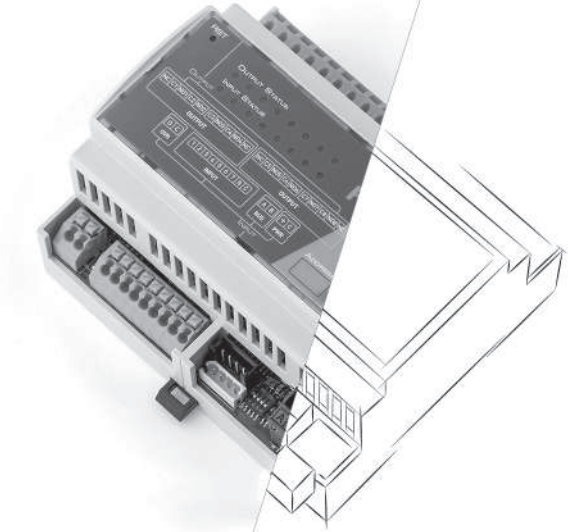


HEASY
mood lighting control.

MOT-4CH

Motors Module

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 serving 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 scrupulosly 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.

CE

CONTENTS

DESCRIPTION

The MOT-4CH modules is equipped with an integrated programmable microcontroller used to control motors, provided with 4 coupled relay outputs (with programmable software interlock).

The module allows the control and the management of electrical motors at 12/24V$_{DC/AC}$ 110/220V$_{AC}$ (with a maximum load of 16A for each output), or dry contact devices as control unit for curtains or TV lift.

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 Coupled relay outputs
The module allows the management of 4 motors with UP/DW commands. The two contacts for each output are electrically interblocked by default: the contemporary closure of both outputs UP and DW is not allowed (any type of damage is avoid if the load is a motor directly powered by the module).

8 Programmable dry contact inputs
The module allows single outputs or light scene 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 when connected inside a 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 preset, connecting push-buttons or sensors to the dry contact inputs.

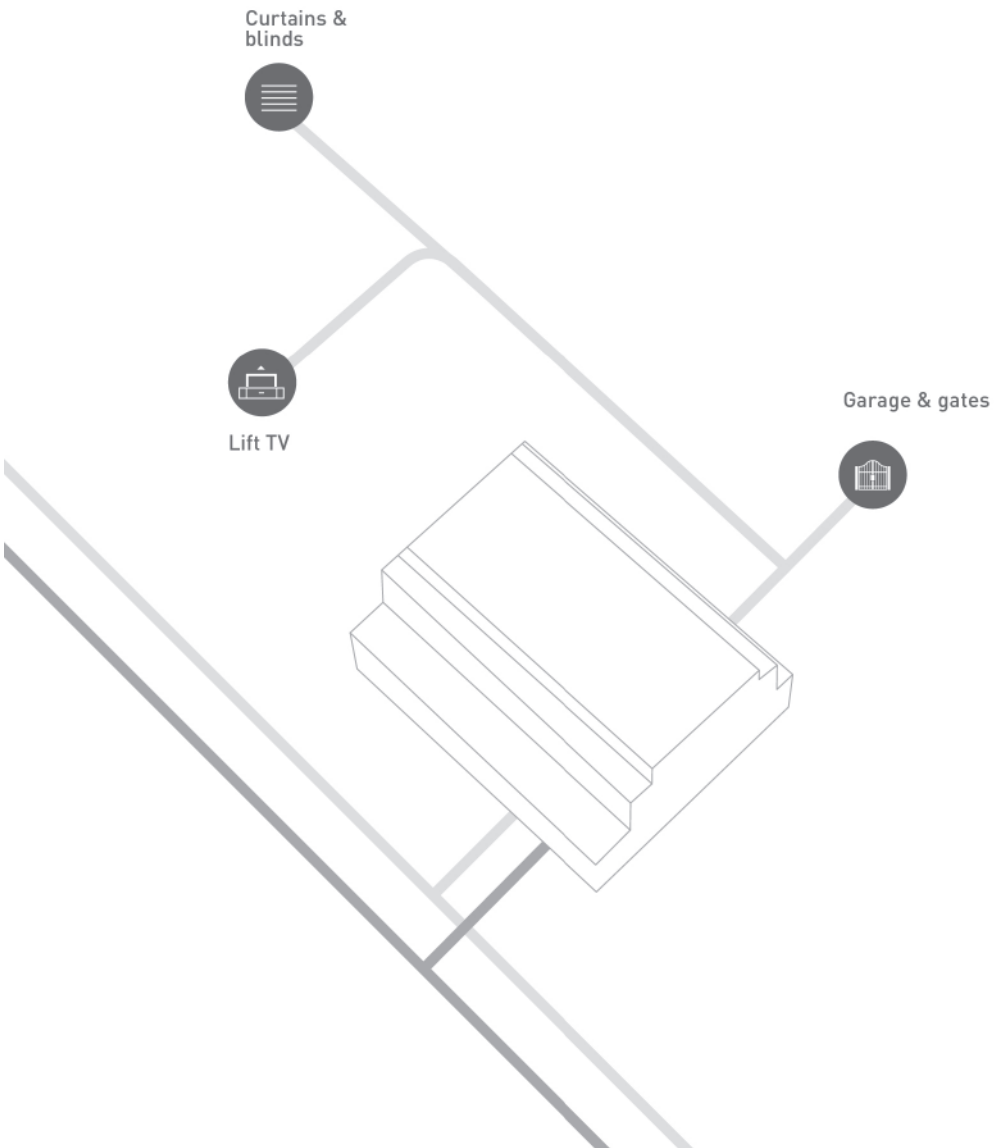
Monitoring and control top board
The front panel LEDs board allows to control and monitoring the module's outputs and inputs status.

