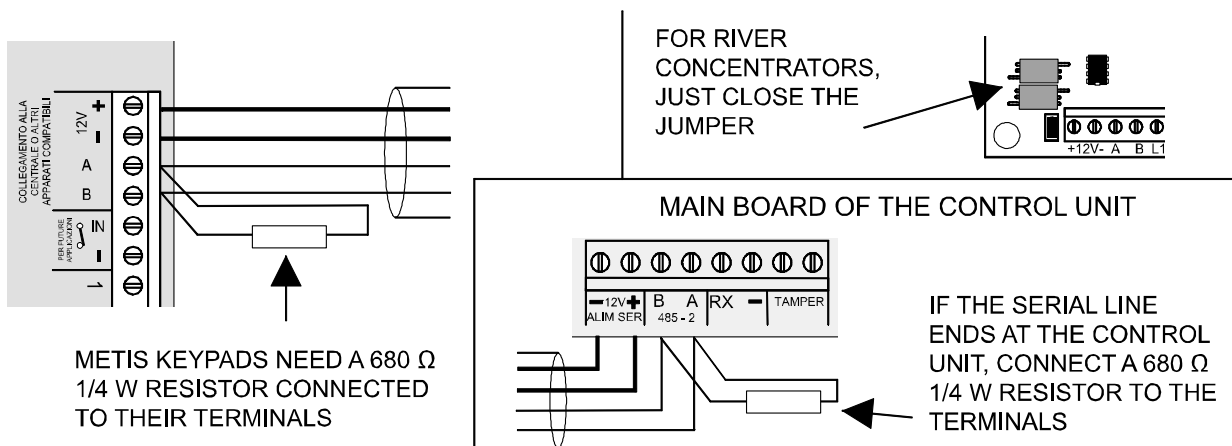Adjust the screw so that its head rests at 2 mm from the internal surface of the housing.

1.5 Concentrators and keypads connection

Diagram for connecting serial devices to the RS-485 lines of the control unit.
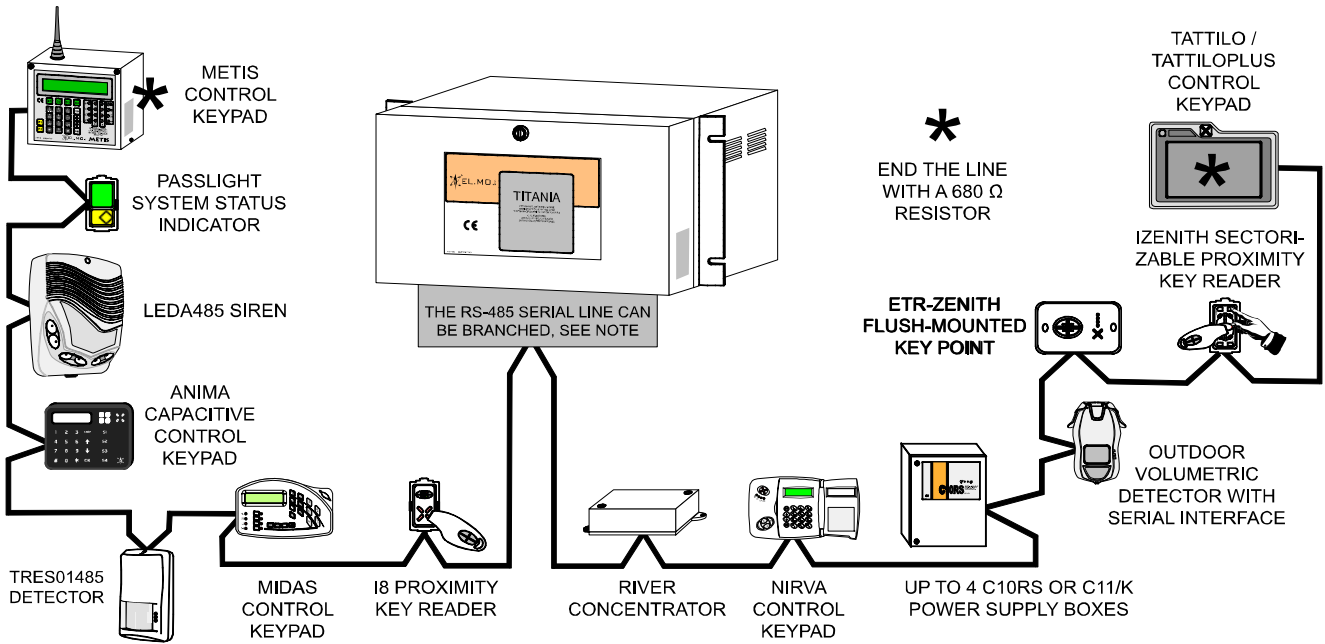
IMPORTANT:
THE DIAGRAM ONLY SHOWS THE
CONNECTION OF A SINGLE C11/K
POWER SUPPLY UNIT.
USE AS MANY AS NEEDED TO
POWER ALL THE CONCENTRATORS
AND THE OTHER FIELD DEVICES

12V   A   B

TATTILO /
TATTILOPLUS
CONTROL
KEYPAD

METIS
CONTROL
KEYPAD

I8 PROXIMITY
KEY READER

RIVER

RIVER3

RIVER3

RIVER

NIRVA
CONTROL
KEYPAD

RIVER

RIVER3

DETECTORS
POWERED FROM
THE POWER
DISTRIBUTION
BOARD

TRES01485
DETECTOR

METIS2
CONTROL
KEYPAD

TITANIA

C10RS OR C11/K
POWER SUPPLY BOX

EACH SERIAL LINE CAN BE UP TO
1000 m LONG.
USE INTRUSION DETECTION
CABLES WITH APPROPRIATE
SECTION AREAS (2×1 + 2×0.5 mm²,
OR 2×0.75 + 2×0.22 FOR SHORT
SECTIONS)

UP TO 4 I6 PROXIMITY
KEY READERS PER
KEYPAD

UP TO 32 CONTROL KEYBOARDS CAN BE PLACED ANYWHERE ALONG THE SERIAL LINES

* THESE DEVICES HAVE TO BE EQUIPPED WITH AN END OF LINE RESISTOR:

FOR RIVER
CONCENTRATORS,
JUST CLOSE THE
JUMPER

+12V- A   B   L1

MAIN BOARD OF THE CONTROL UNIT

12V +
A
B
IN

—12V+   B   A   RX   — TAMPER
ALIM SER   485 - 2

METIS KEYPADS NEED A 680 Ω
1/4 W RESISTOR CONNECTED
TO THEIR TERMINALS

IF THE SERIAL LINE
ENDS AT THE CONTROL
UNIT, CONNECT A 680 Ω
1/4 W RESISTOR TO THE
TERMINALS

1.6 Alternate connection of a serial line

METIS CONTROL KEYPAD

PASSLIGHT SYSTEM STATUS INDICATOR

LEDA485 SIREN

ANIMA CAPACITIVE CONTROL KEYPAD

TRES01485 DETECTOR

MIDAS CONTROL KEYPAD

I8 PROXIMITY KEY READER

THE RS-485 SERIAL LINE CAN BE BRANCHED, SEE NOTE

RIVER CONCENTRATOR

NIRVA CONTROL KEYPAD

UP TO 4 C10RS OR C11/K POWER SUPPLY BOXES

END THE LINE WITH A 680 Ω RESISTOR

ETR-ZENITH FLUSH-MOUNTED KEY POINT

TATTILO / TATTILOPLUS CONTROL KEYPAD

IZENITH SECTORIZABLE PROXIMITY KEY READER

OUTDOOR VOLUMETRIC DETECTOR WITH SERIAL INTERFACE

SERIAL LINE WITH RIVER CONCENTRATORS, COMMAND DEVICES AND OTHER COMPATIBLE DEVICES, CONNECTED TO THE SPECIFIC TERMINAL BOARD OF THE CONTROL UNIT.

THE SERIAL LINE CAN ALSO BE EXTENDED WITH BRANCHES, AS DETAILED IN THIS MANUAL. IT IS ALSO POSSIBLE TO USE RPX485 SERIAL LINE REPEATERS, SEE THE EXAMPLE DIAGRAM.

THE CONTROL CIRCUIT FOR THE SERIAL LINE (INCLUDED IN THE CONTROL UNIT) AND THE SERIAL DEVICES CAN BE PLACED ANYWHERE ON THE SERIAL LINE.
THE TOTAL NUMBER OF COMMAND DEVICES OVER BOTH LINES IS 32.

USE AUXILIARY POWER SUPPLY BOXES IN ORDER TO POWER THE WHOLE SYSTEM. WE SUGGEST USING THE C10RS AND C11/K MODELS, WHICH SUPERVISION IS MANAGED OVER THE SERIAL LINE.

Note: the serial line can have any number of branches, as long as the total length of the serial line cables is 1000 m or less. As shown in the previous diagram, two 680 Ω resistors have to be placed at the two ends of the serial line: if there are multiple branches, put the resistors at the end of the two longest paths.
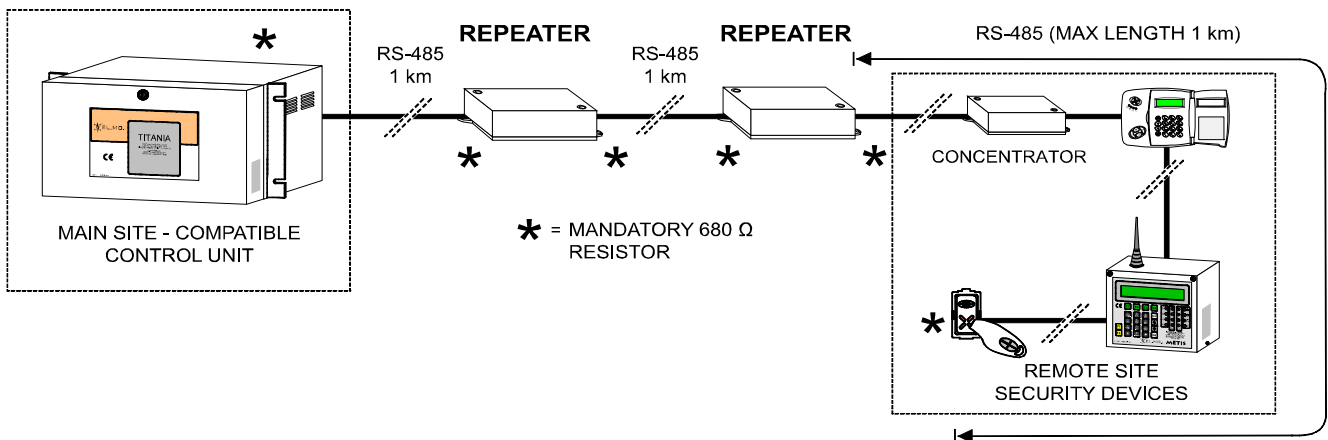
1.7 RPX485 repeater for serial line

RPX485 can be used to create extended or complex serial lines.
It repeats and regenerates signals and isolates the serial line from faults, without providing galvanic isolation.
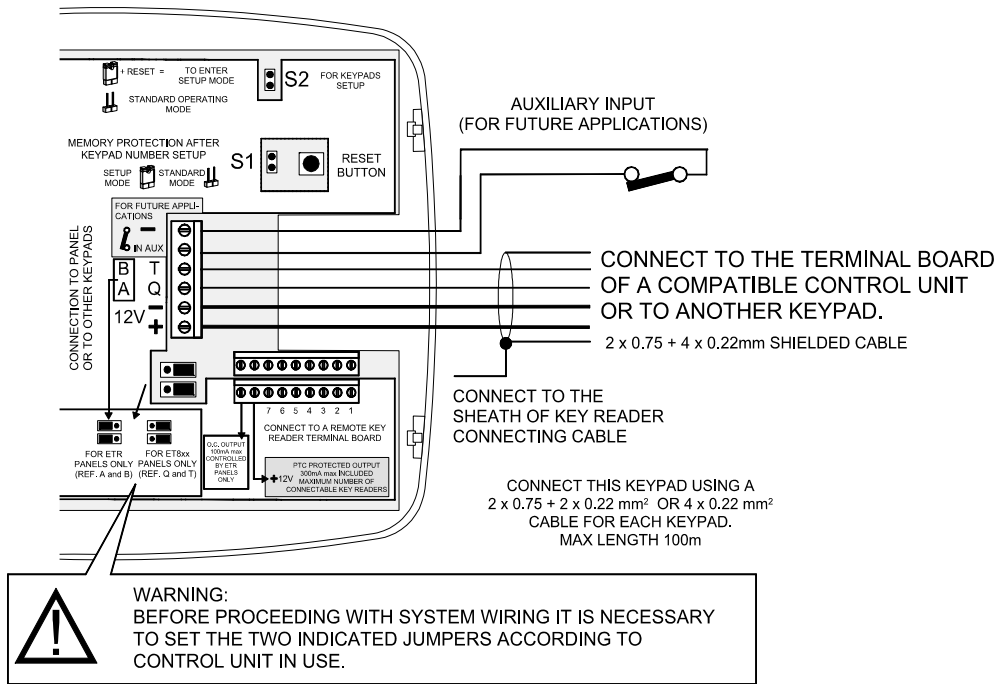Example 1.

REPEATER

RS-485 (MAX LENGTH 1 km)   RS-485 (MAX LENGTH 1 km)

COMPATIBLE
CONTROL UNIT

*

*   *

* = MANDATORY 680 Ω
RESISTOR

CONCENTRATOR

*

*

CONCENTRATOR

MAIN SITE SECURITY DEVICES

REMOTE SITE
SECURITY DEVICES

Example 2.

*

MAIN SITE - COMPATIBLE
CONTROL UNIT

RS-485
1 km

REPEATER

RS-485
1 km

REPEATER

RS-485 (MAX LENGTH 1 km)

*   *   *   *

CONCENTRATOR

* = MANDATORY 680 Ω
RESISTOR

*

REMOTE SITE
SECURITY DEVICES
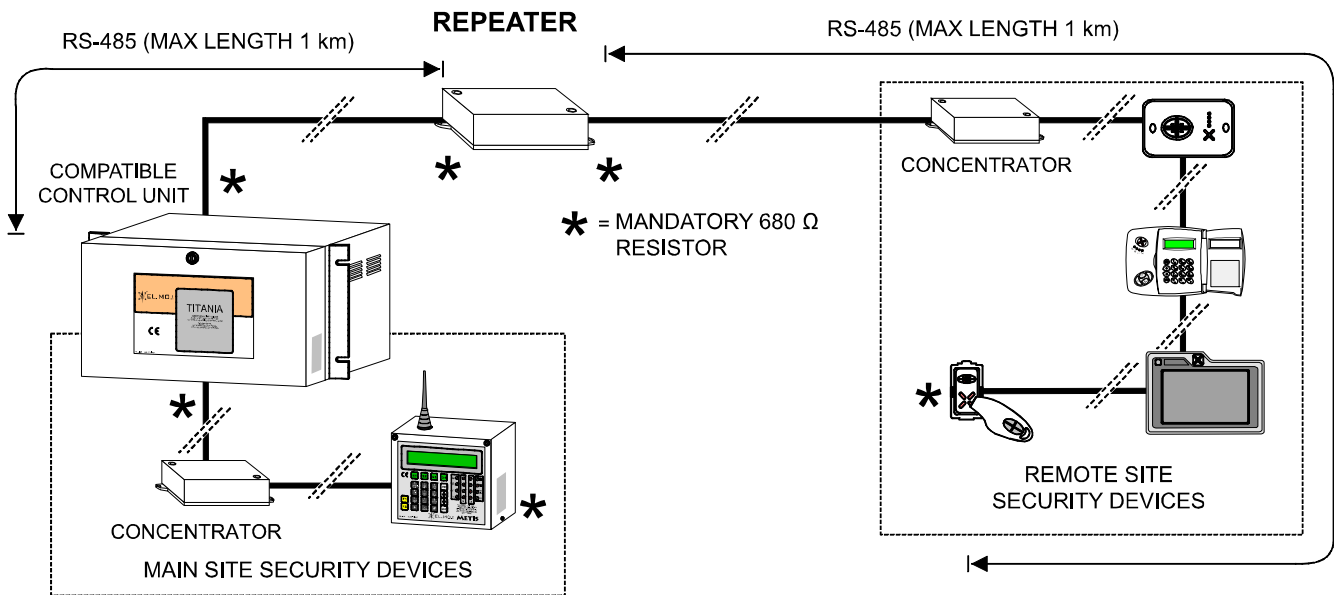
Note: use at most two RPX485 repeaters in cascade.

