

RIVERPLUS

Serial line concentrator for intrusion detection systems



Instructions recipient: User | Installer

1. GENERALS

RIVERPLUS Serial line concentrator is a device that allows expanding over the ULTRABUS RS-485 serial line the zones of the following control unit series: TITANIA, ETR, NET, VIDOMO, and ET4PLUS.

With the connection of TITANIAPLUS unit, the highest performance level is achieved: up to 126 RIVERPLUS can be addressed to wire up to 1024 detectors.

RIVERPLUS concentrator makes it possible to optimise installation and cable routing thanks to its 8 programmable zones and to a connector with 8 electronic outputs to connect ETRREL or ETRREL4 relay modules.

RIVERPLUS concentrator can adequately replace RIVER, RIVERFAST and RIVERFASTPLUS concentrators and internal board of RIVER 2 and RIVER3 concentrators.

With firmware version 1.5 (or above) the device becomes also compatible with the serial lines of CP80, CP90, CP100 and ET8/48x series control units and can replace TR8 concentrator for standard double-balanced zones or NC-programmed zones only.

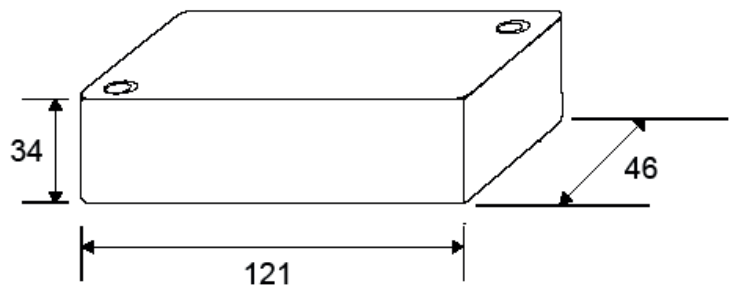
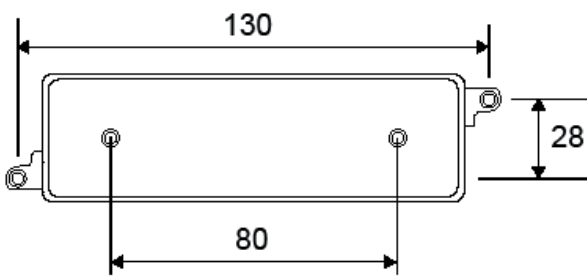
It is possible to use RIVERPLUS as a module for the remote repetition of signals from the main concentrator, as long as both belong to the same serial line; internal LEDs display serial communication status and tamper protection button status. The configuration of zones makes double and triple balancing installation possible even on existing systems when replacing control unit and concentrators with different brand ones.

2. TECHNICAL FEATURES

| Model | RIVERPLUS |
|--------------------|--|
| EN50131 compliance | Grade 2, Environmental Class II |
| Power supply | 12 Vcc (10 to 15 V) |
| Power consumption | 25 mA with balanced inputs; 45 mA with NC inputs + active relays |
| No. of Zones | 8 |
| Lines interface | Settable as double-balanced, single-balanced for fast zones, triple-balanced and normally closed. The diagrams in the manual show how to connect the resistors in order to make the concentrator compatible with several connection standards. |

| | |
|-----------------------|---|
| Outputs | Connector for 8 electronic outputs compatible with ETRREL or ETRREL4 (for 4 outputs). Two relay outputs with free-from-potential contacts to repeat status of the first two electronic outputs of the concentrator (contacts load 0.5 A @ 24 VAC - 1 A @ 24 VDC). WARNING: do not use relay output contacts to directly control internal sirens or loads with a capacitive component. |
| Boards settings | Dipswitch to set addresses and repetition mode; separate dipswitch to select interface type and to disable Tamper protection (to use in larger, self-protected housings). |
| LED indicators | LED indicating data transmission status to the unit. |
| Connection | Terminal board for serial line, zones, relay outputs, connector for electronic outputs |
| Case type | ABS plastic. |
| Cable type | 2×0.75 mm ² + 2×0.22 mm ² (power supply + signal) shielded flame-retardant cable, for long distances use 2×1 mm ² + 2×0.5 mm ² or higher sections. Max length 1 km. |
| Operating temperature | -10 to +55°C certified by manufacturer, 93% r.h. |
| Dimensions | See chapter 2.1 |
| Weight | 85 g |
| Parts supplied | Technical manual, side fixing supports (to be mounted), 2×2.9×6.5 mm screws for board fixing. |

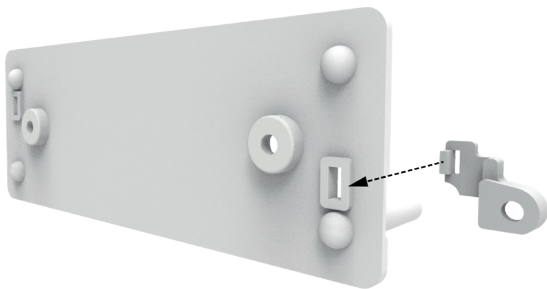
2.1 ASSEMBLING



Measurements in millimeters.

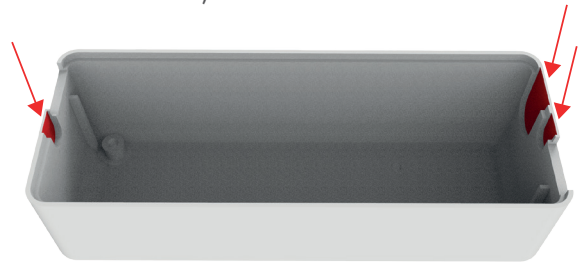
- **Side mounting supports positioning (optional)**

- Slide the supports in their holes until they click into place.

