



# iNELS IOU3-108M Universal Unit With Inputs And Outputs User Manual

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# iNELS

**iNELS IOU3-108M Universal Unit With Inputs And Outputs**



## Product Information

### IOU3-108M

Universal unit with inputs and outputs, 10 inputs and 8 outputs

## Characteristics

- Temperature input of TC/TZ sensors
- Data BUS bar
- LED indication of the status of the unit
- Relay contacts
- Digital inputs
- Synchronization power supply terminal

## Technical Parameters

- Outputs: 8x switching
- Switched voltage: 8 A/AC1 250 V AC1, 150 W/DC 2500 VA / AC1, 150 W/DC
- Peak current: 10 A
- Output relays separated from all internal circuits
- Isolation between relay outputs COM1, COM2, COM3, and COM4: basic insulation (Cat. II surges by EN 60664-1)
- Isolates. voltage open relay contact: 1 kV
- Max. current of one common terminal: 16 A
- Minimal switched current: 100 mA / 10 V DC
- Switching frequency without load: 300 min<sup>-1</sup>
- Switching frequency with rated load: 15 min<sup>-1</sup>
- Mechanical life: 10,000,000
- Electrical life AC1: 100,000

- Inputs: 8x NO or NC against GND (-)
- Max. frequency pulse reading: 20 Hz
- Temperature input for temperature measuring: 2x input for external thermal sensor TC, TZ (NTC 12k)
- Temperature measurement range
- Converter resolution: 15-bit
- Installation BUS: BUS
- Status indication unit: green LED RUN
- The voltage of BUS/tolerance/ nominal: 27 V DC, -20/+10 %, 110 mA current
- Dissipated power: 3 W
- Operating temperature:
- Storing temperature:
- Protection degree: IP20 device, IP40 mounting in the switchboard
- Overvoltage category: II.
- Pollution degree: 2
- Operating position:
- Installation: switchboard on DIN rail EN 60715
- Design: 6-MODULE
- Dimensions: 90 x 105 x 65 mm
- Weight: 310 g

### **General Instructions**

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 a 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.

### **Connection and Installation**

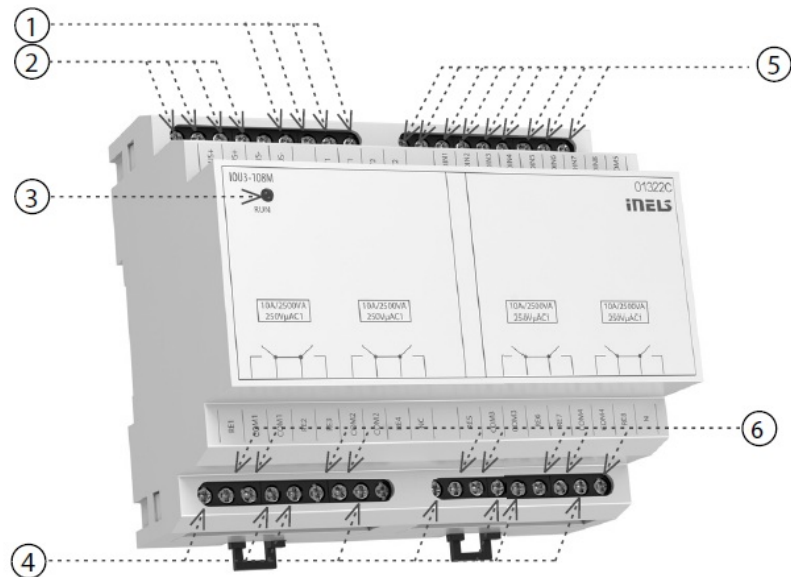
For supplying power to system units, it is recommended to use the power source of ELKO EP titled PS3-100/iNELS or PS3-100/iNELS. We recommend backing up the system with backup batteries connected to the source of PS3-100/iNELS (see sample diagram of connecting the control system).

