

Elpas Local Controller 3

P/N: 5-LCA00433

Installation Guide

Introduction

This Installation guide provides basic instructions for common Elpas Local Controllers installation scenarios.

CAUTION: It is important that you read, understand, and follow the instructions in this document. If you have questions, call your local Elpas support representative. All reasonable efforts have been made to ensure that the specifications and other information in this guide are accurate and complete at the time of its publication. Nonetheless, all information contained within this document is subject to change at any time without prior notice. Any modifications to this equipment without prior written consent of Elpas Solutions Ltd. will void all warranties including the pertinent regulatory certifications and as such revoke your authority to operate this product. Furthermore unauthorized modifications may also result in damage to this device and may cause a safety hazard to the users.

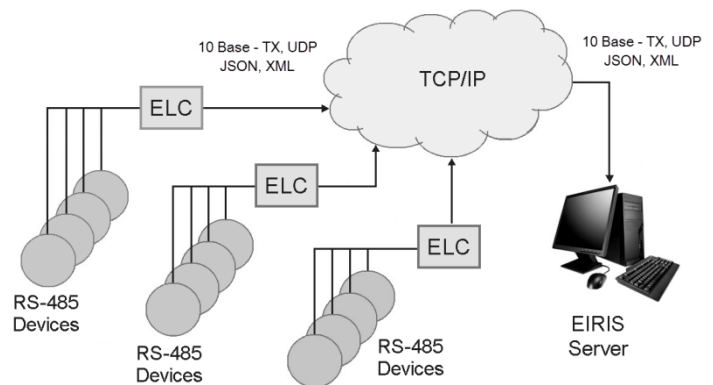
Product Description

ELC3 is the improved programmable hardware device that provides real-time monitoring, command and control of Elpas RTLS Safety, Security & Visibility Applications without the need for a PC-based host application machine. ELC3 is mountable on walls, ceilings, and dropped ceilings.

ELC3 contains sufficient on-board memory to enroll up to 20,000 Elpas Active RFID tags/badges and store 100,000 event transactions. ELC3 also contains the process power to handle over 300 event/tag messages/second. ELC3 also communicates with Elpas tags/badges to acknowledge their messages. Should electrical power fail, the ample storage resources of ELC3 prevent tag data loss, even in the highest tag volume environments. ELC3 uses JSON for interface with external control and monitoring applications to retrieve events. It also continues to support the Elpas2 legacy XML messaging technology. The report generator is web-based.

ELC3 can monitor up to sixty two Elpas RS-485 BUS Devices through two RS-485 Junction Boxes (P/N: 5-JBA10485). That includes 'State' changes to any wired security device inputs on the BUS, such as door contacts and alarm detectors.

ELC3 Local Processing handles: Up to eight tag status types, continuous tag status management, status change through rules, different types of access control anti-passback (soft, hard, input-verified), sixty four programmable logic rules and sixty four actions that define which outputs on the RS-485 BUS are set in response to detected tag and input events, sixty four time zones,



ELC - Sample Network Topology

(refer to page 3 for wiring & specification details)

download of up to sixty four badge groups, registration of one hundred and twenty eight devices (including standalone LFs), up to thirty two characters support for Reader, Badge, Group, and Input names, temperature trigger with high/low values set per tag, Lost/Away time variable configuration separate for each tag.

Onboard inputs monitor alert sensors or emergency call buttons. Digital outputs trigger alert response devices. ELC3 includes six inputs (three analog, three digital) and five outputs (two O.C. and three relays). ELC3 also includes one Wiegand input.

Terminal Blocks – ELC3 Circuit Board

Ethernet Interface: ELC3 has a female RJ-45 (8P8C) connector to link ELC3, through Ethernet, to the host RTLS application machine, such as Eiris.

Recommended Cable: CAT5 shielded cable.

