

HEASY
mood lighting control.

RGB24-DC

Lighting Module RGBW

This installation manual has been written by the manufacturer and it is considered integrating part of this product.

The information included are intended for the expert technicians who execute the installation and the extraordinary maintenance of the product.

The expert technicians must have specific competences and particular abilities in order to carry out correctly and safely their work.

The constant observance of the information included in this manual guarantees safety of men, energy saving and a longer duration of product operative-life.

In order to avoid wrong handling and the consequent risk of accidents, it is important to read this manual carefully, keeping scrupulously to guidelines according to the supplied information.

CONFORMITY DECLARATION

All the devices of the H/EASY® system are designed in order to comply with the requirements of the European EMC directive 89/336 and with the Low Voltage Directive 93/68.

All the devices of the H/EASY® system are tested and found to comply with the specification of the CE marking.



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DESCRIPTION

The RGB24-DC modules is equipped with an integrated programmable microcontroller used to control and to dimm 4 different 12/24Vdc lighting sources.

The module is rated to work with voltage driven monochromatic, RGB, RGB-White o Double White LEDs (with or without driver added). It can also be used to control 12/24Vdc incandescent and halogen lamps. Each channel handles up to 8A loads.

The module has 8 programmable dry contact inputs that can be used with push-buttons or sensors, allowing to create global scenes.

The module can be used in stand-alone mode or connected to other modules of the H/EASY® home automation system through the use of the BUS system H/BUS. It can be easily programmed allowing to create global scenes controlled by push-buttons and/or integrated to be controlled by smartphone/tablet or touch screen.

FEATURES

4 Dimmer outputs 12/24Vdc

Each channel allows a PWM (400Hz) 12/24Vdc constant voltage dimming for passive (LED strip), active (spot with electronic on board) or spot with voltage (12/24Vdc) to current (ex. 350-500-700mA, etc.) dimmable driver lighting sources. It can also be used to control 12/24Vdc constant voltage halogen light circuits.

8 Programmable dry contact inputs

The module allows single outputs or light scenes control using the 8 dry contact inputs where push-buttons or sensors can be connected. The inputs are programmable using the H/EASY® software Neo.

H/BUS communication

The module is able to communicate with other devices of the H/EASY® home automation system connecting it inside an H/BUS network. The removable H/BUS connecting block is used to link the module to the other modules of the same H/BUS network.

Neo programming software

The module can be programmed, managed and monitored using the H/EASY® software Neo.

Stand-alone mode

The module has a standard programming that allows to manage outputs and light presets, connecting push-buttons or sensors to the dry contact inputs.

Short circuit and overload advanced protection

Each single outputs is protected by an advanced monitoring system that is able to recognize a short circuit, disabling and protecting both the module and the load connected to the output. The module also has an overload management system that avoid the output to be damaged, automatically reducing the output percentage value if needed.

Opto-isolation between electronic and power

Module electronic power supply and output power are opto-isolated in order to avoid interferences on the outputs.

Monitoring and control top board

The front panel LEDs board allows to control and monitoring the module's outputs and inputs status.

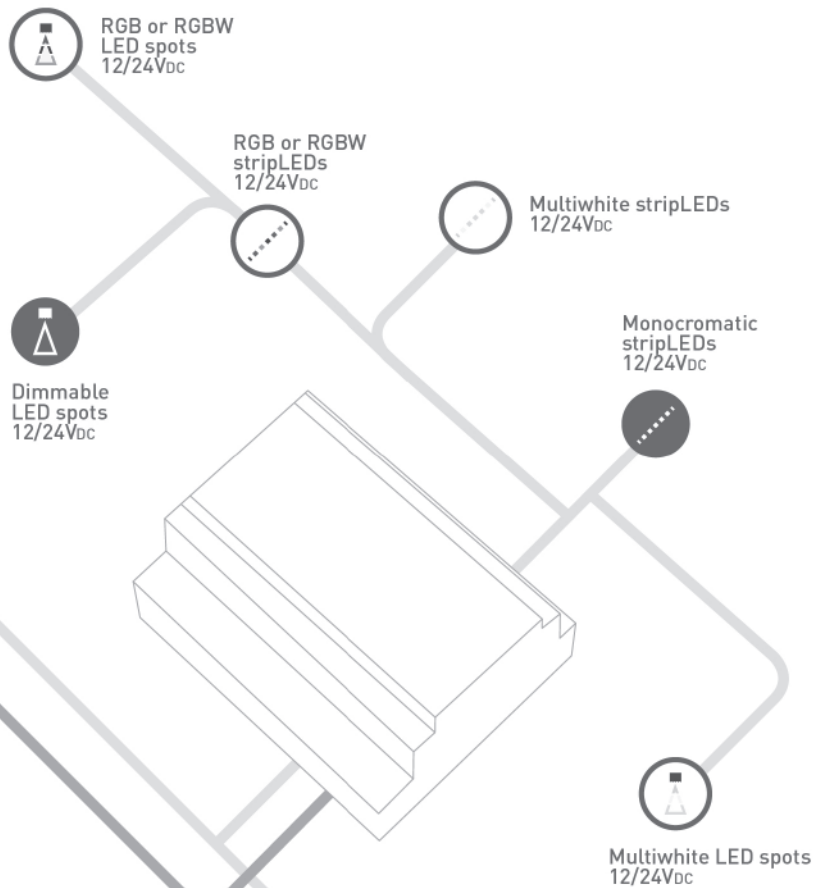
DIN rail installation

The RGB24-DC module can be installed into an electrical switchboard using DIN rail. Once installed and the switchboard closed, the module's front panel, with control buttons and monitoring LEDs, is still accessible.

Clip-on connections

All H/EASY® devices have clip-on connections that allow a simple, fast and safe cabling. The power supply and BUS connectors are detachable to easy exclude the module from the network in case it's necessary.

