



RPX485
RS-485 serial line repeater
090020902



IT08020000001624



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.)

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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:

RS-485 serial line repeater

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-Electromechanic Device started to be commercialized after 13th August 2005, and it shall be disposed of separately from ordinary waste products.

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1. GENERALS

RPX485 is designed to allow the realization of very extended and/or articulated serial lines for TITANIA series, ETR series, NET series, PREGIO series and VIDOMO control units. With RPX485, it is possible to obtain the best performance from each control unit, even with difficult operating conditions.

RPX485 is a device that **repeats, regenerates** and **isolates the serial line from any failure**. It has no galvanic isolation functions.


It is equipped with a protocol selector, to use RPX485 with serial lines of EL.MO. control units or with mixed serial lines where iDTECK control access devices are also used.

The RS485 signals at the input terminals are analyzed to identify the protocol, regenerated to eliminate any distortions in the rising and falling edges of the signal, then transmitted from the output terminals. This management introduces a slight delay, so only two RPX485 repeaters can be connected in cascade.

The RPX485 housing is made of the same plastic material as the RIVER products. It is equipped with anti-opening protection—two terminals can be connected to the tampering input of the control unit or it can be programmed for the tampering event of the nearest concentrator.

Note: the control unit that manages the RS-485 serial line shall have its firmware updated to a version compatible with RPX485.

2. FEATURES

Model:	RPX485
Performance level:	1 st if the tamper output is properly connected to the control unit or to a programmed input of a concentrator. To be performed by the installer.
EN 50131-1 compliance:	grade 2, environmental class II nd .
Power supply:	12 V  (from 6.5 V to 15 V).
Power consumption:	45 mA with LEDs ON.
Settings on board:	selector for the repetition protocols, selector to enable the RX TX LED.
Signalings:	RX and TX LED can be excluded for the transmission activity in input and output.
Connections:	terminals for serial line in input and output, terminals for connection of the external Tamper protection for use in larger self-protected housings.
Housing:	ABS plastic.
Cable to use:	$2 \times 0.75 \text{ mm}^2 + 2 \times 0.22 \text{ mm}^2$ (power supply + signal) shielded flame retardant, for long distances using sections $2 \times 1 \text{ mm}^2 + 2 \times 0.5 \text{ mm}^2$ or higher. Max length 1 km, see application diagrams.
Operating temperature and humidity:	$-10^\circ / +55^\circ\text{C}$ certified by the manufacturer — 93% r.h.
Dimensions and weight:	see image.
Parts supplied:	$2 \times 680 \Omega$ resistors, technical manual, T500mA fuse, T2A fuse, side fixing brackets (not assembled), 2 screws to close the housing ($2.9 \times 6.5 \text{ mm}$).

EU DECLARATION OF CONFORMITY

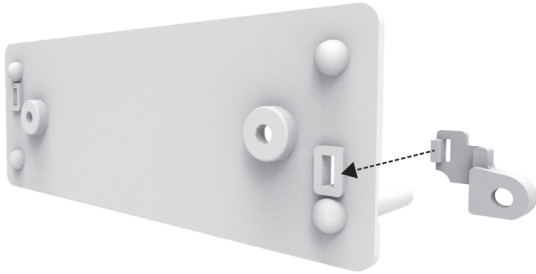
The product complies with current European EMC and LVD directives. The full text of the EU declaration of conformity is available at the following Internet address: elmospa.com – registration is quick and easy.



2.1 Mechanical features

Side bracket assembling (optional)

Slot each bracket into its designated area.
See picture below.



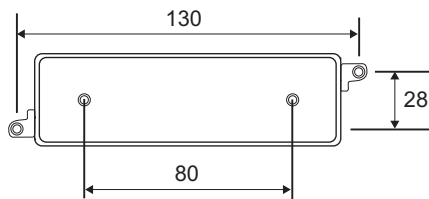
Cable feeding

Remove the plastic from one of the areas indicated below (on the inner side of the cover).