RS-485 Interface: ELC3 includes two four-position removable terminal blocks (J4, J5). Each connects to a Junction Box that allows an RS-485 BUS of thirty one devices. ELC3 also includes three six-pin female RJ-11 connectors (J1, J2, and J3) that link the device directly to BUS devices. (See page 3 for details)

Power Requirements: 80mA/24VDC – Approved Limited Power Source

Power over Ethernet (POE): 48V

Recommended Cable: CAT5 Stranded (4x2x26AWG)

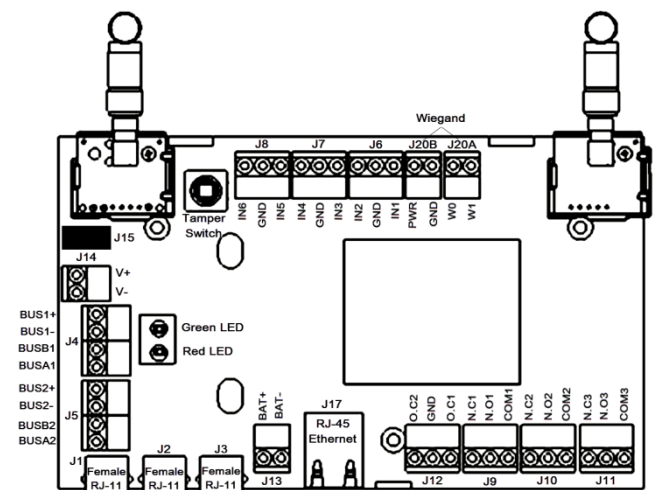
Max Distance: Refer to wiring topology on page 3

Tamper Switch: ELC3 contains a spring loaded tamper switch that when pressed, generates a 'State' message that can be used to enroll the device in the host application. Once registered, the tamper switch is used to trigger a tamper alert indicating the device's cover has been removed.

Input/Outputs: ELC3 has six (three analog; three digital) general purpose (N.O.) inputs (J6, J7, J8) and five (two O.C.; three relays) digital open-collector outputs (J9, J10, J11, J12).

(See page 3 for details)

Power Supply: ELC3 has a power supply connector (J15) and a power supply terminal block (J14) to accommodate any type of power supply.



Reset Button: Reboots the ELC3 firmware.

Green LED: Lights continuously when powered

Red LED: Corrupted Firmware: Lights continuously
Tag Detection: Flashes once per message
Unregistered in Eiris: Toggles on/off

Battery Backup: ELC3 contains a two-position terminal block to connect a 12VDC/7-9Ah lead acid rechargeable backup battery. The backup battery temporarily powers the controller and up to three other Elpas BUS devices (using any of the device RJ-11 and terminal block connectors) when the normal AC power source is disconnected. See page 5 for details.

ELC3 automatically charges the battery during normal AC power supply operation.

Connect the (+) positive terminal of the battery to the ELC3 BAT+.

Connect the (-) negative terminal of the battery to the ELC3 BAT-.

Wiring Warnings!

The three RJ-11 connectors **Should Not Be Used To Connect to RS-485 Junction Boxes**. Each connector should only be used to link to one Elpas RS-485 BUS device.

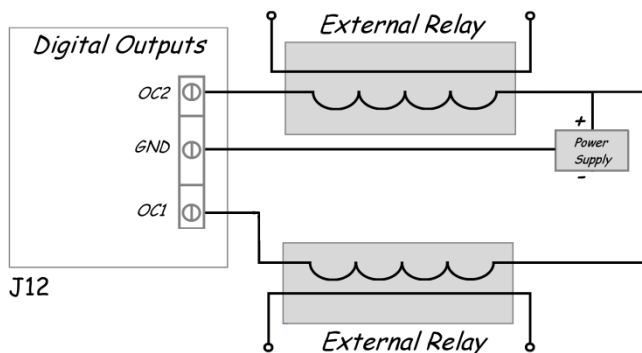
Important! Power ELC3 down before you connect any Controller interface such as RS-485 BUS devices, the Ethernet interface, or the optional backup battery. Otherwise, accidental shorts or power spikes can damage the device.

RTC Coin Battery Warning

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to instructions

Outputs

ELC3 contains two open collector digital outputs (J12) (up to 100mA, 28VDC), and three general purpose digital relay outputs (J9, J10, J11) (rated 2A/12VDC) for actuating alert response devices.



