YACHTICA®
Automated Living on Board.

DIM 24PS

MARINE DIMMER MODULE
12/24 VDC ON POSITIVE

DIM 24PS

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 YACHTICA® system are designed in order to comply the directives:
- EN 60945 Maritime navigation and radiocommunication equipment and system.
- IEC 61000;
- IEC 60068;
- IEC 60695;
- Rules for the Classification of Ship - Part C - Machinery;
- Systems and Fire Protection - Ch. 3, Sec. 6, table 1.

TYPE APPROVAL RINA: N° DIP534725CS

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

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DESCRIPTION

The DIM 24PS is a module with an integrated microcontroller used for the control and dimming of 12/24Vdc light sources equipped with 4 power outputs, with PWM control on the positive.

The module allows the control and management of voltage-controlled monochromatic LED light sources (with or without additional electronics). It can also manage 12/24Vdc halogen lines. The maximum current that can be supplied by each output is 10A.

The module has 8 clean contact inputs for wiring buttons and sensors, with which it is possible to control the individual outputs in dimmer or on/off mode.

FEATURES

4 Dimmer Outputs 12/24VDC

Each channel allows constant voltage dimming 12/24Vdc in PWM on the positive (200Hz) of a LED light source, passive (LED strip) or active (spotlight with on-board electronics), or of spotlights combined with dimmable drivers with constant voltage input 12/24Vdc and constant current output (e.g. 350-500-700mA, etc.). It can also manage 12/24Vdc halogen lines, driven in direct voltage.

8 Programmable dry contact inputs

The module allows single output or light scene control using the 8 dry contact inputs where push-buttons or sensors can be connected. The inputs are programmable using the YACHTICA® software Cabot.

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.

Advanced short circuit and overload management

Each single output is protected by an advanced management system that detects the presence of a possible short circuit, disabling it and consequently protecting the module.
NOTE: The module does not protect the load connected to the outputs; it is suggested to protect the loads appropriately, according to the needs.

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 LED

On the board there are some control and monitoring LEDs that allow a quick check of the product's functioning.

DIN rail installation

The DIN 24PS 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 the display, is still accessible.

