

Brief Description

The european safety standard for refrigeration systems EN 378-1 require the existence of a distress call device in cold storage rooms with temperatures below 0°C and a capacity from 10m³, which is independent from mains voltage.

The **NA 401** system consists of one or more emergency push buttons, installed in the freezer room, and an accu buffered alarm unit. In case of a failure of the mains and for security reasons, the push button is equipped with an operating light which is provided by the NA's accumulator.

In case of an activated emergency button a very loud alarm voice will be generated, and additionally, the message will be forwarded via potential-free SPDT relay contact and RS-485 interface. This emergency calls can only be interrupted by unlocking the emergency button.

Features Overview

- Distress Call Device for Freezer Rooms to fulfill EN 378-1 requirements
- Integrated accumulator ensures standby operation even if mains voltage is lost.
- Wall mounting, connecting box, built-in alarm horn and transparent door.
- Alarm horn voice 100 dB(A)
- Up to 12 emergency push buttons connectable
- Push button lighting by accu
- Relay for Alarm Forwarding
- Charge Controller for optimized accu-charge and accu-lifetime
- RS-485-Interface (*E-Link*), for automatic transmission of help calls or for informations such as device state, accu charge level, etc.



ELREHA

ELEKTRONISCHE REGELUNGEN GMBH

Technical Manual **5311069-00/05e**

Distress Call Device NA 401



Technical Data

Supply Voltage.....	230V / 50...60Hz
Power Consumption	5 VA max.
Alarm Relay	8A res., 3 A ind. / 250 V AC
Accu.....	pb, maintenance free, 12V 1,3 AH
Standby duration if mains voltage is lost, full-charged accu, 4 connected emergency buttons with 4 LED lamps	12 hours min.
Alarm duration with full-charged accu, 4 connected emergency buttons with 4 LED lamps	8 hours min.
Acoustic Pressure.....	appr. 100dB(A)
Ambient Temperature	0...+55°C
Ambient Humidity	10...85% r.H., not condensing
Protection	IP 54
Lamps for emerg. button	Special-LED, 10mA

Scope of Delivery

NA 401 unit incl. accu, 1 emergency button, 1 emergency light, LED-lamp, 3x PG-fitting PG 13,5, 3x screws 4x 40, 3x dowels 6mm

Accessories / Spare Parts

Emergency Button incl. lamp.....	Part.No. 107-0607-0010
Accu.....	Part.No. 107-2500-0007
LED-Lamp	Part.No. 107-1001-0002



Please Note Safety Instructions and Start-Up Notes !

Please read this manual carefully before using the product. The guarantee will lapse in case of damage caused by failure to comply with these operating instructions! We shall not be liable for any consequent loss! We do not accept liability for personal injury or damage to property caused by inadequate handling or non-observance of the safety instructions! The guarantee will lapse in such cases.

This manual, which is part of the product, has been set up with care and our best knowledge, but mistakes may occur. Technical details can be changed without notice, especially the software. Please note that the described functions are only valid for units containing the software version-number shown on page 1.

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The Alarm Unit

The **NA** alarm unit contains a power supply, a lead accu, an alarm horn, an alarm relay with potential-free contacts and a data interface (RS-485/E-Link).

A green LED indicates "state of readiness". If an alarm is initiated by an emergency button, the horn voice switches on and the red LED flashes. The output relay has been de-activated e.g. to forward the message to an alarm central or similar. The alarm can be reset only by unlocking the emergency button itself in the freezer room.

Accu charging / monitoring

A built-in, intelligent accu charge controller cares for perfect charging, readiness and long lifetime of the integrated lead accu. All accu malfunctions are indicated by a yellow, flashing LED, at the same time the output relay will be de-activated.

Additionally, specific informations will be transmitted via data interface (loss of capacity, cell defects, increased internal resistance, etc.)

Accu Operation

If mains voltage fails, the integrated accu cares for the correct function of the NA-unit. **Exception: While accu operation the output relay keeps de-energized permanently.**



With an accu operation time which is longer than specified, a deep-discharge may occur which may cause an irreparable damage !