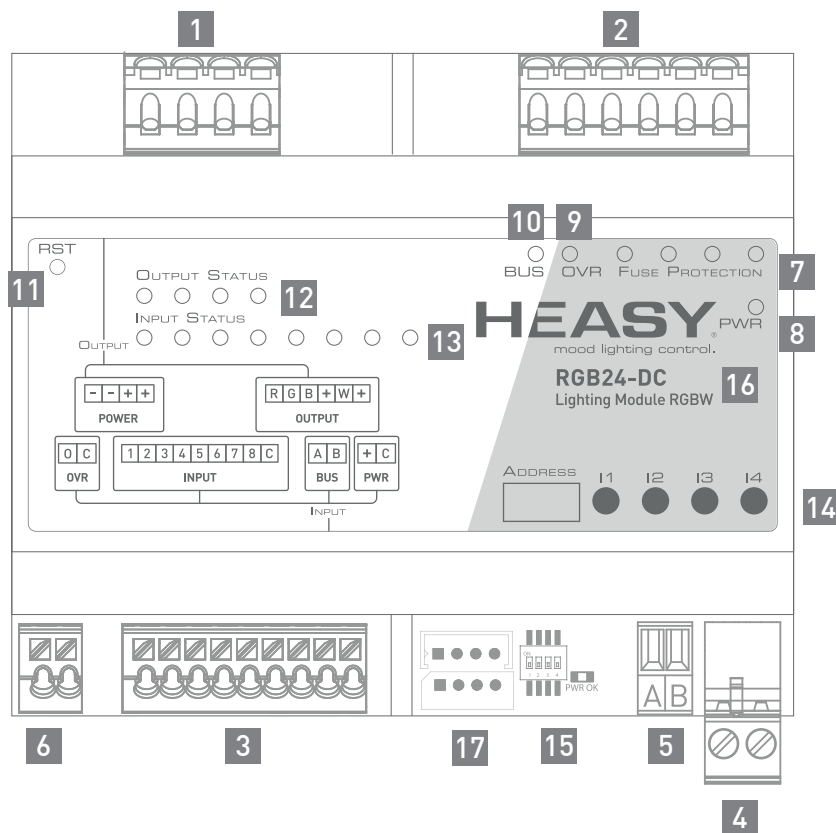
APPLICATION












TECHNICAL SPECIFICATIONS




SPECIFICATION	DETAILS
Electronic power supply	11-28V _{dc}
Electronic requirements	0,6W (20mA @24V _{dc} , 40mA @12V _{dc})
Outputs power supply	12/24V _{dc}
Outputs	4
Dry contact inputs	8
Load ratings	- 8A @24VDC (192W) per channel, PWM 400Hz - 8A @12VDC (96W) per channel, PWM 400Hz
Default address	32
Working temperature	+5°/+50° C (41°/122° F)
Storage temperature	-40°/+70° C (-40°/+158° F)
Humidity	15%/90% non condensing
Heat dissipation (@Ta=40°C, maximum load)	6,6W
IP Protection	IP20
Enclosure	Noryl
Color	RAL 7053
Dimensions (LxAxP)	106x58x90 mm (6 DIN module spaces)
Weight	220 g

MODULE DESCRIPTION



#	CONNECTORS, LED, INDICATORS	DESCRIPTION
1		4 poles clip-on connector; Maximum cable section: 2,5mm² (12AWG); Outputs power supply connector ⁽¹⁾ ; -/-: negative 12-24Vdc; +/: positive 12-24Vdc.
2		6 poles clip-on connector; Maximum cable section: 2,5mm² (12AWG); Outputs connector R, G, B and W; R: output R negative/output R PWM; G: output G negative/output G PWM; B: output B negative/output B PWM; +: positive 12-24Vdc; W: output W negative/output W PWM; +: positive 12-24Vdc.
3		9 poles clip-on connector; Maximum cable section: 1,5mm² (15AWG); 8 dry contact inputs connector; 1-8: inputs; C: common.
4		2 poles clip-on connector; Maximum cable section: 2,5mm² (12AWG); Electronic power supply connector; +: positive 11-28Vdc; C: negative 11-28Vdc. Be sure that all the negative poles of all the power supplies used for electronic are in parallel. NOTE: we suggest to use a dedicated power supply for the electronic of all the modules inside a switchboard. It's important that modules installed into different switchboards connected have negative poles in parallel (the use of H/EASY® SEP-2CH is suggested).
5		2 poles clip-on connector; Maximum cable section: 1,5mm² (15AWG); H/BUS connector; A: BUS A pole; B: BUS B pole. Be sure that cabling of BUS connector is consistent for all the modules in the network. This avoid bad working of the system.

#	CONNECTORS, LED, INDICATORS	DESCRIPTION
6		2 poles clip-on connector; Maximum cable section: 1,5mm ² (15AWG); Override Connector; O: override contact; C: common. In case of short circuit between C and O the module starts Override mode: all the outputs are forced to 100%. The module can't be controlled by the inputs or Neo.
7		Red LED alert signal on corresponding output, FUSE PROTECTION. - LED on: shortcircuit on output; - LED blinking (1 second frequency): output power supply for corresponding outputs missing; - LED blinking (3 pulse per second): overload on corresponding output.
8		Blu LED, PWR. On if electronic power supply is given.
9		Orange LED, BUS. LED Blinking: the module is connected to other modules in a H/BUS network and is not the master module. Blinking frequency depends on the address of the module; LED On: the module could be the master of a H/BUS system with other modules or could fail to communicate with the rest of the network ⁽²⁾ .
10		Orange LED, OVR. On if the module is in Override mode.
11		Recessed button to reset microcontroller of the module, RST. The outputs will be switched off and the value of outputs and memories set to factory values.
12		Orange LED, OUTPUT STATUS. On if the corresponding output is set to a value over 0%.
13		Green LED, INPUT STATUS. On if the corresponding input is pressed.
14		Buttons used to control the corresponding output, following "Dimmer without memory" function ⁽³⁾ .

