![EL.MO. SPA logo]

TECHNICAL MANUAL

RIVER8PTBS, RIVER8TBS

Concentrators for intrusion detections systems

TERABUS ULTRABUS ADVANCED SERIAL BUS IMQ-SISTEMI DI SICUREZZA

Addressee for this information: (U) User | (I) Installer

1   DESCRIPTION

RIVERTBS is a new generation concentrator range with RS-485 TERABUS serial interface.

The concentrators allow to wire to an intrusion detection control unit additional zones to those connectable to the sole control unit board.

This manual refers to the following models:

- RIVER8PTBS: 8 zones, ETRREL connector, 2 solid state relay outputs
- RIVER8TBS: 8 zones

The TERABUS concentrators are backward compatible with all the devices equipped with RS-485 ULTRABUS serial interface.

Control unit compatibility

| Compatibility mode (ULTRABUS)	TERABUS mode
All control units	PROXIMA series

Common features to both the modes:

- simplified manual addressing
- power supply voltage and resistive value monitoring
- TBSManager app support

TERABUS functions (not available in ULTRABUS mode):

- multiple addressing (automatic or guided)
- maximum freedom in configuring zone balancing

2   PCB   [I]
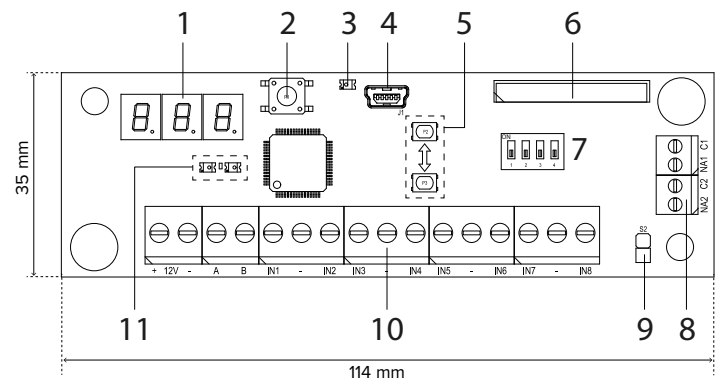
1   Triple display for address visualization
2   Button against opening
3   Green LED for operation visualization
4   USB mini-B connector
5   Buttons for address setting
6   ETRREL connector (only for RIVER8PTBS)
7   Dip switches to select ULTRABUS balancing / TERABUS mode
8   C/NO output terminals (only for RIVER8PTBS)
9   Jumper to exclude protection against opening/removal (S2)
10   Power terminals (+12V), serial line terminals (A, B) and zone wiring terminals
11   Serial line communication / device response LEDs

Board dimensions: 35 mm × 114 mm.

The button for protection against removal is located on PCB bottom (only for RIVER8PTBS).

Operation green LED indications

1 short blink	ULTRABUS mode.
2 short blinks	TERABUS mode.
slow blinking	Bootloader mode, no firmware update in progress

fast blinking	Bootloader mode, ongoing firmware update

3   TECHNICAL DATA   Ⓘ

Model		RIVER8PTBS	RIVER8TBS	
General features				
Power supply		12 V (9 to 15 V)		
Consumption at power voltage	Idle mode	10		mA
	Maximum	27 (1)	21 (2)	mA
Relay contacts capacity		500 mA	-	
Certification		IMQ-Alarm EN50131-3 grade 2-3-4 according to the system it is installed in, environmental class II		
Working temperature		-10 / +55		°C
Protection class		IP3X		
Dimensions		W 130 × H 35 × D 46		mm
Weight		85		g

(1)   with relay outputs activated and display on
(2)   with display on

Parts supplied

- Resistors (16 × 1.5 kΩ, 8 × 1 kΩ, 8 × 1.2 kΩ, 8 × 680 Ω);
- side fixing hinges (not mounted);
- two 2.9 × 6.5 mm screws for board fixing;
- screws and inserts for protection against removal and case fixing;
- technical manual;
- white label (to be applied to the device board or case to write the concentrator address or other reference, according to the installer's needs).

3.1   Security grade

Grade	Condition
4	RIVER8PTBS/RIVER8TBS in TERABUS mode installed in an additional case equipped with protection against opening, removal from the mounting surface and perforation connected to jumper S2
3	RIVER8PTBS in TERABUS/ULTRABUS mode installed in its own plastic case with dowel on button for protection against removal **or** RIVER8PTBS/RIVER8TBS in TERABUS/ULTRABUS mode installed in an additional case equipped with protection against opening and removal connected to jumper S2
2	in all the other cases, with detection of opening only
not compliant	with jumper S2 closed

