

UI400

Indicator for refrigeration boxes



Summary

UI400 is an indicator of maximum open door time of a refrigeration box or any other room with limited access. Exceeding of preset maximum acceptable time is indicated both optically and with audible signal. The indicator also is able to measure the temperature within the room and indicate when it is out of limits.

Applications

- refrigeration boxes, ripening boxes, stores with controlled climate, etc.
- monitoring and indicating of room temperature

Function

As soon as the door is opened, time is counted. If the door is continuously opened for a longer time than the first time parameter the LED starts to flash. If the door is open longer than the second time parameter the buzzer starts to sound. As soon as the door is closed the alarm is reset.

The device keeps in memory following data:

- time of last door opening (s)
- cumulated time of opening as of current day (s), this value increases in the course of day
- cumulated time of opening as of previous day (s), this value keeps unchanged for the current 24 hours
- LED and buzzer status – alarms may be indicated at a SCADA station

If an additional Pt1000 room temperature sensor is installed, then:

- actual temperature (°C)
- max. and min. temperature since midnight
- max. and min. temperature as of previous day
- alarm of exceeding temperature beyond preset limits – adjustable alarm delay and temperature values.

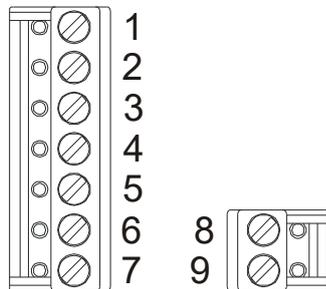
The indicator contains battery backedup real time clock. In customized version it may indicate e.g. any door opening outside working hours etc.

The device communicates with a SCADA system or a master controller over a RS485 bus with Modbus RTU and, as an open system, can be used in a range of 3rd party systems.

Technical data

| | |
|--------------------------------------|--|
| Power | 24 V AC +/- 10% |
| Consumption | cca 1,5 W |
| Temperature measuring range (Pt1000) | -30 ÷ 50 °C |
| Protection degree | IP20 |
| Inputs | 1x DI for a potential.free contact, 24V AC, 5mA, NO/NC selectable in the software 1x AI for external temperature sensor Pt1000 |
| Outputs | internal: high-brightness LED, buzzer |
| Setpoint setting, configuration | over the bus with a free configuration software |
| Communication | RS485 - Modbus RTU, slave 1200...115200 bit/s |
| Terminals | screw terminals for wires 0,14 – 1,5 mm ² |
| Cover | ABS, RAL9010, other colours |
| Weight | 0,13 kg |
| Dimensions | see below |