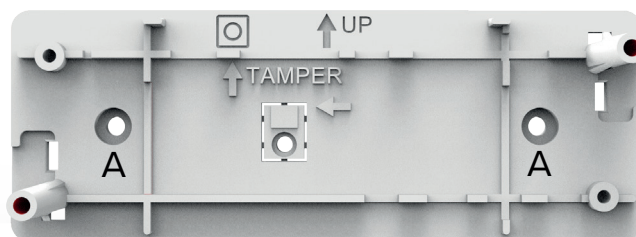


- **Cables passage**

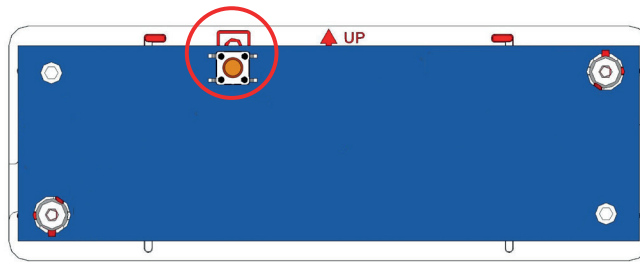
- Remove plastic from one of points indicated (along the short sides inside the cover).



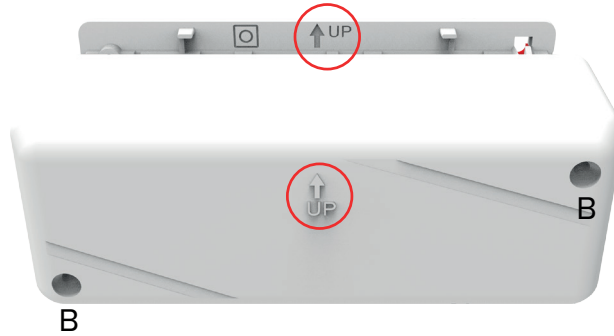
Assembling operations



- Fix the case base to the mounting surface with screws and plugs, using holes A.
- Make sure the UP arrow is on the upper side.



- Insert the PCB on the plastic supports (the board in the picture is for reference only).
- Make sure the tamper switch against opening (on board top) is on the upper side as indicated by the symbol reported on case base.

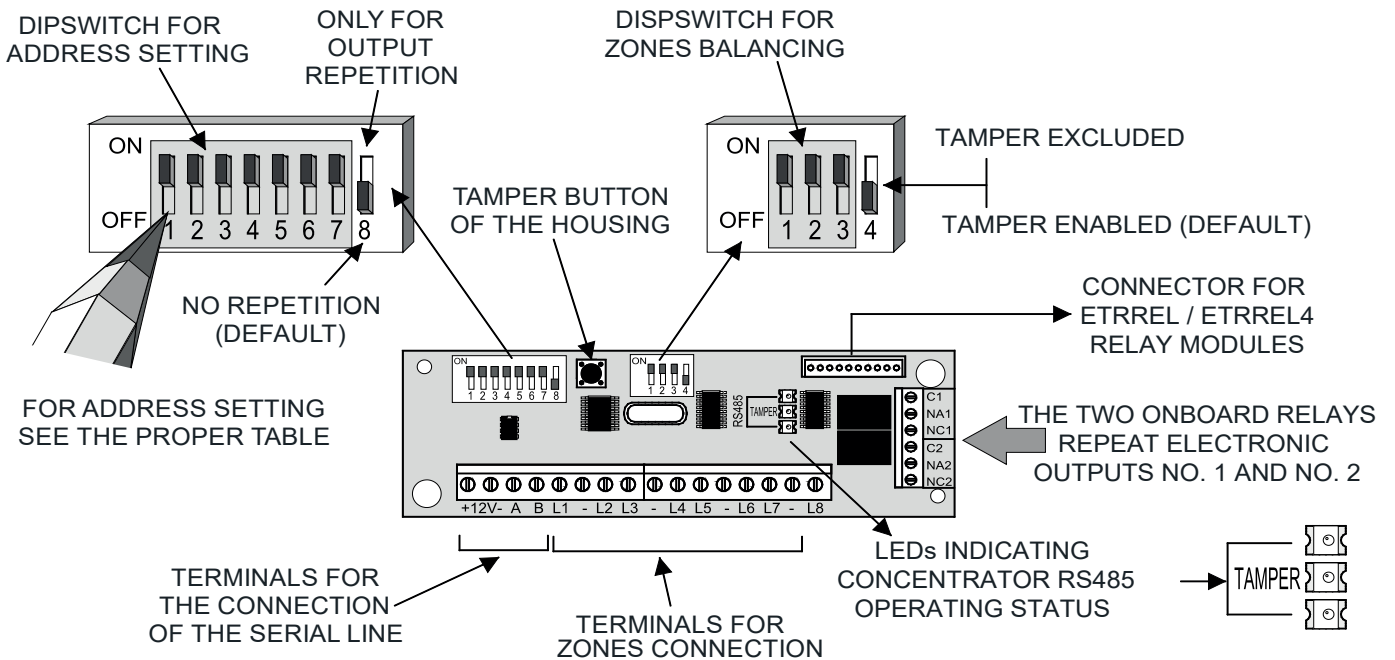


- Position the cover on the base.
- Make sure the arrow on the cover is on the upper side, like the one on the base.
- Insert screws on B holes to close the cover. Make sure the spring for tamper protection fits properly.