#	CONNECTORS, LED, INDICATORS	DESCRIPTION
15		DIP switches to set some standard programming ⁽³⁾ . DIP switch 4 not used. 000--: the module uses the programming downloaded on the microcontroller. Following DIP switches settings causes programming downloaded on microcontroller stop working. By default the programming is for RGBW lights. 100--: standard programming for RGB lights ⁽³⁾ . 010--: standard programming for RGBW lights ⁽³⁾ . 001--: standard programming for 2 Double White lights ⁽³⁾ . 111--: standard programming for 4 White lights ⁽³⁾ .
16		Removing the front panel of the module is possible to access to 4 DIP switches that can be used to set the outputs function mode: NORMAL or REVERSE. Setting the right one allows to sync the value of the outputs in case LED lighting sources with 3 wires driver (with 3rd cable used for PWM) are used. In case the circuit is ON while the corresponding output is at 0% (and viceversa) it means that the LED circuit works on REVERSE mode (and viceversa). It is possible to manage this setting by the H/EASY® software Neo.
17		4 poles connector ⁽⁴⁾ to manage the module (or the whole system) using the H/EASY® GTW-ETH o INT-232 modules (not included).

- ⁽¹⁾ Using alternate tension causes modules to be damaged.
⁽²⁾ See PROBLEM SOLVING paragraph.
⁽³⁾ See STANDARD PROGRAMMING paragraph.
⁽⁴⁾ Contact H/EASY® to receive the dedicated interface cable.

INSTALLATION

Important notes

The following information are intended for the expert technicians who execute the installation and the extraordinary maintenance of the product. The installation and the maintenance of the module must be executed by qualified technicians, respecting the Norm of the installation country.

The expert technicians must have specific competences and particular abilities in order to carry out correctly and safely their work.

The constant observance of the information included in this manual guarantees safety of men, energy saving and a longer duration of product operative-life. Keep this manual and notes included.

In order to avoid wrong handling and the consequent risk of accidents, it is important to read this manual carefully, keeping scrupulously to guidelines according to the supplied information.

Electrical tension may cause shock and severe burns. Be sure to turn off the electrical supply before carrying out any type of work on the connectors. Omission of observation of these safety measures may cause death or severe lesions to people as well as great material damages.

Before preceeding with the use of the modules, make sure that electric installation, carried out by a qualified technician in conformity with the Technical Norms, corresponding to the class of homologation of the electrical system, is provided with the devices prescribed for the protection against direct and indirect contacts and electrical surcharges.

The modules of the H/EASY® must be exclusively used in connection with other modules and external components which are conformed to the Norms comparative to the product.

Do not use the module if, upon visual inspection, it shows deterioration of the enclosing box or if the screening wraps of the feeding cables show any wear and tear or damage.

The H/EASY® system may not be used to carry out safety and accident prevention functions since it does not have the redundancy requirements lawfully requested.

The installer must verify the correct installation and operation of the product.
It is prohibited to use the product for improper purposes or purposes different from those provided

V.Y.C. Srl shall not be held liable for any damage of any sort or kind in case of module used or installed incorrectly.

It is prohibited to tamper or to modify the product.

Before starting

Place the module inside a switchboard and follow carefully the following wiring diagram. The module can be installed on DIN rail.

Always switch off the electronic and outputs power supply before carrying out any type of electrical connection on the module.

NOTE: use a dedicated power supply for electronic modules installed into a switchboard. If into an H/BUS network more than one power supply is used (for instance, one power supply for each switchboard containing H/EASY® modules) be sure that all the negative poles of all the power supplies are in parallel (it is suggested to use H/EASY® SEP-2CH).

The module is intended for internal use. Install it in dry place in order to respect the specification described in the TECHNICAL SPECIFICATIONS paragraph of this manual.

Blackout management

The H/EASY® modules manage the states of lack of power supply both for the electronic and the power in case of dimming modules.

Lack of electronic power supply (all modules).

In case of lack of this tension the module switch off. After the blackout the outputs come back to their latest values before the blackout.

Lack of power supply for outputs (dimmer modules).

In case of lack of power supply for the outputs, the dimmer module shows this with a blinking of FUSE PROTECTION LED. After the blackout, if no problem occurs, the outputs come back to their latest values.

Addressing

Each H/EASY® module placed into a H/BUS network must have a unic address. The default address for all H/EASY® modules is 32 and Max Address 33. Before connect the BUS connectors of more modules in the same net, be sure that they have a different address. I

It is possible to change the address of a module using the H/EASY® programming software Neo.

NOTE: a madule cannot communicate with others modules in the same net if its Address is upper than the Max Address of the others (see Neo manual).

Surf the following link to download the software:

<http://www.heasy.it/h-system/software/neo/>

WIRING DIAGRAMS

Here's following different wiring diagrams that can be used when installing a RGB24-DC module.