### **Characteristics**

- IOU3-108M is an input/output actuator equipped with 8 binary inputs, 2 temperature inputs, and 8 independent relays with switching potential-free contacts.
- The IOU3-108M binary inputs are used for connection of up to 8 devices with potential-free contacts (such as switches, change-over switches, pushbuttons of another design, EZS [electronic safeguarding system] and EPS [electronic fire alarm system] detectors, etc.).
- The unit can also be used for counting pulses from energy meters with pulse outputs.
- The temperature inputs support the connection of temperature TC/TZ sensors with 2-wire wiring.
- It is used in cases where it is necessary to monitor temperature, e.g. floor/room, interior/exterior temperature, technological equipment (boiler rooms, solar heating, etc.).
- The maximum loading capacity of the contacts is 10A/2500VA/AC1.
- The unit includes the function of switching of a relay at the alternating voltage zero value. The inputs for synchronization use the voltage 110-230V AC (COM 1,2,3,4) against the N terminal.
- Each of the output contacts can be controlled and addressed independently.

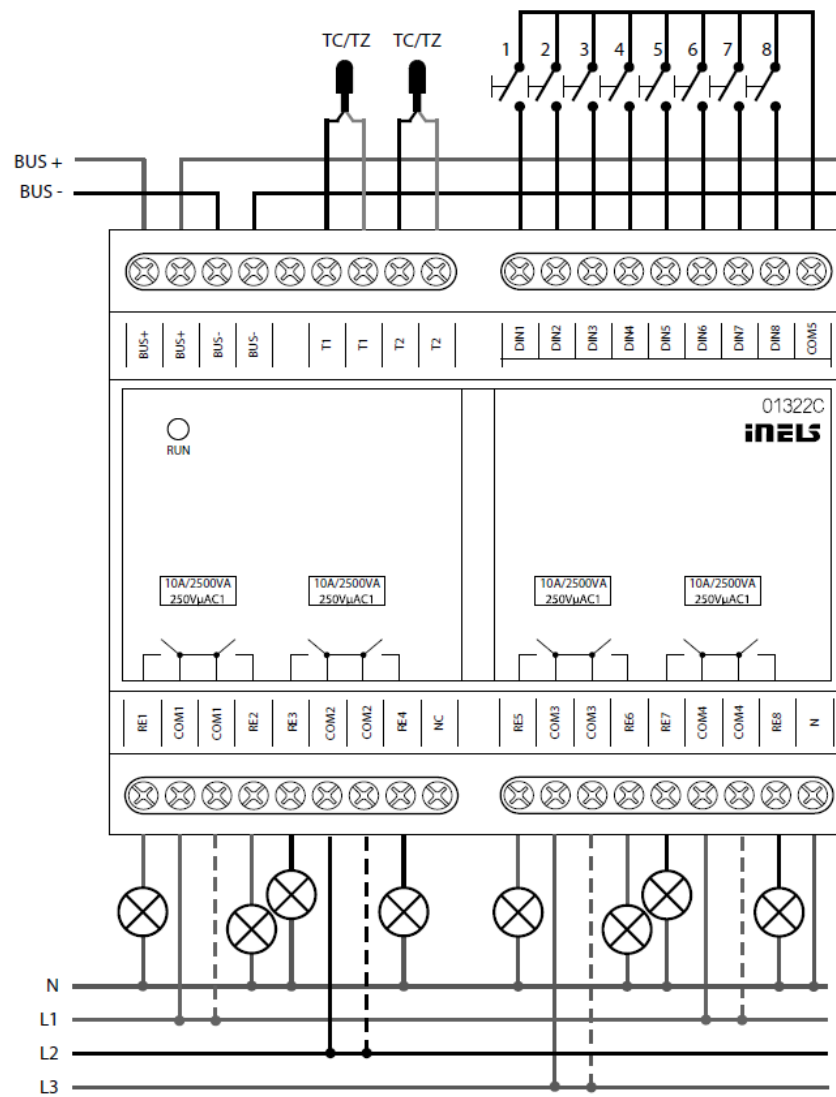
- The relays are divided into four pairs, where each pair switches its common potential.
- The actuator is designed for switching up to eight different appliances and loads using a relay output (potential-free contact).
- IOU3-108M in the 6-MODUL version is designed for installation in switchboard cabinets on DIN bars type EN60715.

