ALR -M1 | ALARM DEVICE

Mounting and operating instructions

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SAFETY AND PRECAUTIONS

Read all the information, the datasheet, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using, or maintaining this product.

For safety and licensing (CE) reasons, unauthorised conversion and / or modifications of the product are inadmissible.

The product should not be exposed to abnormal conditions, such as: extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.

All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.

Avoid contacts with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.

Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.

Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.

In case there are any questions that are not answered, please contact our technical support or consult a professional.

PRODUCT DESCRIPTION

ALR -M1 is an audible and visual signal device intended to generate alarms and indicate failures or alerts. It needs a master unit, such as the Sentera RDPU or any BMS or master module that is able to write a value in the correct Modbus holding registers. The device is Power over Modbus supplied and all parameters are accessible via Modbus RTU.

INTENDED AREA OF USE

Audible and visual alarm signalisation for Modbus RTU networks

TECHNICAL DATA

- Power supply: 24 VDC, Power over Modbus
- Maximum power consumption: 0,48 W
- Nominal power consumption in normal operation: 0,36 W
- Imax (mA): 20 mA
- Open collector outputs: 24 VDC / 100 mA per output
- Protection class: IP65
- Operating ambient conditions:
  - Temperature: -10—60 ºC
  - Rel. humidity: 5—85 % rH (non-condensing)
- Storage temperature: -20—70 ºC

STANDARDS

- EMC directive 2014/30/EC CE
  - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC

OPERATIONAL CHART

HR11 Operating mode		HR12 Activate green LED	HR13 Activate yellow LED	HR14 Activate red LED	HR15 Activate buzzer	HR16 Buzzer operating mode	LED is activated	Buzzer	Operating description
OK	0					0			
Warning	**1**					0			
Alarm	**2**					0			
Custom mode*	**3**	0	0	0	0				All features deactivated
		1	0	0	0				Green LED is activated
		0	**1**	0	0				Yellow LED is activated
		0	0	**1**	0				Red LED is activated
		0	0	0	**1**	0			Buzzer is activated (pulsing)
		0	0	0	**1**	**1**			Buzzer is activated (continuous)

Pulsing sound signal | Continuous sound signal | Sound signal off

In custom mode all combinations of LEDs and buzzer are possible.

WIRING AND CONNECTIONS

Input	
RJ45 connection	
	
24 VDC	Supply voltage 24 VDC
GND	Supply voltage, ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B
Terminal block connection	
V+	Supply voltage 24 VDC
GND	Supply voltage, ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B

Open collector output (optional)	
V+	24 VDC output supply connection
Green	Open collector output 1 to control a relay or external indication light (max. 100 mA)
Yellow	Open collector output 2 to control a relay or external indication light (max. 100 mA)
Red	Open collector output 3 to control a relay or external indication light (max. 100 mA)
Output connections	Spring contact terminal block: pitch 3,5 mm, 1,5 mm², max. 100 mA per output

⚠ ATTENTION

ALR -M1 needs to be supplied either via the RJ45 connector or via the connection terminals. Do not supply the device via the RJ45 connector and the connection terminals simultaneously!

MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the ALR -M1, read carefully *"***Safety and Precautions"**. Choose a smooth surface for installation (a wall, panel, etc.) and follow these steps:

1. Unscrew the front cover of the enclosure and remove it.
2. Fix the enclosure onto the surface by means of suitable fasteners while adhering to the mounting dimensions shown in **Fig. 1** *Mounting dimensions* and the correct mounting position shown in **Fig. 2** *Mounting position*.