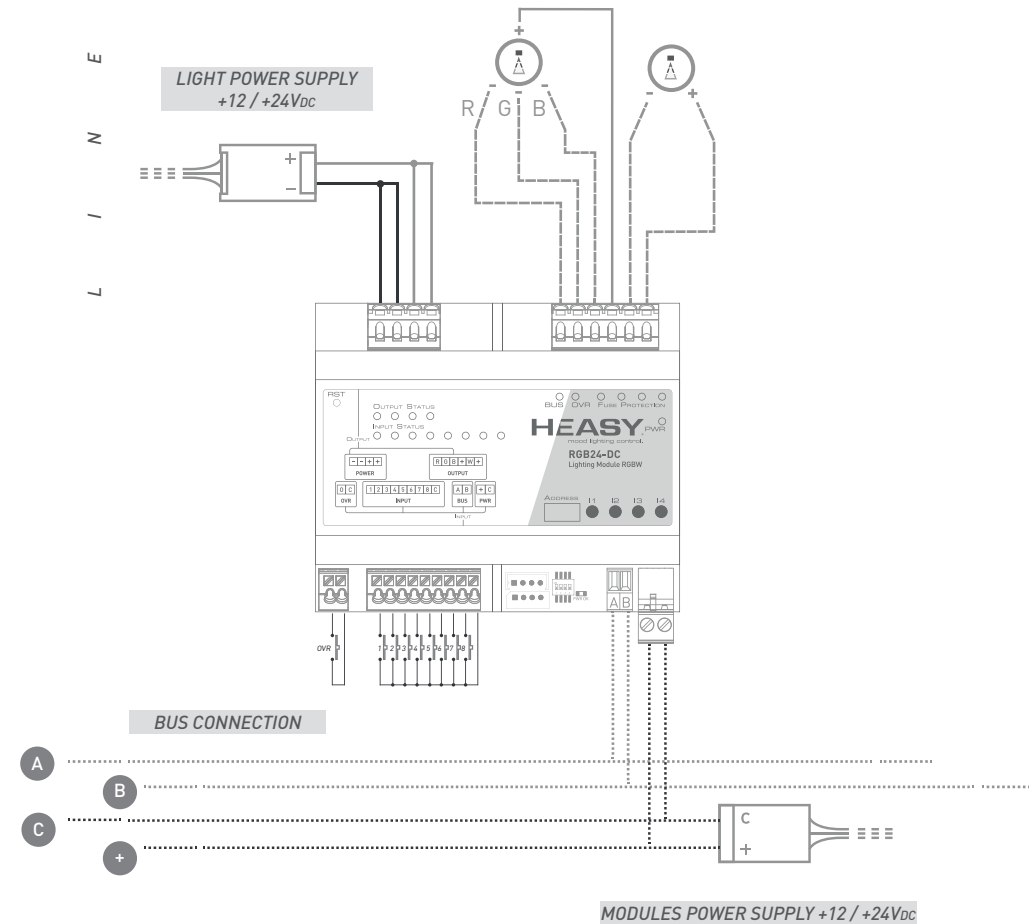
NOTE: all the H/EASY® modules installed in a H/BUS network must have the negative pole of electronic power supply in parallel. If this specification is not verified unexpected behaviour of the system can happen.

NOTE: it is not possible to wire a H/BUS network in a ring. If this specification is not verified it may cause unexpected behaviour of the system. Use a daisy chain wiring.

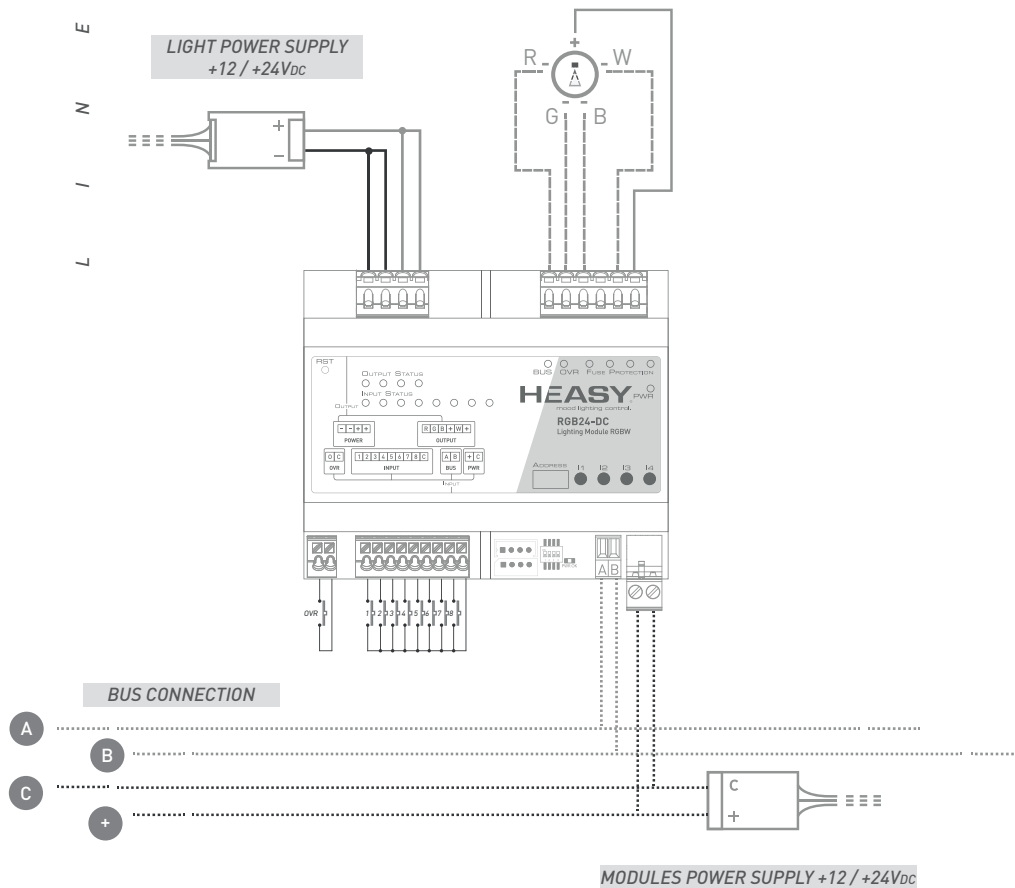
To link different switchboards with H/EASY® modules inside it is suggested to use SEP-2CH module.

For particoular wiring ask for H/EASY® assistance.