## Description of device



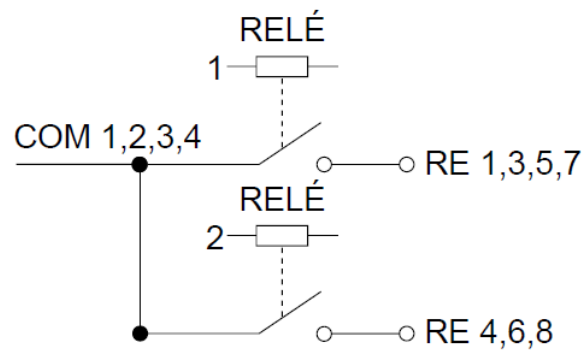
1. Temperature input of TC/TZ sensors
2. Data BUS bar
3. LED indication of the status of the unit
4. Relay contacts
5. Digital inputs
6. Synchronization power supply terminal

## Connection

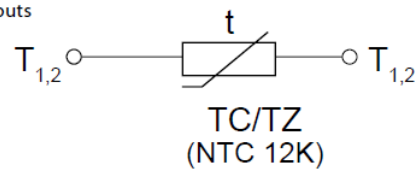


Diagram

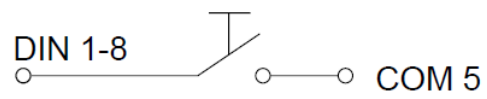
a) Relay



b) Temperature inputs



c) Digital inputs



## Technical parameters

Output:	8x switching 8 A/AC1
Switched voltage:	250 V AC1, 150 W/DC
Switched output:	2500 VA / AC1, 150 W/DC
Peak current:	10 A
Output relays separated from all internal circuits:	reinforced insulation (Cat. II surges by EN 60664-1)
Isolation between relay outputs COM1, COM2, COM3 and COM4:	basic insulation (Cat. II surges by EN 60664-1)
Isolates. voltage open relay contact:	1 kV
Max. current of one common terminal:	16 A
Minimal switched current:	100 mA / 10 V DC
Switching frequency without load:	300 min <sup>-1</sup>
Switching frequency with rated load:	15 min <sup>-1</sup>
Mechanical life:	10 000 000
Electrical life AC1:	100 000
Mains voltage detection:	yes – (relay switched to neutral)

Input:	8x NO or NC against GND (-)
Max. frequency pulse reading:	20 Hz
Temperature input for temperature measuring:	2x input for external thermo sensor TC, TZ (NTC 12k)
Temperature measurement range:	by type of sensor, prob from -40 °C až 125 °C
Converter resolution:	15 bit

Installation BUS:	BUS
Status indication unit:	green LED RUN

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Installation BUS:	BUS
Status indication unit:	green LED RUN

Operating temperature:	-20 až +55 °C
Storing temperature:	-30 až +70 °C
Protection degree:	IP20 device, IP40 mounting in the switchboard
Overvoltage category:	II.
Pollution degree:	2
Operating position:	libovolná
Installation:	switchboard on DIN rail EN 60715
Design:	6-MODULE

Dimensions:	90 x 105 x 65 mm
Weight:	310 g

## General instructions

### 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 the 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, it is possible in most cases to 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 the installation of a 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 the 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 regard 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 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 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

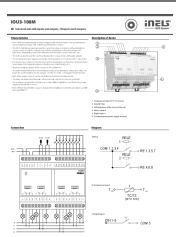
The unit can work as an independent element without the central unit only within a very limited scope of its functions. For full utilizability of the unit, it is necessary that the unit is connected to a central unit of a CU3 series system or to a system that includes such unit as an extension of other 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 communicate 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 the electro-installation documentation. The instruction manual can be also found on the website [www.inels.com](http://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 that need to be applied in a particular installation. In the course of inspections and maintenance, always check (while de-energized) if terminals are tightened. e-mail: [elko@elkoep.com](mailto:elko@elkoep.com)

**TECHNICAL SUPPORT** | E-mail: [support@inels.com](mailto:support@inels.com) | Mobil: +420 778 427 366 | Tel.: +420 573 514 276, +420 573 514 211 | Fax: +420 573 514 227 | [www.inels.com](http://www.inels.com)

## Documents / Resources

	<p><a href="#">iNELS IOU3-108M Universal Unit With Inputs And Outputs</a> [pdf] User Manual IOU3-108M Universal Unit With Inputs And Outputs, IOU3-108M, IOU3-108M Unit With Inputs And Outputs, Universal Unit With Inputs And Outputs, Inputs And Outputs, And Outputs</p>
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## References

- [Smart Wiring, Smart Home • iNELS SMART HOME](#)