NOTE: the command buttons manage the single ouputs without any software interblock. Using an electrical interlock wiring is suggested (see pg. 15 e pg. 16)

DIN rail installation
The MOT-4CH 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 easily exclude the module from the network in case it's necessary.

APPLICATION

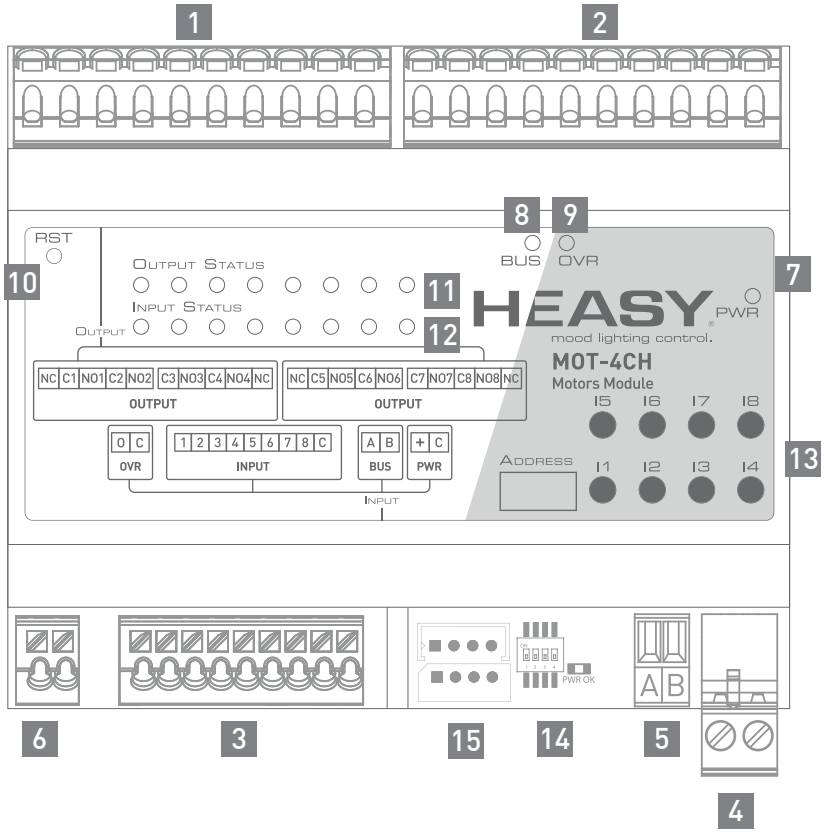


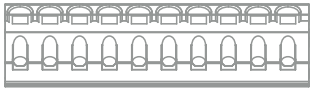
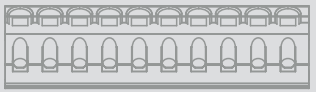
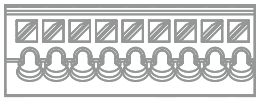
MOT-4CH

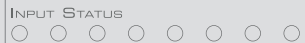
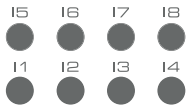
TECNICAL SPECIFICATION

SPECIFICATION	DETAILS
Electronic power supply	20-28V$_{DC}$
Electronic requirements	3,6W (150mA @24V$_{DC}$, 300mA @12V$_{DC}$)
Outputs power supply	Max 230V$_{AC}$
Outputs	8
Dry contact inputs	8
Load ratings	16A for channel
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)	4,6W
IP Protection	IP20
Enclosure	Noryl
Color	RAL 7053
Dimensions (LxAxP)	106x58x90 mm (6 DIN module spaces)
Weight	290 g

MODULE DESCRIPTION



#	CONNECTORS, LED, INDICATORS	DESCRIPTION
1		**10 poles clip-on connector;** **Maximum cable section: 2,5mm² (12AWG);** Motor 1 and Motor 2 connector; **NC1/2**: normally close contacts 1 and 2; **C1**: common contact 1; **NO1**: normally open contact 1; **C2**: common contact 2; **NO2**: normally open contact 2; **C3**: common contact 3; **NO3**: normally open contact 3; **C4**: common contact 4; **NO4**: normally open contact 4; **NC3/4**: normally close contacts 3 and 4.