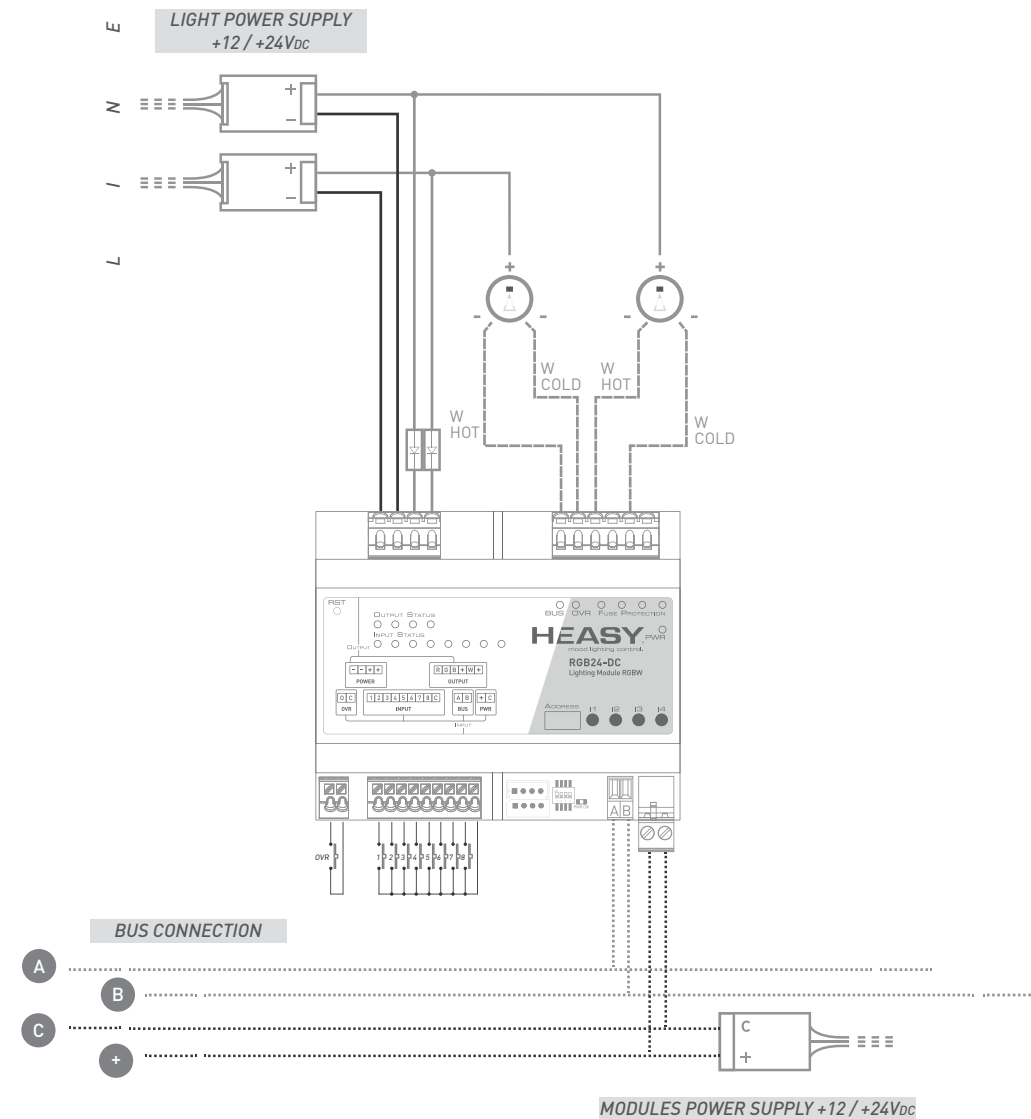
SCHEME 1: Direct wiring on the module (1 RGB + 1 W)



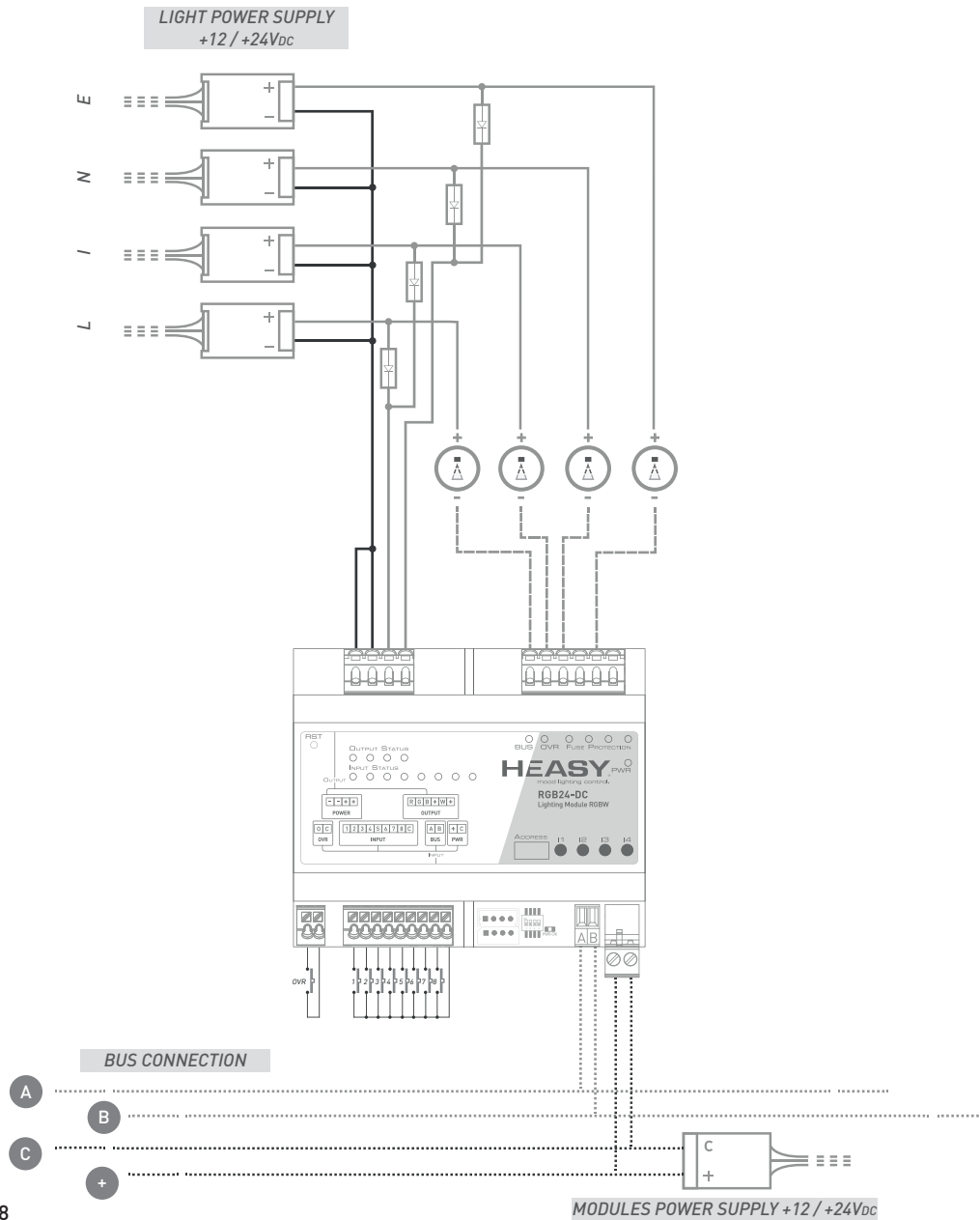
SCHEME 2: Direct wiring on the module (1 RGBW)