3. ELECTRICAL WIRING



RIVERPLUS board connectors



WARNING: THE POWER SUPPLY OF ANY POWERED DETECTOR MUST NOT BE DRAWN FROM THE CONCENTRATOR POWER SUPPLY

NOTE: TO SET BALANCED INPUTS, SEE THE RELEVANT TABLE

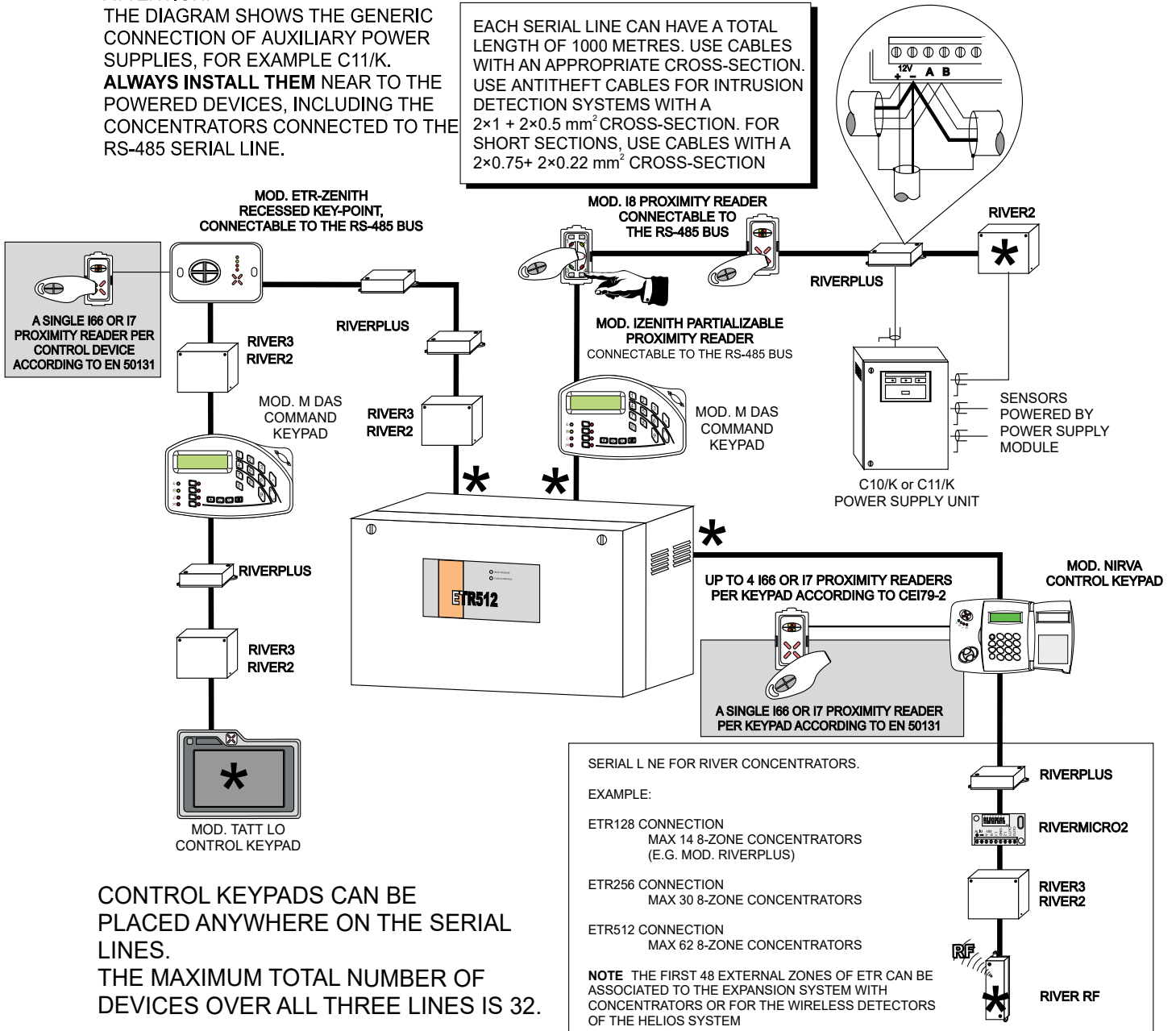
4. WIRING DIAGRAMS



Example of wiring diagram

ATTENTION:
THE DIAGRAM SHOWS THE GENERIC CONNECTION OF AUXILIARY POWER SUPPLIES, FOR EXAMPLE C11/K. **ALWAYS INSTALL THEM NEAR TO THE POWERED DEVICES, INCLUDING THE CONCENTRATORS CONNECTED TO THE RS-485 SERIAL LINE.**

EACH SERIAL LINE CAN HAVE A TOTAL LENGTH OF 1000 METRES. USE CABLES WITH AN APPROPRIATE CROSS-SECTION. USE ANTITHEFT CABLES FOR INTRUSION DETECTION SYSTEMS WITH A $2 \times 1 + 2 \times 0.5 \text{ mm}^2$ CROSS-SECTION. FOR SHORT SECTIONS, USE CABLES WITH A $2 \times 0.75 + 2 \times 0.22 \text{ mm}^2$ CROSS-SECTION

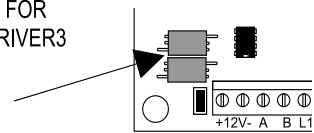
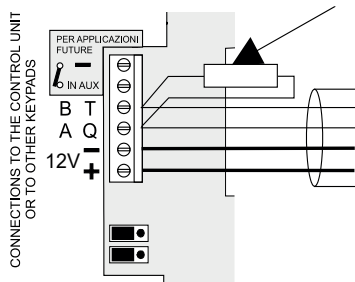


CONTROL KEYPADS CAN BE PLACED ANYWHERE ON THE SERIAL LINES.
THE MAXIMUM TOTAL NUMBER OF DEVICES OVER ALL THREE LINES IS 32.