4   INSTALLATION   Ⓘ
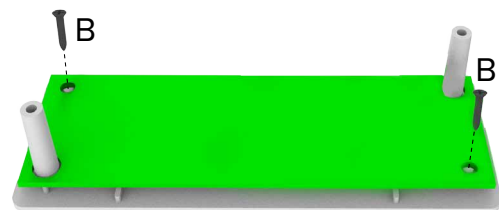
⚠ *General warnings are at the end of this manual.*
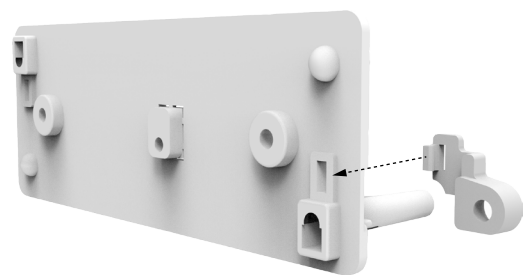
4.1   Device mounting

- **Opening the housing**
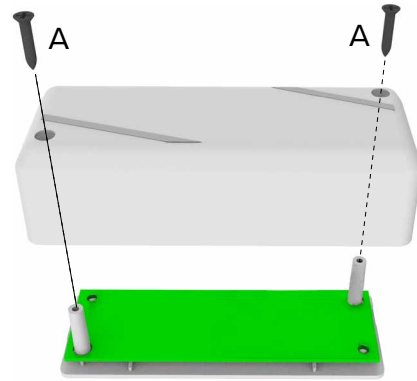
– unscrew cover fixing screws (A)
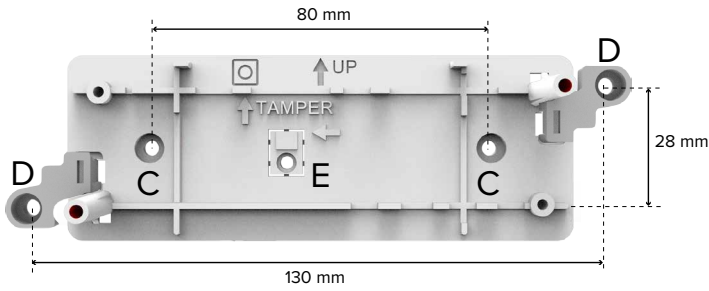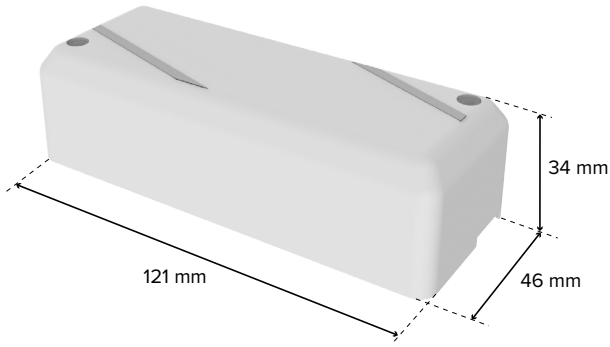– remove the cover

- **Removing the electronic board**

– unscrew board fixing screws (B)
– extract the board from the supports

- **Side hinges mounting (optional)**

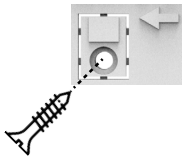– insert hinges in the suitable base holes
– push until they click in place

- **Base wall mount**

34 mm
121 mm
46 mm

80 mm
D
UP
TAMPER
D
C
E
C
28 mm
130 mm

– install the base on the mounting surface with screws and inserts using central holes (C) or side hinges holes (D)

⚠ *Make sure the UP arrow is on the upper side.*

Protection against removal (for RIVER8PTBS)

– insert a countersunk screw suitable for S4 plug into hole E

⚠ *For information on how to the determine the security grade, see paragraph 3.1 p. 2.*

- **Wirings**
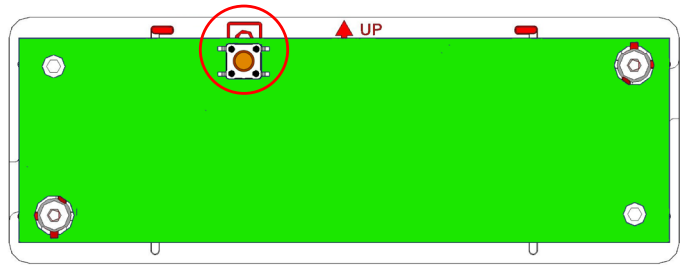– wire terminals as indicated in paragraph 4.2 *p. 4*

- **Device setup**

Proceed with device setup (see chapter 5 *p. 5*).

- **Board positioning**

Remove the board following the steps in reverse order:
– position the electronic board between the supports

UP

Make sure the switch for protection against opening (on board top) is on the upper side as indicated by the symbol on case base.