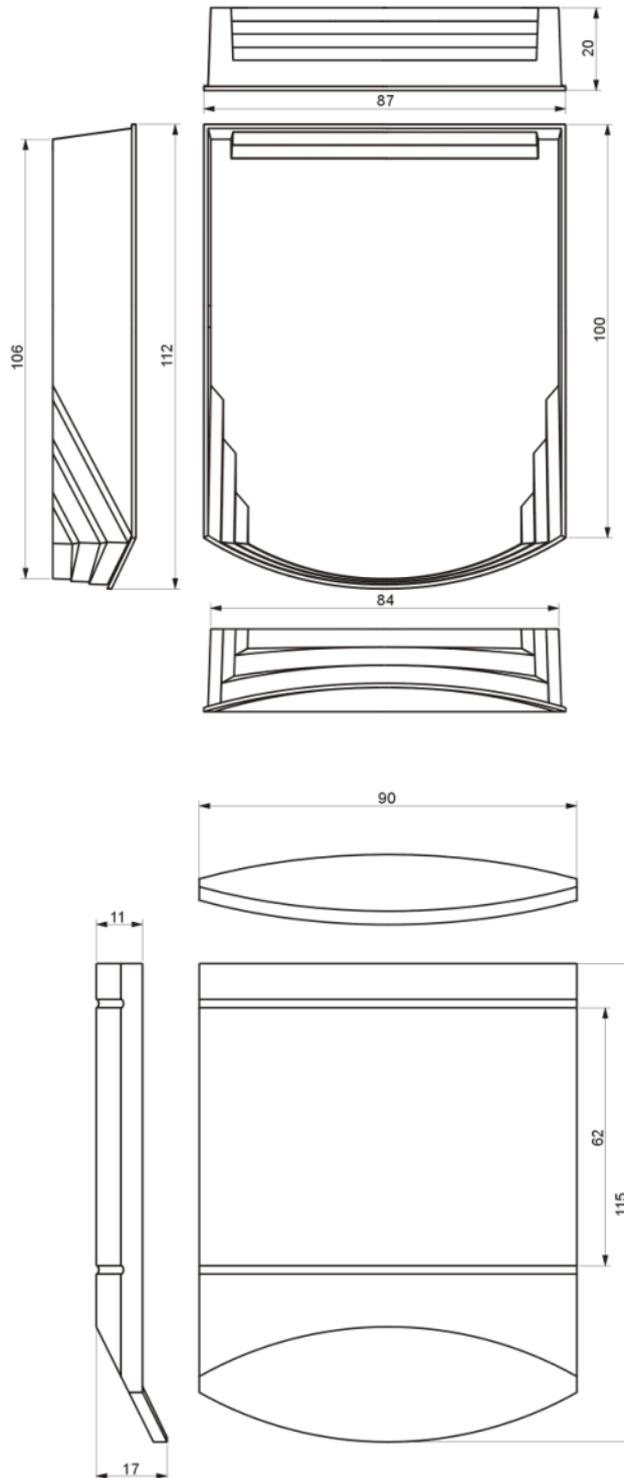
Svorky



- 1: G power
- 2: G0 power, input – common
- 3: G0 power, input – common
- 4: NC not used
- 5: DI door contact (to G0)
- 6: K- communication RS485 –
- 7: K+ communication RS485 +

- 8: T1 temperature sensor Pt1000
- 9: T1 temperature sensor Pt1000 – common

Dimensions



All dimensions in *mm*.

Opening the cover

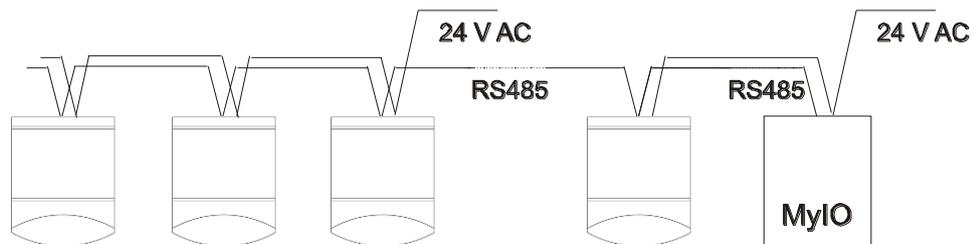
When removing the display part, proceed as follows:

- press gently the side parts of the unit and pull the right of the display part by several millimeters
- pull the left of the display part
- pull the display part and remove it from the bottom.

Do not bend the display part too much, the connector pins could be damaged. The locks are only at the sides of the display part, not at the top nor bottom.

Communication The indicators are addressed in the range of 1 to 250. The maximum number of devices on one bus is thus limited to 250, while at larger distances repeaters are recommended. Do not exceed max. total bus length (1000 m). The bus connects to one of the following systems:

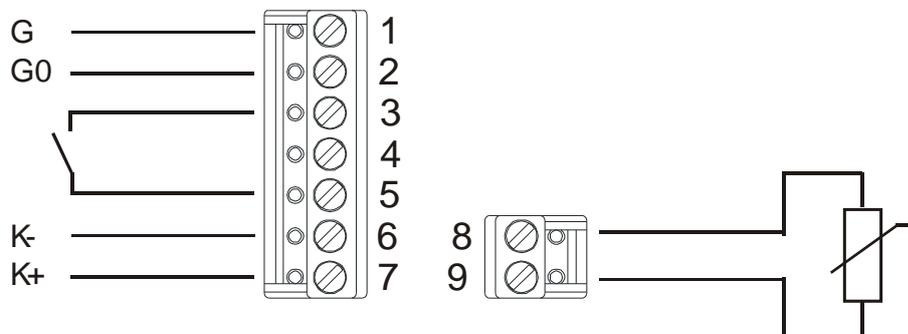
- web communicator MyIO with firmware for UI400 to transmit data to a remote server or local control over the web (see MyIO documentation)
- MiniPLC controller (display and buttons for local control, web access, e-mail and SMS alarming, connection to RcWare Vision or other SCADA over the Ethernet)
- over a M011 converter to the IPCT.1 touchscreen process station (8" colour touchscreen for local control, web access, e-mail and SMS alarming, connection to RcWare Vision or other SCADA over the Ethernet)
- over a M011 converter to a PC with RcWare Vision (plant graphics, trends, SMS alarms, web access...)
- any SCADA system with Modbus RTU communication.



Each terminal holds maximum 2 wires 0,5 mm². This gives the limitation if the 2x2x0.8 mm cable is used: one branch is able to supply about 20 pcs. Then a new power source must be added or another cable type must be used.

Recommended cable types are LAM DATATWIN 2x2x0.8 (diameter in mm), Draka DATAX PAR 2x2x0.5 (cross-section in mm²), etc. Parallel run of 24V AC power and data line is not relevant.

Peripheral connection



Pt1000 temperature sensor – optional

RoHS notice

The device contains a non-rechargeable battery which backups the real-time clock and part of the memory. After the device is not operable, please return it to the manufacturer or dispose of it in compliance with local regulations.

Safety note

The device is designed for monitoring and control of heating, ventilation, and air conditioning systems. It must not be used for protection of persons against health risks or death, as a safety element, or in applications where its failure could lead to physical or property damage or environmental damage. All risks related to device operation must be considered together with design, installation, and operation of the entire control system which the device is part of.

Changes in versions

09/2016 — Changed the format.

02/2017 — Added section Opening the cover and link on the datasheet with other colours.

10/2017 — Added Safety note.

05/2018 – Change technical data.