* THE MARKED DEVICES HAVE TO BE EQUIPPED WITH AN END-OF-LINE RESISTOR

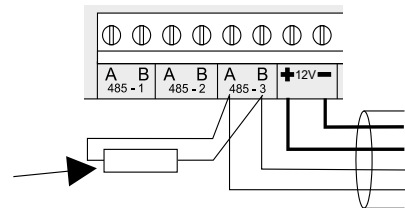
NIRVA KEYPADS HAVE TO BE TERMINATED WITH 680Ω 1/4 W RESISTORS CONNECTED TO THE TERMINAL BOARD

CLOSE THE JUMPER FOR RIVER, RIVER2 AND RIVER3 CONCENTRATORS



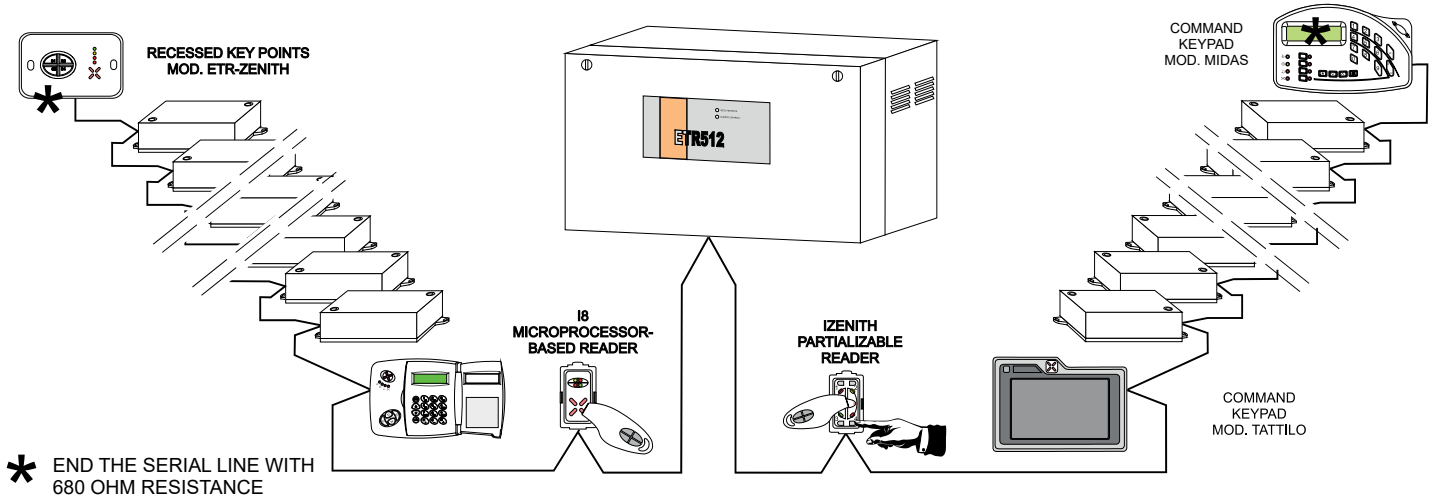
MAIN BOARD OF THE CONTROL UNIT

INSTALL A 680 Ω RESISTOR AT THE STARTING TERMINALS OF EACH SERIAL LINE



4.1 Wiring variation on a serial line.

The following image shows **the only admitted wiring variation** on a serial line for control units compatible with RIVER concentrators. The example uses an ETR512 control unit.



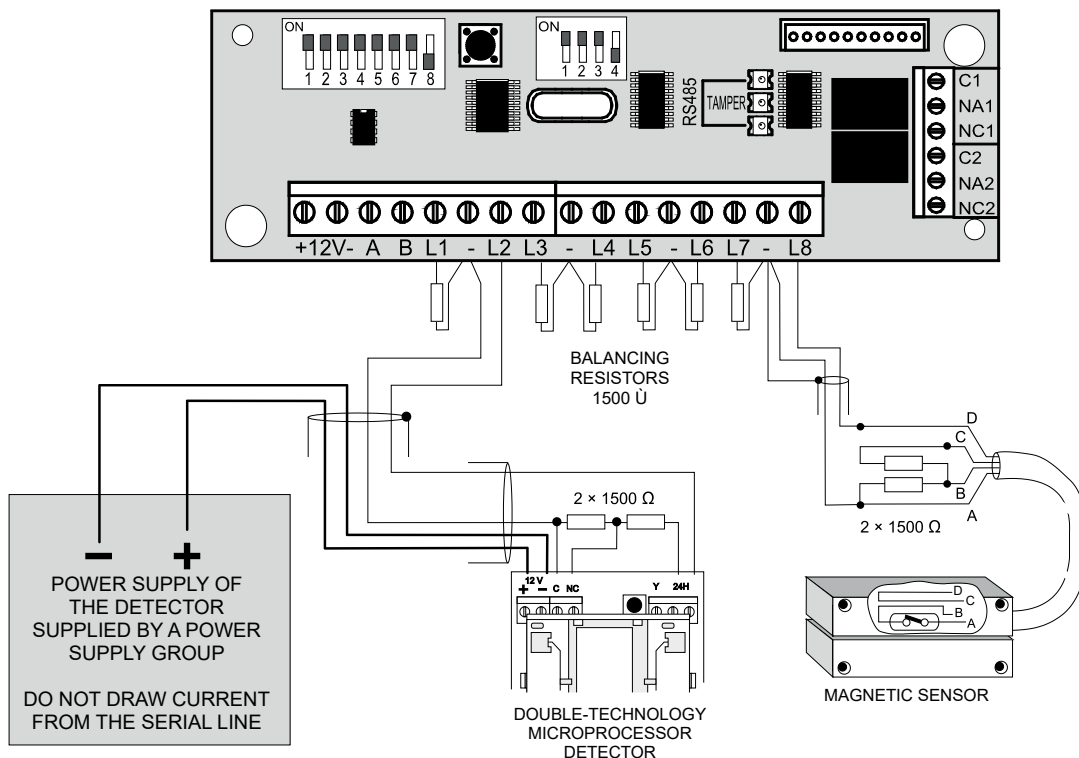
SERIAL LINE INCLUDING RIVERPLUS CONCENTRATORS AND NIRVA, TATTILO AND MIDAS KEYPADS. THE CONTROL UNIT FEATURES THREE TERMINAL OUTPUTS FOR THREE DIFFERENT RS-485 SERIAL LINES (1, 2, 3).