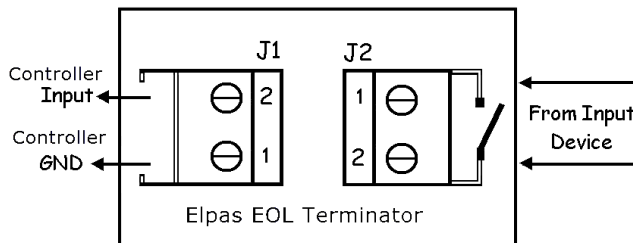
Note: All outputs are resistive loading only, there is no power factor.

Recommended Cable: 22 AWG, unshielded/twisted pair

Inputs

ELC3 contains three general purpose analog (N.O.) dry contact inputs (J6, J7) and three digital inputs (J7, J8) for monitoring alert sensors or emergency call buttons.

Using an Elpas End-of-Line (EOL) Terminator (P/N: 5-IOX00001), EOL supervision may be added to the input to detect: Open, Close, Line Break, and Line Short circuit conditions.



Recommended Cable: 22 AWG, unshielded/twisted pair

Wiegand

ELC3 contains two two-position terminal blocks for a Wiegand input (J20A – Wiegand wire; J20B – Power and Grounding) to allow inputs from Wiegand devices.

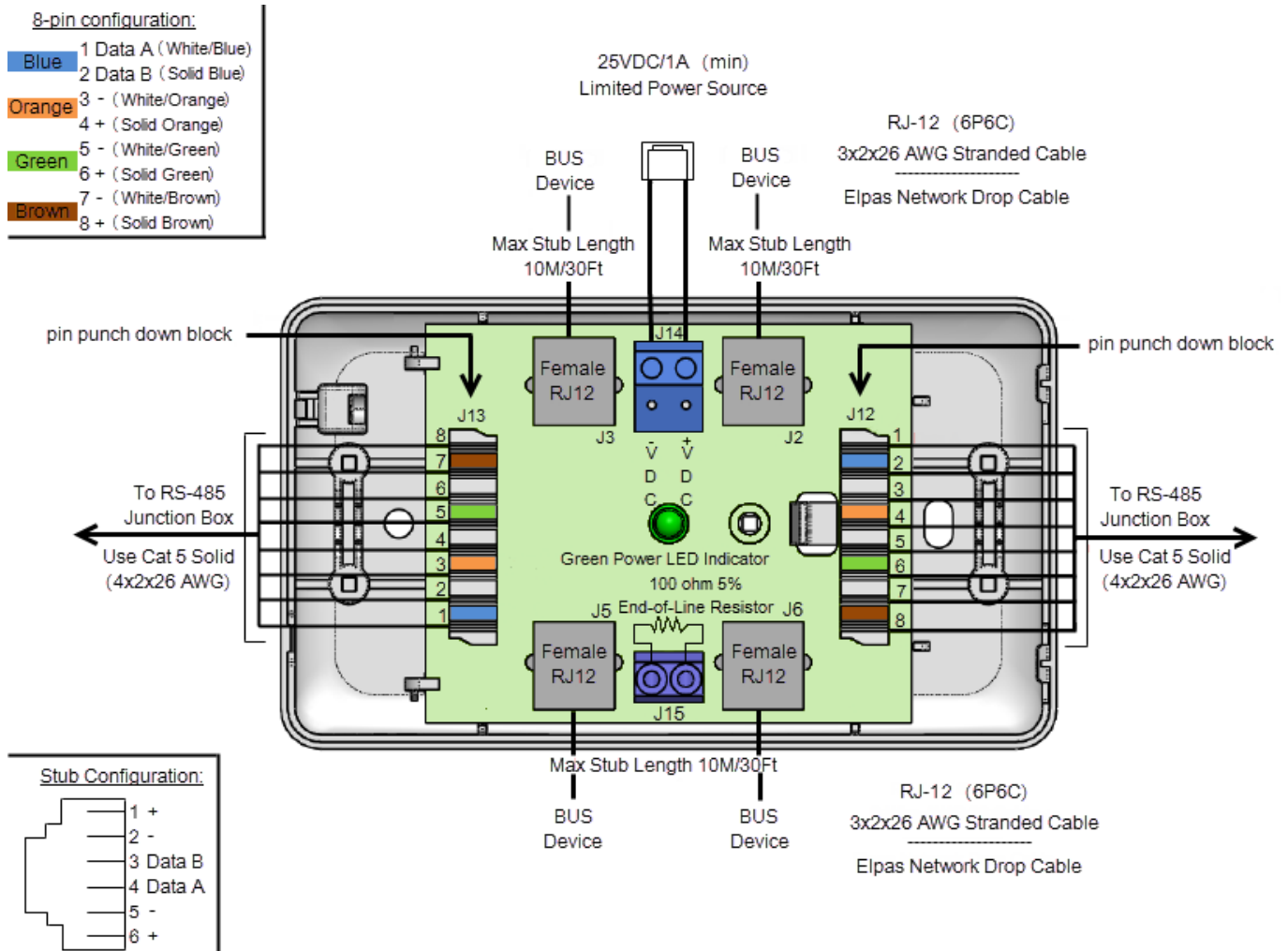
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RS-485 BUS/Stub Topology