1.8 NIRVA keypads connection

RESET = TO ENTER SETUP MODE
STANDARD OPERATING MODE
S2 FOR KEYPADS SETUP

MEMORY PROTECTION AFTER KEYPAD NUMBER SETUP
SETUP MODE   STANDARD MODE   S1   RESET BUTTON

FOR FUTURE APPLI-CATIONS
IN AUX
B   T
A   Q
12V

CONNECTION TO PANEL OR TO OTHER KEYPADS

7 6 5 4 3 2 1
CONNECT TO A REMOTE KEY READER TERMINAL BOARD

FOR ETR PANELS ONLY (REF. A and B)
FOR ET8xx PANELS ONLY (REF. Q and T)

O.C. OUTPUT 100mA max CONTROLLED BY ETR PANELS ONLY

PTC PROTECTED OUTPUT 300mA max INCLUDED MAXIMUM NUMBER OF CONNECTABLE KEY READERS
+12V

AUXILIARY INPUT (FOR FUTURE APPLICATIONS)

CONNECT TO THE TERMINAL BOARD OF A COMPATIBLE CONTROL UNIT OR TO ANOTHER KEYPAD.

2 x 0.75 + 4 x 0.22mm SHIELDED CABLE

CONNECT TO THE SHEATH OF KEY READER CONNECTING CABLE

CONNECT THIS KEYPAD USING A 2 x 0.75 + 2 x 0.22 mm² OR 4 x 0.22 mm² CABLE FOR EACH KEYPAD. MAX LENGTH 100m

WARNING:
BEFORE PROCEEDING WITH SYSTEM WIRING IT IS NECESSARY TO SET THE TWO INDICATED JUMPERS ACCORDING TO CONTROL UNIT IN USE.

Note: the open collector output of the NIRVA keypad is used for the access control option; the timer, set to 3 seconds. can be used to activate the control relay of an electric lock of a door set to "Access control" (that is, the Security Exit door).

1.9 Proximity readers connection to a NIRVA keypad
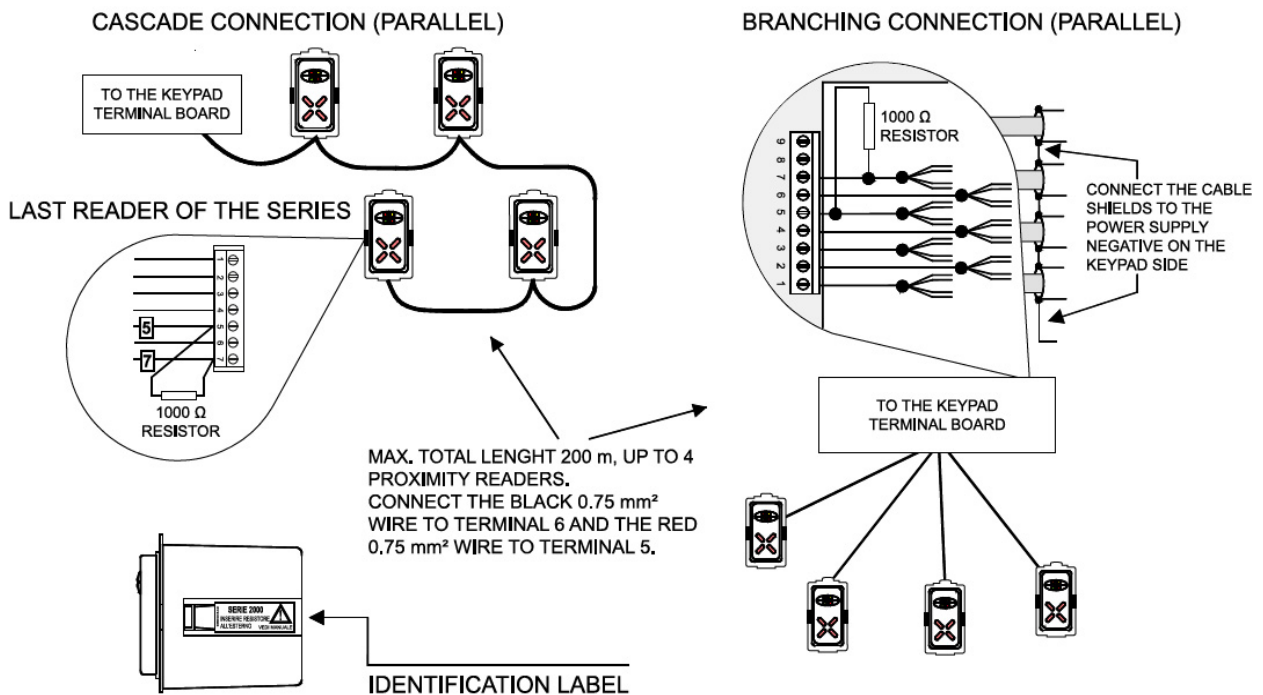
CASCADE CONNECTION (PARALLEL)

TO THE KEYPAD TERMINAL BOARD

LAST READER OF THE SERIES

5
7

1000 Ω RESISTOR

MAX. TOTAL LENGHT 200 m, UP TO 4 PROXIMITY READERS.
CONNECT THE BLACK 0.75 mm² WIRE TO TERMINAL 6 AND THE RED 0.75 mm² WIRE TO TERMINAL 5.

SERIE 2000
INSERIRE RESISTOR ALL'ULTIMO
VEDI MANUALE

IDENTIFICATION LABEL

BRANCHING CONNECTION (PARALLEL)

1000 Ω RESISTOR

9 8 7 6 5 4 3 2 1

CONNECT THE CABLE SHIELDS TO THE POWER SUPPLY NEGATIVE ON THE KEYPAD SIDE

TO THE KEYPAD TERMINAL BOARD

WARNING:
REMOTE PROXIMITY READERS MUST BE CONNECTED TO A 2×0.75 + 5×0.22 mm² SHIELDED CABLE WITH THE SHIELD CONNECTED TO THE POWER SUPPLY NEGATIVE ONLY ON THE KEYPAD SIDE.
THE 1000 Ω END OF LINE RESISTOR HAS TO BE USED INDEPENDENTLY FROM THE NUMBER OF PROXIMITY READERS CONNECTED OR FROM THE LENGTH OF THE CABLE.

1.10 LED indications for proximity readers connected to a NIRVA keypad

MOVE THE KEY CLOSE TO THE READER FOR A CORRECT CODE READING

FAINTLY LIT LEDS ALLOW TO EASILY LOCATE THE READER EVEN IN DARKNESS

THEY TURN FULLY ON AFTER THE KEY ACKNOWLEDGEMENT

I66 KEY READER - FRONT VIEW

SYSTEM ANOMALY LED ☹ (TERMINAL 2)

🔔 AND ✂ LED (TERMINAL 3)

LINE ANOMALY LED 👍 (TERMINAL 1)

CONTROL UNIT OPERATING STATUS (TERMINAL 4) - ONLY ACTIVE WHEN A KEY IS NEAR IF THE JUMPER HAS BEEN CUT.

AREA TO PRESENT M4 KEY AGAINST, EQUIPPED WITH DISPLAY LEDS

STATUS INDICATION ALWAYS ACTIVE (DEFAULT)

STATUS INDICATION ACTIVE ONLY WHEN THE KEY IS NEAR

SIDE VIEW

1.11 Proximity readers connection to a METIS keypad
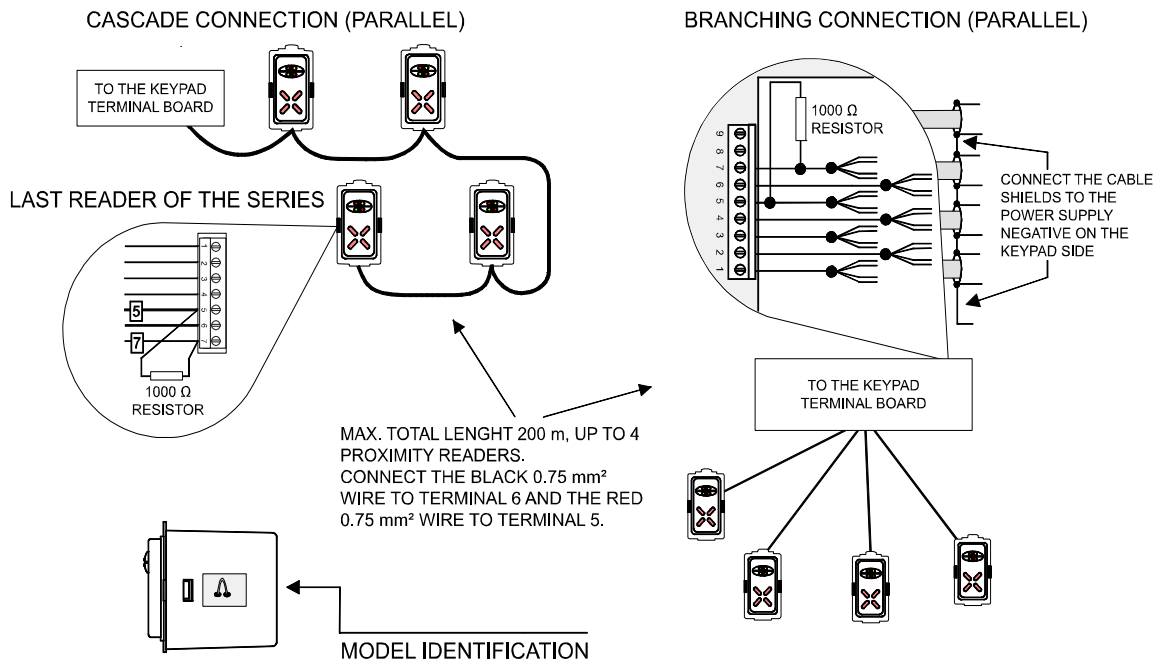
CASCADE CONNECTION (PARALLEL)

BRANCHING CONNECTION (PARALLEL)

TO THE KEYPAD TERMINAL BOARD

1000 Ω RESISTOR

CONNECT THE CABLE SHIELDS TO THE POWER SUPPLY NEGATIVE ON THE KEYPAD SIDE

LAST READER OF THE SERIES

5

7

1000 Ω RESISTOR

TO THE KEYPAD TERMINAL BOARD

MAX. TOTAL LENGHT 200 m, UP TO 4 PROXIMITY READERS. CONNECT THE BLACK 0.75 mm² WIRE TO TERMINAL 6 AND THE RED 0.75 mm² WIRE TO TERMINAL 5.

MODEL IDENTIFICATION

WARNING:
REMOTE PROXIMITY READERS MUST BE CONNECTED TO A 2×0.75 + 5×0.22 mm² SHIELDED CABLE WITH THE SHIELD CONNECTED TO THE POWER SUPPLY NEGATIVE ONLY ON THE KEYPAD SIDE.
THE 1000 Ω END OF LINE RESISTOR HAS TO BE USED INDEPENDENTLY FROM THE NUMBER OF PROXIMITY READERS CONNECTED OR FROM THE LENGTH OF THE CABLE.

Note: METIS and METIS2 keypads have no built-in proximity reader. To memorize M4 keys, connect an I66 o I7 proximity reader as shown in the diagram. M4 keys can not be memorized from I8 proximity readers.

1.12 Connection example for I8 proximity readers and some compatible keypads
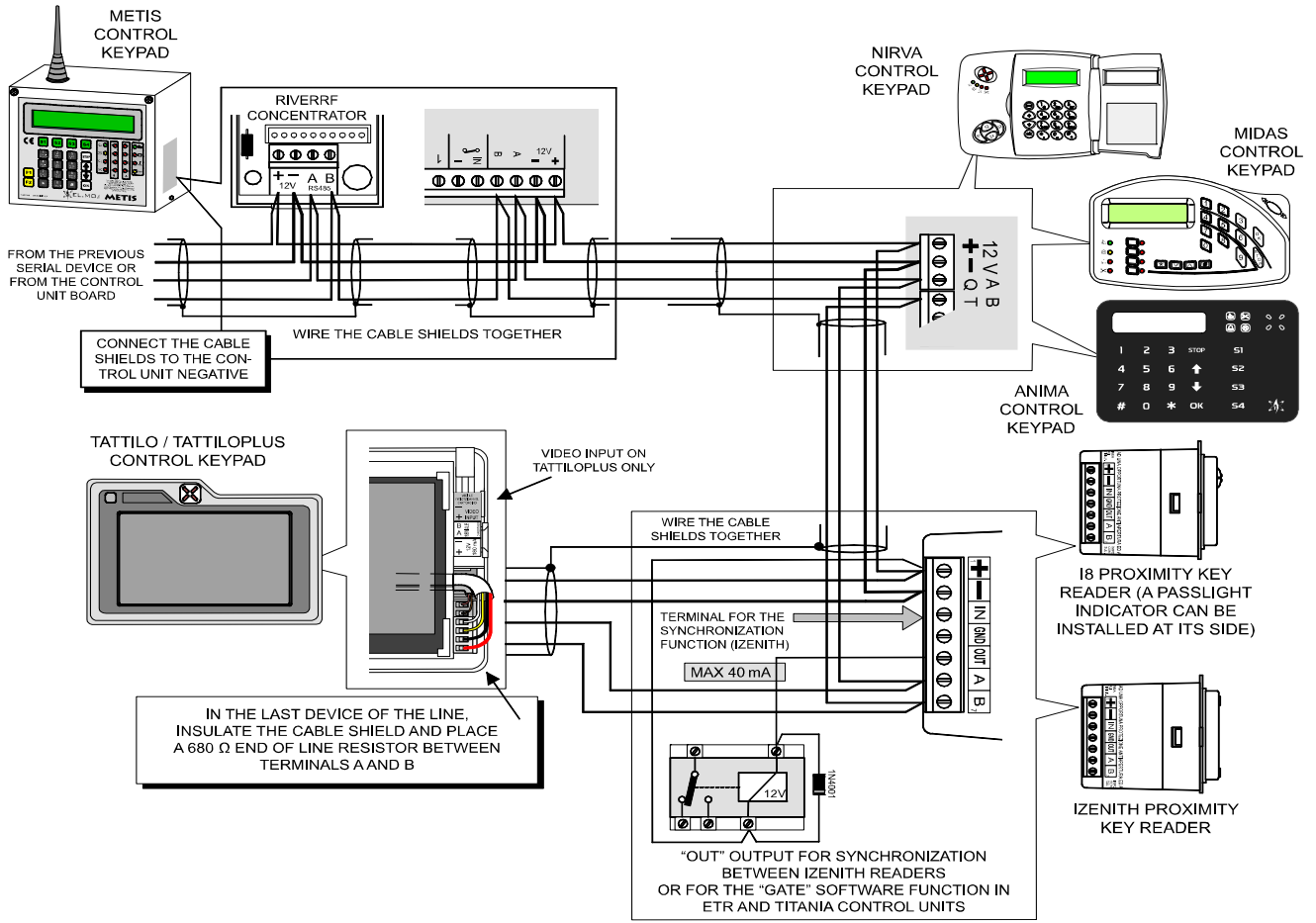
Note: the open collector output of the METIS keypad is used for the access control option; the timer, set to 3 seconds. can be used to activate the control relay of an electric lock of a door set to "Access control" (that is, the Security Exit door).