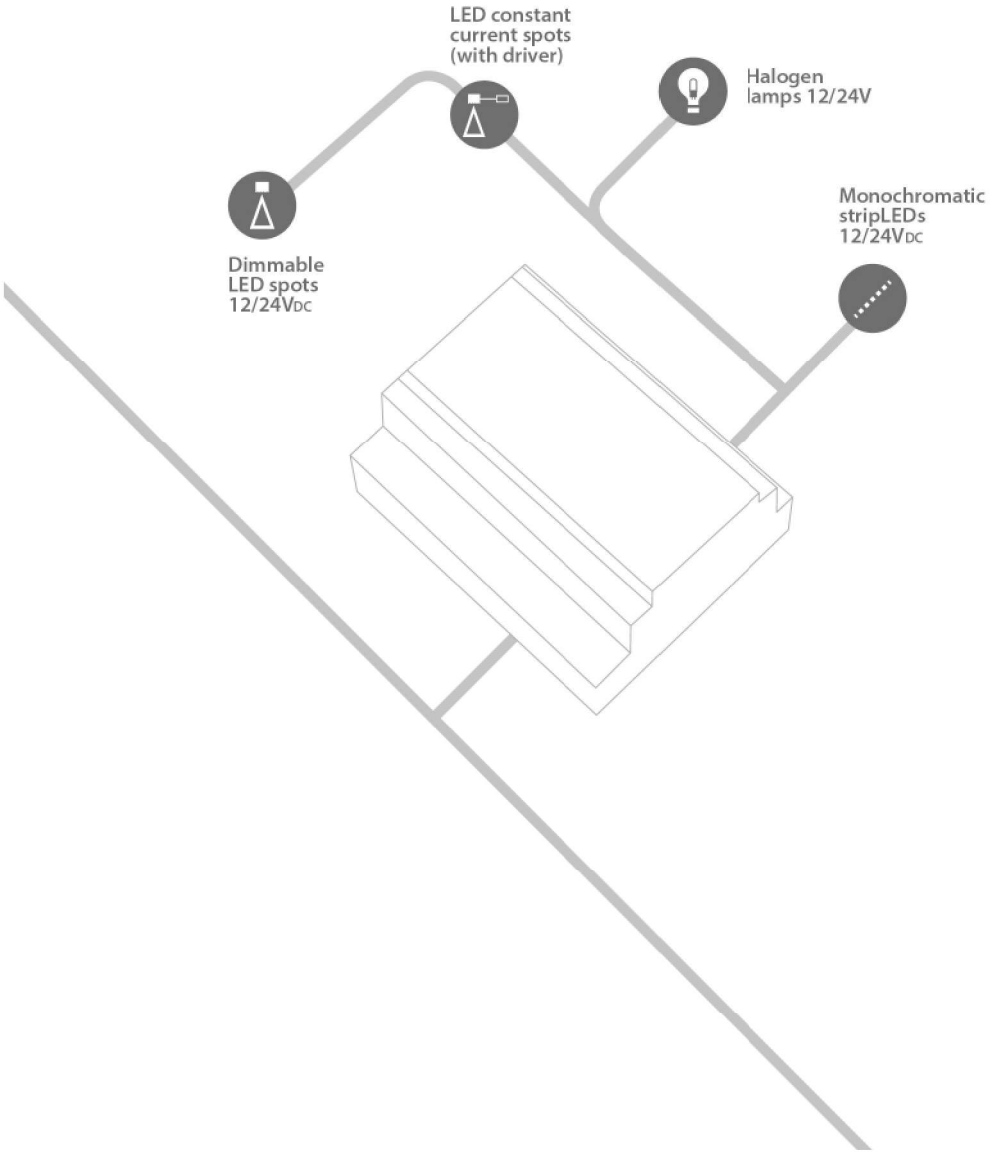
Detachable terminal block

All the terminal block of YACHTICA® modules are detachable, allowing a simple wiring and a quick replacement without the needed to disconnect any cable, with a high level of security and stability of the system.

Tropicalized electronic

All the YACHTICA® modules have a tropicalization treatment in order to prevent a deterioration due to the humidity and sea mist.