«T» CONNECTION SCHEME WHERE THE CONTROL CIRCUIT FOR THE SERIAL LINE, INTEGRATED IN THE CONTROL UNIT, IS CONSIDERED AS AN INTERMEDIATE CONCENTRATOR CIRCUIT.

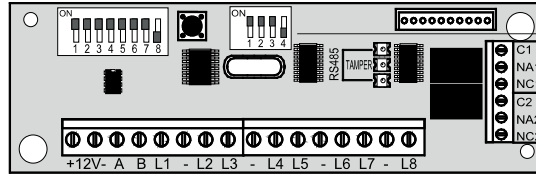
THE CONTROL KEYPADS CAN BE PLACED ANYWHERE ALONG THE SERIAL LINE. MAKE SURE THAT THE TOTAL NUMBER OF DEVICES OVER ALL THREE LINES IS EQUAL TO OR LESS THAN 32.

IT IS NECESSARY TO PROVIDE A REMOTE AUXILIARY POWER SUPPLY UNIT TO OBTAIN THE PLANNED SYSTEM AUTONOMY.

Example: zones connection

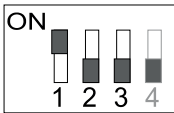
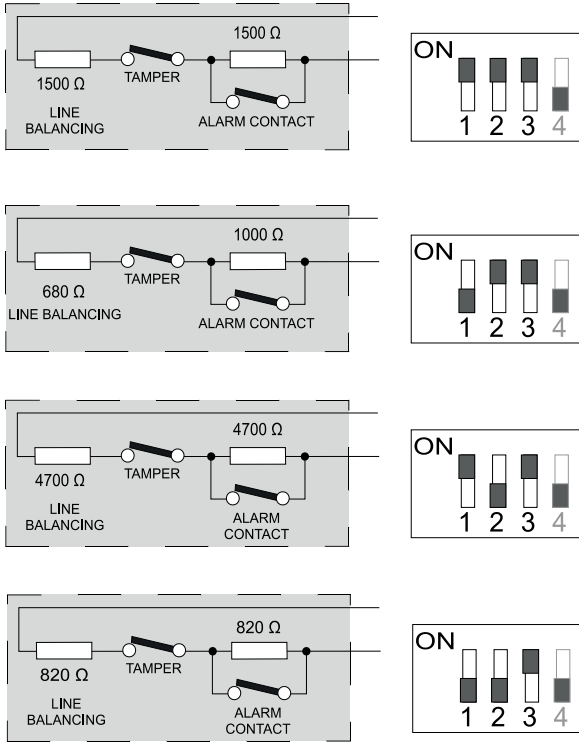


4.2 Zones balancing setup.



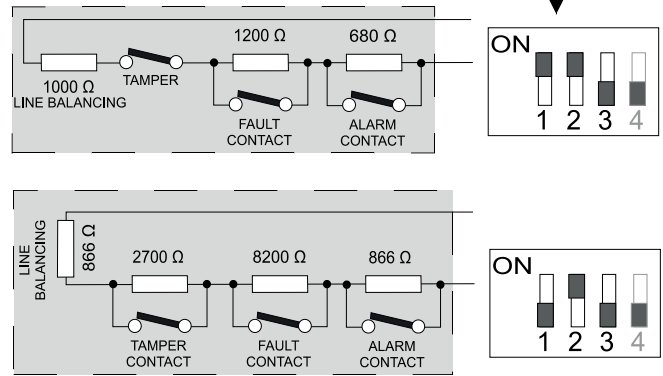
TYPICAL WIRING EXAMPLES FOR CONCENTRATOR ZONES
THE BALANCING SETTINGS ARE VALID FOR ALL 8 ZONES

ZONE WITH STANDARD DOUBLE BALANCING

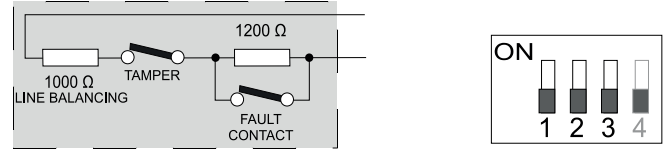


DO NOT USE
THIS SETTING

ZONE WITH STANDARD TRIPLE BALANCING

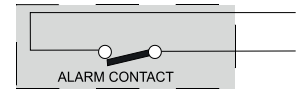


INPUT WITH STANDARD DOUBLE BALANCING FOR CP80, CP90, CP100 AND ET8/48XX CONTROL UNITS

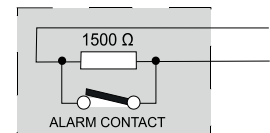


CONCENTRATOR ZONES WIRING WITH DEFINITION CARRIED OUT WITH THE CONTROL UNIT SOFTWARE

ZONE PROGRAMMED
AS NC
(CEI79-2 1st LEVEL)



ZONE SET AS "FAST"
FOR THE CONNECTION OF
SEISMIC SENSORS OR
ROLL-UP SHUTTERS
CONTACTS.
SENSITIVITY AND
INTEGRATION ARE SET
VIA SOFTWARE