For RIVER8PTBS: verify that the button protecting against removal remains pressed: position the board so that such button position corresponds to the base elevated support (F)
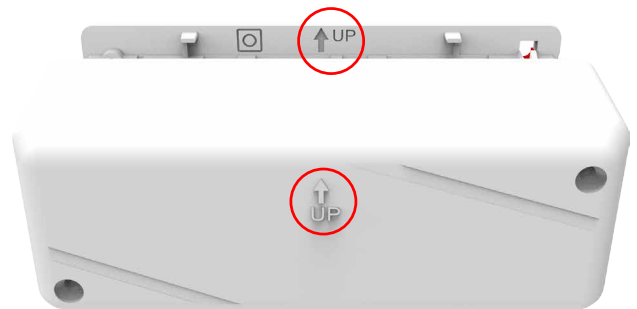
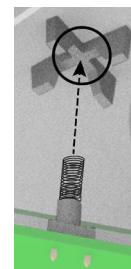– fix the board with the screws

- **Cables passage**

– remove plastic from one of the indicated points to let the cables into the housing

- **Closing the housing**
– position the cover on the base

UP
UP

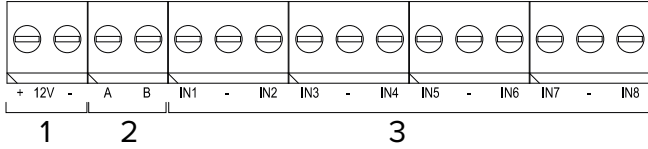Make sure the arrow on cover is on the upper side, like the one on the base.

Verify that the spring protecting against housing opening is positioned correctly.
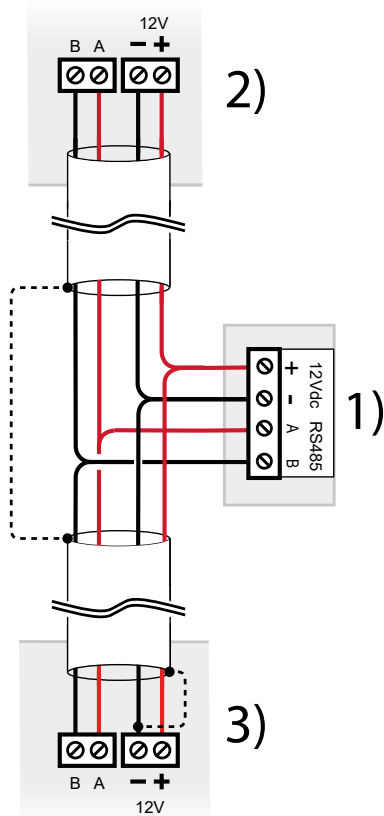
– fix the cover with the screws

4.2 Wirings

Terminal board

1 12 V power supply
2 A, B serial line
3 Terminals for zone wiring

Connection to the serial line

1 Concentrator terminal board
2 Previous device over serial line
3 Next device over serial line

1 Concentrator terminal board
2 External power supply terminals
3 Previous device over serial line
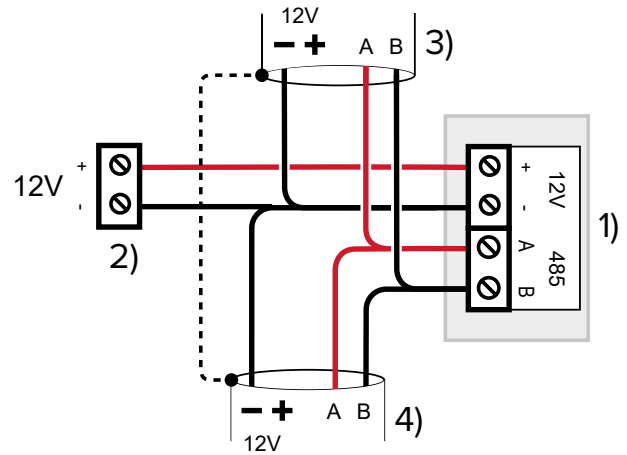**4** Next device over serial line

Zone connection

Concentrator

– wire detector power and serial line terminals
Use cables with the following section: 2×0.75 mm² (power) $+ 2 \times 0.22$ mm² (signal).

⚠ *Wire cable screen as indicated in picture (dashed line)*

The serial line may be extended with branches, provided that the following rules are followed:

• the sum of the lengths of the branches must not exceed 1 km
• 680 Ω termination resistors must be connected to the ends of the two longest branches

Alternatively, the device can be powered with a remote power box as illustrated below:

– wire concentrator zones, according to the set balancing mode (see paragraph 5.2 *p. 5*)

⚠ *Triple balancing can only be used with control units that support it.*

⚠ *Any unused zone can be left open and set as "not connected" to the control unit.*

5 STARTING THE DEVICE: COMPATIBILITY MODE (ULTRABUS) Ⓘ

5.1 Address setup

For correct communication with the control unit, it is necessary to set an address for the concentrator.
In compatibility mode (ULTRABUS), manual addressing is available.

5.1.1 Manual addressing

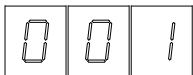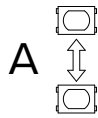This kind of addressing allows to manually set the address of **one single concentrator** using on-board buttons.

A Buttons for address setting
B Display

– power the device
– keep one of the addressing buttons (A) pressed for 3 seconds

The displayed address (previously set or, by default, 001) starts blinking.