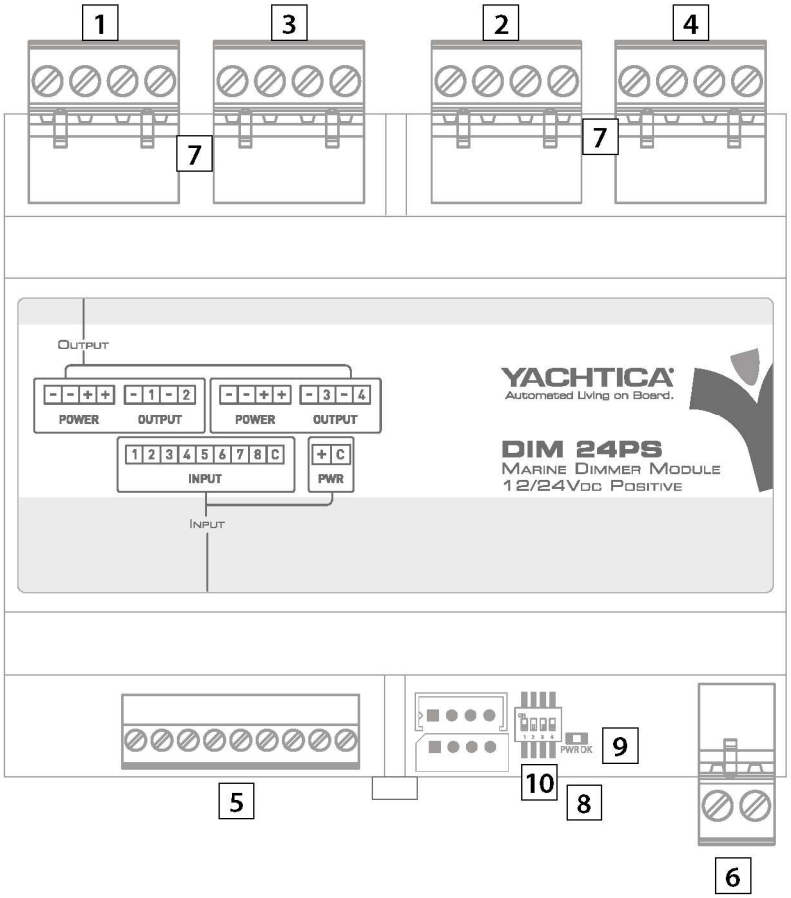
APPLICATION

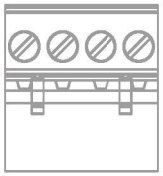
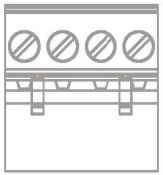


TECHNICAL SPECIFICATIONS

SPECIFICATION	DETAILS
Electronic power supply	11-28VDC
Electronic requirements	0,36W (15mA @24VDC, 25mA @12VDC)
Outputs power supply	12/24VDC
Outputs	4
Dry contact inputs	8
Load ratings	-10A@24V (240W) per channel, PWM 400Hz -10A@12V (120W) per channel, PWM 400Hz
Default address	32
Working temperature	+5°/+55° C (41°/131° F)
Storage temperature	-40°/+70° C (-40°/+158° F)
Humidity	15%/90%
Heat dissipation (@Ta=40°C, maximum load)	4W
IP Protection	IP20
Enclosure	Self estinguishing UL94-V0
Color	RAL 7024
Dimensions (LxHxD)	106x58x90 mm (6M DIN module spaces)
Weight	216 g
Compliance	CE; EN60945; EN61000-4-2; EN61000-4-3; EN61000-4-4; EN61000-4-5; EN61000-4-6; EN61000-4-8; EN61000-4-11; CISPR 16-1-1; EN 60695-11-5; IEC60068-2; IEC60068-6; IEC60068-30; RINA Rules 2018 Pt. C, Ch. 3, Sec.6.

MODULE DESCRIPTION



#	CONNECTORS, LED, INDICATORS	DESCRIPTION
1		**4 poles detachable connector;** **Maximum cable section:** 2,5mm² (12AWG); Outputs 1-2 power supply connector(1); **-/-:** negative 12-24VDC; **+/+:** positive 12-24VDC. **NOTE: CONNECTIONS TO THIS TERMINAL MUST BE DEDICATED EXCLUSIVELY TO THE POWER SUPPLY OF OUTPUTS 1 AND 2. DO NOT USE THE TERMINAL AS A JUNCTION POINT.**
2		**4 poles detachable connector;** **Maximum cable section:** 2,5mm² (12AWG); Outputs 1-2 power supply connector(1); **-/-:** negative 12-24VDC; **+/+:** positive 12-24VDC. **NOTE: CONNECTIONS TO THIS TERMINAL MUST BE DEDICATED EXCLUSIVELY TO THE POWER SUPPLY OF OUTPUTS 3 AND 4. DO NOT USE THE TERMINAL AS A JUNCTION POINT.**
3		**4 poles detachable connector;** **Maximum cable section:** 2,5mm² (12AWG); Output 1-2 connector; **1:** output 1 positive; **- :** negative 12-24VDC outputs 1 e 2; **2:** output 1 positive; **- :** negative 12-24VDC outputs 1 e 2;
4		**4 poles detachable connector;** **Maximum cable section:** 2,5mm² (12AWG); Output 3-4 connector; **3:** output 3 positive; **- :** negative 12-24VDC outputs 1 e 2; **4:** output 4 positive; **- :** negative 12-24VDC outputs 1 e 2;
5		**9 poles detachable connector;** **Maximum cable section:** 1,5mm² (15AWG); 8 dry contact inputs connector; **1-8:** inputs; **C:** common.

