RC3-610M/DALI

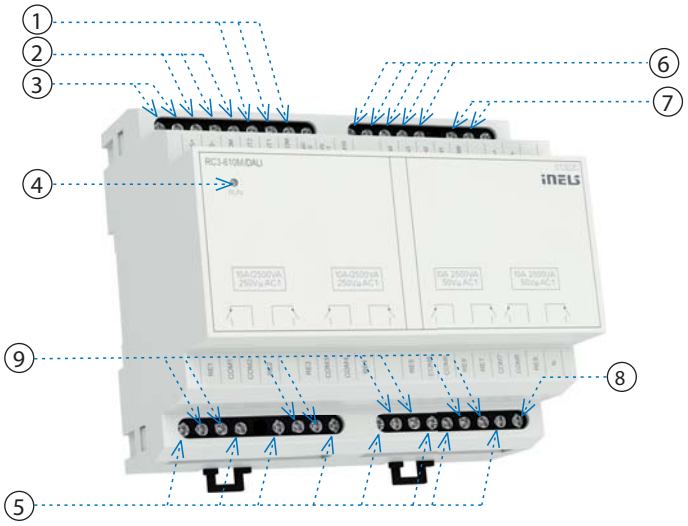
EN Combined unit with a DALI output

02-29/2023 Rev.0

Characteristics

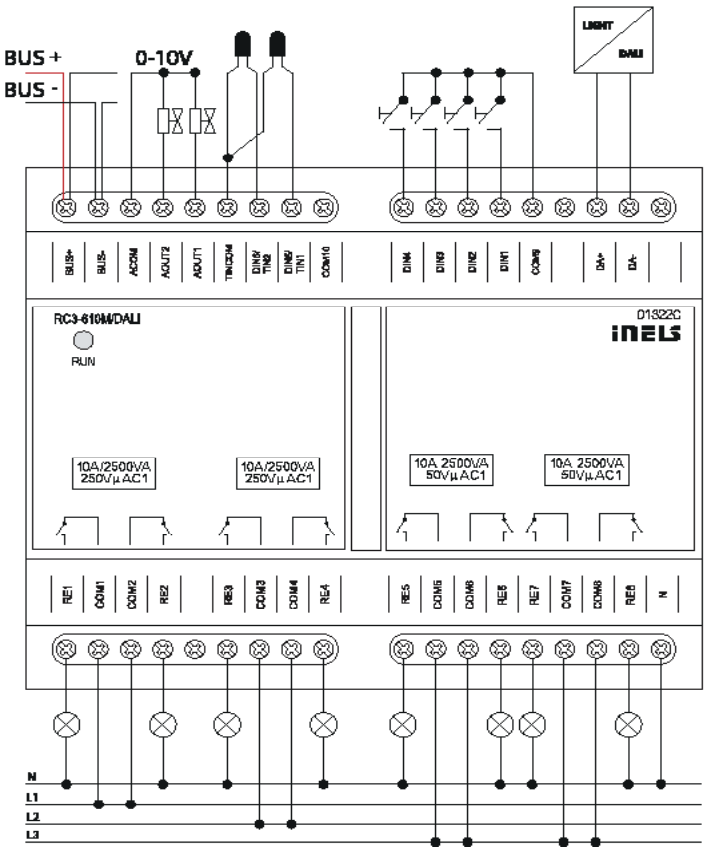
- RC3-610M/DALI is an input/output actuator equipped with 6 binary inputs; 2 of them can be configured as temperature inputs, and with 8 independent relays with switching potential-free contacts. It also includes two analogue 0(1)-10V outputs with loading capacity up to 10mA.
- The binary RC3-610M/DALI inputs are used for connection up to 6 devices with potential-free contacts (such as switches, change-over switches, pushbuttons of another designs, EZS [electronic safeguarding system] and EPS [electronic fire alarm system] detectors, etc.).
- The temperature inputs support connection of temperature TC/TZ sensors with 2-wire wiring to monitor temperature as needed.
- The actuator is designed for switching up to eight different appliances and loads using a relay output (potential-free contact).
- The maximum loading capacity of the relay contacts is 10A/2500VA/AC1. Each of the output contacts can be controlled independently. The relays are divided into two pairs and one tetrad, where each block shall switch one potential (see the wiring).
- The unit includes the function of switching of a relay at the alternating voltage zero value. The inputs for synchronization use the voltage 100-240V AC (COM 1,3,5,7) against the N terminal.
- The DALI system busbar enables control of up to 16 independent addresses of DALI (Digital Addressable Lighting Interface) ballasts for fluorescent tube, LED and other lighting units.
- The analogue outputs are designed for use with thermostatic valves, A/C ventilation flaps, dimmers and other devices with analogue control voltages 0 to 10V or 1 to 10V.
- Parameters of all the configurable inputs and outputs can be set in the environment of the configuration iNELS Designer & Manager software that is designed for operating systems Windows 7, 8 and 10.
- RC3-610M/DALI in the 6-MODUL version is designed for installation in switchboard cabinets on DIN bars type EN60715.