METIS2 does not include a RIVERRF radio concentrator and has no external stylus antenna.

1.13 LED indications for I8 proximity readers connected to the serial line
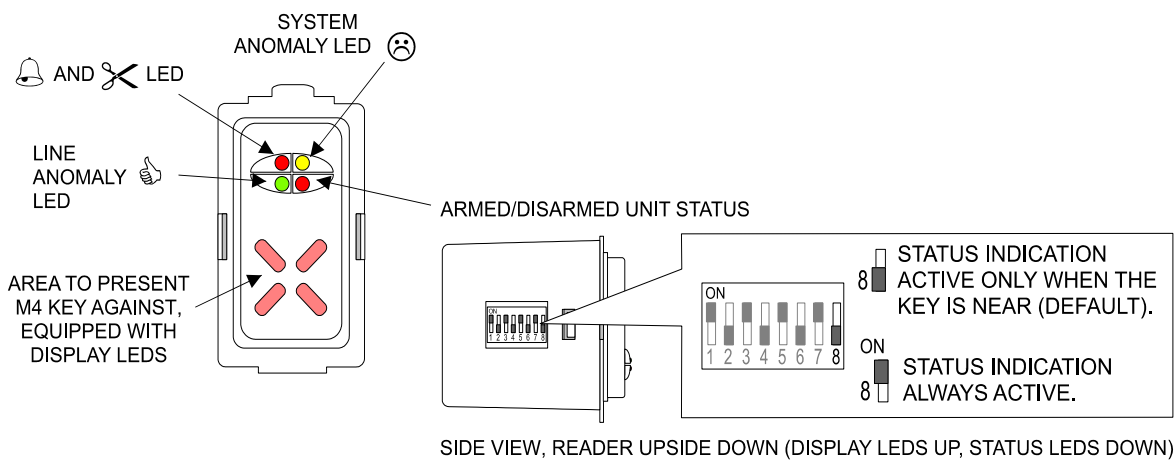
1.14 Connection of detectors with serial interface

Example diagram showing the connection over a serial line for a TRES01485 detector with fw 2.4 or higher.

NOTE: TERMINATE THE SERIAL LINE WITH A 680OHM RESISTOR TO BE CONNECTED TO "A" AND "B" TERMINALS OF THE LAST DEVICE

FROM PANEL OR PREVIOUS ADDRESSED DEVICE

12 V
A
B

12 V
A
B
TO THE NEXT ADDRESSED DEVICE

S3 = PROTECTION AGAINST REMOVAL

= DISABLED   = ENABLED
               (DEFAULT)

TAMPER PROTECTION AGAINST OPENING

MW PLANAR ANTENNA

ANTI-BLINDING CIRCUIT COMPONENTS

PIR DOUBLE DEVICE OF IR SECTION WITH ANTICREEPING LENS

DIPSWITCH FOR DETECTOR ADDRESS SETUP. SEE ALSO TABLES ON TECHNICAL MANUAL

LED INDICATING RS485 WORKING OF THE DETECTOR

EVENT	GREEN LED	RED LED	BLUE LED
FIRST POWER ON	-----	ON	-----
DEFAULT OK	SLOW BLINK	FAST BLINK	SLOW BLINK
LOW POWER	SLOW BLINK	SLOW BLINK	SLOW BLINK
DISORIENTATION	-----	SLOW BLINK	-----
ALARM	ON-----		ON
PIR1 FAULT	FAST BLINK	-----	-----
PIR2 FAULT	-----	FAST BLINK	-----
MASKING / BLINDING	SLOW BLINK	-----	-----
MASKING TEST UPON			
FIRST POWER ON	BLINKING	-----	BLINKING
PREALARM IR	ON	-----	-----
PREALARM MW	-----	-----	ON
PULSE IR	ONE BLINK	-----	-----
PULSE MW	-----	-----	ONE BLINK

NOTE: PLEASE SEE THE MANUAL FOR DETECTORS RESET PROCEDURE

Note: see the programming manual for the configuration of the detector in BrowserOne. See the technical manual of the detector for address setting instruction and for suggestions for a correct installation.

1.15 LEDA485 siren connection to the serial interface

CONNECT THE CABLE SCREENS TO THE CONTROL UNIT NEGATIVE

FROM THE PREVIOUS DEVICE ON THE SERIAL LINE OR FROM THE CONTROL UNIT

WIRE THE CABLE SCREENS TOGETHER

TO THE NEXT DEVICE ON THE SERIAL LINE

12 V
A
B

12V+ ALIM SERI
B
A   485 - 2
RX
TAMPER

A B 485 BUS   + - ALIM. 12V   MODULO ANTISCHIUMA

LEDA485 SIREN WITH RS-485 SERIAL INTERFACE

THE CHARGE CIRCUIT FOR THE BACKUP BATTERY DRAWS CURRENT FROM THE SERIAL LINE

12 V / 1.2 Ah BATTERY

Nota: possono essere gestite fino a 16 sirene LEDA485, la programmazione delle loro funzionalità avviene utilizzando il BrowserOne ed il modulo della centrale.

1.16 Power supply unit connection to the serial interface
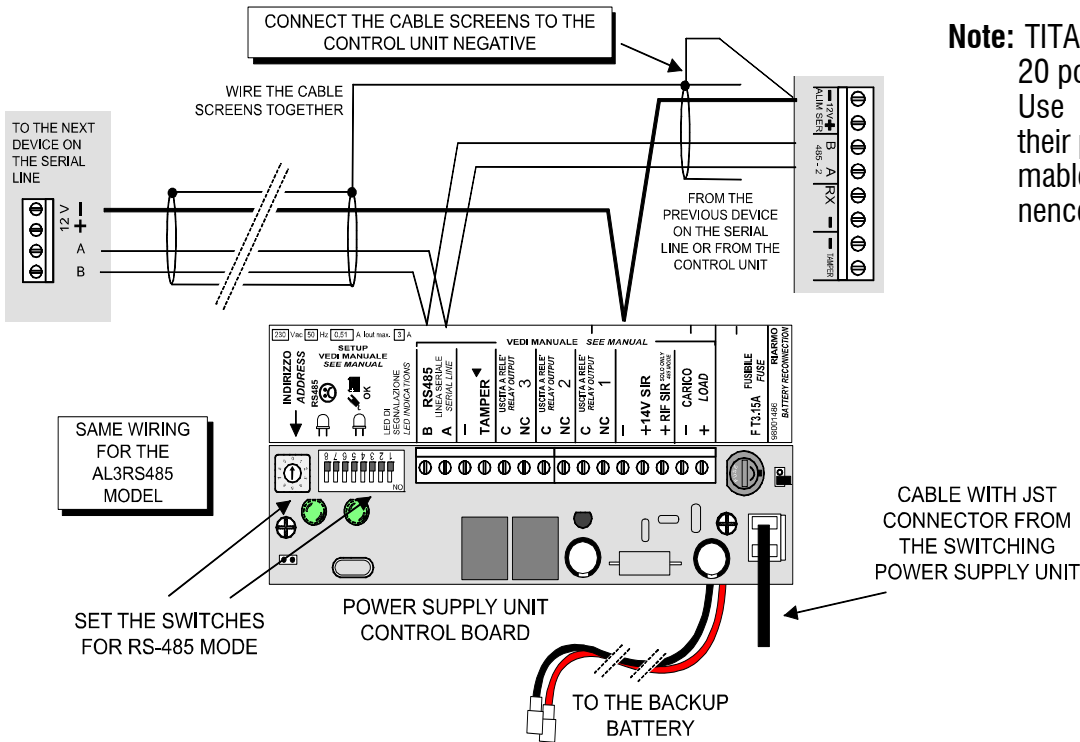
Note: TITANIA manages up to 20 power supply units. Use BrowserOne to set their presence, programmable exit and pertinence area.

1.17 Optical-acoustic alarm standard connection

Connection of self-powered sirens to the terminals of the control unit.
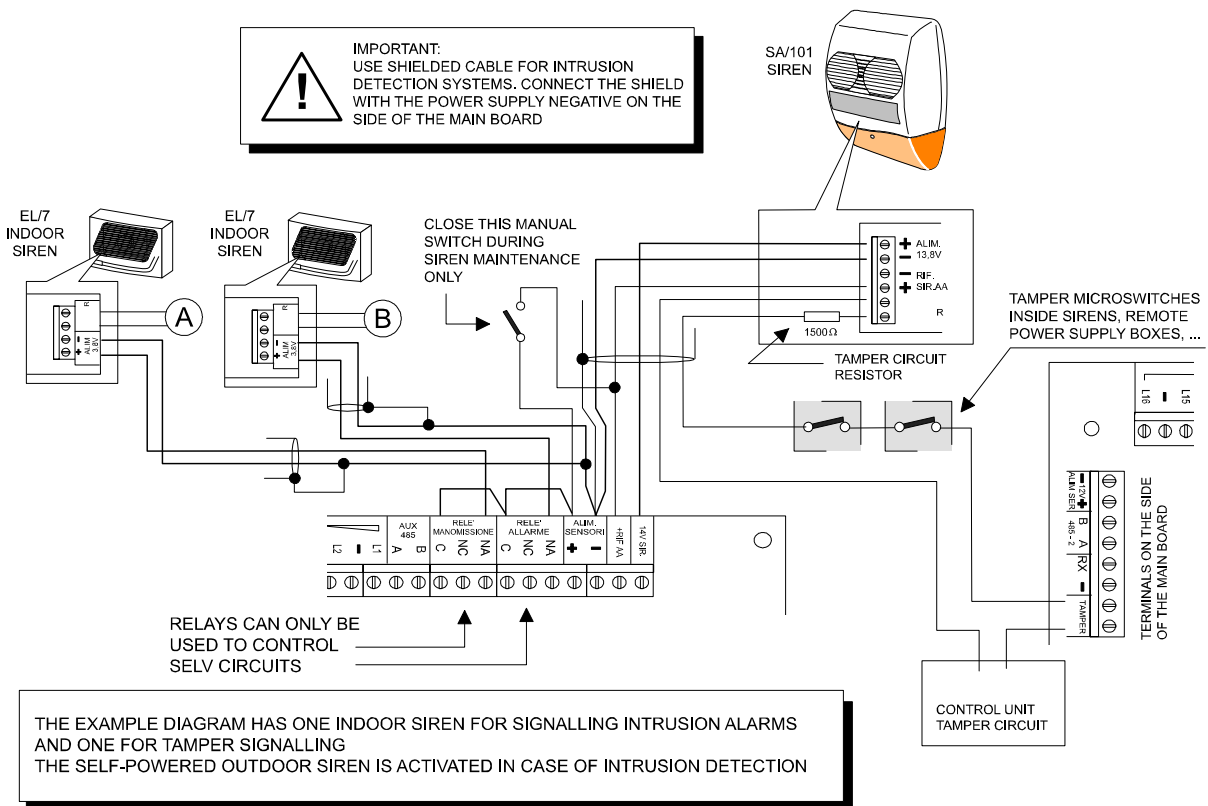
Note: the SIR+RIF output provides up to 40 mA; therefore, it can not be used to directly feed alarms.

1.18 Connection of RIVER series concentrators

RIVER, RIVER2 or RIVER3 (fw.1.5) concentrators can be used to reach the maximum number of zones/outputs that the control unit can manage (512 for TITANIA, 1024 for TITANIAPLUS).

TAMPER BUTTON ON BOARD

SIGNALING LED

DATA IN SERIAL LINE

SERIAL LINE FROM THE CONTROL UNIT OR FROM OTHER PREVIOUS CONCENTRATORS

STATUS OF THE PROTECTION
TAMPER OFF = PROTECTION OK

CONCENTRATOR RESPONSE
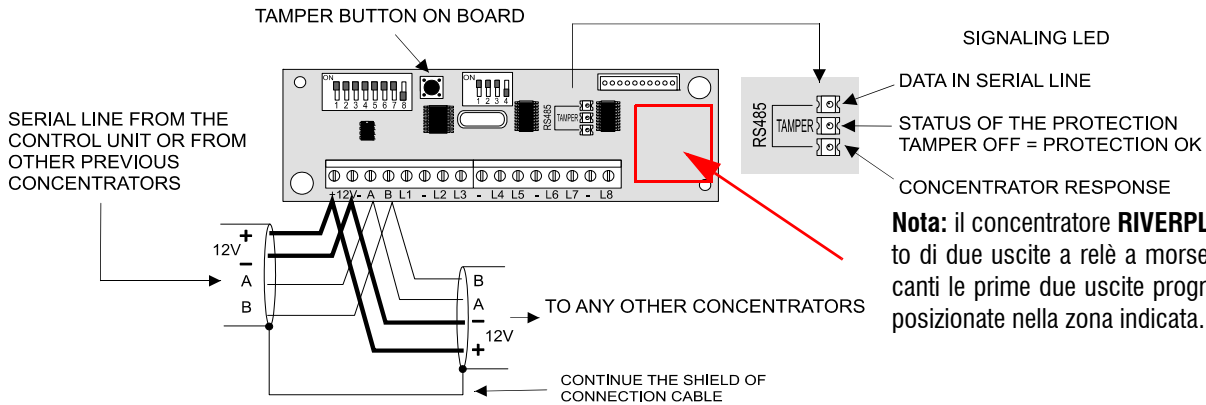
Nota: il concentratore **RIVERPLUS** è dotato di due uscite a relè a morsettiera replicanti le prime due uscite programmabili e posizionate nella zona indicata.