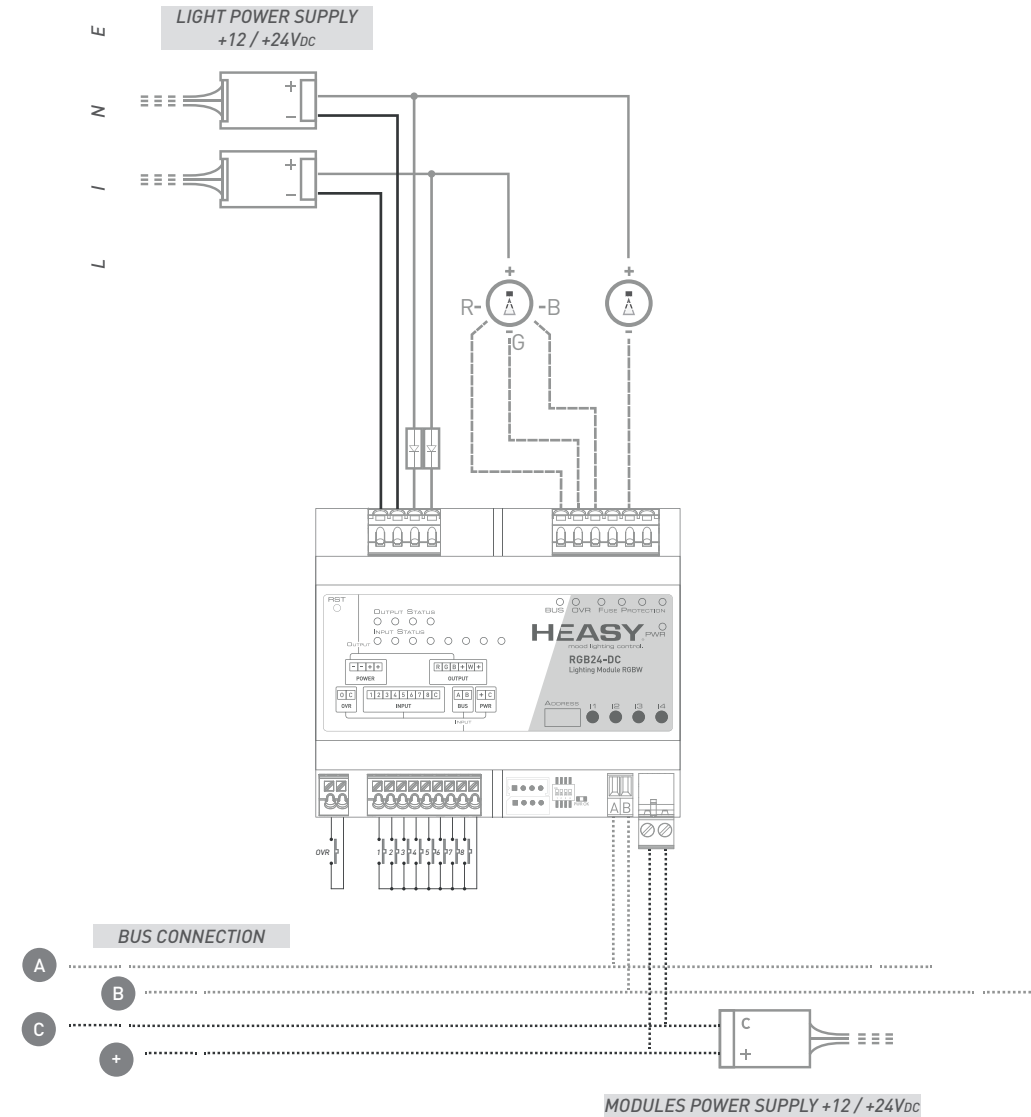
SCHEME 3: Wiring with direct positive and independent power supply (2 Double White)