Fig. 1 Mounting dimensions

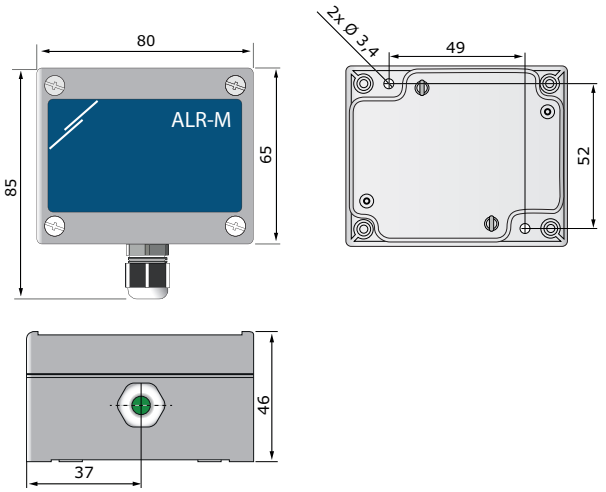
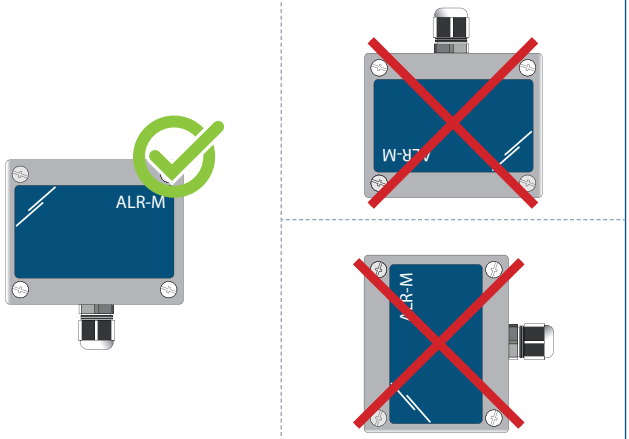


Fig. 2 Mounting position

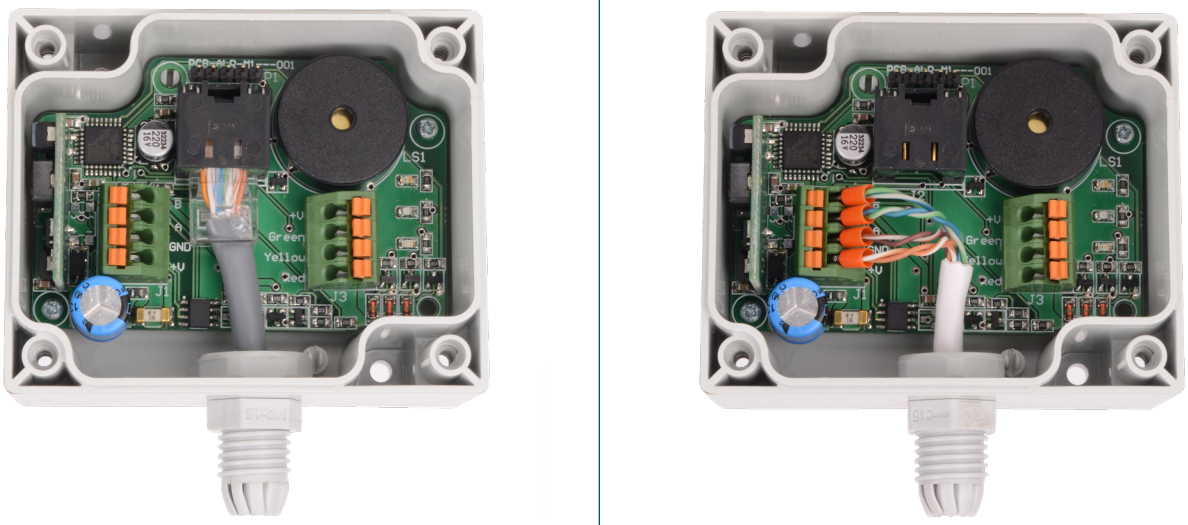
Correct	Incorrect



3. Insert the cable though the cable gland.
   - 3.1 **For input RJ45 connection:**
     Crimp the RJ45 cable and plug it into the socket, as shown in **Fig. 3a** *RJ45 connection* adhering to the information in section "**Wiring and connections**".
   - 3.2 **For terminal block input connection:**
     Connect as shown in **Fig. 3b** *Terminal block connection* adhering to the information in section "**Wiring and connections**".

Fig. 3 Connections

3a RJ45 connection	3b Terminal block connection



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4. Put back the front cover and secure it with the screws. Tighten the cable glands.
5. Switch on the power supply.

Open collector connections (optional)

1. ALR -M1 features 3 open collector outputs for supplying 24 VDC to external devices - relays or indication lights. If you intend to use these, connect as shown in **Fig. 4a** and **Fig. 4b**.

