ELCA

CONVERTER MODULE FOR SSR170x RELAYS

INSTRUCTIONS FOR USE

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INTRODUCTION

This manual contains the information required for proper installation and the instructions for use and maintenance of the product. It is therefore recommended to read it carefully and preserve it.

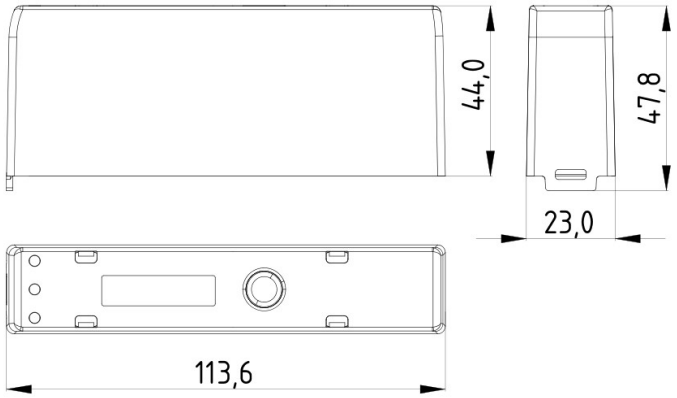
EL.CO. S.R.L. reserves the right to make aesthetic and functional changes at any time and without notice.

If a malfunction or failure of the device can create hazardous or dangerous situations for people, animals or property, the system must be equipped with additional security devices.

EL.CO. S.R.L. and its legal representatives do not assume any responsibility for any damage to people, things or animals deriving from tampering, improper use, incorrect use or otherwise not complying with the device's features.

1 – DIMENSIONS (mm)

1.1 - ELCA MODULE FOR MOUNTING IN SSR170X



2 - DEVICE DESCRIPTION

2.1 - GENERAL DESCRIPTION

The ELCA product is a converter module that allows the conversion of a control signal 0-10Vdc voltage or 4-20mA current. The converter generates a PWM signal with a voltage between 0V and 15V and with a duty cycle proportional to the value of the control signal. The generated signal is then used as a supply voltage in the relays of the SSR170H and SSR170 series, thus allowing their functionality to be extended. In this way, the relay can regulate the absorbed power of the connected load

3 - INSTALLATION AND USE WARNINGS

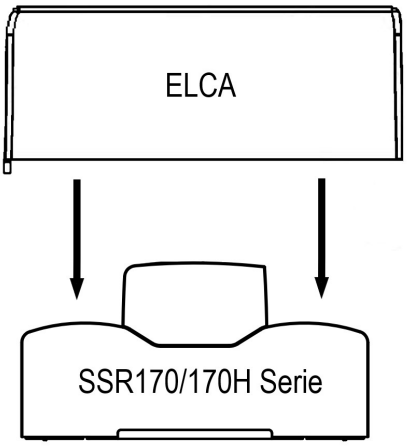
3.1 - PERMITTED USE

The device has been designed as a measurement and adjustment device in accordance with EN60947-4-3 for operation at altitudes up to 2000 m. The use of the device in applications not expressly provided for in the aforementioned standard must include all appropriate protective measures. The device CANNOT be used in hazardous (inflammable or explosive) environments without proper protection. It should be remembered that the installer must ensure that the electromagnetic compatibility rules are respected even after the device has been installed, possibly using special filters. If a failure or malfunction of the device can create hazardous or dangerous situations for persons, animals or property, the system must be equipped with additional electromechanical devices to ensure safety.

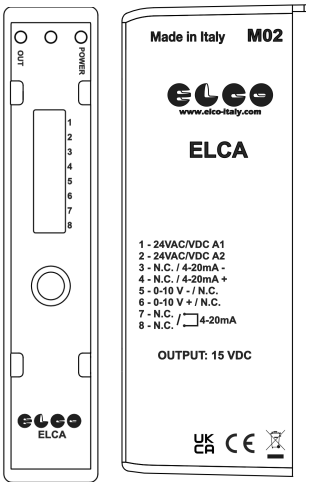
3.2 - MECHANICAL ASSEMBLY

The product ELCA must be installed on SSR170x solid state relay. Avoid placing the device in places subject to high humidity or dirt that may cause condensation or the introduction of conductive parts or substances into the device. Ensure that the device has adequate ventilation and avoid installation in containers where devices are located that can lead the device to operate outside the declared temperature limits. Install the device as far as possible from sources that may generate electromagnetic disturbances such as motors, contactors, relays, solenoid valves etc.

An installation that does not comply with the provisions set out in this paragraph could compromise the declared protection levels.