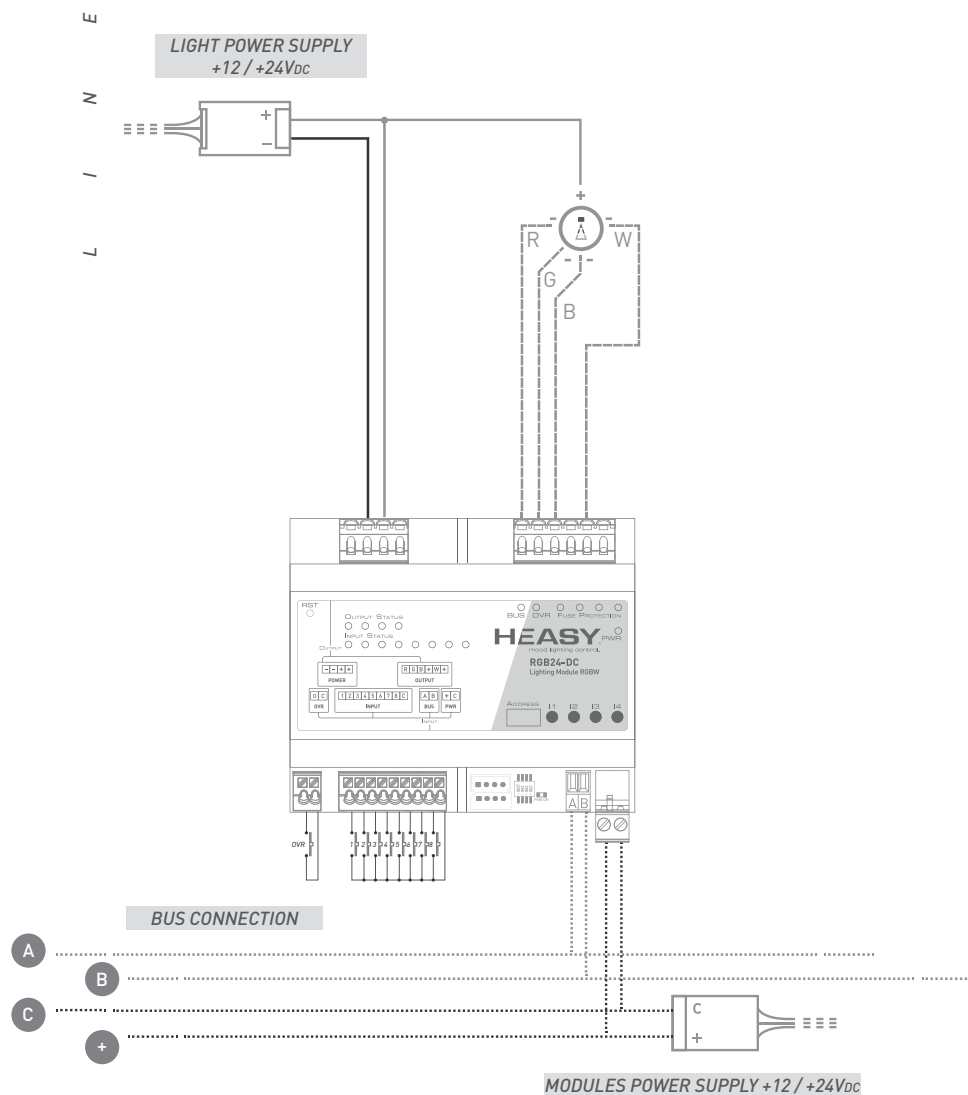
SCHEME 4: Wiring with direct positive (4 White)



SCHEME 5: Wiring with direct positive with independent power supply (RGB + 1 W)



SCHEME 6: Wiring with direct positive (1 RGBW)



PROGRAMMING

STANDARD PROGRAMMING

Each RGB24-DC module has a standard programming that allows it to be used with its 8 dry contact inputs. Each input is associated with a particular functionality. The functionalities of the inputs can be tested using Neo. According to the setting of the DIP switch it is possible to select some particular programming usable with the 8 dry contact inputs.

CONFIGURATION 000-: CUSTOM PROGRAMMING

If the DIP switches are in this configuration, the module executes the custom programming created with H/EASY® Neo software. The default programming is for RGBW lights (010- configuration).

CONFIGURATION 100-: RGB PROGRAMMING

This programming is used if there is a RGB LED (Red-OUT1, Green-OUT2 e Blue-OUT3) or a RGB LED (Red-OUT1, Green-OUT2 e Blue-OUT3) and a monochromatic LED circuit (White-OUT4) connected to the module.

# IN	FUNCTION NAME	DESCRIPTION
1	Dimmer with memory RGB	Command for proportional management of the 3 outputs R, G and B. - Short press: switch on and off the three outputs to their last values, in 3 seconds (recall the last colour selected). - Long press: allows the proportional dimming of the three outputs R, G and B (keeping the point of colour). When reaching 100% and 0%, the dimming process stops for 2 seconds, in order to select these particular values. When releasing the button the outputs stop to the reached values.
2	RGB Up	Command for manual management of the 15 colours presets. A press change the colours (from warmer to colder).
3	RGB Down	Command for manual management of the 15 colours presets. A press change the colours (from colder to warmer).
4	All On	Command used to set 3 outputs R, G and B to 100% in 3 seconds.
5	White Up	Command for manual management of the 4 whites presets. A press change the white temperature (from colder to warmer).
6	Dimmer with memory	Command for management of Output 4 (W): - Short press: switch on and off corresponding output to its last value, in 3 seconds. - Long press: allows the dimming the corresponding output. When reaching 100% and 0%, the dimming process stops for 2 seconds, in order to select these particular values. When releasing the button the output stops to the reached value.
7	Automatic Cycle	Command used to start/stop the automatic cycle of the colours. If activated the module recall in sequence the colours with a ramp of 2s. The change from a colour to the next is done every 6s. If pressed to stop, the outputs stops to the latest colour reached.
8	All Off	Command used to set 3 outputs R, G and B to 0% in 3 seconds.

CONFIGURATION 010-: RGBW PROGRAMMING

This programming is used if there is a RGBW LED (Red-OUT1, Green-OUT2, Blue-OUT3 e White-OUT4) connected to the module.

# IN	FUNCTION NAME	DESCRIPTION
1	Dimmer with memory RGBW	Command for proportional management of the 4 outputs R, G, B and W. - Short press: switch on and off the 4 outputs to their last values, in 3 seconds (recall the last colour selected). - Long press: allows the proportional dimming of the 4 outputs R, G, B and W (keeping the point of colour). When reaching 100% and 0%, the dimming process stops for 2 seconds, in order to select these particular values. When releasing the button the outputs stops to the reached values.
2	RGB Up	Command for manual management of the 15 colours preset. A press change the colours (from warmer to colder).
3	RGB Down	Command for manual management of the 15 colours preset. A press change the colours (from colder to warmer).
4	All On	Command used to set 4 outputs R, G, B and W to 100% in 3 seconds.
5	White Up	Command for manual management of the 4 whites preset. A press change the white temperature (from colder to warmer).
6	Night Scene	Command to set the value of output 3 (B) to 6% and output 1(R), 2(G) and 4(W) to 0%.
7	Automatic Cycle	Command used to start/stop the automatic cycle of the colours. If activated the module set in sequence the colours with a ramp of 2s. The change from a colour to the next is done every 6s. If pressed to stop, the outputs stops to the latest colour reached.
8	All Off	Command used to set 4 outputs R, G, B and W to 0% in 3 seconds.