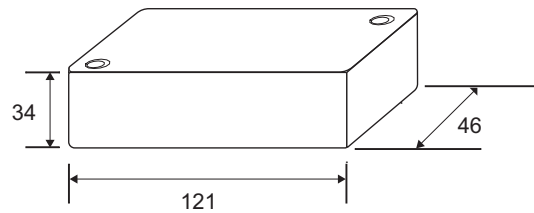


View of the housing

BOTTOM:

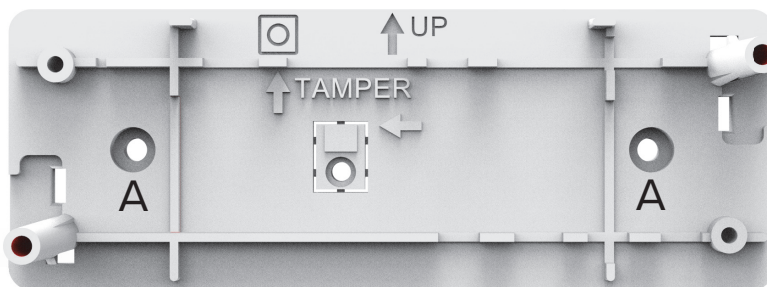


COVER:

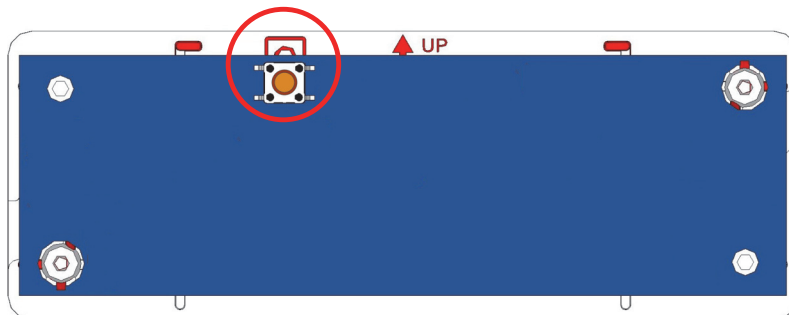


DIMENSIONS IN mm

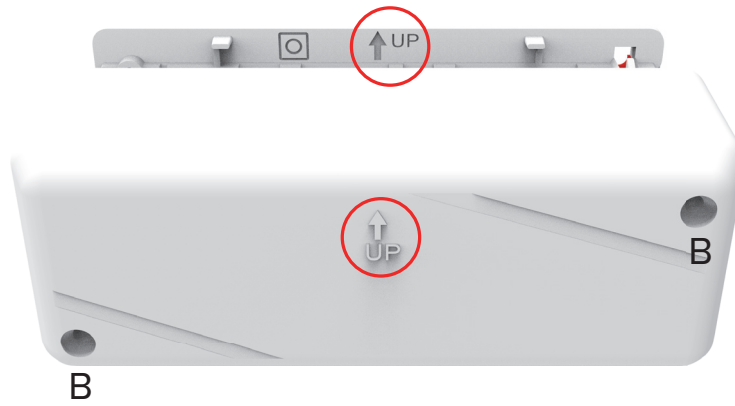
Assembling operations



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.



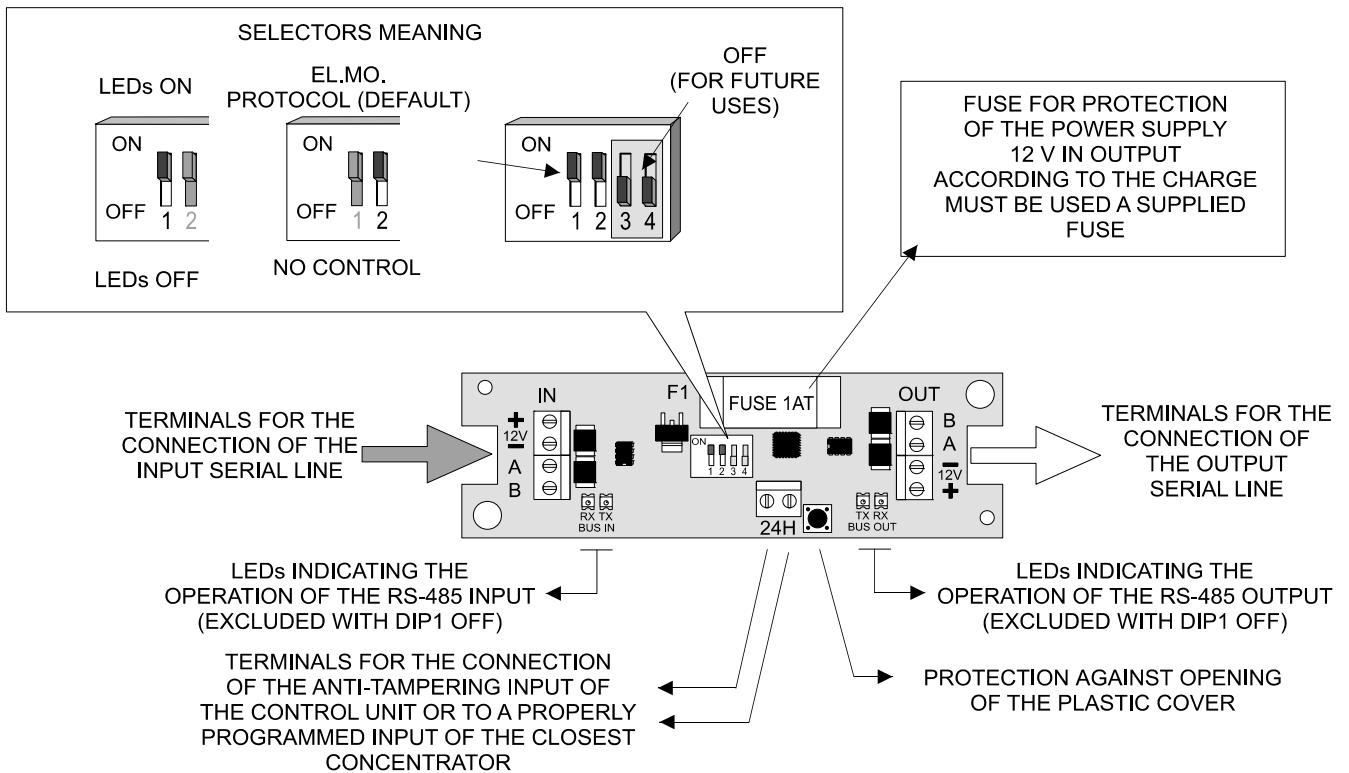
Position the cover on the base.