2		**10 poles clip-on connector;** **Maximum cable section: 2,5mm² (12AWG);** Motor 3 and Motor 4 connector; **NC5/6**: normally close contacts 5 and 6; **C5**: common contact 5; **NO5**: normally open contact 5; **C6**: common contact 6; **NO6**: normally open contact 6; **C7**: common contact 7; **NO7**: normally open contact 7; **C8**: common contact 8; **NO8**: normally open contact 8; **NC7/8**: normally close contacts 7 and 8;
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 20-28VDC; **C:** negative 20-28VDC. 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 electronic. It's important that modules installed into different switchboards connected have negative poles in parallel (the use of H/EASY® SEP-2CH is suggested).**

#	CONNECTORS, LED, INDICATORS	DESCRIPTION
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.
6		**2 poles clip-on connector;** **Maximum cable section: 1,5mm² (15AWG);** Override connector; **O:** override contact; **C:** common. In case of short circuit between C and O the module starts Override mode: all the output are forced to 100%. The module can't be controlled by the inputs or Neo.
7		**Blu LED, PWR**. On if electronic power supply is given.
8		**Orange LED, BUS.** *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; *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].
9		**Orange LED, OVR.** On if the module is in Override mode.
10		**Recessed button to reset micro-controller of the module, RST.** The outputs will be switched off and the value of outputs and memories setted to factory values.
11		**Orange LED, OUTPUT STATUS.** On if the corresponding output is setted to 100%.
12		**Green LED, INPUT STATUS.** On if the corresponding input is pressed.
13		**Buttons used to control the corresponding output,** following "On/Off Toggle" function[3].