CONFIGURATION 001-: DOUBLE WHITE PROGRAMMING

This programming allows the management of two Double White circuits. OUT1 and OUT2 are assigned to the first circuit, OUT3 and OUT4 to the second.
Double White circuits are composed of white LED at two different temperatures (one warm and one cold), mixed by the RGB24-DC module to have different white temperatures.

# IN	FUNCTION NAME	DESCRIPTION
1 & 5	Dimmer with memory Double-White	1: First Double White circuit command (OUT1+OUT2). - Short press: switch on and off the first two outputs to their last values, in 3 seconds (recall the last white). - Long press: allows the proportional dimming (keeping the white temperature) of the first two output. When releasing the button the outputs stop to the reached values. 5: Second Double White circuit command (OUT3+OUT4). - Short press: switch on and off the second two outputs to their last values, in 3 seconds (recall the last white). - Long press: allows the proportional dimming (keeping the white temperature) of the first two output. When releasing the button the outputs stop to the reached values.
2 & 6	White Up	2: command for manual management of the cycle of the whites preset on OUT1 e OUT2 (Double White circuit 1). A press change the colours (from colder to warmer). 6: command for manual management of the cycle of the whites preset on OUT3 e OUT4 (Double White circuit 2). A press change the colours (from colder to warmer).
3 & 7	All On	3: command to set OUT1 and OUT2 values at 100%. 7: command to set OUT3 and OUT4 values at 100%.
4 & 8	White Dw	4: command for manual management of the cycle of the whites preset on OUT1 e OUT2 (Double White circuit 1). A press change the colours (from warmer to colder). 8: command for manual management of the cycle of the whites preset on OUT3 e OUT4 (Double White circuit 2). A press change the colours (from warmer to colder).

CONFIGURATION 111--: FOUR INDEPENDENT WHITES PROGRAMMING.

This programming is used if 4 white independent circuits are connected to the module.

# IN	FUNCTION NAME	DESCRIPTION
1-2-3-4	Dimmer With Memory	4 Outputs control command: - Short press: switch on and off corresponding output to its last value, in 3 seconds. - Long press: allows the dimming the corresponding output. When reaching 100% and 0%, the dimming process stops for 2 seconds, in order to select these particular values. When releasing the button the output stops to the reached value.
5	Global Scene	Command for a 4 outputs scene control. - Short press: switch on and off the outputs to thier last values. - Long press: allows the dimming of the 4 outputs. The outputs starts dimming to low values, getting synchronized when reaching 0%, then raising towards 100% values.
6	Welcome Scene	Command used to set 4 outputs to 60% in 4 seconds.
7	Night Scene	Command used to set 4 outputs to 20% in 6 seconds.
8	All Off Scene	Command used to set 4 outputs to 0% in 3 seconds.

Programming with NEO

The module can be programmed using the H/EASY® software Neo. Read the manual of the software for all the information needed about Neo and the module programming.

For programming examples surf the link www.heasy.it

For advanced programming requested contact H/EASY® technical department if needed.

PROBLEM SOLVING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Module doesn't switch on	The module doesn't receive power supply on the electronic power supply connector	Check that dedicated power supply is working properly, providing right output voltage according to the specifications written in this manual.
	Positive and negative cabling poles inverted	Check that dedicated power supply positive and negative poles are connected in the right way.
The module is switched on but the outputs connected don't switch on	The module doesn't receive output power supply (Red fuse LED blinking once per second).	Check that 12/24Vdc dedicated output power supply is working properly, providing right output voltage.
	One or more outputs are in short circuit (Red fuse LED on for corresponding output).	Check the cabling for the outputs. There's a short circuit on the output corresponding to the fuse LED switched on.
	One or more outputs are in overload (Red fuse LED blinking 3 times per second for corresponding output)	Check that the load connected to each output of the module is under 16A. Check also that the switchboard temperature in which the module is installed is not too high: hot places can reduce the maximum load of the outputs.
The module has the BUS LED always on but its address is not the lowest used in the network	The modules has address higher than the MAX ADR of the module with lowest address in the network	Check the MAX ADR value of the module with lowest address in the network. Set the address of the module according to that value.
	Communication BUS card damaged	Communication BUS card needs to be replaced (ask help to H/EASY® technician).
	Problem on the BUS cable	Check the cabling of all the BUS chains connected to the same loop of the module. Short circuit or inversion on A-B poles can be present.

REPAIR AND WARRANTY POLICIES

Merchandise returns

No V.Y.C. Srl merchandise may be returned for credit, exchange or service without prior authorization from V.Y.C. Srl. To obtain warranty service for V.Y.C. Srl products, contact V.Y.C. Srl or an authorized dealer. Request for an RMA (Return Merchandise Authorization) and fill it in properly all the fields, before returning the module. Shipments arriving freight collect or without RMA number shall be subject to refusal.

Return freight charges following repair of items under warranty shall be paid by V.Y.C. Srl, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser. V.Y.C. Srl will provide repairing costs in case the merchandise is not under warranty.

V.Y.C. Srl limited warranty

V.Y.C. Srl warrants H\EASY® control modules to be free from manufacturing defects in materials and workmanship under normal use for a period of five (5) years from the date of purchase. This warranty extends to products purchased from an authorized H\EASY® dealer.

V.Y.C. Srl shall not be liable to honor the terms of warranty if the product has been used in any application other than that for which it was intended or if it has been subject to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any products that has had the warranty void label altered, defaced or removed.

V.Y.C. Srl shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, V.Y.C. Srl makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty.

This warranty statement supersedes all previous warranties.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Nothing happens while pressing a button connected to an input of the module	The module is in Override mode	Check that OVR input is not activated.
	The input has no functionality programmed	Use Neo software to check the programming of the module, in particular for the not working input.
	Broken cable problem	Check that while pressing the button the corresponding green LED on the front panel switches on. Check cabling in case it doesn't happen.
One or more outputs floats between two different intensity level	Overload problem (Red fuse LED blinking 3 times per second for corresponding output)	Check the power load connected to the output and be sure that it is under the max load rating of the module. Check also the switchboard temperature where the module is installed, being sure it's not too high for best performance of the module.



www.heasy.it

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