TO ANY OTHER CONCENTRATORS

CONTINUE THE SHIELD OF CONNECTION CABLE

LINE BALANCING RESISTANCE 680OHM

ATTENTION

IF THIS CONCENTRATOR IS THE LAST DEVICE CONNECTED TO THE SERIAL LINE MUST BE CONNECT THE TERMINATION RESISTANCE AS INDICATED IN THE IMAGE

OPTION FOR REMOTE POWER CONCENTRATOR

SERIAL LINE FROM THE CONTROL UNIT OR FROM OTHER PREVIOUS CONCENTRATORS

TO OTHER CONCENTRATORSI

NOTE: +12V IS NOT INDICATED AS COMING FROM CONTROL UNIT AS AN EXAMPLE OF POWER SUPPLY FROM BOX REMOTE

POWER SUPPLY OF THE CONCENTRATOR FROM REMOTE BOX

Note: the RIVER concentrator (fw.1.5) is a RIVERPLUS concentrator without electronic outputs.

Note: the same connection and addressing instructions provided for RIVER are also valid for RIVERPLUS.

RIVER concentrator board and dip switches meaning.

SELECTORS FOR ADDRESS SETTING

ONLY FOR OUTPUT REPETITION

SELECTORS FOR INPUTS BALANCING

EXCLUDED TAMPER

FOR ADDRESS SETTING SEE THE PROPER TABLE

TAMPER BUTTON OF THE HOUSING

ACTIVE TAMPER (DEFAULT)

NO REPETITION (DEFAULT)

CONNECTOR FOR ETRREL OR ETRREL4 RELAY MODULES

LED FOR THE RS485 OPERATION SIGNALING OF THE CONCENTRATOR

TAMPER

ATTENTION: THE POWER SUPPLY OF ANY POWERED DETECTORS MUST NOT BE TAKE FROM THE CONCENTRATOR POWER SUPPLY

TERMINALS FOR THE CONNECTION OF THE SERIAL LINE

TERMINALS FOR THE INPUTS CONNECTION

NOTA: PER LA DEFINIZIONE DEL BILANCIAMENTO DEGLI INGRESSI FARE RIFERIMENTO ALLA TABELLA SPECIFICA

1.19 RIVER concentrators address setting (part 1)

For TITANIA control units, use addresses up to 512 (highlighted in the red frame).

Note: the dip switch No. 8 is used for turning the repeater function ON or OFF (default), it is not used for the addressing.

international@elmospa.com

elmospa.com

1.20 RIVER concentrators address setting (part 2)

For TITANIAPLUS control units, use addresses up to 1024.

Note: the dip switch No. 8 is used for turning the repeater function ON or OFF (default), it is not used for the addressing.

ADDRESSES CAN NOT BE USED

1.21 Choice of balancing for the zones of a RIVER concentrator

TYPICAL EXAMPLES OF WIRING OF THE CONCENTRATOR INPUTS
THE BALANCING SETTINGS ARE VALID FOR ALL 8 INPUTS

ZONES WITH STANDARD DOUBLE BALANCING

ZONES WITH STANDARD TRIPLE BALANCING

ZONES WITH STANDARD DOUBLE BALANCING FOR CP80, CP90, CP100 AND ET8/48XX CONTROL UNITS

INPUTS WIRING OF THE CONCENTRATOR WITH DEFINITION CARRIED OUT WITH THE CONTROL UNIT SOFTWARE

PROGRAMMED INPUT AS NC (I° LEVEL CEI79-2)

INPUT PROGRAMMED "FAST" FOR CONNECTION OF SEISMIC SENSORS OR ROLL-UP SHUTTER CONTACTS. SENSITIVITY AND INTEGRATION ARE SET VIA SOFTWARE

The various balancing options can be used when it is necessary to replace the control unit and the concentrators, but it is not practical to change the line balancing on existing detectors; the various balancing options are compatible with a large number of configurations.

1.22 Zone connection to a RIVER concentrator

WARNING: any unused zone has to be terminated with an end of line resistor which value has to be coherent with the position of dip switches 1, 2 and 3.

BALANCING RESISTANCES 1500 Ω

2 X 1500 Ω

2 X 1500 Ω

POWER SUPPLY OF THE DETECTOR SUPPLIED BY A POWER SUPPLIED GROUP

DON'T TAKE FROM THE SERIAL LINE

MICROPROCESSOR DOUBLE-TECHNOLOGY DETECTOR

MAGNETIC SENSOR
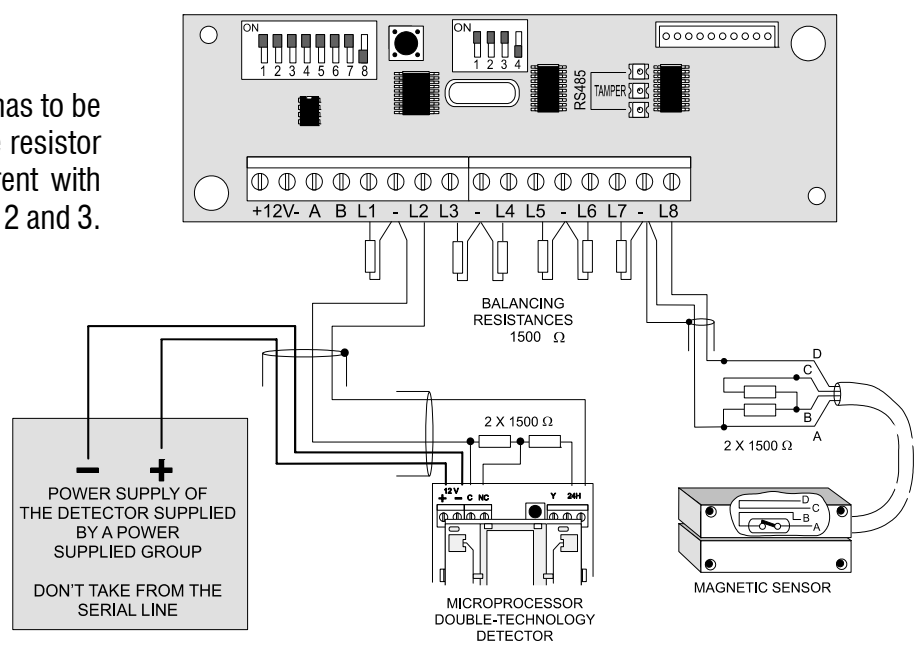
Example of fast zones connection.

Notes on the configuration and functioning of fast zones on concentrators with fw v.1.4 or higher.

Setting a zone as "fast" allows for the management of signals from inertial or shutter sensors; these sensors generate tension pulses on the line that connects them to the control unit.

The generated signals vary according to the model and to the installation conditions; they therefore need to be managed with two parameters, sensitivity and integration.
Both are set to 10 by default, and this default is used for the most common situations and for the most common shutter detectors.
For inertial sensors or unusual situations, it is necessary to vary those parameters in order to obtain an optimal response from the sensor.

Sensitivity: this is the main parameter that defines the detection of the alarm condition.
A low sensitivity requires a greater pulse duration and a greater number of pulses in order to cause an alarm.

Integration: this parameter defines the time within which the alarm condition has to be detected in order to be considered valid. A low value lengthens the detection time.
Usually, the system can be calibrated by changing only the sensitivity parameter and by leaving the integration at 10 (corresponding to a 15-30 seconds range for detection).
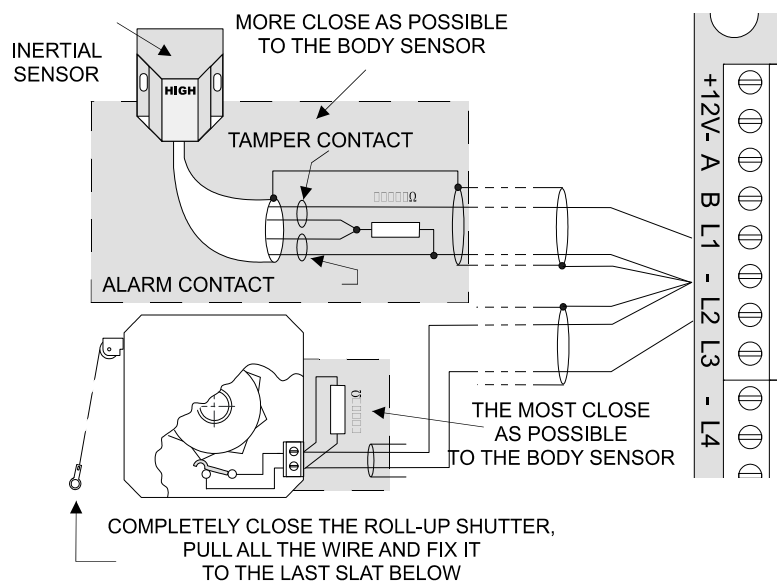
Use with shutter sensors

To get a swifter reaction, increase the sensitivity in steps of 10 (20, 30, 40, …). We suggest not to set the sensitivity higher than 40 in order to prevent false alarms due to unexpected switching of the sensor.
In order to detect very slow shutter movements, halve the sensitivity (5).
In case of false alarms, set the sensitivity to values lower than 20; it is sometimes useful to raise integration to 15 in order to reduce the detection time range.

WARNING: a low sensitivity coupled with high integration values reduces the sensitivity to slow shutter movements.

Use with inertial sensors

Use a sensitivity of 40 or higher (usually corresponding to two pulses).
For a swifter reaction, increase the sensitivity in steps of 10 (50, 60, …).
For generating an alarm with a single pulse, it is usually enough to set a sensitivity of 50 or higher.
For detecting distanced pulses, halve the integration value (5).
In case of false alarms, set the sensitivity to values lower than 40; it is sometimes useful to raise the integration in steps of 5 (15, 20, …) in order to reduce the detection time range.

1.23 Output connections on a RIVER concentrator

ETRREL   ETRREL4

THE RELAY OUTPUT ARE PROGRAMMABLE
USING THE MANAGEMENT SOFTWARE OF THE CONTROL UNIT

WITH THE ACTIVE REPETITION FUNCTION
THE RELAY OUTPUTS REPEAT THE
OUTPUT STATUS OF THE PRIMARY
CONCENTRATOR BELONGS TO
THE SAME SERIAL LINE
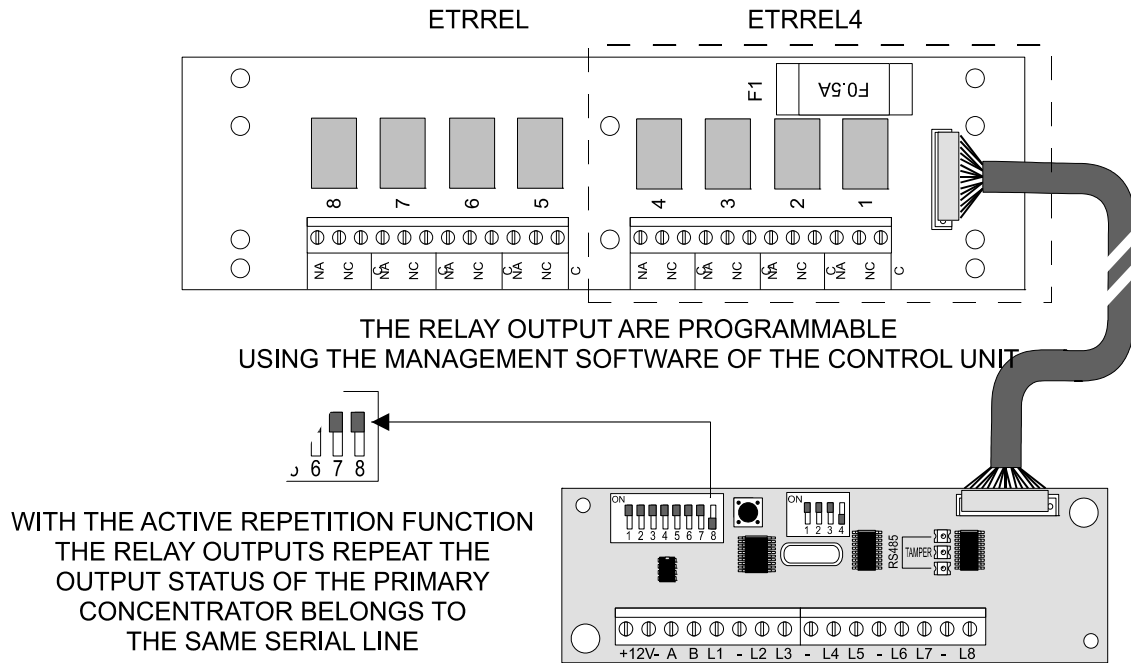
Note: if the ETRREL or ETRREL4 board is connected to a RIVER concentrator, which has a plastic housing, the installer shall place them inside a housing that can grant the desired EN50121 protection level.

POS.3   POS.4   POS.5   POS.8   SIGNALS
                                        CONNECTORS

POS.2   POS.1   POS.6   POS.7   FUSE F1A

THE RELAY OUTPUTS ARE PROGRAMMABLE
USING THE MANAGEMENT SOFTWARE OF THE CONTROL UNIT

WITH ACTIVE REPETITION FUNCTION
THE RELAY OUTPUTS REPEAT THE
OUTPUT STATUS OF THE
PRIMARY CONCENTRATOR IF BELONGING
TO THE SAME SERIAL
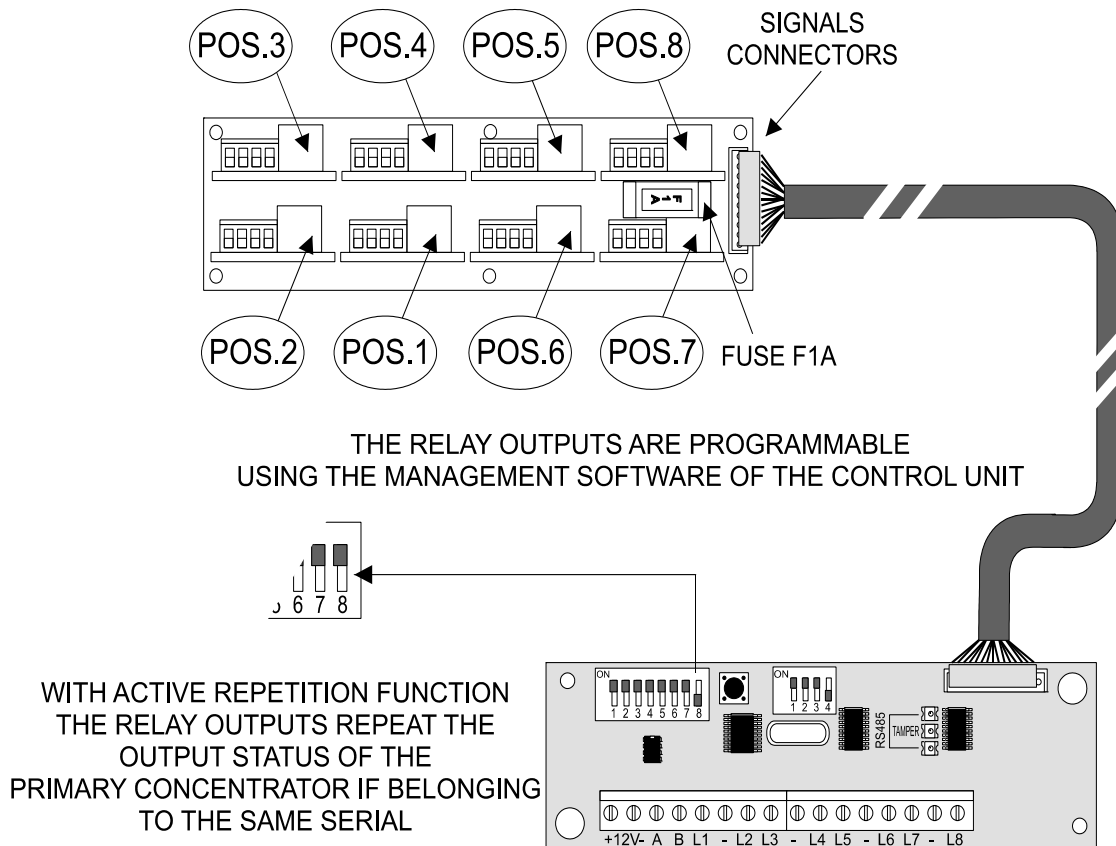
Note: If the ETRREL or CP8/REL plus UNIREL boards are connected to a RIVER concentrator, which has a plastic housing, the installer shall place them inside a housing that can grant the desired EN50121 protection level.