Description of device



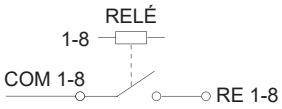
1. Digital / temperature TC, TZ input
2. Analogue outputs 0 to 10V
3. Data BUS bar
4. LED indication of the status of the unit
5. Relay contacts
6. Digital inputs
7. DALI bus bar
8. Power supply terminals of the DALI source
9. Power supply terminals COM and Synchronization

Connection

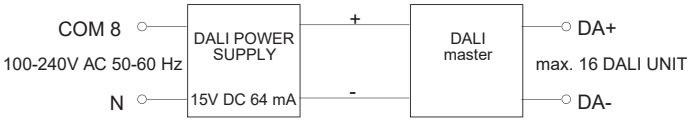


Diagram

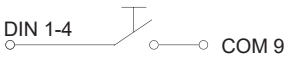
a) Relay



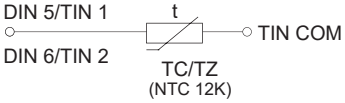
b) DALI master



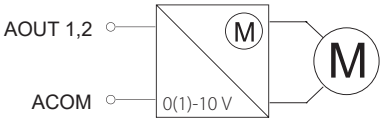
c) Digital inputs



d) Temperature/digital inputs



e) Analogue output



Technical parameters

	RC3-610M/DALI
Output	
Relay	8x NO/switch 10 A /AC1
Switched voltage:	250 VAC , 30 VDC
Switched power:	2500 VA/AC1, 150 W/DC
Peak current:	10 A AC1 , 5 A DC
Relay outputs separated from of all internal circuits:	reinforced insulation (Overvoltage cat. II according to EN 60664-1)
Isolation between COM1,2 a COM3,4 a COM5,6,7,8 *	basic insulation (cat. overvoltage II according to EN 60664-1) max. 400 AC
Isolation voltage of the open relay contact:	1 kV
Max. current through one common terminal:	16 A
Minimum switching current:	100 mA/10 V DC
Mechanical service life:	10 000 000
Electrical life AC1:	100 000
Analog	
Analog outputs:	AO1, AO2
Voltage analogue. output/ max. current:	2x 0(1) - 10 V/10 mA
Inputs	
Input DIN:	6x DIN (digital input) or 4x DIN + 2x TIN (temperature input) **
DIN sampling rate:	20 Hz
DIN common wire:	COM9, COM10
TIN common wire:	TINCOM
Communication	
DALI	
Output interface:	DALI
DALI addresses (max.):	16
Internal DALI source:	yes, max. 64 mA
BUS	
Installation bus:	BUS
Indication of unit status:	Green LED RUN
Power	
Internal DALI supply terminals:	terminals COM8 and N
Internal DALI supply voltage:	100 - 240 V, 50/60H, max. 0.1 A
Power dissipation:	3 W
Connection	
Terminal plate:	max. 2.5 mm2 /1.5 mm2 with core
Operating conditions	
Working temperature:	20 to +55 °C
Storage temperature:	-30 to +70 °C
Degree of protection:	IP20 device, IP40 with cover in the control cabinet
Surge category:	II.
Degree of pollution:	2
Working position:	any
Installation:	to the control cabinet for DIN rail EN 60715
Design:	6-MODULE
Dimensions and weight	
Dimensions:	90 x 105 x 65 mm
Weight:	310 g