– use the buttons to change address
– having set the desired address, wait 3 seconds

The displayed address stops blinking once it has been memorised.

5.2 Balancing

In compatibility mode (ULTRABUS), set balancing type using dipswitches as described below.
Note: the set balancing applies to all the zones at the same time.

Double balancing
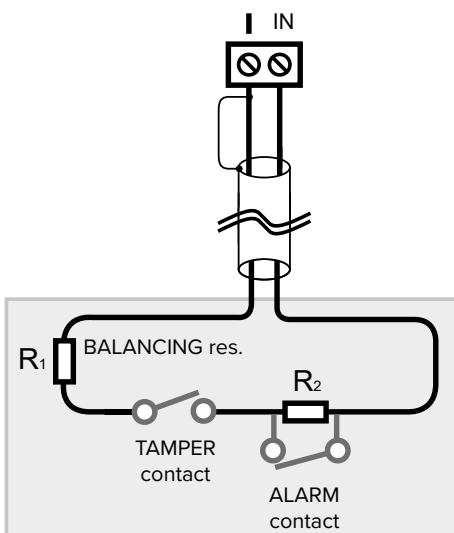
Triple balancing
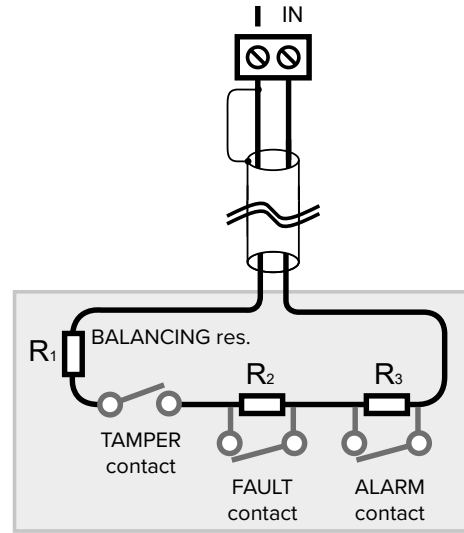
Quadruple balancing
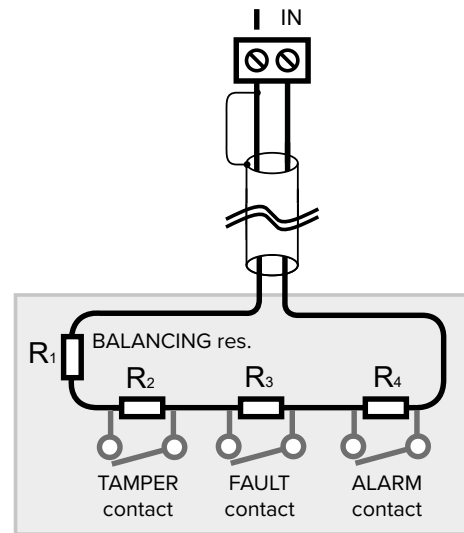
Balancing selection

The following table recaps standard balancing settings.

Number (x)	Dip setting	Type
1		Double balancing $R_1 = 1500\ \Omega$, $R_2 = 1500\ \Omega$
2		Double balancing $R_1 = 680\ \Omega$, $R_2 = 1000\ \Omega$
3		Double balancing $R_1 = 4700\ \Omega$, $R_2 = 4700\ \Omega$
4		Double balancing $R_1 = 820\ \Omega$, $R_2 = 820\ \Omega$
5		Triple balancing $R_1 = 1000\ \Omega$, $R_2 = 1200\ \Omega$, $R_3 = 680\ \Omega$
6		Quadruple balancing $R_1 = 866\ \Omega$, $R_2 = 2700\ \Omega$, $R_3 = 8200\ \Omega$, $R_4 = 866\ \Omega$

Firmware update procedure allows to load other balancing

versions to the device.

Some versions are **variants** of standard balancing identified by the following suffix:

$$\_Nx-Y_1-Y_2$$

where

- x is the number of the standard balancing identified in the above table that is modified;
- Y_n are the alternative values of the respective resistors.

Note: firmware variants are useful when the device is **not** set to TERABUS mode so customizable balancing cannot be used.

For further information see paragraph 8.1.1 *p. 9*.

5.3 Repetition mode

In ULTRABUS mode, a concentrator can be used as module for simple repetition of the outputs of another concentrator.

⚠ *The two concentrators must belong to the same serial line.*

To set repetition mode for a concentrator:
– set dip 4 to ON (no matter the position of the other dips)
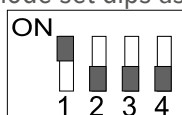– set the same address as the one of the concentrator to be repeated

6 STARTING THE DEVICE: TERABUS MODE

In TERABUS mode, the device will use TERABUS RS-485 advanced protocol to talk to the compatible control unit and gain access to additional functions.

To enable TERABUS mode set dips as shown below:

In TERABUS mode, the LED for operation visualization will flash twice at regular time intervals.