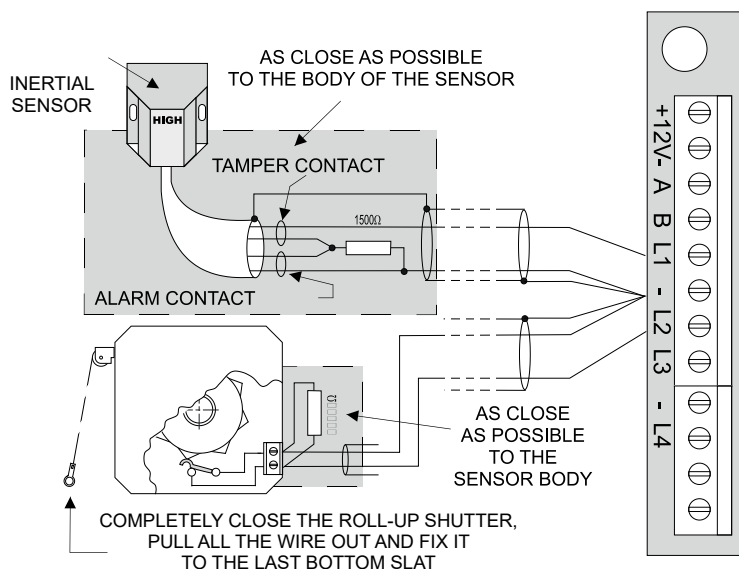


When the replacement of the control unit and concentrators on field is required but it is not advisable to change also the line balancing, several balance settings are available and can maintain the existing connections to sensor circuits. The various types of zones balancing ensure compatibility with most of existing configurations.

Note: fast zones can be connected and programmed only if the control unit manages them.
Triple balancing can only be used with compatible control units.
Do not make triple-balance connections if the control unit manages double balancing only.

WARNING: Unused zones must be terminated an end-of-line resistances whose value shall correspond to settings defined by dyps 1 - 2 - 3.

4.3 Fast zones wiring



Notes on for the setup and functions of fast zones on RIVERPLUS concentrators with firmware v.1.4 or above.

Setting a zone to “fast” makes it possible to manage the signals coming from inertial or roll-up shutter sensors; such sensors generate a voltage pulses series on the line that connects them to the control unit zone terminal and therefore require a dedicated management. The features of the signals generated by these sensors may vary depending on the sensor model and on installation conditions; for such reasons, for fast zones can also be configured sensitivity and integration parameters. The default value (10 for both parameters) is suitable for ordinary situations and for most roll-up shutter detectors on the market. For inertial sensors or for peculiar situations, change sensitivity and integration values in order to obtain an optimal response from the zones.

Sensitivity: this is the main parameter that determines the detection of the alarm condition. A low value of sensitivity requires more prolonged activation and higher pulse count of the contact to cause the alarm signal. Conversely, a higher value of sensitivity enables a more immediate generation of the alarm with a lower pulses count.

Integration: this parameter determines the time within which the alarm condition must be detected in order to be considered valid. A low integration value extends the detection time, a high integration value shortens it. In most cases, the optimization of the system performance is carried out by acting exclusively on the sensitivity parameter while leaving the integration to default value, which is 10 (typically corresponding to 15-30 seconds for the detection).

Use with roll-up shutter sensors

To obtain a faster response, increase the sensitivity by steps of 10 (20, 30, 40, ...). It is not recommended to increase the sensitivity beyond 40 in order to avoid false alarms due to unwanted sensor switching.

To detect even very slow motions of the roll-up shutter, halve the integration value bringing it to 5.

In case of false alarms, set a sensitivity value below 20; in some cases it is also possible to increase the integration to 15 in order to reduce the detection time interval.

ATTENTION: A low sensitivity value along with a high integration value makes the zone less sensitive to slow movements of the roll-up shutter.

Use with inertial sensors

We recommend setting a sensitivity value greater than or equal to 40 (generally corresponding to 2 hits).