#	CONNECTORS, LED, INDICATORS	DESCRIPTION
14		**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 module executes the programming for direct wired motors, using the "Motor 2B with Stop"[2]. Following DIP switches settings cause programming downloaded on microprocessor stop working. **100-:** set the outputs to control Motor 1 with the "Momentary switch"[2] function. To be used if the motor is controlled by a dry contact control unit. The outputs to control Motor 2, 3 and 4 are programmed with "Motor 2B with Stop"[2] function. **010-:** set the outputs to control Motor 1 and 2 with the "Momentary switch"[2] function. To be used if the motor s are controlled by a dry contact control unit. The outputs to control Motor 3 and 4 are programmed with "Motor 2B with Stop"[2] function. **001-:** set the outputs to control Motor 1, 2 and 3 with the "Momentary switch"[2] function. To be used if the motors are controlled by a dry contact control unit. The outputs to control Motor 4 are programmed with "Motor 2B with Stop"[2] function. **011-:** set the outputs to control all the Motors with the "Momentary switch"[2] function. To be used if all the motors are controlled by a dry contact control unit. **111-, 110-, 101-:** set all the outputs to control Motors with "Motor 2B with Stop"[2] function. To be used if the motors are controlled directly by the module.
15		**4 poles connector[3] to manage the module** (or the whole system) using the H/EASY® GTW-ETH o INT-232 modules (not included).

(1) See PROBLEM SOLVING paragraph.
(2) See STANDARD PROGRAMMING paragraph.
(3) Contact H/EASY® to receive the dedicated interface cable to be used.

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 serving 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 scrupulosly 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 indiriect 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 diagrams. 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 net 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 SPECIFICATION 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 (except for MOT-4CH where the outputs are off after the blackout for security reasons).

Lack of power supply for outputs (dimmer modules).
In case of lack of power supply for the outputs, the 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 DIAGRAM

Shown below different wiring diagrams that can be used when installing a MOT-4CH module.

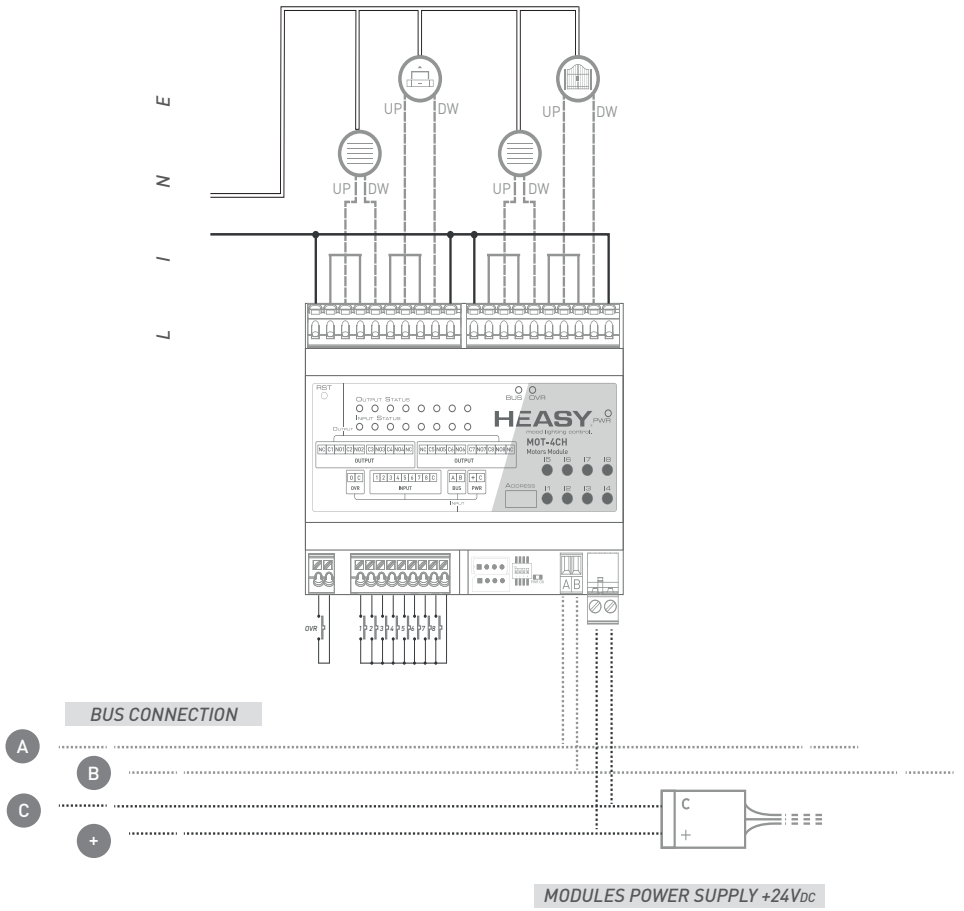
NOTE: all the H/EASY® modules installed in a H/BUS network must have the negative pole of electronic power supply in parallel. If this specification is not verified it may cause unexpected behaviour of the system.