6.1 TERABUS learning

For correct communication with the control unit, it is necessary to set an address for the concentrator and learn it to the control unit.

In compatibility mode (TERABUS) both manual addressing (see paragraph 5.1.1 *p. 5*) and the advanced learning modes described below are available.

6.1.1 Advanced learning modes

– on control unit keypad, enter installer code followed by **OK** to go to setup menu
– use arrow keys ↑ or ↓ to go to TERABUS option
– press **OK**
– use arrow keys to browse among available items: ZONE LEARNING, MULT.ZONE LEARN.

Three learning modes are available:
- **single concentrator learning**;

- **multiple guided learning**: the control unit addresses all the concentrators autonomously (starting from a given zone) and learns them when the installer presses one of the concentrator onboard buttons;
- **multiple automatic learning**: the control unit addresses and learns all the concentrators autonomously (starting from a given zone).

6.1.1.1 Single concentrator learning

It can be used to learn or unlearn a single concentrator.
– select ZONE LEARNING
– press **OK**
– enter the number of the zone to which learning the concentrator
– press **OK**

If the zone is already being used, CONCENTRATOR N will appear, where N is the number of concentrator zones.
– press **OK**
– press **1** to unlearn the concentrator, **Stop** to exit

If the zone is free, NOT LEARNED will appear.
– press **OK**: ACTIV. DEVICE will be displayed
– press one of the addressing buttons on concentrator

Note: in case the concentrator has already been addressed manually, it will be automatically learnt to that address without request of activation.

If learning is successful, the number of the concentrator will be displayed.
– press **Stop** repeatedly until you are asked to save changes
– press **OK** to save

6.1.1.2 Multiple guided learning

– select MULT.ZONE LEARN.
– press **OK**
– enter the number of the zone from which the concentrators will be learnt
– press **OK**
– press 1 = Guided

If any devices have already been learnt, **Keep learned?** will appear: press **OK** to keep them, **#** to learn them again.

ACTIV. DEVICE will be displayed.

The displays of the concentrators available for learning will flash:

Now it is possible to manually learn the concentrators according to the desired sequence:
– identify a concentrator whose display is flashing
– press one of the addressing buttons on concentrator
– repeat for the following concentators

6.1.1.3 Multiple automatic learning

– select MULT.ZONE LEARN.
– press **OK**
– enter the number of the zone from which the concentrators

will be learnt
- press **OK**
- press 2 = Auto

If any devices have already been learnt, **Keep learned?** will appear: press **OK** to keep them, **#** to learn them again.

The control unit will assign addresses to the concentrators and learn them autonomously, without requiring any manual activation.

Any already addressed concentrator will be automatically learned too.

In case a concentrator has already been learnt to the control unit, or it already has an address compatible with the allowed interval, the control unit will keep the address set.

If a concentrator has never been addressed or its address overlaps the one of another concentrator or it is not compatible with the allowed interval, the control unit will assign to it a progressive address determined according to its algorithms.

6.1.2 Usage hints

Learning to a specific address

If one needs to learn a concentrator so that it is assigned a specific address (e.g. to fill zone intervals still free), we suggest using single concentrator learning mode (ZONE LEARNING menu).

Address change

If one needs to learn a concentrator to a different address, it is necessary to:
- unlearn the concentrator from the configuration using **Delete device** button on page **Zones** > **Devices Ultrabus/Terabus** in BrowserOne or the same keypad menu ZONE LEARNING
- learn the single concentrator again (menu ZONE LEARNING)

Pre-addressing

Sometimes it can be useful for the installer to manually address each concentrator before installing it in the system.

Then, on field, the installer will only have to wire the concentrators and launch the automatic multiple learning mode.

6.2 TERABUS balancing

In TERABUS mode, the default balancing is a double balancing with resistors R_1 = 1500 Ω, R_2 = 1500 Ω.

It is possible to set customised balancing patterns using software BrowserOne.
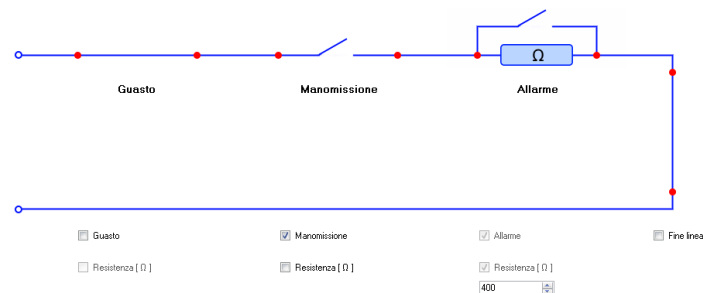
6.2.1 Customised balancing

In TERABUS mode, customisable balancing patterns can be configured:
- open BrowserOne software (version 3.15.17 or above)
- load the latest module available for the control unit in use

- start control unit connection
- select **Read setup** key to read control unit setup
- go to **Zones** page
- select the grid row corresponding to one of the concentrator zones
- select tab **Devices Ultrabus/Terabus**
- from **Balancing** drop-down menu, select the balancing pattern to apply

To configure balancing patterns (up to 4) enter page **Zones** > **Programmable balance**.