#	CONNETTORE, LED, INDICATORI VARI	DESCRIZIONE
6		**2 poles detachable 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: it is suggested to use a dedicated stabilized power supply for the electronic of all the modules inside a switchboard. It's important that modules installed into different switchboards connected together have negative poles in parallel.**
7		**Orange LEDs, relative output status, OUTPUT (OUT1-OUT2, OUT3-OUT4).** **The LED is lit at an intensity equal to the value of the corresponding output.**
8		**Red LED indicating malfunction of the relative output, FUSE PROTECTION.** **If lit, it indicates a problem with one or more outputs.**
9		**Green LED, PWR.** Lit if the module electronics are powered.
10		**DIP switches to set some standard programming.** DIP switch 4 not used. **000-:** standard programming [3] **101-:** standard programming[3]. **100-:** OUT2 linked to OUT1. Outputs 1 and 2 are driven by I1 in parallel, I2 is not used. I3 and I4 are used to control the corresponding outputs. **110-:** OUT2 and OUT3 are linked to OUT1. Outputs 1, 2 and 3 are driven by I1 in parallel, I2 and I3 are not used. I4 is used to control the corresponding output. **111-:** OUT2, OUT3 and OUT4 are linked to OUT1. Outputs 1, 2, 3 and 4 are driven by I1 in parallel, I2, I3 ed I4 are not used. **010-:** OUT3 is linked to OUT2. Outputs 2 and 3 are driven by I2 in parallel, I3 is not used. I1 and I4 are used to control corresponding outputs. **011-:** OUT3 and OUT4 are linked to OUT2. Outputs 2, 3 and 4 are driven by I2 in parallel, I3 and I4 are not used. I1 is used to control the corresponding output. **001-:** OUT2 is linked to OUT1 and OUT4 is linked to OUT3. Outputs 1 and 2 are driven by I1 in parallel, I2 is not used; Outputs 3 and 4 are driven by I3 in parallel, I4 is not used.

(1) Using alternate tension causes modules to be damaged.
(2) See STANDARD PROGRAMMING paragraph.

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 YACHTICA® 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 YACHTICA® 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.

DIM 24PS

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 stabilized power supply for electronic modules installed into a switchboard.

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

IMPORTANT: check very carefully that the module terminals are correctly inserted in their seats and that the cables connected to them are correctly tightened. Any incorrect connections, given the high currents involved, could cause abnormal overheating of the module. It is recommended to appropriately protect the module's power supply section in order to avoid current returns due to anomalous connections in the field, which cannot be monitored by the module itself.

Blackout management

The YACHTICA® 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 modules show this with a blinking of FUSE PROTECTION LED and the lighting icons on the display will disappear. After the blackout, if no problem occurs, the outputs come back to their latest values.

WIRING DIAGRAMS

Below is a series of connection diagrams that can be used with the DIM 24PS module.

For any special wiring, request assistance from YACHTICA® personnel.

ATTENTION: it is recommended to protect each output appropriately (fuse) based on the wiring that has been performed. Size the protection appropriately based on the cables used and the load connected to them.

IMPORTANT: check very carefully that the module terminals are correctly inserted in their seat and that the cables connected to them are correctly tightened. Any incorrect connections, given the high currents involved, could cause abnormal overheating of the module. It is recommended to appropriately protect the power supply section of the module in order to avoid current returns due to anomalous connections in the field, which cannot be monitored by the module itself.

IMPORTANT: do not use the PWR A and PWR B terminals as a junction point towards other connections. A connection of this type may cause excessive current to pass on the first terminal used.