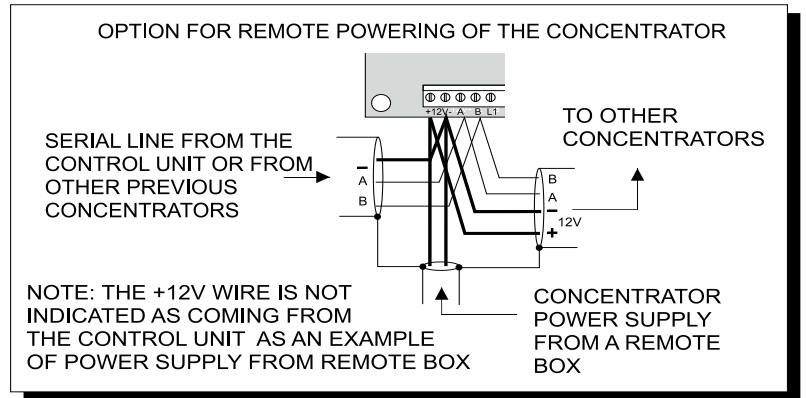
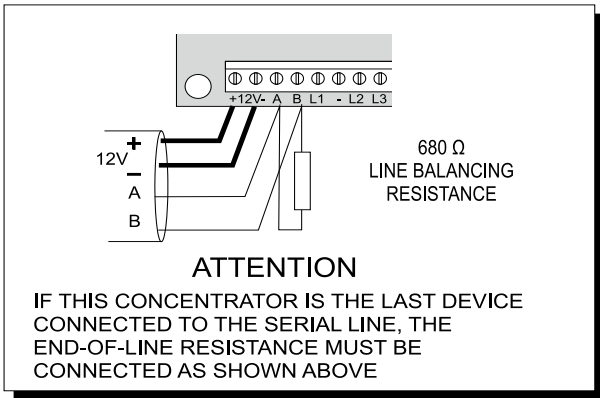
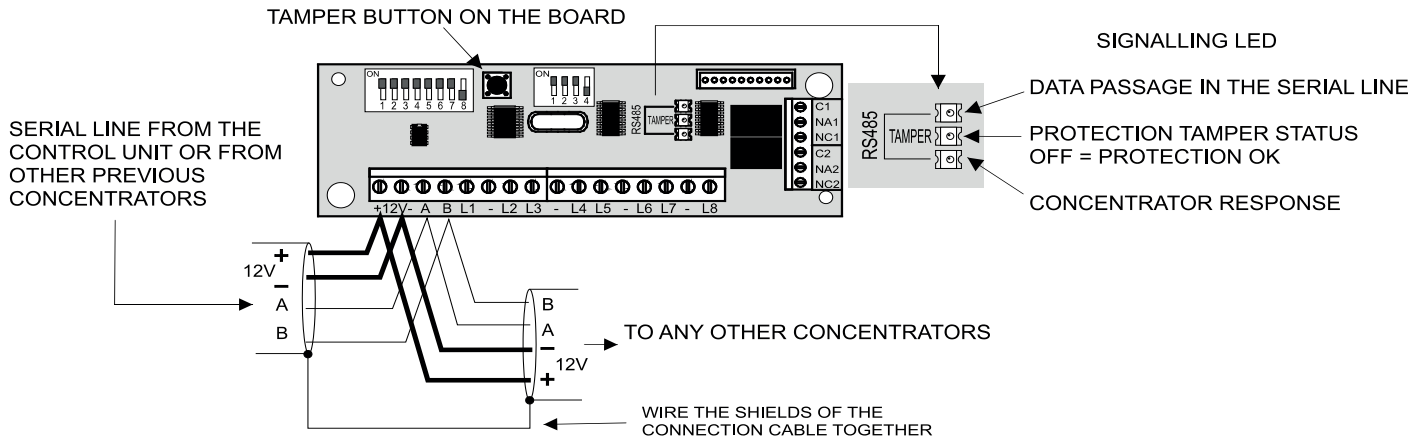
To obtain a faster response, increase the sensitivity by steps of 10 (50, 60, ...).

To get an alarm with a single shot, set the sensitivity to 50 or higher.

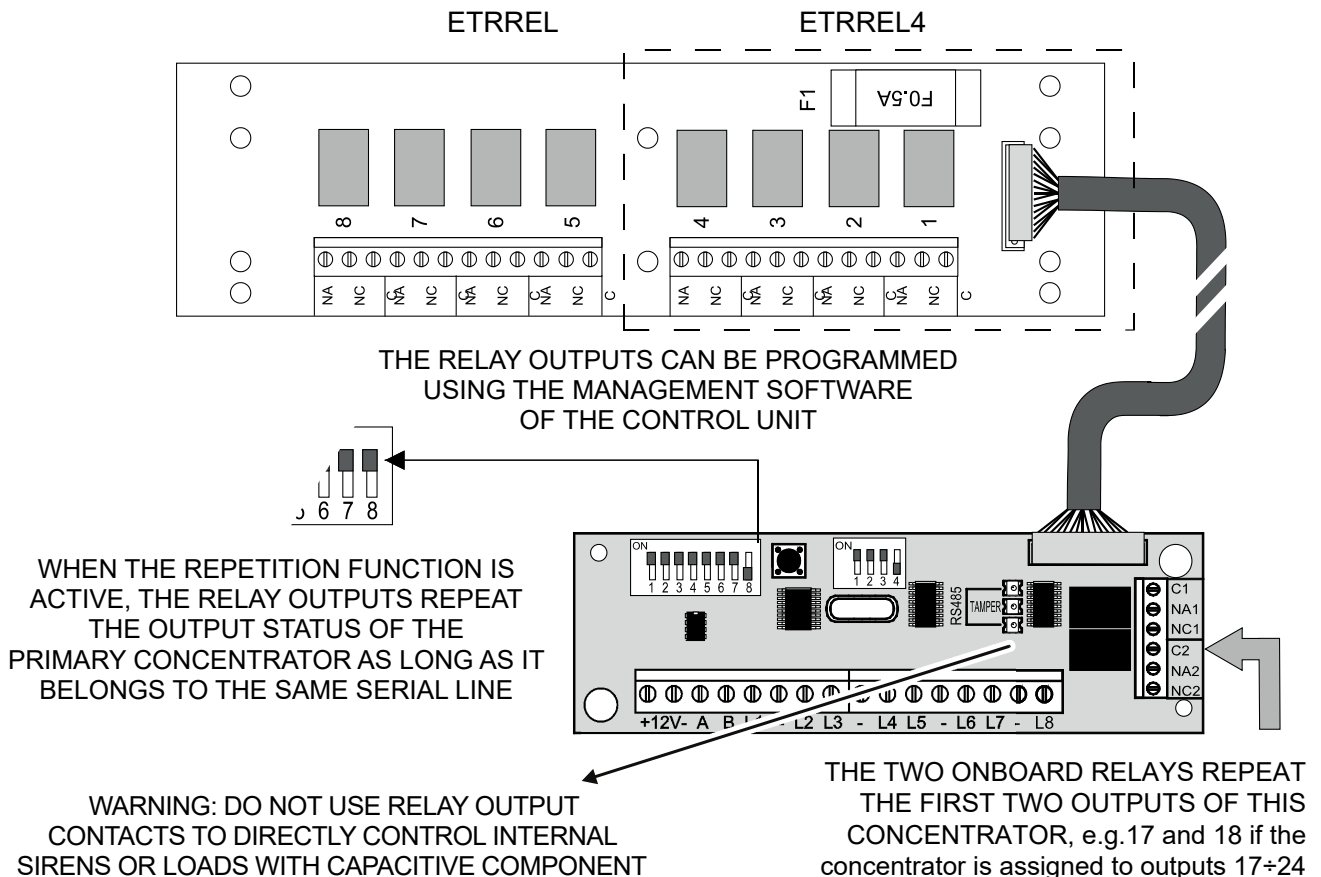
To detect spaced hits, halve the integration value bringing it to 5.