Quantity of Emergency Buttons

For larger cold storage rooms up to 12 emergency push buttons can be connected to the NA-unit.

Each more button reduces the accu operation duration while mains voltage is lost.

Emergency Push Button Self-Monitoring

Emergency buttons contain a N/O and a N/C-contact, always both will be activated. The NA unit recognizes incorrect wiring immediately and defect N/O contacts while the button is pushed.

In this case an alarm will be generated, **and the red LED lights continuously.**

Emergency Button lighting

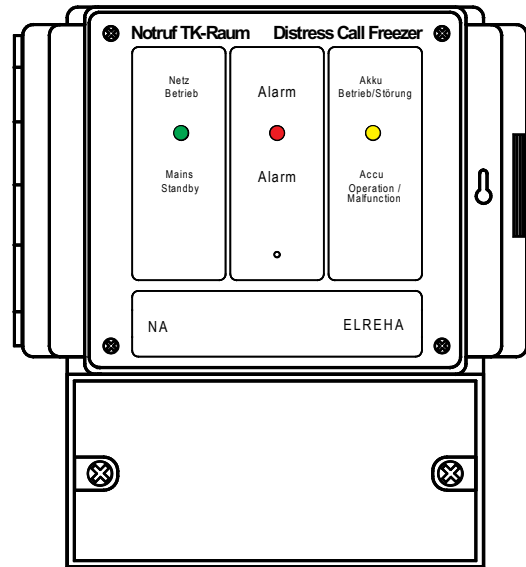
The NA 401 is designed for LED lighting, which need less current than a standard bulb and has a longer lifetime. So it is possible to illuminate more connected emergency buttons while accu operation, maintenance intervals are not longer necessary or can be lengthened.

The used LED's have the same socket than standard bulbs.



We dissuade from using standard bulbs to prevent the accu from being damaged !

LED Signals



	LED-title		
	Mains-operat.	Alarm	Accu Operation/ Malfunction
Ready for Operation	●		
Distress Call		⊙	
Push button defect or incorrect wiring		●	
Mains lost/Accu operation			●
Accu failure (not connected, defect, loss of capacity)			⊙
LED lights permanently ● LED flashes ⊙			

Networking the NA 401

All NA-modules can be networked via their built-in RS-485 interface. At the top of this network normally works a PC (Alarm Host) with a Remote Control/Data Logging Software. All modules in the network are connected parallel to the data wire (party-line), so each unit gets it's individual address to secure specific data transfer.

Start-up in a network

It is not possible to set a network address at the NA itself. To do this, you have to use the the MS-Windows software „**COOLVision-MES**“, which runs on your Laptop or the local Data-Logger-PC.