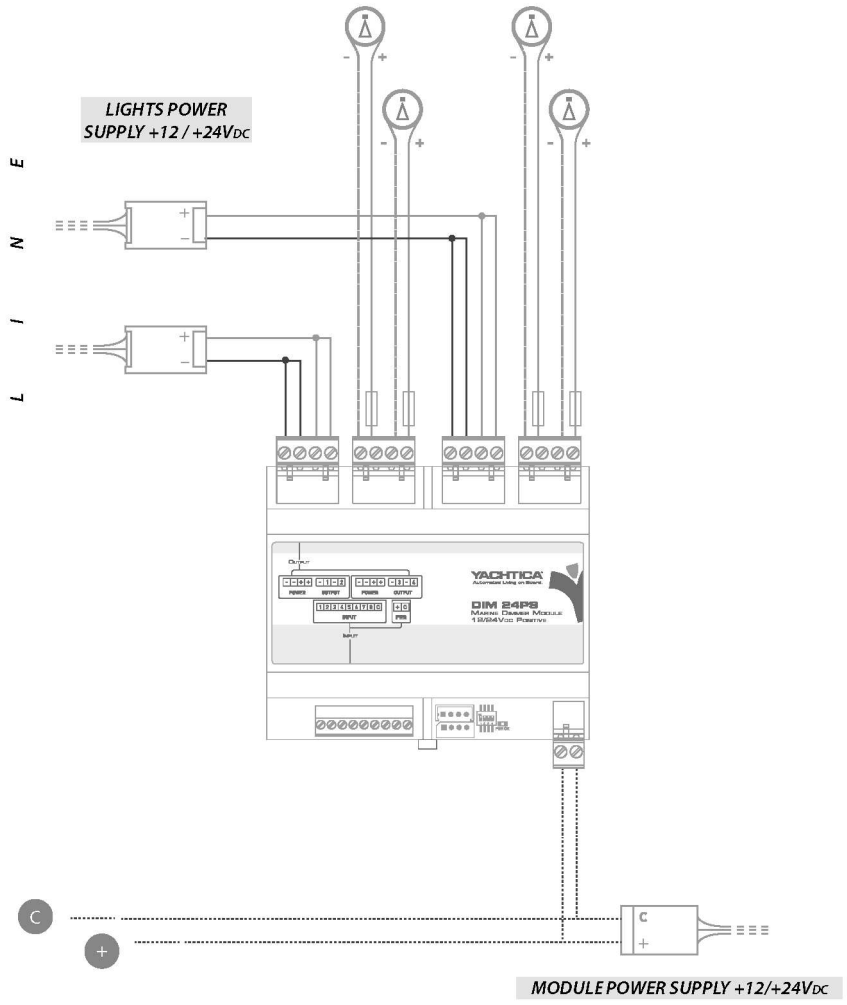
IMPORTANT: the terminals are tested and certified for use with flexible or rigid cord. The manufacturer of the component does not contemplate the use of tips, the use of which is the responsibility of the installer. In this case, maximum attention is recommended in the crimping, which must be uniform on all 4 sides to avoid the creation of contact tips.

NOTE: since significant currents circulate inside the module, it is recommended that, before delivering the system, the overheating status of the module be checked with a heat gun in order to immediately highlight any anomalies due to external loads or incorrect connections.