⚠️ *Only series balancing patterns are supported.*

7   USE AND DIAGNOSTICS   Ⓤ

7.1   "Fast" zones

Setting a zone as "fast" allows to manage the signals coming from rolling shutter or inertial sensors.
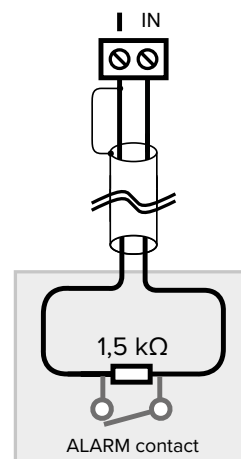
Fast zone management requires setting type 1 balancing (R_1 = 1500 Ω, R_2 = 1500 Ω).

For such type of zone, sensitivity and integration parameters can be configured using BrowserOne software, both in ULTRABUS and TERABUS mode:
- open BrowserOne software (version 3.15.17 or above)
- load the latest module available for the control unit in use
- start control unit connection
- select **Read setup** key to read control unit setup
- go to **Zones** page
- select the grid row corresponding to the concentrator

zone to configure as fast zone
– select tab **Devices Ultrabus/Terabus**
– select **Fast**

The panel to set the values will activate.

▼ **Sensitivity**

Parameter determining the number of pulses to detect in order to generate an alarm.

A low sensitivity value requires the sensor to generate of a higher number of pulses to cause alarm signal. Conversely, a higher sensitivity value allows a faster alarm generation with less pulses counted.

▼ **Pulse Count**

Parameter determining the time within which to detect the number of pulses set as sensitivity in order to generate an alarm.

A low integration value increases detection time, a high integration value reduces it.

In most cases, the control is performed adjusting sensitivity and leaving integration to the default value of 10.

Use with rolling shutter sensors

To get a faster response, increase sensitivity in steps of 10. We recommend limiting the sensitivity to 40 to avoid false alarms.

To allow detection with very slow rolling shutter movements, it is possible to set the integration value to 5.

In case ot false alarms, set a sensitivity value below 20.

Use with inertial sensors

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

To get a faster response, increase sensitivity in steps of 10 (50, 60, ...).

To get alarm signalling with one single hit, set sensitivity to at least 50.

To get detection with distanced hits, it is possible to half the integration value to 5.

In case of false alarms, set a sensitivity value below 40.

7.2 TBSManager

TBSManager is a software interface for concentrator configuration.

TBSManager is available accessing to BrowserOne in two ways:

• directly connecting to the concentrator via USB;
• connecting to the concentrator through the control unit.

In direct connection to the concentrator via USB

– open BrowserOne software (version 3.15.17 or above)
– go to **Tools** > **Run TBSManager...** menu

Tabs **General**, **Input status**, **Graph, Output status** are available.

On window top bar, the **Update** menu allows to perform firmware updates. See paragraph 8.1.4 *p. 10*.

### With concentrator connected to the control unit

A reduced version of the software (with respect to that available in USB direct connection) will open.

– open BrowserOne software (version 3.15.17 or above)
– load the latest module available for the control unit in use
– start control unit connection
– select **Read setup** key to read control unit setup
– go to **Zones** page
– select the grid row corresponding to the concentrator
– click on **General** tab
– in **Analog values and states** pane, select **Open viewing window**

7.2.1 General

– select the COM serial port
– click on **Connect** button

The window provides information on the device, on its configuration and addressing.
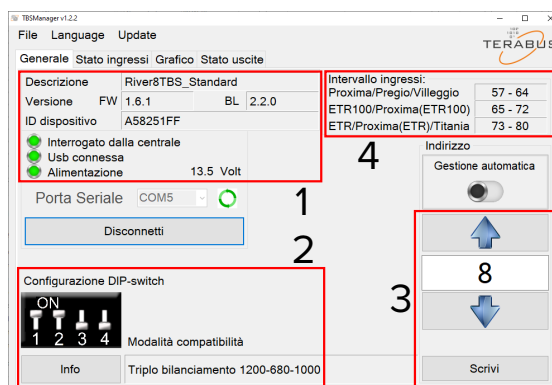
1	Info panel
2	DIP/jumper configuration
3	Address
4	Zone interval

Info panel

It shows concentrator information (type, firmware version, bootloader version).

DIP/jumper configuration

It shows the current configuration set using on-board dips/jumpers (according to the model).

Each configuration variation will be shown in real time.

Click on **Info** button for information on the settable configurations.

Address

It shows the current address.