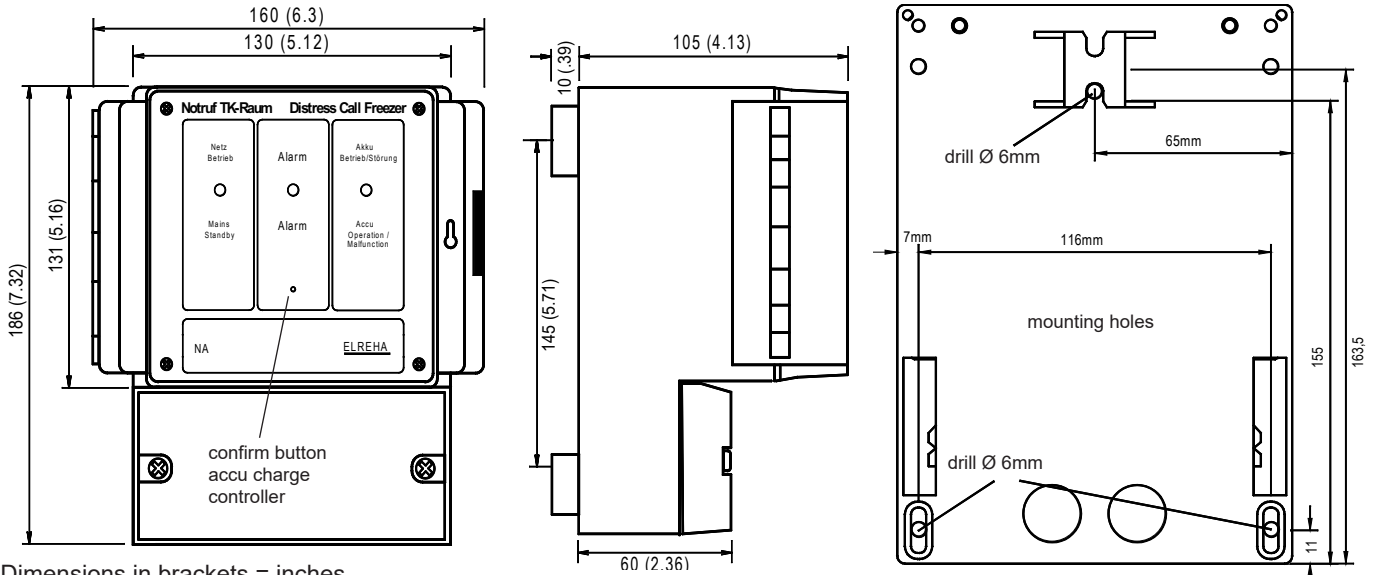
Preparation

- Mount and test all modules.
- Connect data wires and start „**COOLVision-MES**“