The RS-485 BUS **MUST BE** wired using a BUS/Stub topology where the BUS Master (an ELC) is connected at any location along the BUS. The topology supports data transmission between the ELC and up to 15 BUS Devices (such as RF/IR Readers; LF Beacons, Display Panels and I/O Boxes) using multiple Elpas RS-485 Junction Boxes (P/N: 5-JBA00485).

IMPORTANT NOTE: Only 1 ELC and up to 7 RF BUS Readers may coexist together on a single RS-485 BUS.

200M/650Ft: Max. BUS length **10M/30Ft:** Max. Stub length **100 Ohm Termination:** Required each end of the BUS.



Recommended Cable/Power Supply Types:

BUS Backbone:

CAT5 solid (4x2x26AWG).

Power: Three twisted pairs

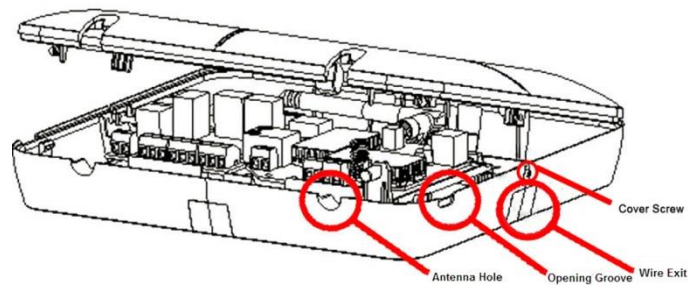
(six conductors) between Junction Boxes.

Data: One twisted pair (two conductors) between Junction Boxes.

Power: 16 to 28 VDC/2.5A Limited.

Wall Mounting

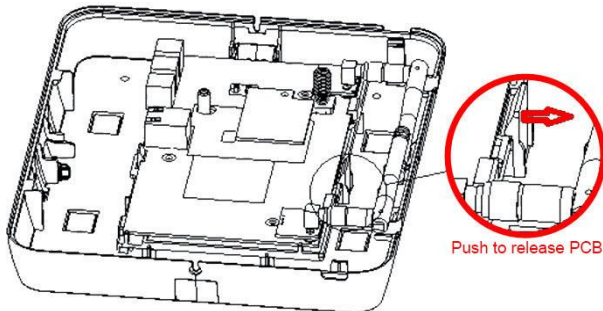
The device (other than Outdoor ELC) is enclosed in an esthetic plastic box that facilitates installation. The box also provides tamper detection, neat wiring which can come out of each side the user chooses, and optional antenna holes.



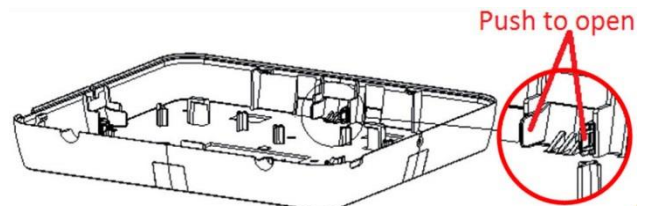
1. To open the front cover: Remove screws on the sides and then place fingers in the opening groove of each side and push the cover upward.
2. In case of cables that plug into wall sockets, open trunking knockouts, with cutter or screwdriver, thread wires through the opening(s), and plug into socket.