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.

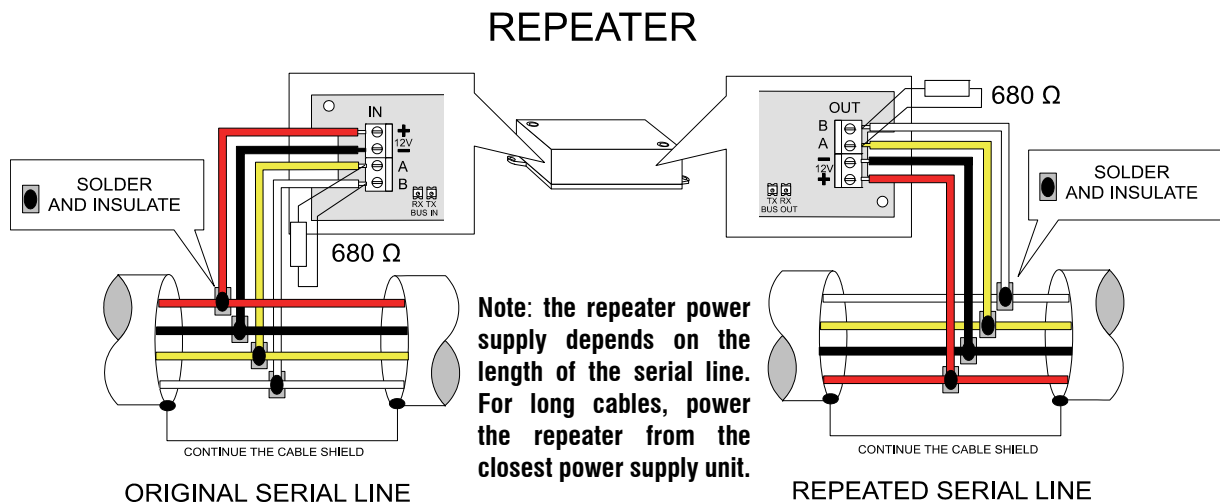
3. ELECTRICAL CONNECTIONS

Decription of the RPX485 board.





Application scheme.



The RPX485 repeater regenerates the RS-485 signal in case of alterations due to environmental/electric causes; by generating a new serial line, it prevents any faults or malfunctions on the repeated line to affect the master line.

ATTENTION: THE RPX485 REPEATER NOT PERFORM A GALVANIC ISOLATION FUNCTION.

General rules for connections:

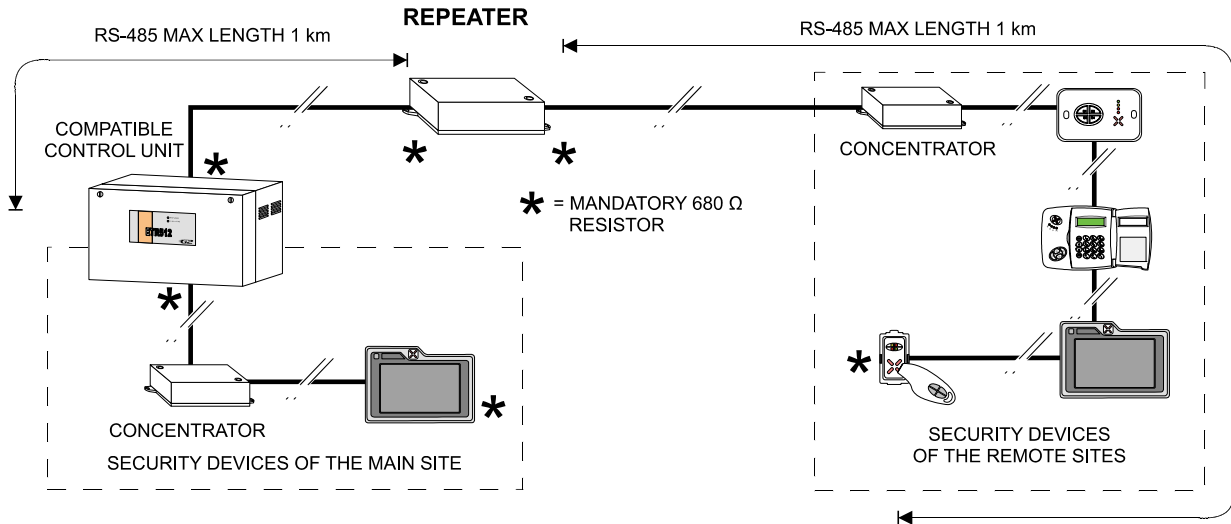
- The negative pole of the power supply shall be brought to the repeater both in input and in output.
- The IN power supply shall be brought in an appropriate manner because it depends on the section and on the number of connected devices (it is generally performed with long sections on site and with short sections remotely). It is crucial to bring at least 7 V to the repeater.
- **A serial line has to be terminated with a 680 Ω resistor at each end of the longest path (irrespective of the number of ramifications). The total sum of the lengths of the sections of a serial line shall not exceed 1Km. These conditions are true for both the input and the output serial lines connected to the repeater.**
- The cable section that is directly connected to the control unit shall be connected to the IN terminals, while the one that repeated line (for other devices and/or repeaters) shall be connected to the OUT terminals.
- The fuse on the repeater shall be changed with those supplied if appropriate (pre-installed: T1A).

Note: the remote power supply units, that must be placed keeping in mind the note in the previous diagram, are not shown in the following diagrams.

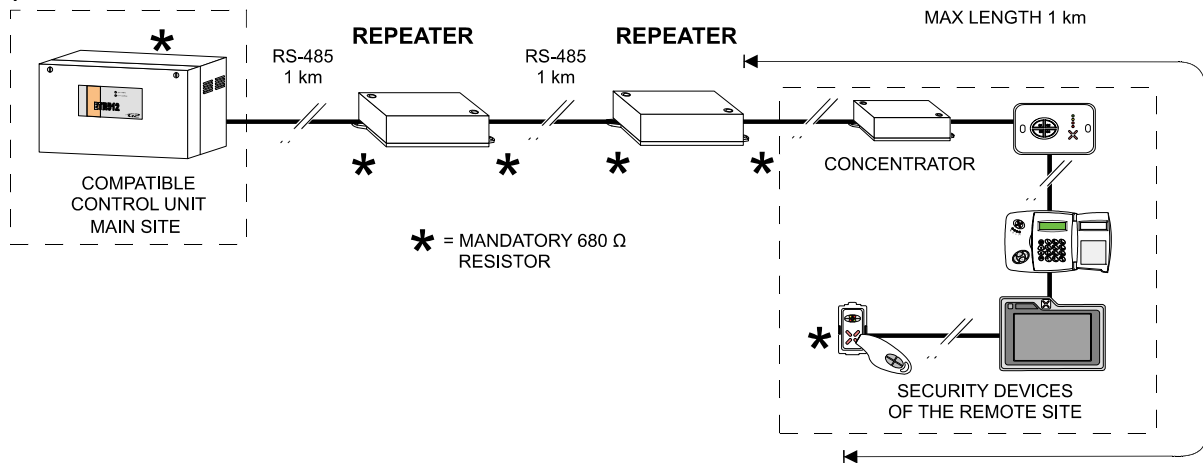


Application diagrams.