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.

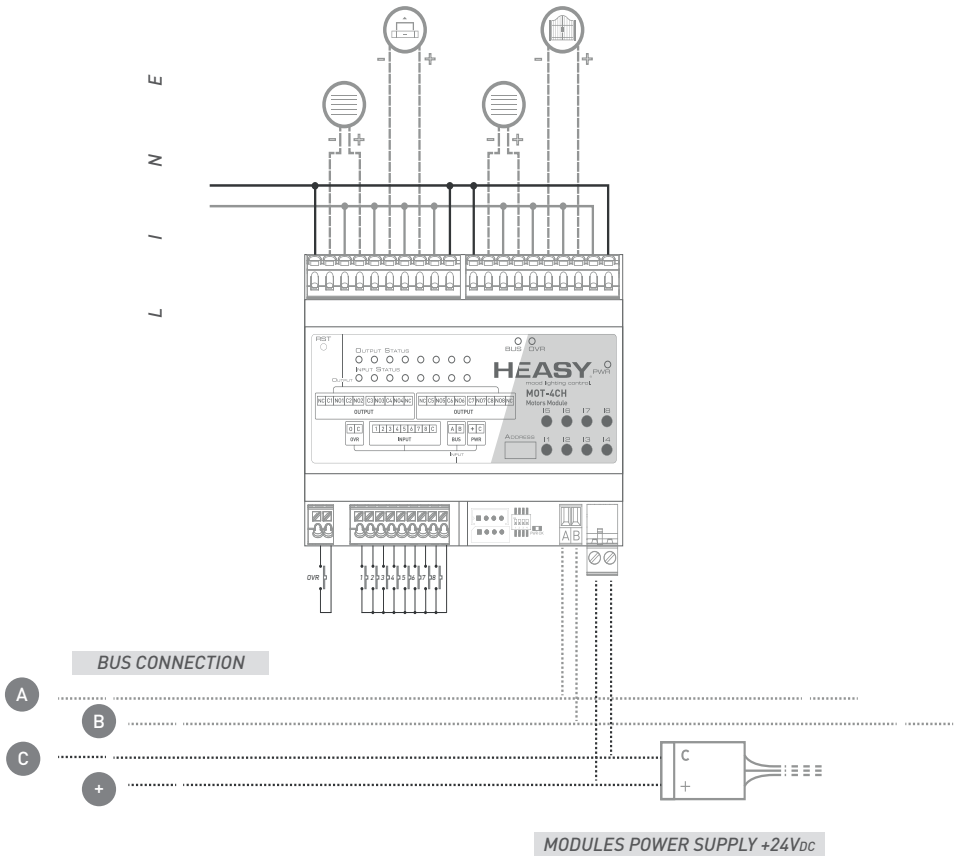
To link different switchboards with H/EASY® modules inside it is suggested to use SEP-2CH module.