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1.24 RIVERRF concentrator

The TITANIA series control units fully manage the RIVERRF concentrator, including 24 hrs detectors and remote controls. Its address can be set from 17 to 512 (for TITANIA) or 1024 (for TITANIAPLUS).
RIVERRF is also installed inside METIS2, with the antenna placed on the outside of its metal box.
The RIVERRF concentrator and METIS2 are not certified IMQ SISTEMI DI SICUREZZA.
Following, some general informations about the RIVERRF concentrator. For the radio detector memorization procedures, see the manual of the concentrator.
Electronic board:
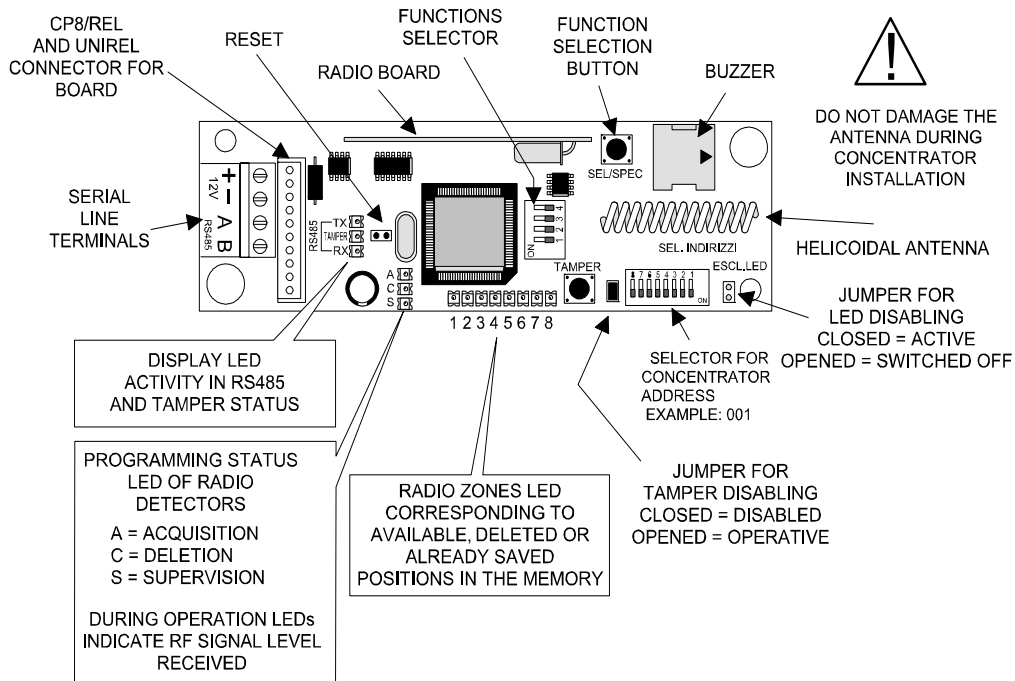
Concentrator connection, serial line example.
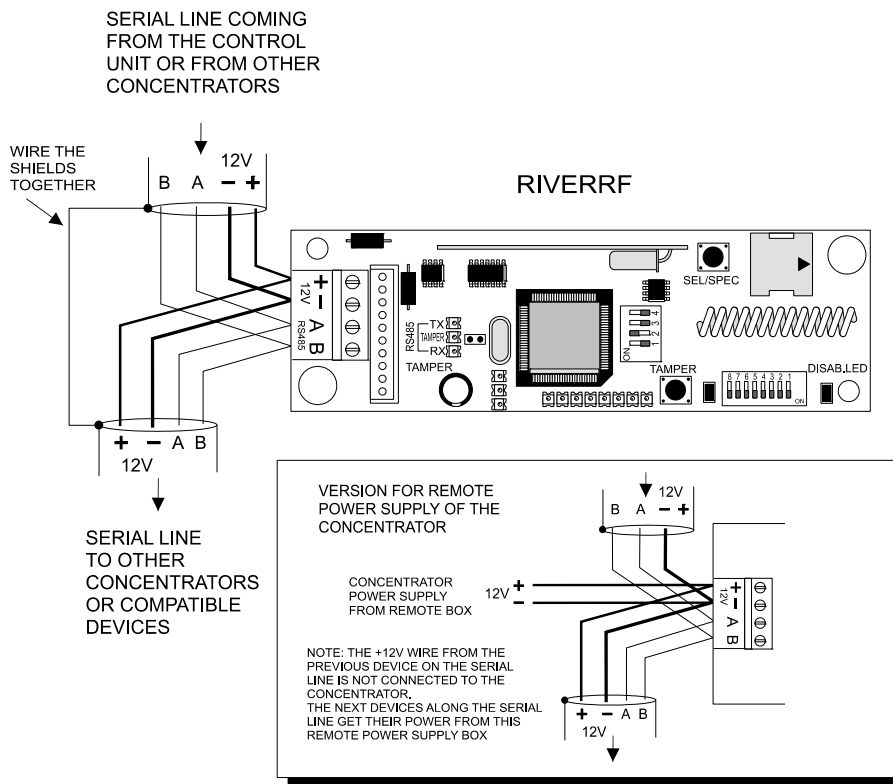
TITANIA control unit with two RIVERRF concentrators side by side.

HELIOS SYSTEM WIRELESS DEVICES

SCORPIO, LUPUS, VOLANS, VIRGO, LEO, DRACO, DRACO G2, DEIMOS, VIRGOEXT, BLADERF, TRIALRF DETECTORS

VELA AND VELAPLUS KEYPADS

TYROS MEDIC REMOTE CONTROL

ATLANTE4 REMOTE CONTROL

EACH USER CAN USE THE REMOTE, THE KEYPAD OR AN M4 PROXIMITY KEY

TO OTHER RIVERRF

RIVERRF RADIO CONCENTRATOR

IT IS POSSIBLE TO INSTALL MULTIPLE RIVERRF CONCENTRATORS. EACH CAN MEMORIZE UP TO 8 RADIO DEVICES

TITANIA v.5.x OR HIGHER CONTROL UNIT

CONNECT WITH SHIELDED CABLE 2×0.75 + 4×0.22 mm²

Note: this connection is compliant with EN50131-3 level 1. See consultare il capitolo. "RIVERRF configuration for EN50131 conformity" a pag. 8

TITANIA control units with fw. 5.x or higher support the ***extended*** management of RIVERRF concentrators regarding low battery, fault and supervision failure indications for each perimetral or volumetric wireless detector, wireless 24 hrs detector or remote control that has been memorized to the concentrator.

The low battery, fault and supervision failure events are logged (and can be sent via direct connection or CEI79,5-6 protocols) and they have the anomaly yellow LED of the keypad blink; more details can be seen by pressing "arrow up".

Note: when arming areas associated to at least one of the zones with the supervision failure status of a RIVERRF, the anomaly memories of TITANIAPLUS are cancelled, including fault and low battery ones.

INDICATIONS

POSITION OF RECEIVER INSIDE RIVERRF

CABLES INPUT

OK

NO

3 cm

3 cm

ATTENTION: when activating the extended management of a RIVERRF concentrator on a TITANIA control unit, set its selection dip switch to the NET9 mode.
If the switch is in ETR mode, 6 zones will be used for radio detectors, one for low battery and one for the super-vision failure of all six zones.

FUNCTIONS SELECTION

ET4
ETR SERIES(MOD. 6 + 2)

DEFAULT
NET5 - NET9
ETR G2 SERIES (EXTENDED MODE)

international@elmospa.com

elmospa.com

1.25 RIVERRF concentrators address setting (part 1)

ZONES 57 - 64 · ZONES 105 - 112 · ZONES 153 - 160 · ZONES 201 - 208 · ZONES 249 - 256 · ZONES 297 - 304 · ZONES 345 - 352 · ZONES 393 - 400 · ZONES 441 - 448 · ZONES 489 - 496 · ZONES 537 - 544 · ZONES 585 - 592

ZONES 49 - 56 · ZONES 97 - 104 · ZONES 145 - 152 · ZONES 193 - 200 · ZONES 241 - 248 · ZONES 289 - 296 · ZONES 337 - 344 · ZONES 385 - 392 · ZONES 433 - 440 · ZONES 481 - 488 · ZONES 529 - 536 · ZONES 577 - 584

ZONES 41 - 48 · ZONES 89 - 96 · ZONES 137 - 144 · ZONES 185 - 192 · ZONES 233 - 240 · ZONES 281 - 288 · ZONES 329 - 336 · ZONES 377 - 384 · ZONES 425 - 432 · ZONES 473 - 480 · ZONES 521 - 528 · ZONES 569 - 576

ZONES 33 - 40 · ZONES 81 - 88 · ZONES 129 - 136 · ZONES 177 - 184 · ZONES 225 - 232 · ZONES 273 - 280 · ZONES 321 - 328 · ZONES 369 - 376 · ZONES 417 - 424 · ZONES 465 - 472 · ZONES 513 - 520 · ZONES 561 - 568

ZONES 25 - 32 · ZONES 73 - 80 · ZONES 121 - 128 · ZONES 169 - 176 · ZONES 217 - 224 · ZONES 265 - 272 · ZONES 313 - 320 · ZONES 361 - 368 · ZONES 409 - 416 · ZONES 457 - 464 · ZONES 505 - 512 (Limit for TITANIA) · ZONES 553 - 560

ZONES 17 - 24 · ZONES 65 - 72 · ZONES 113 - 120 · ZONES 161 - 168 · ZONES 209 - 216 · ZONES 257 - 264 · ZONES 305 - 312 · ZONES 353 - 360 · ZONES 401 - 408 · ZONES 449 - 456 · ZONES 497 - 504 · ZONES 545 - 552

Note: always set dip switch 8 to ON.

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1.26 RIVERRF concentrators address setting (part 2)

DO NOT USE THESE ADDRESSES

For TITANIAPLUS control units, use addresses up to 1024.
Note: always set dip switch 8 to ON.

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1.27 RIVERRF concentrator inside METIS keypad

METIS keypads include a RIVERRF concentrator, see consultare il capitolo. "Connection example for I8 proximity readers and some compatible keypads" a pag. 9.
See the technical manual of the concentrator for its configuration.
For its addressing, see the tables in the previous pages.

1.28 Battery disconnection circuit

This circuit, which is part of all TITANIA series control units, is used to disconnect the battery when the battery voltage is under 9 V, in order to avoid damaging the battery itself.
The circuit periodically and dynamically checks the presence and the efficiency status of the backup battery and, during mains failure, the voltage at its terminals. If the voltage goes under 10.5 V, a low battery event is generated and signalled.

Note: for a correct circuit functioning, connect the battery while the control unit is unpowered, then immediately turn the mains power supply ON.

1.29 Auxiliary outputs connection

Connection of outputs using an ETRREL relay board.
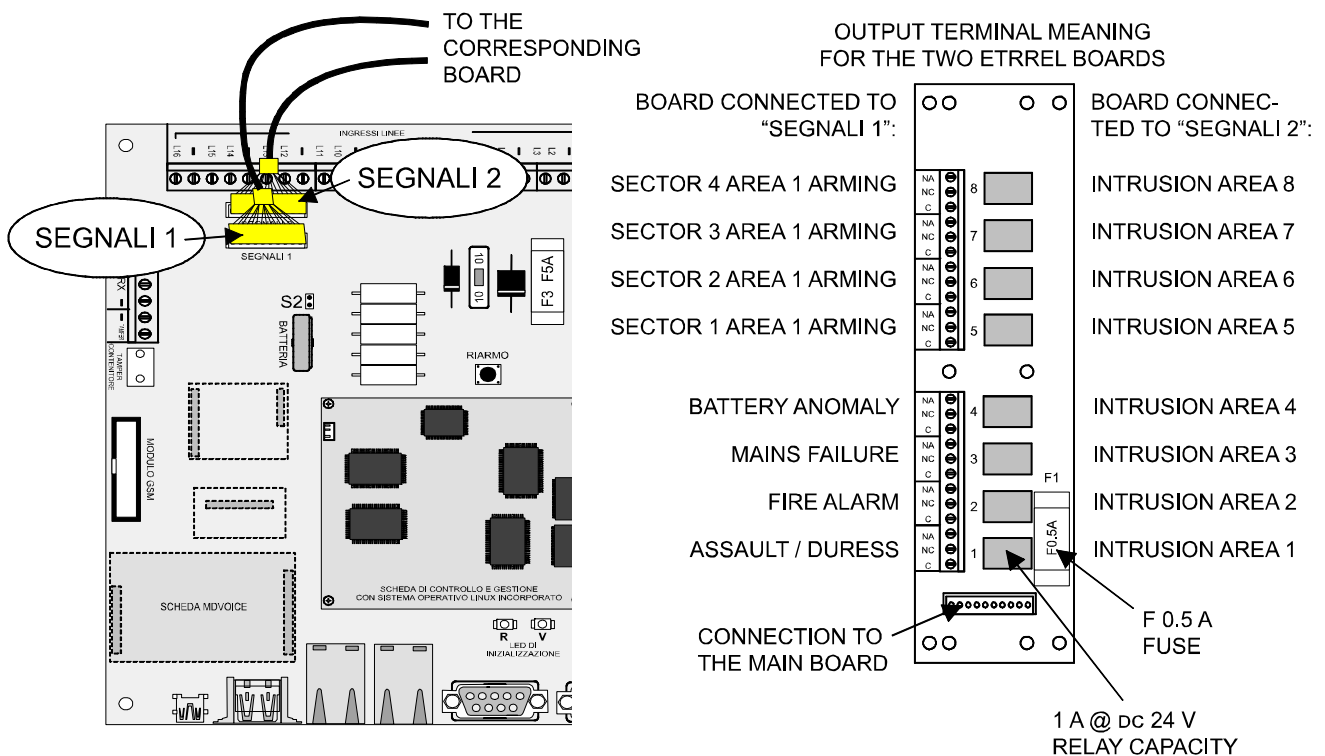
Note: in order to grant the required performance level, do not use the SEGNALI1 (signals1) and SEGNALI2 (signals2) outputs for connecting any other device but ETRREL.