Example No. 1:

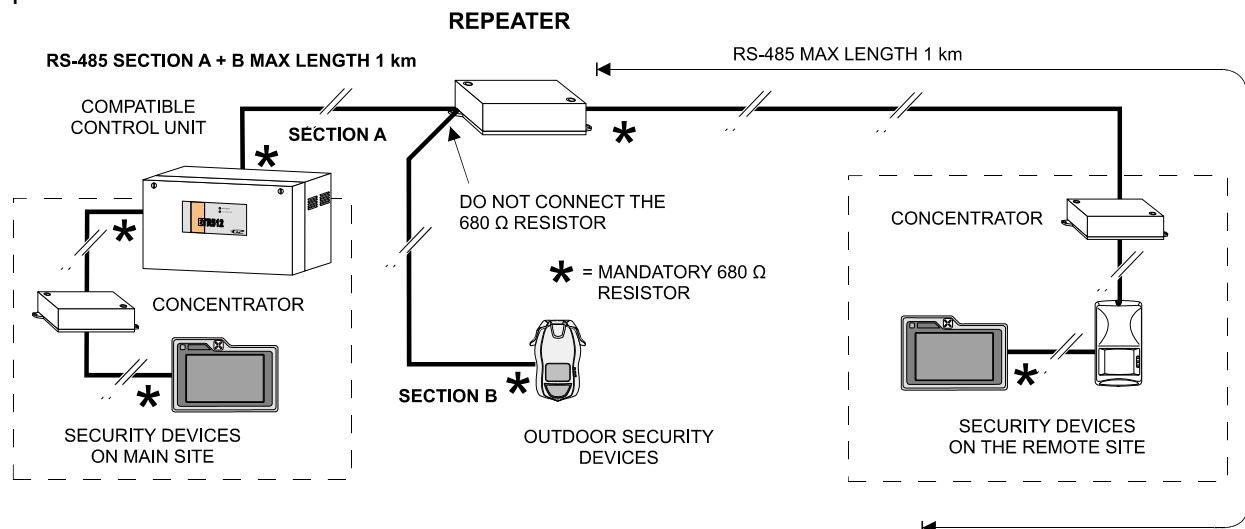


Example No. 2:



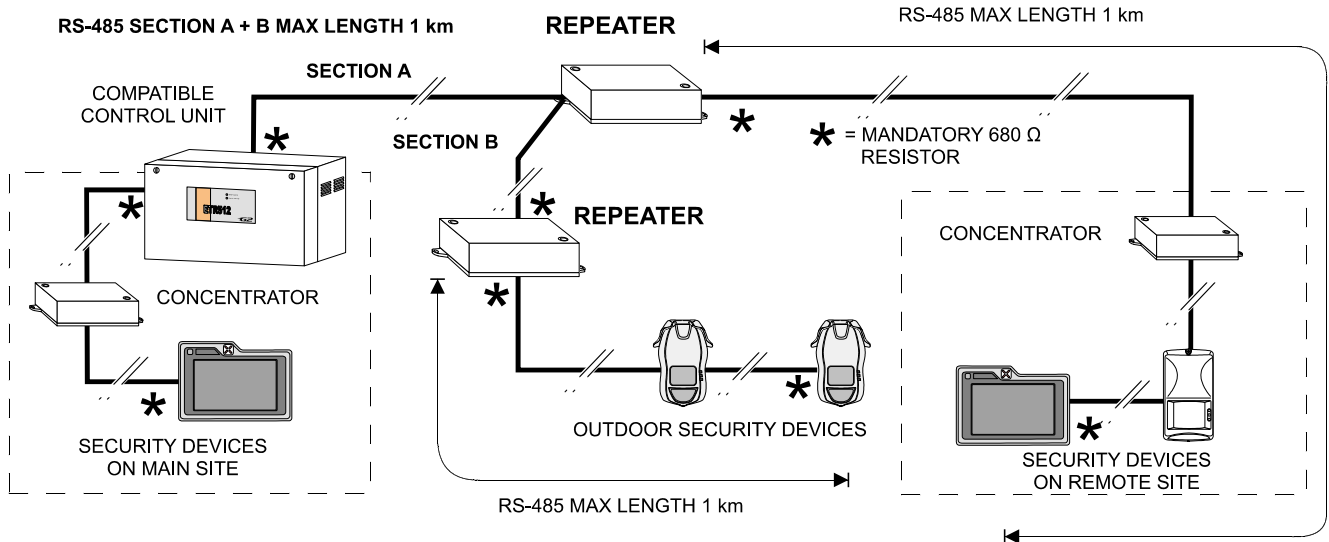
Note: up to 2 repeaters can be connected in cascade for any type of control unit (including ETR control units with firmware **v.1.8** or higher and every PREGIO series, NET series and VIDOMO control units) except for ETR control units with firmware **v.1.7** or lower, to which a single repeater can be connected.