For particoular wiring ask for H/EASY® assistance.

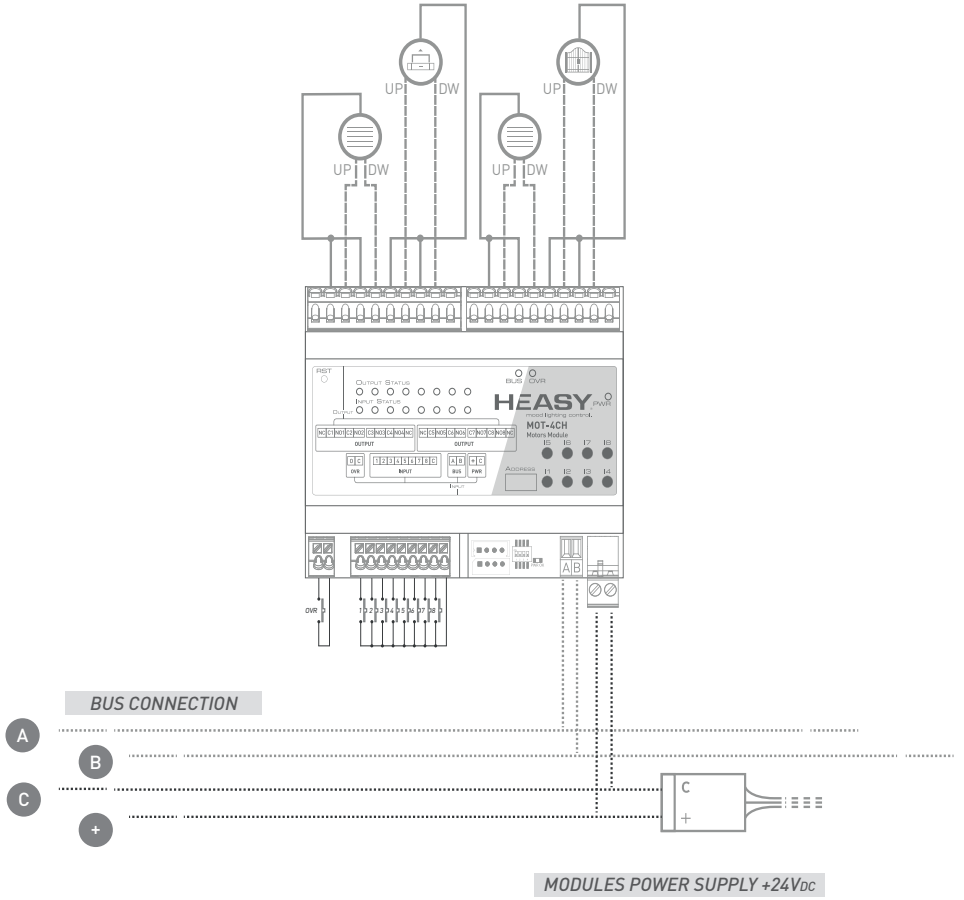
SCHEME 1: Direct wiring for AC motors



SCHEME 2: Direct wiring for DC motors



SCHEME 3: Direct wiring for dry contact motors



PROGRAMMING

STANDARD PROGRAMMING

Each MOT-4CH module has a standard programming that allows it to be used to control up to 4 motors, using its 8 dry contact inputs. Each input is associated with a particular functionality. The functionalities of the inputs can be tested using Neo.

NOTA
The 8 buttons on the top board do the function "On/Off Toggle: a short press switch on and off the output. The buttons manage the single outputs without any software interblock. An hardware electrical interlock wiring is suggested (see pg. 15 e pg. 16).

CONFIGURATION 000-: CUSTOM PROGRAMMING
If the DIP switches are in this configuration, the module execute the custom programming created with H/EASY® Neo softwares.

CONFIGURATION 110- e 111-: STANDARD PROGRAMMING

This programming allows to control motors directly wired on the module.