1.30 <u>LAN network connection</u>
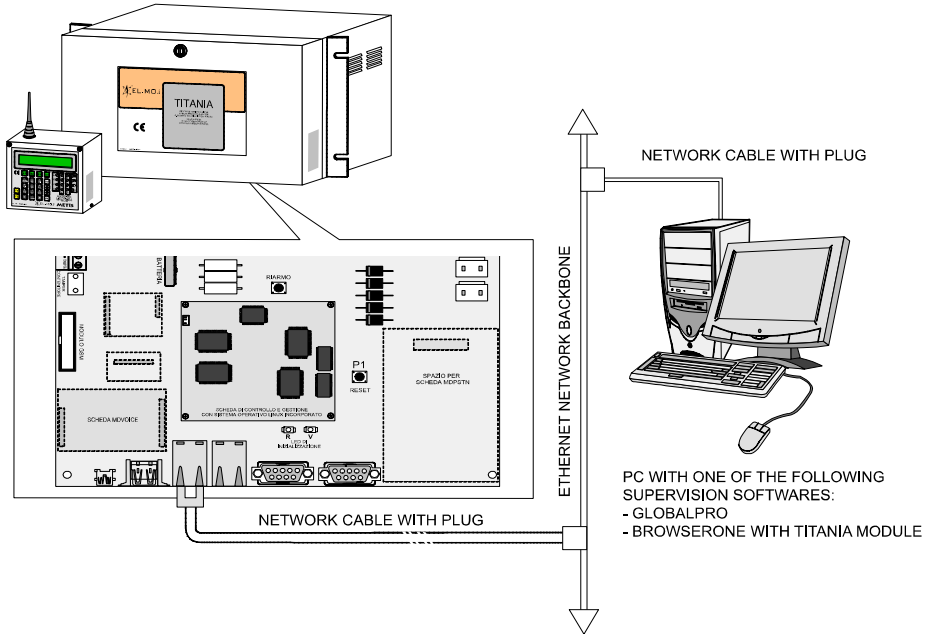
Note: the firmware upgrade of the control unit requires a LAN network connection. The upgrade has to be performed by the installer (after a user gave him permission from the Enablings menu).

1.31 <u>iCON100 controller connection on TITANIAPLUS control units</u>
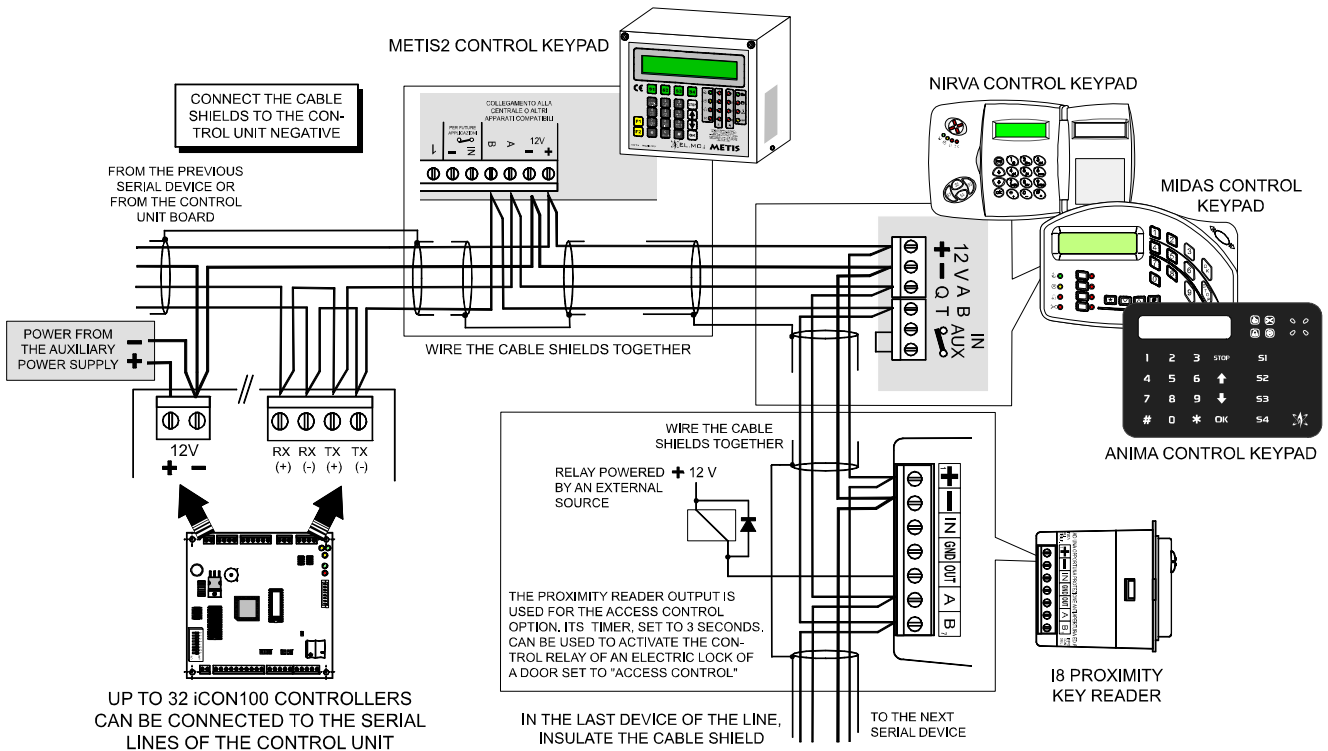
See the MT_ETR_iCON100_rev07-09 document (also valid for TITANIA series control units) that is provided in the supplied CD-ROM or is downloadable from elmospa.com.

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elmospa.com

1.32 Installing the MDPSTN telephone module

B POSITION THE MODULE OVER THE MAIN BOARD, ALIGNING THE HOLES WITH THE SPACERS AD THE TWO CONNECTORS

C PUSH THE MODULE DOWN UNTIL THE SPACERS CLICK AND THE CONNECTOR IS FIRMLY INSERTED

MDPSTN MODULE

A INSERT THE PROVIDED SPACERS IN THE HOLES SHOWN
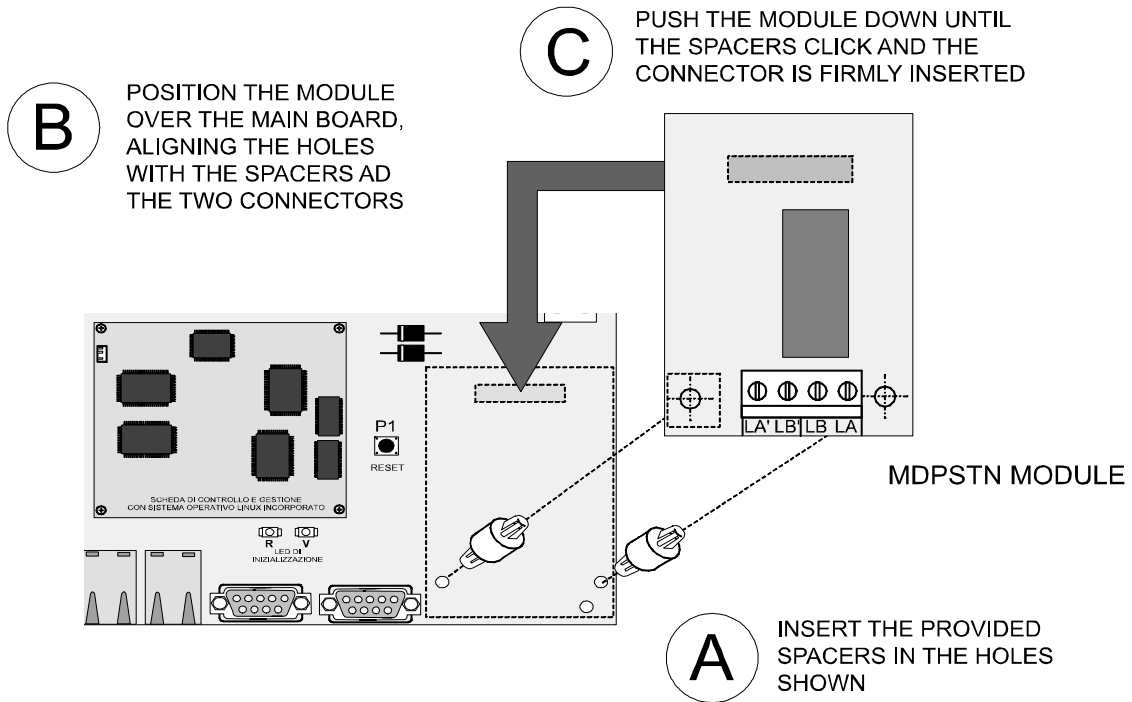
1.33 Telephone connection to the MDPSTN module

ATTENTION: THE TELEPHONIC INTERFACE MODULE FOR THE CONTROL UNIT HAS NOT BEEN DESIGNED FOR MANAGING ISDN COMMUNICATIONS. IF THIS SORT OF COMMUNICATION IS USED ON THE TELEPHONIC LINE, IT IS NECESSARY TO IMPLEMENT A BRANCH CONNECTION FROM PLUG N°1 OF THE ISDN DEVICE (E.G. NT1PLUS). IF SUCH DEVICE GETS LATER INSTALLED, IT WILL BE NECESSARY TO MOVE THE PHONE WIRINGS TO PLUG N°1.
SET THE DEVICE TO COMMUNICATE OVER HIGH FREQUENCES (REFER TO THE MANUAL OF THE DEVICE). THE DIALLER OF THE CONTROL UNIT HAS TO BE PROGRAMMED TO USE DTMF ENCODING.

BEFORE   PHONE LINE

AFTER

GROUND

TO THE FUSES

PTN NOISE SUPPRESSION FILTER

PHONE LINE

EXISTING GROUND POLE

TNV CIRCUIT

INBOUND TELEPHONE LINE

DO NOT WIRE CABLES HERE

TO THE INTERNAL PHONES

TELEPHONE LINE SECTION WITH ATS 2/SP 2 CLASSIFICATION (REFERENCE STANDARD EN50136-2:2013)

TITANIA SERIES CONTROL UNIT WITH MDPSTN OPTIONAL MODULE
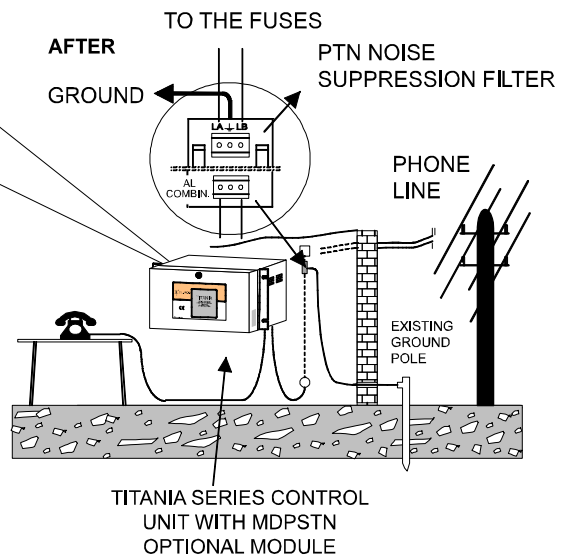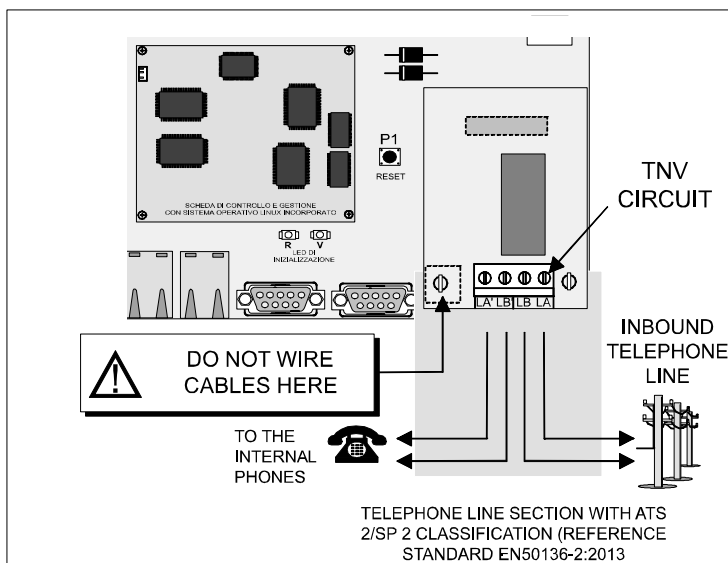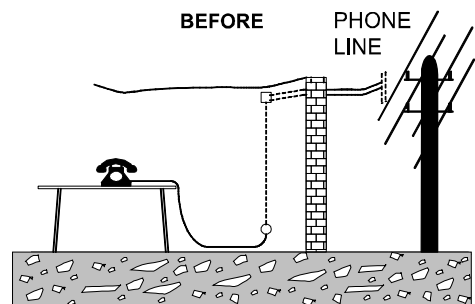
1.34 Connection of a KSM412 selective microphone for strongboxes

Connection example.

Terminals 1-15 assignment table		
No.	Name	Signal / meaning
1	Empty	For joining cable screens
2	Reduced sensitivity input	-10 dB sensitivity reduction, activates at 0 V
3	Open collector alarm output	Max 100 mA, with 0 V connected alarm
4	Test / Dataline connection with PC interface	For controlling the internal oscillator or PSG 43/1 and PSG 44/1 internal test devices, 0 V when active.
5	Cover tamper	Tampering
6	Cover tamper	Tampering
7	For signalling line	Connection of the signalling line
8	For signalling line	End of line resistor for the signalling line
9	Alarm relay	End of line resistor for the signalling line
10	Alarm relay	Connection of the signalling line
11	Power Supply	0 V
12	Power Supply	From 9 V to 29 V cc (12 V cc)
13	Lock plate	Safe keyhole surveillance
14	General	For lock plate and internal test device (sound generator)
15	Sound general	PSG, white wire

ZONE 1, DOUBLE BALANCING CONNECTION

OUTPUT 1 PROGRAMMED FOR AUTOMATIC OR REMOTE EVENT, MICROPHONE IN ALARM CONDITION WHEN THE RELAY IS ENERGIZED (NEGATIVE AVAILABLE)

CONNECTED TO "SEGNALI 1" ON THE MAIN BOARD (OUTPUTS 1 TO 8)

Connection example using a RIVERNANO2 miniaturized concentrator.

NOTE: THE YELLOW CABLE (INPUT 2) IS CONNECTED TO THE TERMINAL No. 1 FOR EASE OF USE (THIS INPUT IS NOT USED FOR THIS CONNECTION). REMOVE THE WIRE BEFORE PROGRAMMING.