To change address:

– use arrow keys to set the new address
– click on **Write** button

Zone interval

It shows, for each control unit, the range of addresses occupied by the concentrator corresponding to the set address.
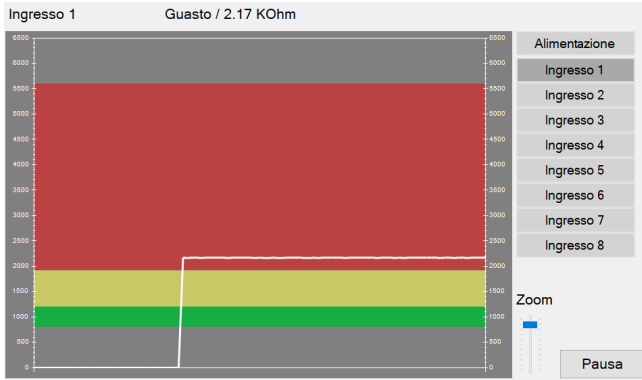
7.2.2 Input status

It shows in real time the zone state (idle, tamper, alarm or fault), the resistance value measured at the terminals of each zone and the state of concentrator buttons and jumpers.

7.2.3 Graph

It shows in a graph the trend over time of the power supply and of the resistance value at the selected zone terminals.

7.2.4 Output status

It shows the state of the outputs (if there are) in real time.

8   MAINTENANCE

8.1   Firmware update

The following update modes are available:
1. **Update via BrowserOne in RS-485 connection:** it can be performed remotely, even via e-Connect, and it allows to automatically update several devices sequentially.
2. **Update using TBSManager via USB:** it allows the update connecting and powering the device via USB. It requires the device case to be open.
3. **Update using BrowserOne via USB:** it allows the update connecting and powering the device via USB. It requires the device case to be open.

We recommend performing the update with system locked or disarmed, to avoid alarm signalling in some situations.

In particular, if 24H property has been set for one of the NC zones, it is necessary to lock the system or remove the 24H property before the update and set it again after the update. If an update attempt does not end properly (for example, because of a disconnection during the update), the device will not lose its operativity.

Nevertheless, tamper signalling may be sent if the update procedure is not completed within 10 minutes, with reset once the update has been properly concluded.

All the update modes can be performed both in TERABUS mode and in ULTRABUS (compatibility) mode.

Firmware update in repetition mode

Updating the firmware of a concentrator set in repetition mode is possible via USB only.

8.1.1   Firmware selection

During firmware update procedure, it will be possible to choose among different firmware versions (standard ones and variations).

Firmware files are identified with a suffix preceded by the underscore character (_) reported in the update file name and in the concentrator version shown by the software.

Note: firmware variants are useful when the device is not set to TERABUS mode so customizable balancing cannot be used.

Version	Type
_Standard	Default firmware version.
_Latch	Special variant including a particular management of fast zones (rolling shutters). Available enabling special variants inclusion in BrowserOne. With this version, when a rolling shutter zone remains in alarm condition, the signalling is not automatically reset by the device like in standard version. This version is useful in case of connection of rolling shutter zones and magnetic contacts in series.
_Repeat	Special variant that enables repetition mode for the concentrators that do not feature on-board repetition function setting. Available enabling special variants inclusion in BrowserOne. In any case, operation in repetition mode is available in ULTRABUS mode only.
$_Nx\text{-}Y_1\text{-}Y_2$	Special variants for customized zone balancing. Available enabling special variants inclusion in BrowserOne. x: number of the respective standard balancing as defined in paragraph 5.2 *p. 5*. Y_n: values ot the alternative balancing resistors. For example, **_N2-1k-2k2_N3-10k-10k_N4-2k7-2k7** indicates a special variant in which the resistors of balancing number 2 take the values 1k-2k2, the resistors of balancing number 3 take the values 10k-10k and the resistors of balancing number 4 take the values 2k7-2k7.
_Fast	Special variant that shortens zone latency to 50 ms. Available for concentrators with firmware version 1.6.4 or higher, enabling special variants inclusion in BrowserOne. Suitable for home automation applications. Set all inputs as NC or balanced. **Note:** you can use NA call points by setting the input as Balanced and using a parallel balancing with two 1.5 kΩ resistors.
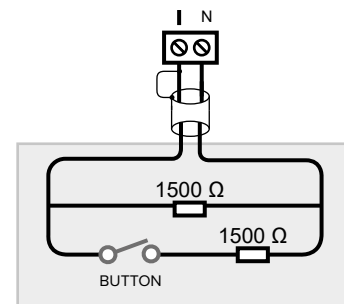
8.1.2 Firmware update via BrowserOne and RS-485

It requires the connection of the control unit to BrowserOne and the connection of the device over serial line.
– open BrowserOne software (version 3.15.17 or above)
– load the latest module available for the control unit in use
– start control unit connection
– select **Firmware update device** in **Tools** menu
– select "Bus 485"then press **Next**
– in the window displayed select the device to be updated: in drop-down menu select the model
– click on **Next**
– the software application will search for all that type of devices connected over serial line: select the device to be updated on the list, then select **Next**

Select the update file in the displayed window.
Select the download path:
– select **Sync with online archive** to download the file from a network archive: in the window displayed, select the update file then click on **Ok**