Fig. 4

Fig. 4a Connecting external LED indicators

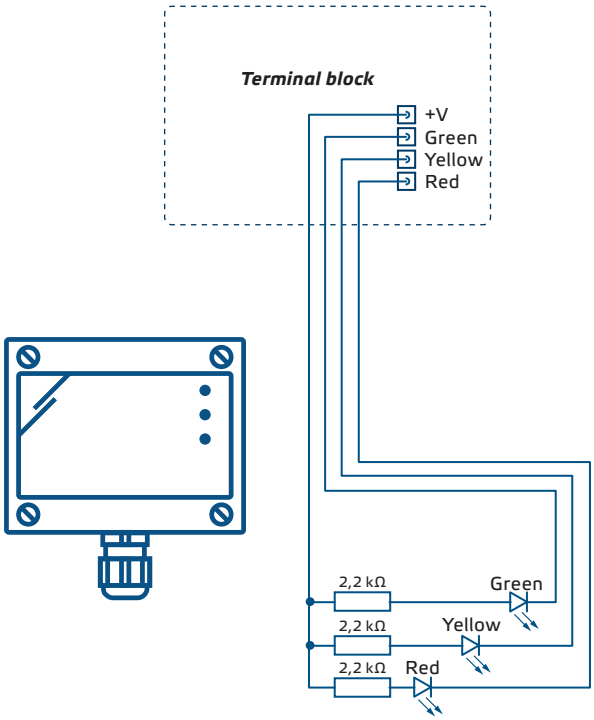
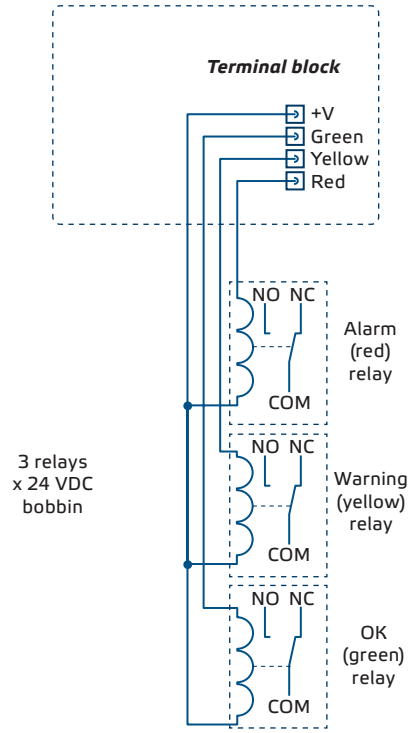


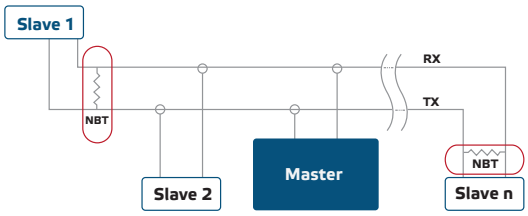
Fig. 4b Connecting external relays



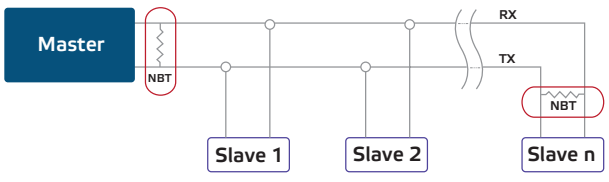
Optional settings

To assure correct communication, the NBT needs to be activated in only two devices on the Modbus RTU network. If necessary, enable the NBT resistor via 3SModbus or Sensistant (*Holding register 20*).

Example 1



Example 2



NOTE

On a Modbus RTU network, two bus terminators (NBTs) need to be activated.

VERIFICATION OF INSTALLATION INSTRUCTIONS

When the ALR -M1 is switched on for the first time, all three LEDs should be on for a second. Then, only the green LED should be on.

OPERATING INSTRUCTIONS

The ALR -M1 is operated via Modbus RTU. To monitor and configure its settings, you can either download the free 3SModbus software from Sentera's website or use the Sensistant tool.

Bootloader

Thanks to the bootloader functionality, the firmware can be updated via Modbus RTU communication. To enter 'Boot mode', put a jumper onto pins 3 and 4 of the P1 header and restart the power supply (see **Fig. 5**). Once 'Boot mode' is activated, the firmware can be updated via SM Boot application (part of 3SModbus software suite).

Fig. 5 P1 header

1 2 3 4 5	Put a jumper onto pins 1 and 2 and wait for at least 10 seconds to reset the Modbus communication parameters
1 2 3 4 5	Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing.

WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the date of publication relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.