In case of false alarms set a sensitivity value below 40, or in some cases increase the integration by steps of 5 (15, 20, ...) to reduce the detection time interval.

4.4 Serial line connections



4.5 ETRREL board connection



Note: to ensure the required level of protection, the installation must take place in a suitable case.

5. ADDRESSES SETUP



RIVERPLUS dipswitches position.

Compatible units: NET832 with FW up to 2.x, ETR48, ETR128, ETR256, ETR512, TITANIA, TITANIAPLUS.

Note: the position of dip 8 is dedicated to the repetition function, it is irrelevant here. Default position: OFF.

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| 593 | 600 | 601 | 609 | 617 | 625 | 633 | 640 | 641 | 648 | 649 | 656 | 665 | 672 | 681 | 688 | 697 | 704 | 705 | 712 | 713 | 720 | 721 | 728 | 729 | 736 | 744 | 745 | 752 | 753 | 760 | 761 | 768 | 769 | 776 | 777 | 784 | 785 | 792 | 793 | 800 | 801 | 808 | 809 | 816 | 825 | 832 | 841 | 848 | 849 | 856 | 857 | 864 | 865 | 872 | 873 | 880 | 881 | 888 | 889 | 896 | 897 | 904 | 905 | 912 | 921 | 928 | 937 | 944 | 945 | 952 | 953 | 960 | 961 | 968 | 969 | 976 | 977 | 984 | 985 | 992 | 993 | 1000 | 1001 | 1008 | 1009 | 1016 | 1017 | 1024 | 1025 | 1032 |

DO NOT USE THESE ADDRESSES

Limitations for zones setup:

NET832 with firmware version up to 2.x – from 17 to 32.

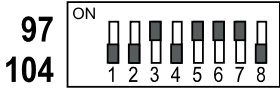
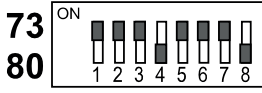
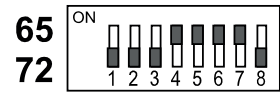
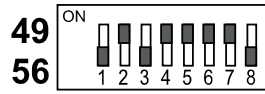
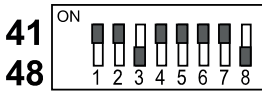
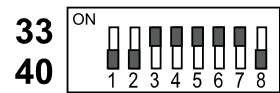
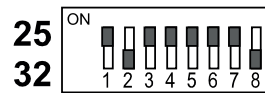
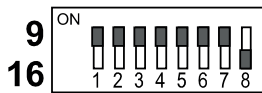
ETR48 – from 17 to 48, ETR128 – from 17 to 128, ETR256 – from 17 up to 256, ETR512 – from 17 to 512.

TITANIA – from 17 to 512, TITANIAPLUS – from 17 to 1024.

Note: the position of dip 8 is dedicated to the repetition function, it's irrelevant here. Default position: OFF.

Compatible control units: ET4PLUS, NET4, NET832, ETR100, ETR100M, NET5, NET9, ET8/48SE.

Note: the position of dip 8 is dedicated to the repetition function, it s irrelevant here. Default position: OFF.



Limitations for zones setup:

ET4PLUS, NET4 from 9 up to 16.

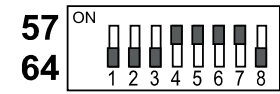
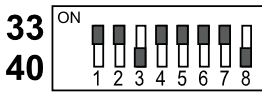
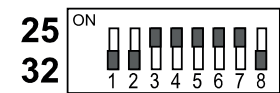
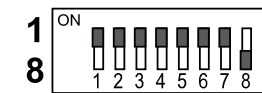
NET832 with version 3 or higher firmware from 9 up to 32.

ETR100, ETR100M, NET5, NET9 from 9 up to 104.

ET8/48SE from 9 up to 48.

Compatible control units: VIDOMO, CP80, CP90, CP100.

Note: the position of dip 8 is dedicated to the repetition function, it s irrelevant here. Default position: OFF.



It is recommended to use addresses from 17 to 64 not to loose the use of onboard zones..

Compatible control units: ET8/48 series, ET8/480 series.

Note: the position of dip 8 is dedicated to the repetition function, it s irrelevant here. Default position: OFF.



Limitations for zones setup:

ET8/48 from 17 up to 48.

EU DECLARATION OF CONFORMITY

The product complies with the current European EMC and LVD directives.

The complete text of the EU Declaration of Conformity is available at the following Internet address:

www.elmospa.com (simple registration required).



GENERAL WARNINGS



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:

Serial line concentrator

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 inform the installer 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 power grid 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).

WARNINGS FOR INSTALLERS



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.

WARNINGS FOR USERS



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...)

FUNDAMENTAL SAFETY RULES



The use of the device is forbidden for children and unassisted disabled individuals.

Do not touch the device when bare footed, or with wet body parts. Do not directly spray or throw water on the device.

Do not pull, remove or twist the electric cables protruding from the device even if the same is disconnected from the power source.

DISPOSAL WARNINGS



IT08020000001624

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.

TECHNICAL MANUAL – March 2021 Edition

Information and product features herein are not binding and may be changed without prior notice.

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