General instrucions

CONNECTION TO THE SYSTEM, INSTALLATION BUS

iNELS3 peripheral units are connected to the system through the BUS installation. Installation BUS conductors are connected to the terminal units to BUS+ and BUS- terminals, wires cannot be interchanged. For installation of BUS it is necessary to use a cable with a twisted pair of wires with a diameter of at least 0.8 mm, the recommended cable is iNELS BUS Cable, whose features best meet the requirements of the BUS installation. Bearing in mind that in terms of all the properties is it is possible in most cases also use the cable JYSTY 1x2x0.8 or JYSTY 2x2x0.8, however it is not recommended as the best option. In the case of a cable with two pairs of twisted wires it is not possible to use the second pair of the other for modulated signal due to the speed of communications; it is not possible within one cable to use one pair for one segment BUS and the second pair for the second segment BUS. For installation of BUS it is vital to ensure that it is kept at a distance from the power lines of at least 30 cm and must be installed in accordance with its mechanical properties. To increase mechanical resistance of cables we recommend installation into a conduit of suitable diameter. BUS topology installation is free except for the ring, wherein each end of the bus must terminate at the terminals BUS + and BUS- peripheral unit. While maintaining all the above requirements, the maximum length of one segment of the installation BUS can reach up to 500 m. Due to the data communication and supply of units in one pair of wires, it is necessary to keep in mind the diameter of wires with regards to voltage loss on the lead and the maximum current drawn. The maximum length of the BUS applies provided that they comply with the tolerance of the supply voltage.

CAPACITY AND CENTRAL UNIT

Central units type CU3-0xM are the main components of the iNELS busbar installation. There are several types of the central units; according to their use and communication interfaces. Each central unit has at least one BUS bar. Up to 32 units can be connected to this busbar. The total number of units and busbars is given by the number of central units in the superordinated topology of the iNELS BUS system. Further it is necessary to follow the requirement for maximum loading of one branch of the BUS bar by max. 1000mA current that is given by the sum of nominal currents of the units connected to this busbar branch. In case of connection of units with withdrawal exceeding 1A you can use BPS3-01M with a withdrawal of 3A.

SUPPLYING THE SYSTEM

For supplying power to system units, it is recommended to use the power source of ELKO EP titled PS3-100/iNELS or **PS3-100/iNELS**. We recommend backing up the system with backup batteries connected to the source of PS3-100/iNELS (see sample diagram of connecting the control system).

GENERAL INFORMATION

The unit can work as an independent element without the central unit only within a very limited scope of its functions. For full utilizability of the unit it is necessary that the unit is connected to a central unit of a CU3 series system or to a system that includes such unit as an extension of other system functions.

All parameters of the unit can be set through the CU3 series unit in the iDM3 software.

On the front panel of the unit you can find some LED diodes for indication of power supply voltage and communication with the CU3 series central unit. In case the diode RUN flashes in regular intervals, standard communication runs. In case the diode RUN is permanently on, the unit is supplied from the busbar, however, it does not communicates on the busbar. In case the diode RUN is off, no voltage is present on the BUS+ and BUS- terminals.

Warning

Before the device is installed and operated, read this instruction manual carefully and with full understanding and Installation Guide System iNELS3. The instruction manual is designated for mounting the device and for the user of such device. It has to be attached to electro-installation documentation. The instruction manual can be also found on a web site www.inels.com. Attention, danger of injury by electrical current! Mounting and connection can be done only by a professional with an adequate electrical qualification, and all has to be done while observing valid regulations. Do not touch parts of the device that are energized. Danger of life-threat! While mounting, servicing, executing any changes, and repairing it is essential to observe safety regulations, norms, directives and special regulations for working with electrical equipment. Before you start working with the device, it is essential to have all wires, connected parts, and terminals de-energized. This instruction manual contains only general directions which need to be applied in a particular installation. In the course of inspections and maintenance, always check (while de-energized) if terminals are tightened.

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