Note: Make sure the open trunking knockouts align with the socket.

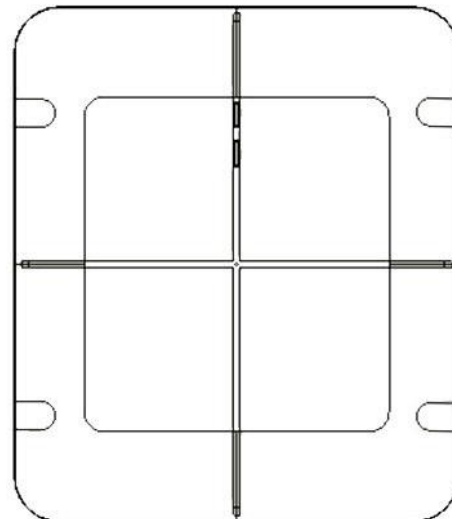
3. Push tab to remove PCB and insert screws through rear cover and the wall or ceiling.



6. To thread wires from the side, open the wire holes from any direction (there is one on each side of the box), and the wire(s) through the hole(s). Wrap any excess wire around the PCB.

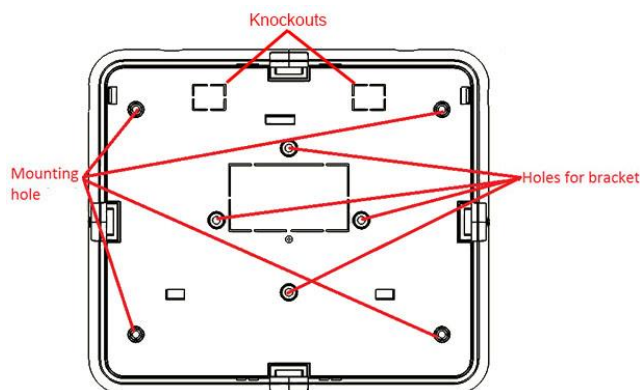


7. Slide front cover into place and insert cover screws.



4. Mount to wall or ceiling.

To mount onto a solid wall or ceiling, insert screws through the corner holes of the base.



Note: Drill holes in the wall first.

To mount onto a drop-down ceiling: Drill screw holes in the tile, insert screws through two of the rear cover middle holes, place the ALC Bracket on top of the drop-down ceiling tile so its screw holes align with the tile holes, and insert screws through the tile and bracket.

5. Put PCB back into place.

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Product Specifications

Item	Description
Tag Capacity	20,000 Tag IDs
Historical Logs	100,000 event transactions
Tag Density	ELC 3 processes 300 event/tag messages/second
RS-485 BUS Capacity	Two RS-485 BUSs. Each can include up to thirty one BUS devices ; Wired BUS Inputs ; Wired BUS Outputs
Device Supervision	Lost Away, Communication loss, Low Voltage, High Noise, Enclosure Tamper
Input Supervision	Four Levels (Open, Closed, Line Short, Line Break) using optional Elpas End-of-Line Terminator
Time Zones	Sixty four time zones (including support for holidays)
Programmable Logic	Sixty four user configurable Rules and sixty four user configurable Actions
Ethernet	10/100Base –TX (auto-sensing) - Version 2.0 / IEEE 802.3, Ethernet II frame type, UDP protocol; POE 48V
RS-485 BUS	230Kbit/sec
Buzzer Indicator	Power-Up: User configurable ; Device Malfunction: Beeps continuously
LED Status Indicators	Green LED: Lights continuously when powered Red LED: Corrupted Firmware: Lights continuously Unregistered: Toggles on/off every second
Tamper Switch	Open 'State' spring-loaded switch button. Generates a service message
Encoding	Factory programmed ID
Input/Output	Three analog inputs ; Three digital inputs ; Two open collector outputs (rated 100mA/12VDC) ; Three digital relay outputs (rated 2A/12VDC)
Wiegand	One four-position terminal block
Power Requirements	12–28VDC ; 300mA-2A@24VDC Limited Power Source
Polyfuse Ratings	Terminal Block J4 of BUS1 - 1.1A ; Terminal Block J5 of BUS2 – 1.1A ; O.C1 – 140mA ; O.C2 – 140mA ; DC input J14, J15 – 2.2A (from REV E) ; External Lead Acid Battery – 1.1A and charging is limited to 400mA ; Relays – 2A
POE	44-57V (or 270mA), 13W
Construction	White ABS plastic
Dimensions (H x W x D)	230 x 199 x 47 mm (9.0625 x 0.83 x 1.84 inches)
Weight	609.46 grams / 21.5 ounces
Device Interfaces	Ethernet: Female RJ-45 (8P8C) connector RS-485 Bus & Power: Female RJ-11s (6P6C) or four–position removable terminal blocks Inputs: Three three–position terminal blocks ; Open Collector Outputs: One three-position terminal block: Relays: Three three-position terminal blocks; Wiegand: Two two-position terminal blocks
Operating Environment	Temp: -20°C to 60°C (-4°F to 140°F) ; Humidity: 85% non-condensing
Configuration & Supervision	Eiris V4.9.1 or higher
Regulatory	CE, FCC, IC Compliant
Warranty	One year limited warranty