PLACE FOR THE INTERNAL TEST DEVICE

USE 1500 Ω RESISTORS

THE CONNECTION CABLE IS FED THROUGH A CABLE CONDUIT SUPPLIED WITH THE MICROPHONE. SOMETIMES, A SECOND CABLE IS NEEDED, AND A SECOND HOLE HAS TO BE DRILLED IN THE CONDUIT. WORK CAREFULLY, INSULATING THE CONCENTRATOR WITH THE PROVIDED SHEATH, PLACING IT IN THE DOTTED AREA.

FROM OTHER CONCENTRATORS

1.35 Installation of the MDVOICE vocal synthesis module

ATTENZIONE
La scheda MDVOICE **non può essere sostituita** dalla scheda ETRVOICE e viceversa.
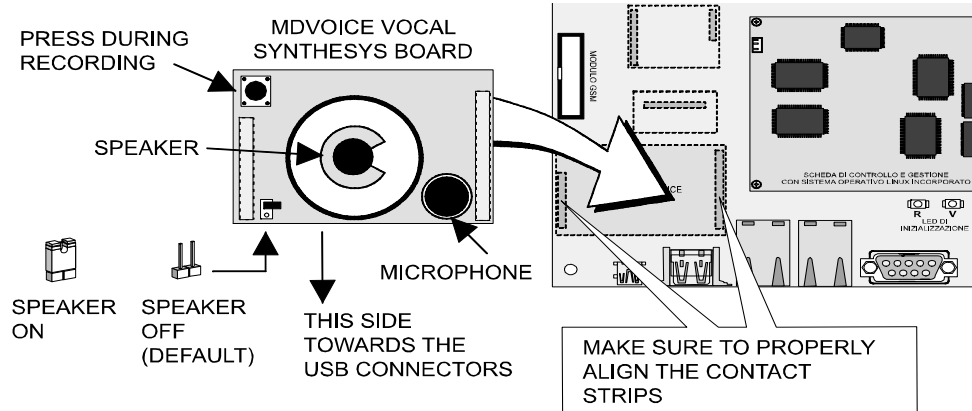
1.36 ETRGSM module

See the technical manual for the ETRGSM module.
Use a GSMAC antenna for TITANIA, a GSMAC90 antenna for TITANIAPLUS.
The module provides a GSM connection that can be used to send alarm messages to a remote centre (ATS 4/SP4, reference standard EN50136-2:2013). If the signal where the control unit is placed is not sufficient, use a GSMEXA2 or GSMEXA15 kit to position the antenna at a better place.

Note: the GSMEXA2 and GSMEXA15 kits are not certified IMQ - SISTEMI DI SICUREZZA.

1.37 Connection to the configuration software via RS-485 serial line
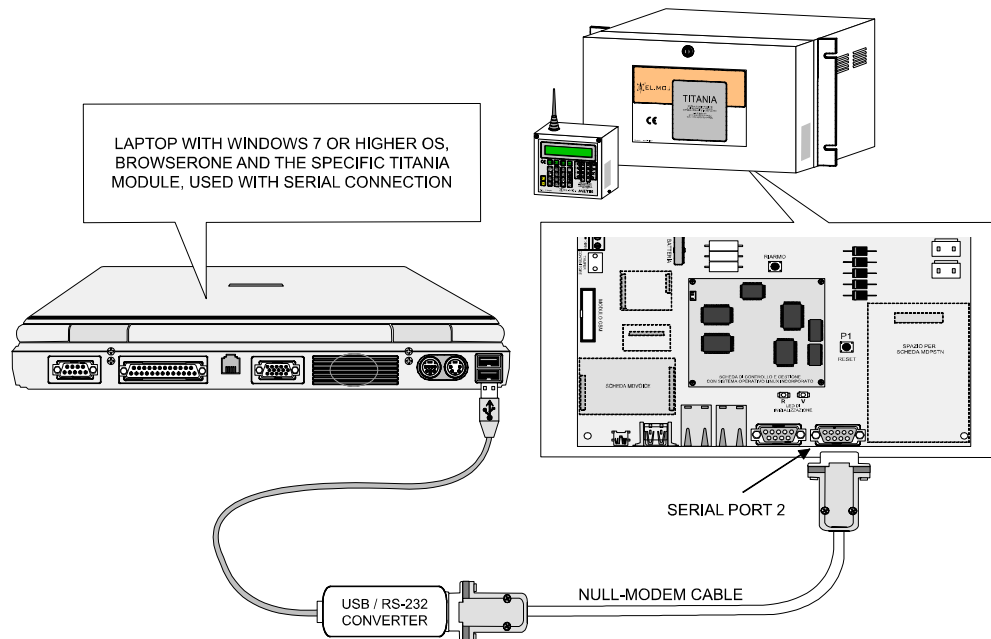
Note: after disconnecting, wait at least 1 minute before connecting again.
Otherwise, the "error 207" message appears.

1.38 Connection to the configuration software via LAN

Get a PC with a RJ49 (Ethernet) port and use an Ethernet cable to connect the PC directly to the LAN1 port located on the main board of the control unit.

Access the installer menu of the control unit, browse to "NETWORK PARAMETERS" (see consultare il capitolo. "KEYPAD MENUS" a pag. 1) and note down:
- the IP Address and Subnet Mask of the LAN1 board;
- a port value (there are two, any will do).
For additional informations, see the "Network Parameters" chapter in the programming manual.

Change the network parameters of the PC accordingly. For example, if using Windows10, right click the Start menu and access **Control Panel - Network and Internet - View network status and tasks - Change adapter settings**, right click the Ethernet connection and access its Properties.
Select the TCP/IPv4 protocol and click on Properties.
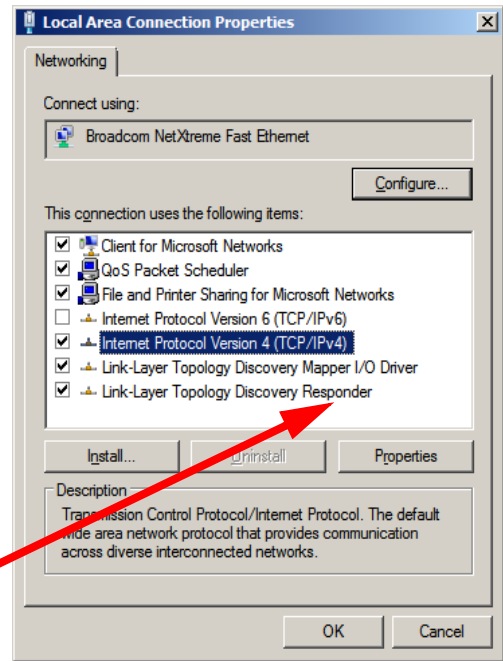
Note down the current settings.
Change the settings according to the network parameters of the LAN1 board.
For example, if the network parameters are:
- IP address of the control unit **192.168.0.200**
- Subnet Mask **255. 255. 255.0**
Set the PC parameters like shown on the right.
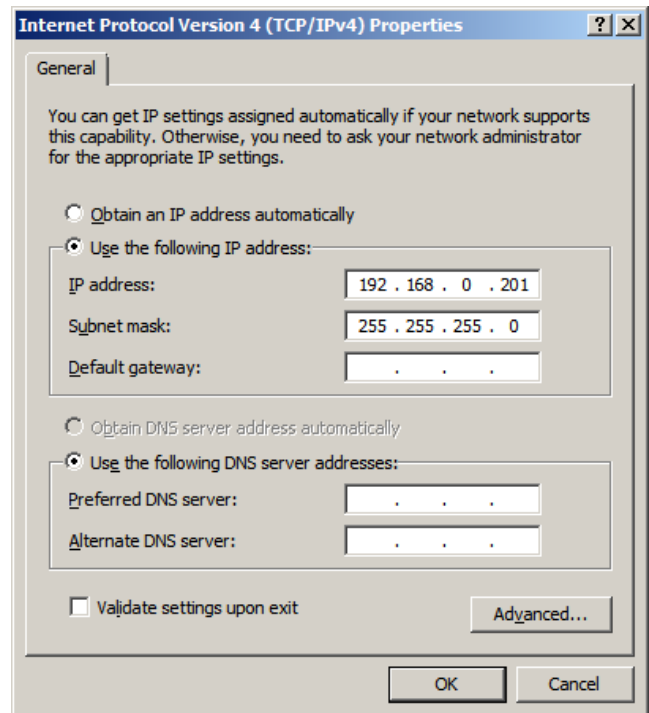
Click OK in this window and in the next one.

Install and run BrowserOne and the proper control unit module.
Have a user authorize the installer to connect to the system (using the "Enablings" menu), then select "Connection - Connect to...":
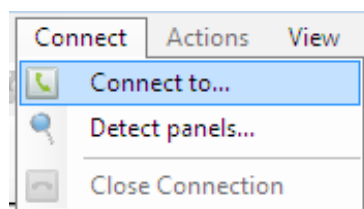
In the following window, choose the Tcp/Ip communication protocol.
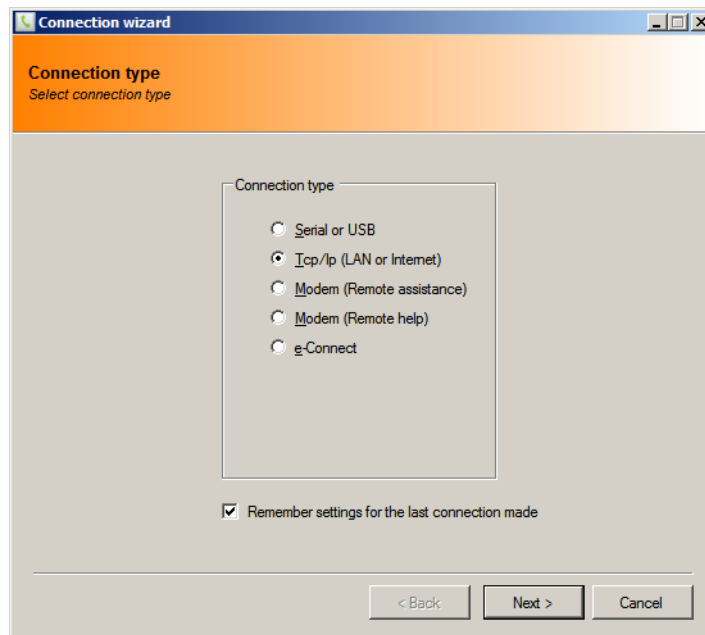
Set the IP address of the LAN1 board and the Port.
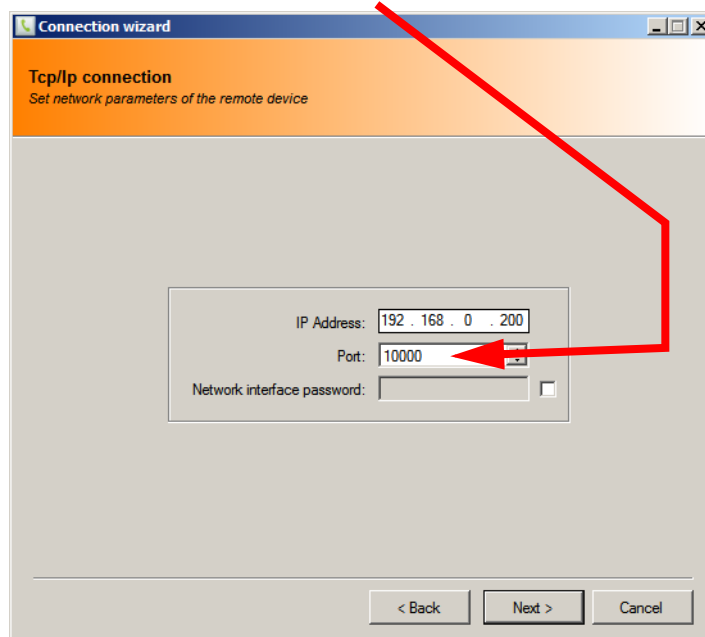
Click "Next" to connect.

Go to the "Settings" page, "Network Parameters" tab.
Change the LAN2 Board Parameters with a static IP Address, Subnet Mask (NetMask) and Gateway provided by the local Ethernet network administrator.
Connect the LAN2 port to the local network.

From now on, if a computer that runs the configuration software is connected to the local network, it can connect to the control unit: access "Connection - Connect to..." and repeat the connection steps above, but use the new IP Address provided by the network administrator (the one you saved in "LAN2 Board Parameters".

Access the Control Panel of your PC again and restore the initial values in the IPv4 Properties window.

1. KEYPAD MENUS

1.1 Installer menu

The installer can access via keypad for a limited programming while the system is unarmed.
A finer programming is only possible by using the configuration software.

INSTALLER LOGIN
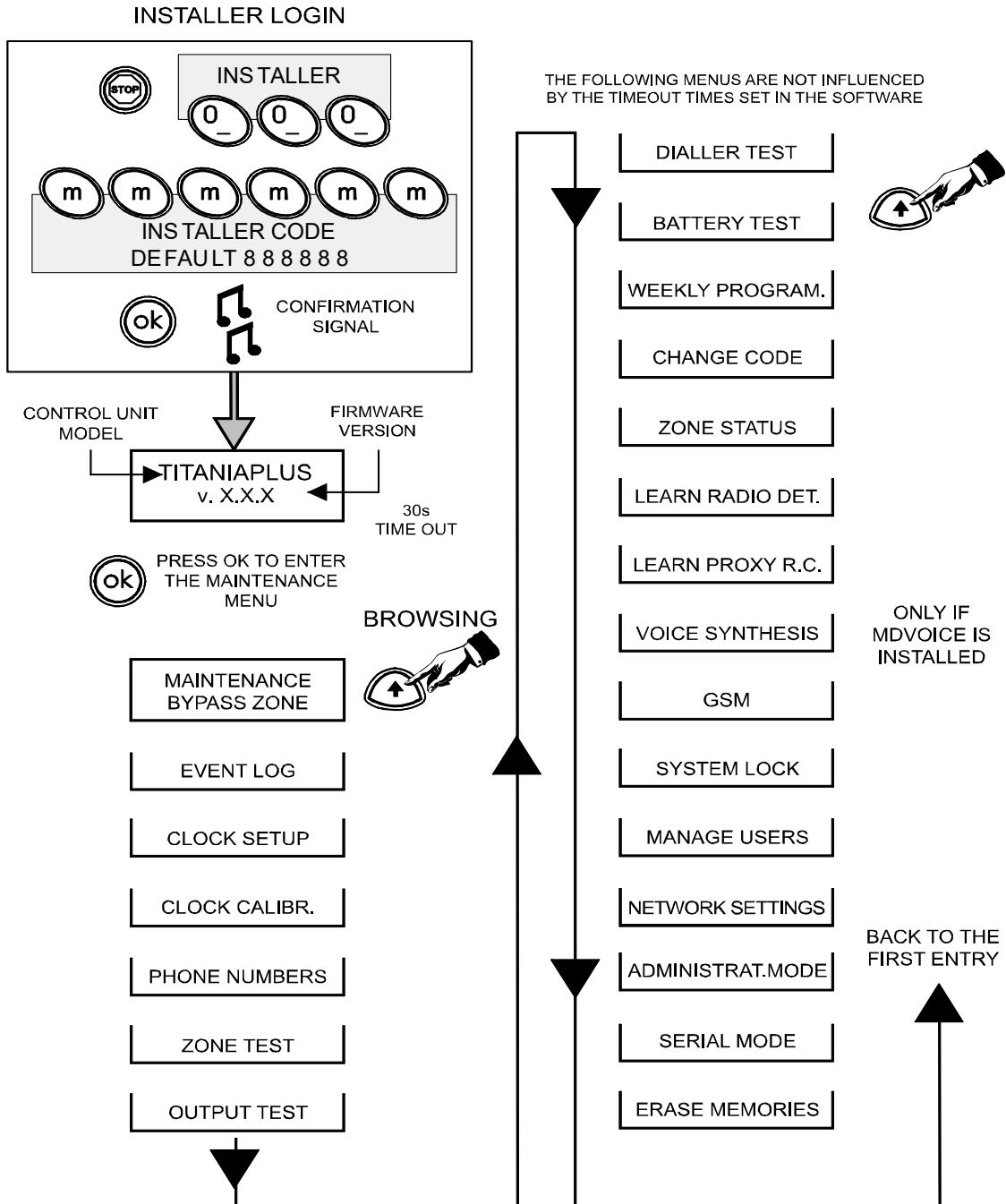
Note: do not flag the checkbox in the "Administrat.mode" menu.
If you do, the user management is transferred to the "administrators" (users 001, 002 and 003).
To deactivate the administrator mode, have one administrator access the "Administrat.mode" menu (last entry) and unflag the checkbox.