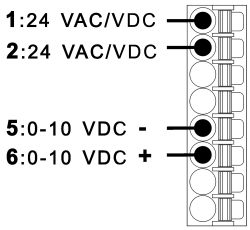


3.3 - WIRING DIAGRAM

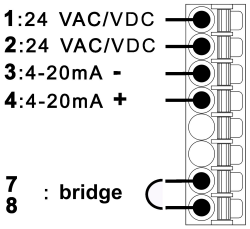


1) **A1, 24VAC/VDC power supply**
2) **A2, 24VAC/VDC power supply**
3) **Not connected / Current control input 4-20mA -**
4) **Not connected / Current control input 4-20mA +**
5) **Voltage control input 0-10Vdc - / Not connected**
6) **Voltage control input 0-10Vdc + / Not connected**
7) **Not connected / Bridge for 4-20mA use**
8) **Not connected / Bridge for 4-20mA use**

Link for 0-10V conversion



Link for 4-20mA conversion



POWER LED: power supply LED
OUT LED: active output signaling LED

The connection with the SSR170 relay takes place via a 2-pole connector inside the ELCA product

3.4 - TERMINAL BLOCK SPECIFICATIONS

- connection type: plug and push-in terminal block, spring loaded, 8 poles
- stripping length: 8 – 10 [mm]
- conductor section: 0.2 – 1.5[mm^2] / 24 – 16 AWG

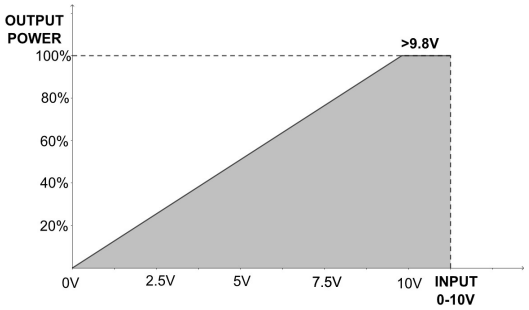
4 - OPERATION

The converter generates a PWM output signal with a frequency of 1Hz ± 10% and a voltage between 0V and 15V. The duty cycle depends on the value of the control voltage or current and expresses, as a percentage of the frequency, how long the output signal remains at the high voltage of 15V. This percentage also corresponds with the power with which the SSR170X relay controls the connected load. The output signal generated by the converter is supplied on the 2-pole connector placed inside the product. This connector must be physically connected to the A1+ and A2- terminals of the SSR170X relay.

4.1 - 0-10Vdc CONVERSION

For correct operation in this mode, the product must have terminals **1** and **2** connected to the power supply and terminals **5** and **6**, respecting the polarity, with the 0-10Vdc control signal. All other terminals must remain unconnected.
Duty cycle / output signal power:

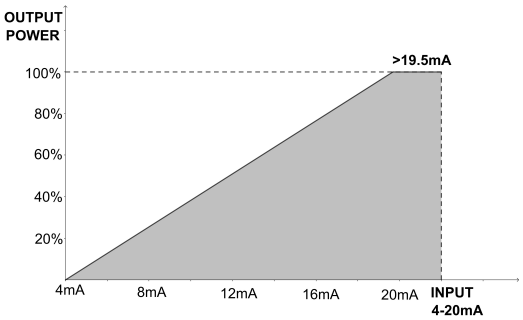
- for 0Vdc control voltage: 0% (output voltage always at 0V)
- for control voltage ≥9.8Vdc: 100% (output voltage always at 15V)
- as in the graph for values between 0 and 9.8Vdc



4.2 – 4- 20mA CONVERSION

For correct operation in this mode, the product must have terminals **1** and **2** connected to the power supply and terminals **3** and **4**, respecting the polarity, with the 4-20mA control signal. Furthermore, terminals **7** and **8** must be electrically connected to each other with a bridge. All other terminals must remain unconnected.
Duty cycle / output signal power:

- for 4mA control current: **0%** (output voltage always at 0V)
- for control current ≥ 19.5mA: **100%** (output voltage always at 15V)
- as in the graph for values between 4mA and 19.5mA:



5 – TECHNICAL DATA

5.1 – ELECTRICAL FEATURES

Power supply: 24Vac/Vdc,
Absorption: 1.7W
Input: 0-10Vdc analog input or 4-20mA analog input
Output: output for SSR170x, 15Vdc PWM 1Hz ± 10%

5.2 – MECHANICAL CHARACTERISTICS

Container: Self-extinguishing plastic UL 94 V0
Dimensions: 114x48x23mm
Weight: 56gr
Installation ELCA: on SSR170x
Connections: 8-pole removable push-in terminal
Internal connections: 2-pole connector
Frontal protection degree: IP 20
Degree environment: 2
Usage environment: indoor
Working ambient temperature: -20 / +60 °C
Working ambient humidity: 30-95 RH% non-condensing
Transport and storage temperature: -40/+85°C

6 – MAINTENANCE AND WARRANTY

6.1 – CLEANING

It is recommended to clean the device only with a slightly soaked cloth of water or non-abrasive detergent and not containing solvents.

6.2 – WARRANTY AND REPAIR

The device is guaranteed by manufacture defects or defects in material found within 12 months from the date of delivery.
Warranty is limited to repair or replacement of the product.
Possible opening of the container, tampering with the device, or improper use and installation of the product will automatically result in the warranty being decayed.
In the event of a defective product during the warranty period or outside the warranty period, contact the EL.CO. Sales Dept. to obtain authorization for shipment.
The defective product, therefore, accompanied by the indications of the defect found, must be sent to the EL.CO. unless otherwise agreed.