All specifications are subject to change without notice.

Compatible Accessories

Part Number	Description
5-IOX00001	End-of-Line Terminator for Elpas & AXS Inputs (5 units)
5-JBA10485	RS-485 Junction Box, 4 RJ11 Ports
5-ERS02800	P60 Power Supply, 24VDC/2.5A
5-ERS02721	Network Drop Cable, 2.5 Meters/8.0 Feet
5-ERS02721-1	Network Drop Cable, 5.0 Meters/16.0 Feet
*5-ERS01905-10	Reader Certified Cable w/2RJ11 connectors, 10Ft
*5-ERS01905-15	Reader Certified Cable w/2RJ11 connectors, 15Ft
*5-ERS01905-15P	Reader Certified Cable w/2RJ11 connectors, 15Ft, Plenum Rated
5-ALC90001	Mounting Bracket (5 units)

* Available only in the Americas.

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Compliance with Standards

This device complies with FCC Rules Part 15 and with Industry Canada license exempt RSS standard(s). Operation is subject to two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference that may be received or that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Cet équipement a été testé et jugé conforme aux limites s'appliquant à un appareil numérique de classe B, conformément à la Partie 15 des réglementations de la FCC. Ces limites ont été élaborées pour offrir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle.

Cet équipement génère, utilise et peut émettre de l'énergie de fréquence radio et, s'il n'est pas installé et utilise conformément aux instructions du fabricant, peut provoquer des interférences dangereuses pour les communications radio. Toutefois, rien ne garantit l'absence d'interférences dans une installation particulière. Si cet équipement provoque des interférences nuisibles au niveau de la réception radio ou télévision, ce qui peut être déterminé par la mise hors, puis sous tension de l'équipement, vous êtes invité à essayer de corriger les interférences en prenant les mesures suivantes:

- Réorientez ou déplacez l'antenne réceptrice.
- Augmentez la distance qui sépare l'équipement et le récepteur.
- Branchez l'équipement à une prise d'un circuit différent de celui auquel est branché le récepteur.
- Consultez le revendeur ou un technicien radio/télévision expérimenté pour obtenir de l'aide.

Warning!

Changes or modifications to this equipment not expressly approved by the party responsible for compliance (Elpas Solutions Ltd.) could void the user's authority to operate the equipment.

Europe

This equipment complies with the RTTE requirements - Directive 1999/5/EC of the European Parliament and of the council of 9 March 1999.

EN 300220, EN 301489, EN 50130-4, EN 61000-6-3, EN 60950-1.



Product Warranty

Elpas Solutions, Ltd. (Elpas or the Company), and its affiliates, warrants its products (hereinafter referred to as "the Product") to be free of defects in materials and workmanship under normal operating conditions and use for a period of one year from the date of shipment by Elpas. The Company's obligations shall be limited within the warranty period, at its option, to repair or to replace the defective Product or any defective component or part thereof. To exercise this warranty, the product must be returned to the manufacturer freight prepaid and insured.