1.2 User menu

The control unit can manage up to 256 users. **The first three users are immediately available**, all others have to be activated by the installer using the configuration software.
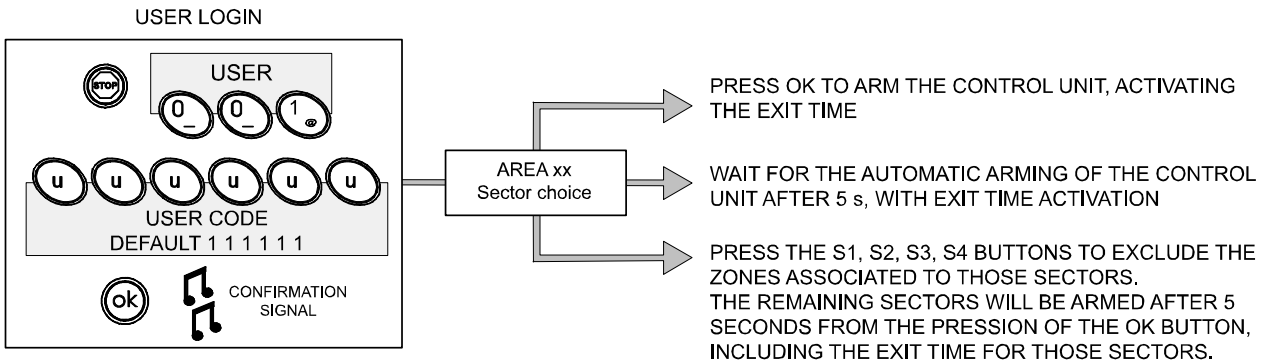
NOTE: BY DEFAULT, THE FIRST 3 USERS ARE ALLOWED TO BASIC MAINTENANCE OPERATIONS, INCLUDING GIVING THE INSTALLER PERMISSION TO ACCESS PROGRAMMING.

USER 001, 002 AND 003 HAVE THE 111111, 222222 AND 333333 DEFAULT USER CODES.

TO ACCESS THE BASIC MAINTENANCE MENU, PRESS THE FOLLOWING BUTTONS, IN SEQUENCE (EXAMPLE FOR USER 001):

Menu entries available after the Basic Maintenance login.
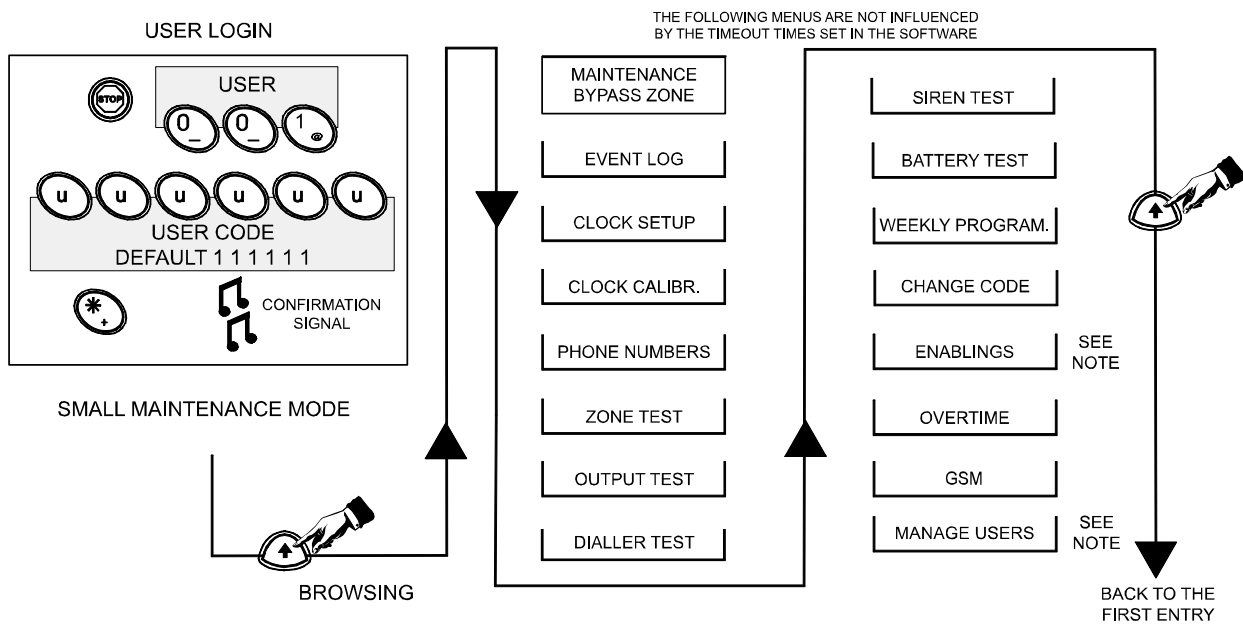
NOTE:
A USER WITH ACCESS TO THE BASIC MAINTENANCE MENU CAN ENABLE THE INSTALLER TO CONNECT USING BROWSERONE AND THE TITANIA MODULE.

BY DEFAULT, ONLY THE FIRST 3 USERS HAVE THE BASIC MAINTENANCE PROPERTY.

THE OTHER USERS CAN NOT SEE THE ENABLINGS AND MANAGE USERS MENUS.

1. FIRMWARE UPDATE

Updating the firmware requires a PC with BrowserOne and the module for the control unit (installed as detailed on the programming manual). The PC has to be connected to the control unit over a LAN. An operator has to be available next to the control unit to operate the jumpers and a user needs to authorize the access for the installer.

Warning: when the firmware is updated to a higher major (the first number of the version, e.g. v.6.x to v.7.x), read the configuration and save a backup copy **before** updating the firmware.
If you will ever need to use this configuration to write it in the control unit, BrowserOne will automatically convert it to the new data format.

Select "Tools > Firmware Update Panel".
The "Titania Firmware Update" window will guide you through the update process.

Either download the latest firmware from the online archive (press "Sync with online archive"; this is the suggested procedure), or load a file (useful if the PC is offline):
- for TITANIA16 and TITANIAPLUS2 control units, from the /**Firmware**/ folder of the provided CD.
- for TITANIAPLUS, download it from the BrowserOne page on **elmospa.com** (requires to be logged in).

In any case, press Next:

Note: the address class (the first 3 parts of the IP address) have to be the same for the panel and the PC. If it is not so, change the address of the panel after connecting via RS232, or change the address of the network card of the PC.
The default LAN addresses of the panel are:
LAN1: panel IP address 192.168.0.200
Subnet Mask 255. 255. 255.0
LAN2: panel IP address 192.168.1.200
Subnet Mask 255. 255. 255.0

IP address of the control unit to update.

Installer code.

Update instructions.

Titania Firmware Update

Network Parameters

IP Address 0 . 0 . 0 . 0
Port 10001
Maintainer Code ••••••

In order to allow the proper firmware updating:
1) Maintainer user must be enabled
2) Set the System Lock
3) Panel should be open (System Tamper) if needed

Press "Next" when the button is no more greyed out.

< Previous   Next >   Cancel

In order to allow the proper firmware updating:
1) Maintainer user must be enabled
2) Set the System Lock
3) Panel should be open (System Tamper) if needed

During the update, that will take a few minutes, some messages will appear.

An overview window will show the data of the current version and the path where the previous configuration is automatically saved for backup purposes:

Press Next to go on with the reconfiguration of the panel, until the "Update finished" screen appears. A message reminds to reset the system tamper.

The installer can also check the installed firmware version by logging in to a keypad with his code.

```
Model
v. x.x.x
```

The first row shows the control unit model: TITANIA or TITANIAPLUS.
The second row has the firmware version.

1. RESET INSTRUCTIONS

1.1 RESET procedure

The TITANIA series control units come with a factory configuration called DEFAULT. The default configuration has the minimal functions required to run the operations for the first configuration.
Whenever it is necessary to delete the programming, it is possible to restore the DEFAULT as follows:

A. If the control unit is far from the first keypad, have someone else help.

B. Open the front cover of the control unit.

C. Reset the tamper alarm.

D. Disconnect the sirens and the other acoustic alarms: during the reset procedure the output relays might change status and cause public nuisance.

E. Press the red RESET button located near to the GSM module connector and keep it pressed.
    Wait for at least 3 s and, while still holding the RESET button down, press and keep pressed the OK button on the keypad No. 1.
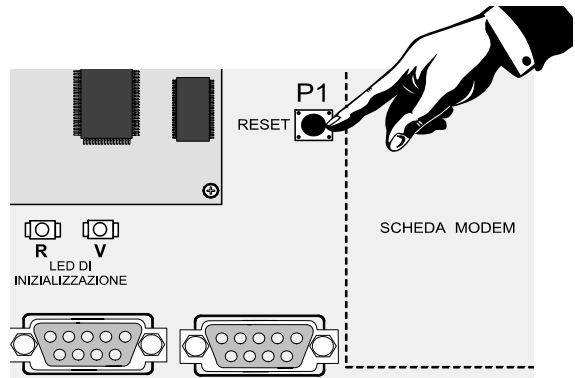
F. Release the RESET button.
    Wait for the R and V LEDs on the main board to light up and for the keypad to display the messages below (the first one appears briefly, quickly followed by the second one):

```
Firmware n. x.x
```

```
DOWN - UP arrows
```

G. Release the OK button, then press ⬇ , then ⬆ . After a few seconds, the display will change again:

```
Administrat.Mode
OK = YES     ST = NO
```

H. Press STOP. After a few seconds, the display will show the following message:

```
Peripheral acq.
OK = Continue
```

I. Press **OK** to start the quick learning of the connected peripherals, keypad and concentrators, memorizing their identification codes.

```
Peripheral acq.
Op. in progress
```

WARNING: if **STOP** was pressed instead, only the keypad No. 1 would be learned.

J. The **RESET** procedure ends and the control unit is completely activated,

```
Th 01/01/15  00:00
```

In order to proceed with the configuration, disarm the control unit using a User code (e.g. User 001).

K. At the end of the configuration, connect the alarm devices again.

2. WARNINGS

2.1 Built-in watch, LITHIUM battery warnings

The LITHIUM battery has a battery life of 10 years, after which its functioning is no longer granted. To avoid incorrect visualizations and functioning, plan its replacement in an EL.MO. technical assistance centre.

ATTENTION: before junking the control unit, the installer shall remove the LITHIUM battery that is soldered to the printed circuit board by cutting its leading wires and trash them in the special battery collection bins. Dispose of the rest of the product as specified on page 2.

2.2 Internal battery warnings

This product needs batteries for correct functioning. Exhausted batteries have to be replaced with identical ones and 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.

2.3 Cleaning instructions

Clean the device with neutral detergent for varnished surfaces on a soft cloth.
Do not spray the detergent directly on the control unit.
Using corrosive detergents or misusing them might lead to the deterioration of the surfaces.

3. SCHEDULED MAINTENANCE

In order to grant the full efficiency of the system managed by a TITANIA series control unit, it is necessary to perform a series of periodic routine maintenance tests, according to the standards in effect in the country where the control unit is installed.

It is possible to use the configuration software to customize the reminder for the scheduled maintenance from the "Settings" page, "Time Settings" tab, "Testing System Time (weeks)" field.
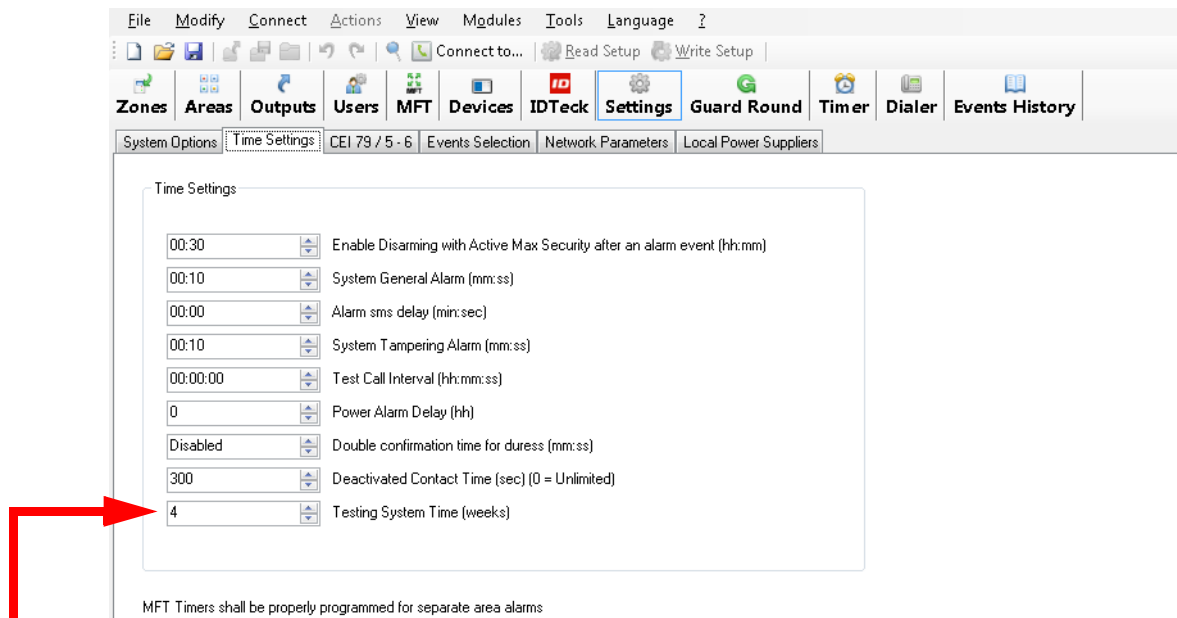
The maximum value is 52 weeks.

4. NOTES

1. TABLE OF CONTENTS