Example No. 3:

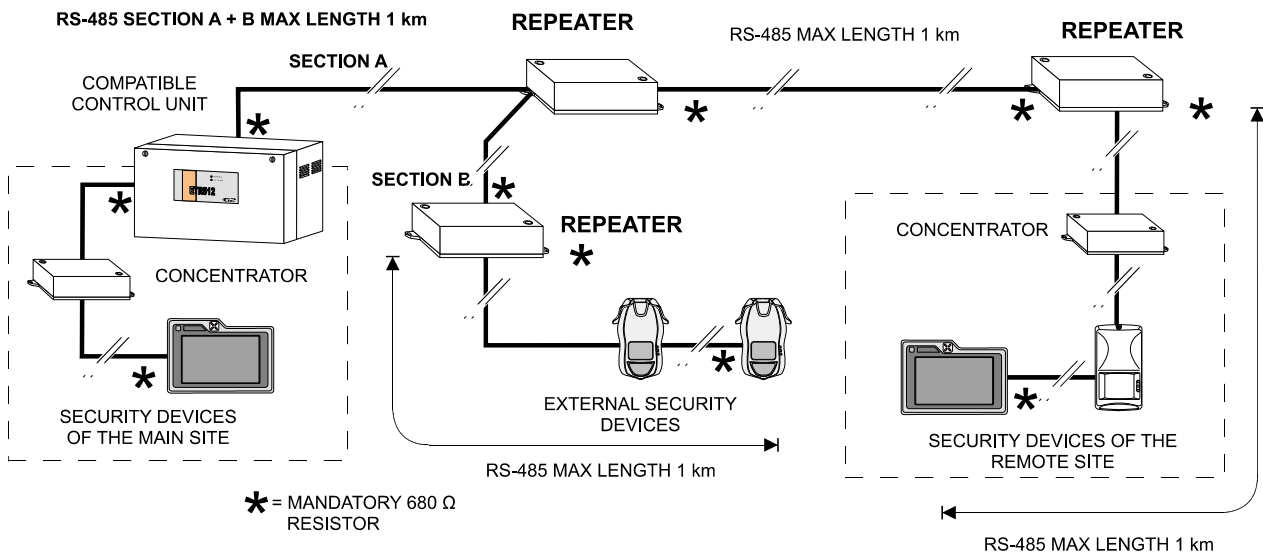




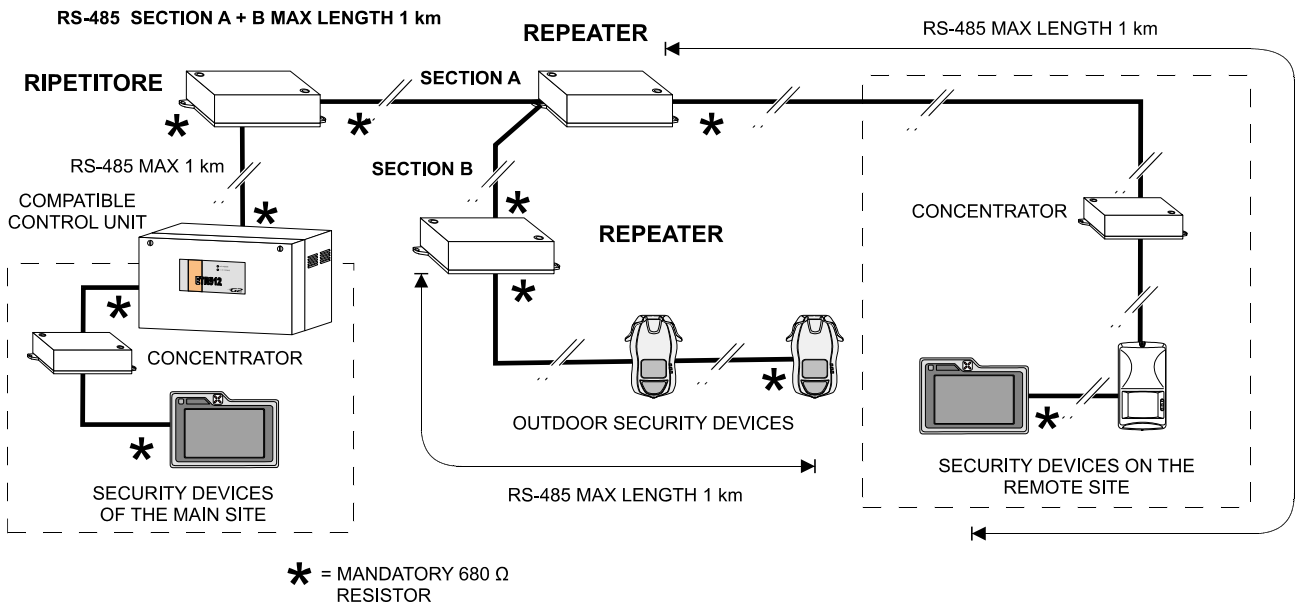
Example No. 4:



Example No. 5:



Example No. 6:

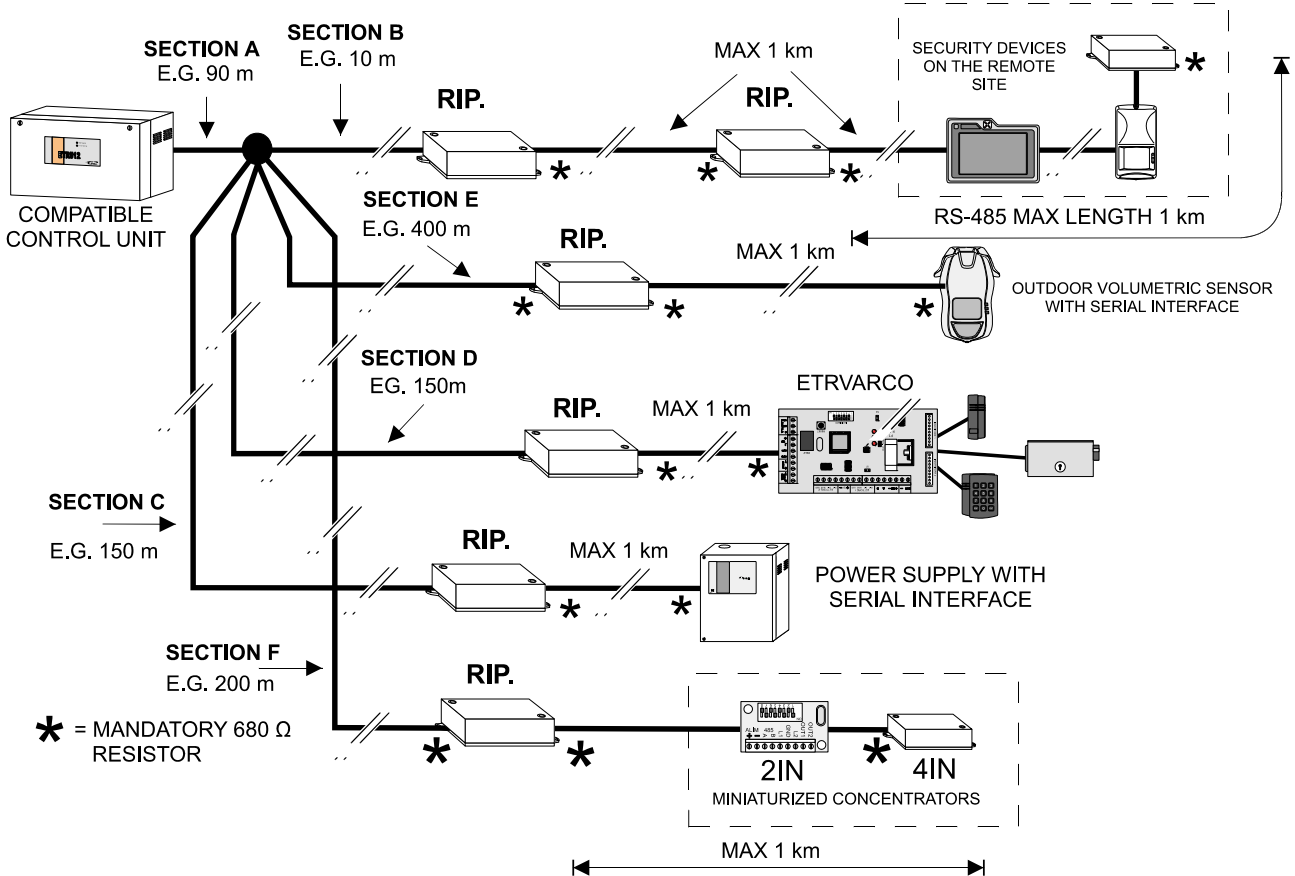




Note: up to 2 repeaters can be connected in cascade for any type of control unit (including ETR control units with firmware **v.1.8** or higher and every PREGIO series, NET series and VIDOMO control units) except for ETR control units with firmware **v.1.7** or lower, to which a single repeater can be connected.