# IN	FUNCTION NAME	DESCRIPTION
(1-2), (3-4), (5-6), (7-8).	**Motor 2B with Stop**	The press of one of the 2 inputs of each couple close the corresponding outputs to control the corresponding Motors (so open and close) for a time of 30s, with a software interlock that avoid the damage of the motors directly powered from the module. The outputs which control motors will never be closed contemporary. The Stop of the motors is done by a new press on the last input pressed.

CONFIGURATION 100-: 1 DRY CONTACT MOTOR

This programming can be used if 1 of the motor to be controlled, works with a dry contact control unity (ie. TV Lift). In this case use outputs 1-2.

# IN	FUNCTION NAME	DESCRIPTION
(1-2)	**Momentary Switch**	The press of one of the 2 inputs close the corresponding outputs to control Motor 1 (so open and close) by the time the input is holded. The Stop function depends on the functionality of the motor control unit (verify the control unit instruction manual).
(3-4), (5-6), (7-8).	**Motor 2B with Stop**	The press of one of the 2 inputs of each couple close the corresponding outputs to control the corresponding Motors (so open adn close) for a time of 30s, with a software interblock that avoid the damageof the motors directly powered from the module. The outputs which control motors will never be closed contemporary. The Stop of the motors is done by a new press on the last input pressed.

CONFIGURATION 010-: 2 MOTORI A CONTATTI PULITI

This programming can be used if 2 motors work with a dry contact control unity (ie. TV Lift). In this case use outputs 1-2 and 3-4.

# IN	FUNCTION NAME	DESCRIPTION
(1-2), (3-4)	**Momentary Switch**	The press of one of the 2 inputs close the corresponding outputs to control Motor 1 and 2 (so open and close) by the time the input is holded. The Stop function depends on the functionality of the motor control unit (verify the control unit instruction manual).
(5-6), (7-8).	**Motor 2B with Stop**	The press of one of the 2 inputs of each couple close the corresponding outputs to control the corresponding Motors (so open adn close) for a time of 30s, with a software interblock that avoid the damageof the motors directly powered from the module. The outputs which control motors will never be closed contemporary. The Stop of the motors is done by a new press on the last input pressed.

CONFIGURATION 001-: 3 DRY CONTACT MOTORS

This programming can be used if 3 motors work with a dry contact control unity (ie. TV Lift). In this case use outputs 1-2, 3-4, 5-6.

# IN	FUNCTION NAME	DESCRIPTION
(1-2), (3-4), (5-6).	**Momentary Switch**	The press of one of the 2 inputs close the corresponding outputs to control Motor 1, 2 and 3 (so open and close) by the time the input is holded. The Stop function depends on the functionality of the motor control unit (verify the control unit instruction manual).
(7-8)	**Motor 2B with Stop**	The press of one of the 2 inputs of each couple close the corresponding outputs to control the corresponding Motors (so open adn close) for a time of 30s, with a software interblock that avoid the damageof the motors directly powered from the module. The outputs which control motors will never be closed contemporary. The Stop of the motors is done by a new press on the last input pressed.

CONFIGURATION 011-: 4 DRY CONTACT MOTORS

This programming can be used if all the motors to be controlled, work with a dry contact control unity (ie. TV Lift).

# IN	FUNCTION NAME	DESCRIPTION
(1-2), (3-4), (5-6), (7-8)	**Momentary Switch**	The press of one of the 2 inputs close the corresponding outputs to control Motor 1, 2, 3 and 4 (so open and close) by the time the input is holded. The Stop function depends on the functionality of the motor control unit (verify the control unit instruction manual).

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	POSSIBILE 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 specification 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 has the BUS LED always on but its address is not the lowest used in the net	The modules has address higher than the MAX ADR of the module with lowest address in the net.	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.
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.

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 its products 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 directly from V.Y.C. Srl or an authorized V.Y.C. Srl 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.

www.heasy.it