⚠ *To include non-standard version while searching (see paragraph 8.1.1 p. 9), select* **Include special variants in sync** *too.*

– click on **Browse** to select an update file already stored on the PC: find it and select **Open**
– click on **Next** to continue
– a summary window will open: select **Next**
– follow displayed instructions until the confirmation message pops up

While updating the firmware, the dot on concentrator display bottom right blinks.
– press **Update another device** to update another device, press **End** otherwise

8.1.3 Firmware update via BrowserOne and USB

It demands direct connection of the PC to the device.
It requires that the device case is open, therefore if the system is on it is necessary to lock it or to inhibit tamper signalling.
– use a USB-MiniB cable to connect the device to a PC equipped with BrowserOne software
– start BrowserOne and update it to the latest version available
– select **Firmware update device** in **Tools** menu
– select "USB" then press **Next**
– in the window displayed select the device to be updated: in drop-down menu select the model

Select the update file in the displayed window.
Select the download path:
– select **Sync with online archive** to download the file from a network archive: in the window displayed, select the update file then click on **Ok**

⚠ *To include non-standard version while*

searching (see paragraph 8.1.1 p. 9), select **Include special variants in sync** *too.*

– click on **Browse** to select an update file already stored on the PC: find it and select **Open**
– click on **Next** to continue
– choose "Standard" update mode
– click on **Next** to continue
– select Virtual COM serial port to which USB Mini-B cable is connected to (if such port is not listed, select update icon) then select **Next**
– a summary window will open: select **Next**
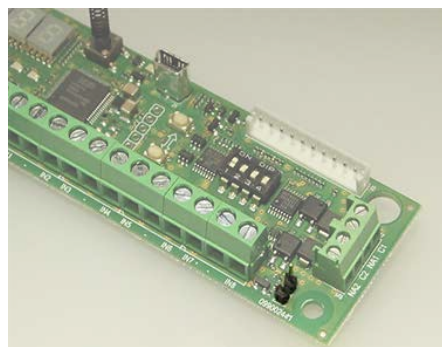
– set the device in Firmware Update mode as displayed, then click on **Next**
– the communication will start and the device will be updated: select **Next**
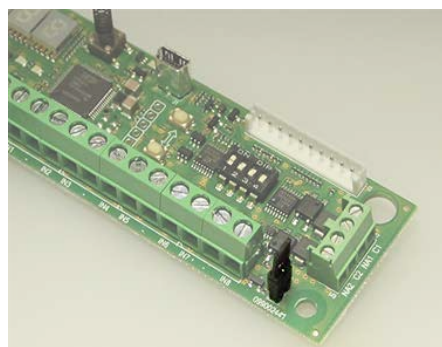
– set the device to standard operating mode again as displayed, then click on **Next**

While updating the firmware, the dot on display bottom right blinks.
– press **End**

8.1.4 Firmware update via TBSManager

It demands direct connection of the PC to the device via USB.
It requires that the device case is open, therefore if the system is on it is necessary to lock it or to inhibit tamper signalling.
– use a USB-MiniB cable to connect the device to a PC equipped with BrowserOne software
– start BrowserOne version 3.17 or above
– go to **Tools** > **Run TBSManager...** menu
– click on **Connect**
– on window top bar, click on **Update** > **Firmware**

– set the device to tamper mode opening the specific jumper
– click on **Ok** button
– click on **Select** button

A window will appear that allows to select the path where the update file is located.

If a firmware update has already been performed before via RS-485 and option **Sync with online archive** was selected, the list of the available files can be found at this path

C:\Users\user_name\Documents\BrowserOne\Download\ Firmware\Devices

In case you got the update file in another way (e.g. requested to the EL.MO. help desk service), select the path where it is located.
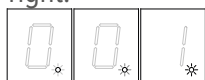
– select the update file and click on **Open**
– click on **Update** button

If the update is successful, the relative message will appear.

8.1.4.1 Emergency update

Start this update mode in case a previous update attempt has ended before being completed, leaving the concentrator in "bootloader" state.

In "bootloader" state the green LED for operation visualization blinks slowly, while the dots on the display move quickly from the left to the right.

– on TBSManager window top bar, click on **Update** > **Emergency**
– click on **Select** button
– select the update file and click on **Open**
– click on **Update** button

8.2 Parts cleaning

Clean the product with a damp cloth, using non-corrosive cleansers suitable for electronic appliances.

Do not spray any liquid substance directly on the case.

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: www.elmospa.com – registration is quick and easy.

$C \in$

GENERAL WARNINGS

This device has been designed, built and tested with the utmost care and attention, adopting test and inspection procedures in compliance 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:

Concentrators for intrusion detections systems

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 components adopted are subject to an extremely modest percentage of faults, which is nonetheless the case with any electronic or mechanical product.

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

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

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

If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

INSTALLER WARNINGS

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.

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

If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

USER WARNINGS

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...)

MAIN 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
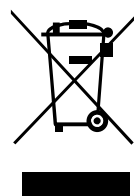
IT08020000001624

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.