This warranty does not apply to repairs or replacement caused by improper installation, Product misuse, failure to follow installation or operating instructions, alteration, abuse, accident, tampering, repair by anyone other than Elpas, external causes, and failure to perform required preventive maintenance. This warranty also does not apply to any products, accessories, or attachments used in conjunction with the Product, including batteries, which shall be covered solely by their own warranties, if any. Elpas shall not be liable for any damage or loss whatsoever, whether directly, indirectly, incidentally, consequentially or otherwise, resulting from a malfunction of the Product due to products, accessories, or attachments of others, including batteries, used in conjunction with the Product.

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Elpas shall have no liability for any death, personal injury, property damage, or other loss whether direct, indirect, incidental, consequential, or otherwise, based on a claim that the Product failed to function. However, if Elpas is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, the company's maximum liability shall be limited to the purchase price of the Product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive liability of Elpas.

Elpas shall not, under any circumstances whatsoever, be liable for any inaccuracy, error of judgment, default, or negligence of Elpas, its employees, officers, agents, or any other party, or of the purchaser or user, arising from any assistance or communication of any kind regarding the configuration, design, installation, or creation of security system involving the Product, that being the responsibility of the purchaser or user. If Elpas is unable to make such repair or replacement, the company's entire liability shall be limited to the cost of a reasonable substitute product. Elpas shall not be responsible for any dismantling, installation, reinstallation, purchasing, shipping, insurance, or any similar charges.

Elpas shall have no liability for any damages, including without limitation, any direct, indirect, incidental, special, or consequential damages, expenses, costs, profits, lost savings or earnings, or other damages arising out of the use of the Product or the removal, installation, reinstallation, repair or replacement of the Product or any related events. In the event that there is any liability against Elpas, such liability shall be limited to the purchase price of the Product which amount shall be fixed as liquidated damages.

The purchaser and user understand that this Product may be compromised or circumvented by intentional acts; that the Product will not in all cases prevent death, personal injury, property damage, or other loss resulting from burglary, robbery, fire or other causes; and that the Product will not in all cases provide adequate warning or protection. The purchaser and user also understand that a properly installed and maintained alarm may reduce the risk of events such as burglary, robbery, and fire without warning, but it is not insurance or a guarantee that such events will not occur or that there will be no death, personal injury, property damage, or other loss as a result of such events.

By purchasing the Product, the purchaser and user shall defend, indemnify and hold Elpas, its officers, directors, affiliates, subsidiaries, agents, servants, employees, and authorized representatives harmless from and against any and all claims, suits, costs, damages, and judgments incurred, claimed, or sustained whether for death, personal injury, property damage, or otherwise, because of or in any way related to the configuration, design, installation, or creation of a security system involving the Product, and the use, sale, distribution, and installation of the Product, including payment of any and all attorney's fees, costs, and expenses incurred as a result of any such events.

The purchaser or user should follow the Product installation and operation instructions and test the Product and the entire system at least once each week. For various reasons, including but not limited to changes in environmental conditions, electric, electronic, or electromagnetic disruptions, and tampering, the Product may not perform as expected. The purchaser and user are advised to take all necessary precautions for the protection and safety of persons and property.

This statement provides certain legal rights. Other rights may vary by state or country. Under certain circumstances, some states or countries may not allow exclusion or limitation of incidental or consequential damages or implied warranties, so the above exclusions may not apply under those circumstances and in those states or countries.

Elpas reserves the right to modify this statement at any time, in its sole discretion without notice to any purchaser or user. However, this statement shall not be modified or varied except by Elpas in writing, and Elpas does not authorize any single individual to act on its behalf to modify or vary this statement. Any questions about this statement should be directed to Elpas.



W.E.E.E. Product Recycling Declaration

For information regarding the recycling of this product, you must contact the company from which you originally purchased it. If you are discarding this product and not returning it for repair then you must ensure that it is returned as identified by your supplier. This product is not to be thrown away with everyday waste - Directive 2002/96/EC Waste Electrical and Electronic Equipment.