Example No. 7:

THE SUM OF ALL SECTIONS OF THE RS-485 SERIAL LINE (A+B+C+D+E+F) CAN BE AT MOST 1 km LONG



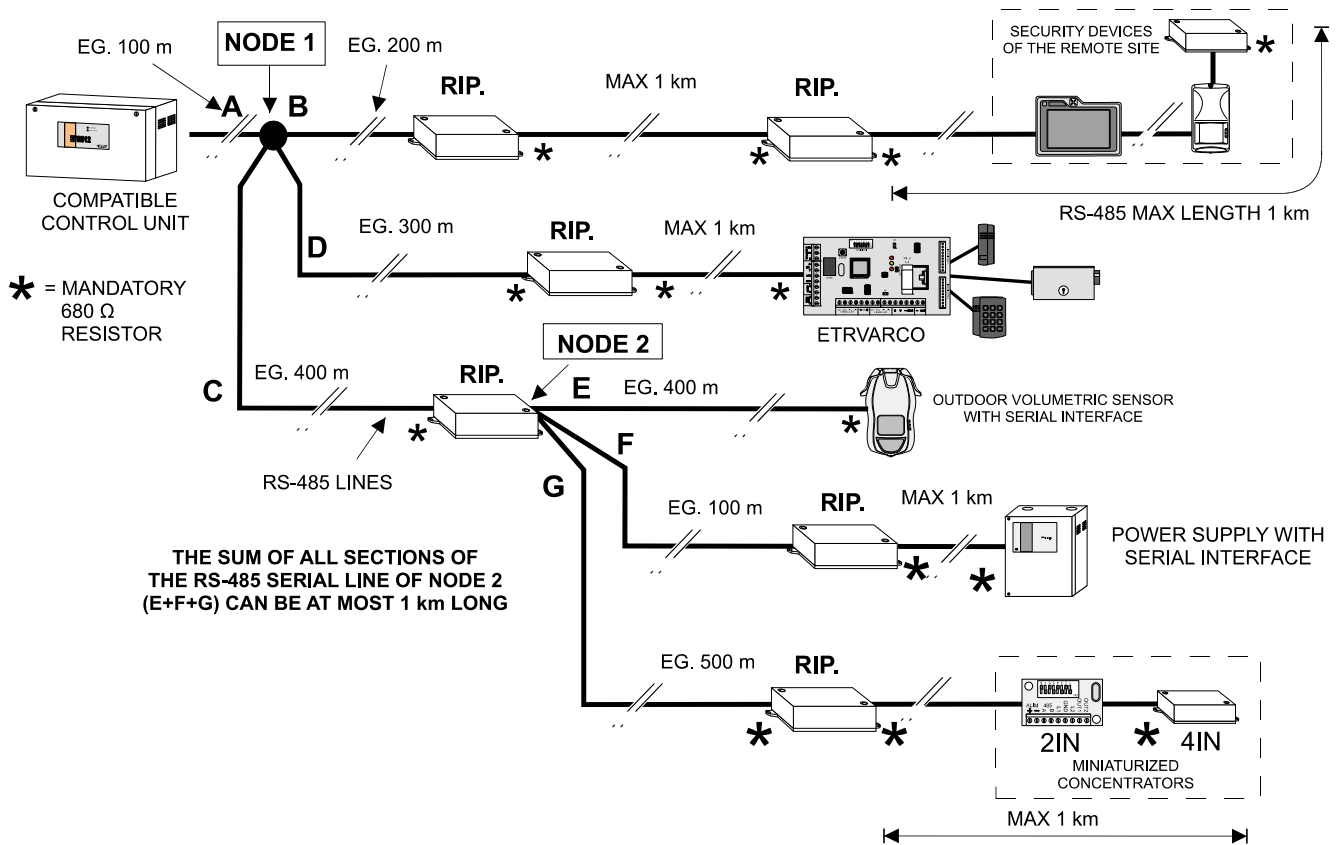
Note: according to the general rule for connections stated on page 5, the termination resistors must be connected at the ends of the longer path (composed of section E and section F).

Note: up to 2 repeaters can be connected in cascade for any type of control unit (including ETR control units with firmware **v.1.8** or higher and every PREGIO series, NET series and VIDOMO control units) except for ETR control units with firmware **v.1.7** or lower, to which a single repeater can be connected.



Example No. 8:

THE SUM OF ALL SECTIONS OF THE RS-485 SERIAL LINE OF NODE 1 (A+B+C+D) CAN BE AT MOST 1 km LONG



Note: according to the general rule for connections stated on page 5, the termination resistors must be connected at the ends of the longer path (composed of section D and section C for the line with node 1 and of section E and section G for the line with node 2).

Note: up to 2 repeaters can be connected in cascade for any type of control unit (including ETR control units with firmware v.1.8 or higher and every PREGIO series, NET series and VIDOMO control units) except for ETR control units with firmware v.1.7 or lower, to which a single repeater can be connected.



4. TABLE OF CONTENTS

1. GENERALS	3
2. FEATURES	3
2.1.Mechanical features	4
3. ELECTRICAL CONNECTIONS	5
4. TABLE OF CONTENTS	11

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Products features as described above do not bind the manufacturer and may be modified without prior notice.

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