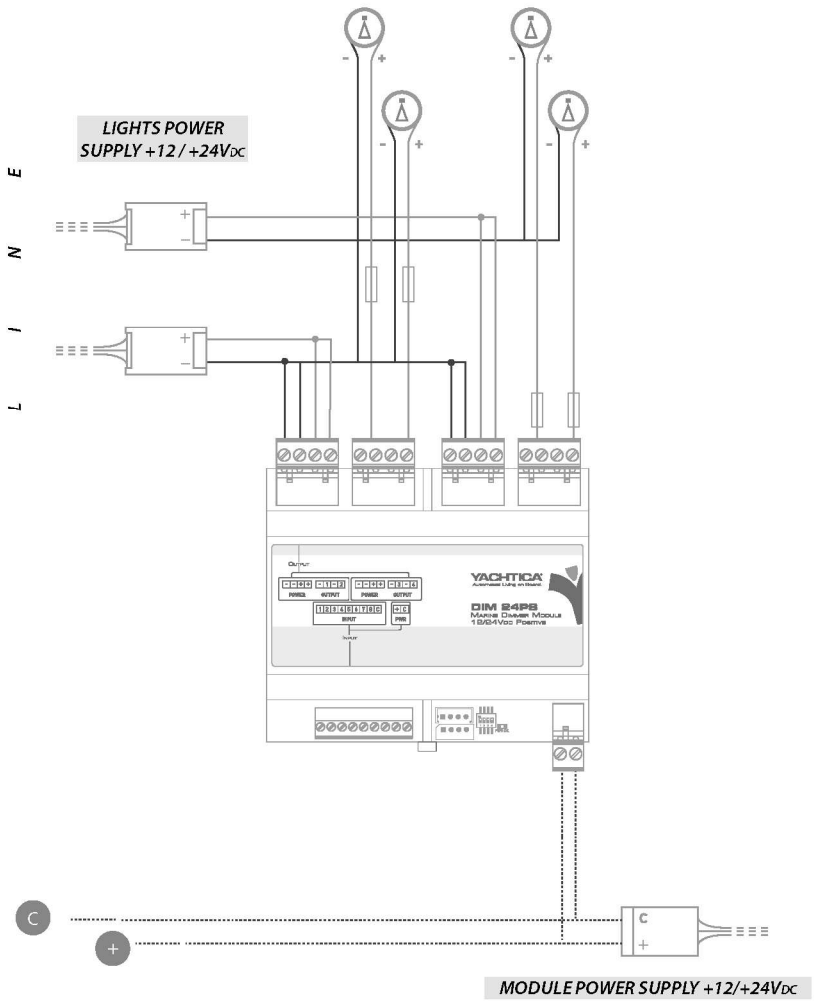
SUGGESTED WIRING DIAGRAM: SCHEME 2

To reduce wiring and current flow on the poles of the output terminals, the following wiring is recommended: SCHEME 2

SCHEME 1: Direct wiring on the module



SCHEMA 2: Direct negative wiring (SUGGESTED)



PROGRAMMAZIONE

STANDARD PROGRAMMING

Using the 8 clean contact inputs it is possible to manage the standard functions pre-programmed on the module.

Depending on the position of the DIP switches it is possible to select some particular programming that can be recalled from the 8 inputs.

# IN	FUNCTION NAME	DESCRIPTION
1-2-3-4	**Dimmer with memoria**	4 Outputs control commands: - **Short press:** switch on and off corresponding output to its last value, in 3 seconds. - **Long press:** allows the dimming of 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.
5-6-7-8	**On/Off**	On/Off outputs control

SCENARIOS PROGRAMMING

# IN	FUNCTION NAME	DESCRIPTION
1-2-3-4	**Dimmer With Memory**	4 Outputs control commands: - **Short press:** switch on and off corresponding output to its last value, in 3 seconds. - **Long press:** allows the dimming of 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	**All On Scene**	Command for a 4 outputs scene control. - **Short press:** switch on and off the outputs to 100% in 3 seconds. - **Long press:** allows the dimming of the 4 outputs. The outputs start 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 3 seconds.
7	**Night Scene**	Command used to set 4 outputs to 20% in 3 seconds.
8	**All Off Scene**	Command used to set 4 outputs to 0% in 2 seconds.

PROBLEM SOLVING

PROBLEM	POSSIBILE CAUSE	POSSIBILE SOLUTION
Module does not 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.
Nothing happens while pressing a button connected to an input of the module	Broken cable problem	Check that while pressing the button the corresponding label on the display is switched on. Check cabling in case it doesn't happen.

REPAIR AND WARRANTY POLICIES

NOTE

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 YACHTICA® products to be free from manufacturing defects in materials and workmanship under normal use for a period of 2 years from the date of purchase.
This warranty extends to products purchased directly from V.Y.C. Srl or an authorized YACHTICA® 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.

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