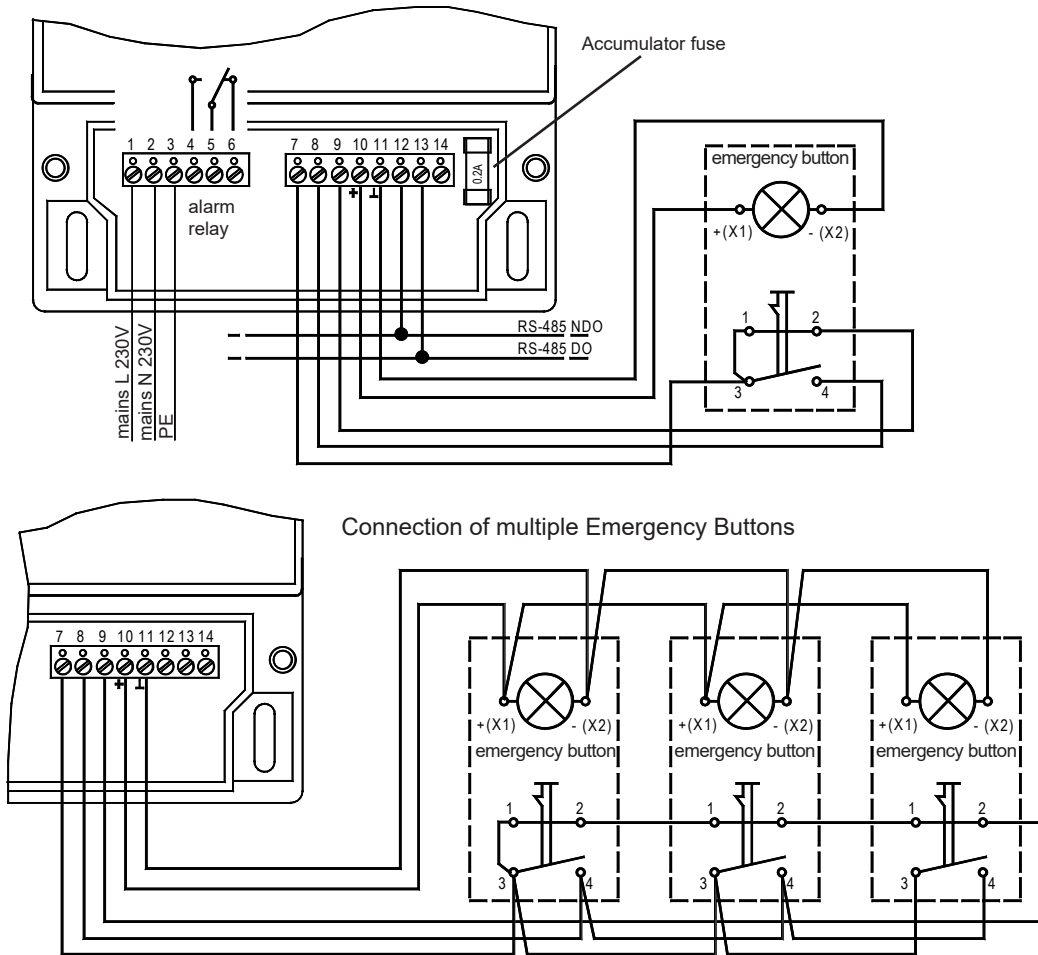
Adress setting

1. Chose „NA / Adress setting“
2. Enter an address which is not yet used
3. Chose „Programming“,
= all LED's of all connected NA-Modules start flashing.
4. Push the "confirm button" of the NA-Moduls, which shall get the desired address
= Blinking ends, the address is stored.
5. To set further addresses, wait for appr. 30 seconds , then all blinking ends. Repeat procedure from (2.).

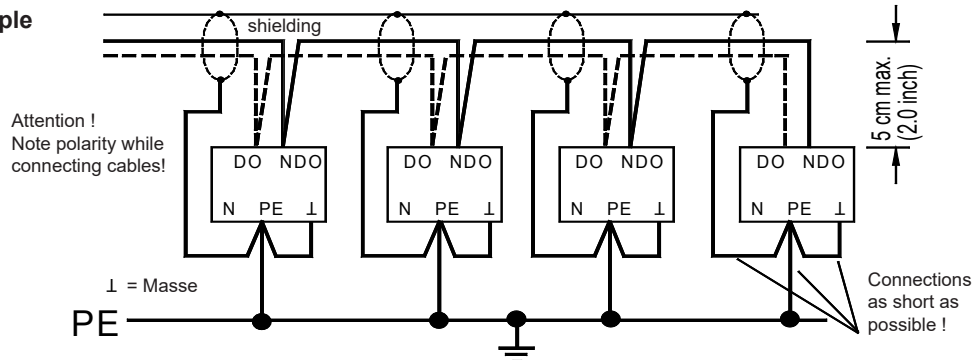
Dimensions



Connection



Networking of multiple units via RS-485



CONNECTION INFORMATION & SAFETY INSTRUCTIONS

Installation / Start-Up / Accu Replacement

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This manual contains additional safety instructions in the functional description. Please note them!

ACCU OPERATION

- **Connect accu before start-up first**
- **At the end of the specified accu duration times (see technical data) the unit must be re-connected to mains voltage to prevent the accu from a deep-discharge (LED Accu failure).**
- **Deep-discharged accus may be damaged irreparably, this may prevent a reload.**
- **Disconnect accu (by removing accu-fuse) or switch on mains voltage if the unit has exceed the specified accu duration times to prevent the accu from deep-discharge.**
- **Disconnect (by removing accu-fuse) accu, if the unit should be shipped or switched off for a longer period**

Danger If you notice any damage, the product may not be connected to mains voltage! Danger of Life!
 A riskless operation is impossible if:

- The device has visible damages or doesn't work
- After a long-time storage under unfavourable conditions
- The device is strongly draggled or wet
- After inadequate shipping conditions
- The product may only be used for the applications described on page 1.
- Electrical installation and putting into service must be done from qualified personnel.
- During installation and wiring never work when the electricity is not cut-off ! Danger of electric shock!
- Never operate unit without housing. Danger of electric shock!
- All 'PE' terminals must be connected to ground. Danger of electric shock! Additionally, the internal noise filter will not work, faulty indicated values may occur.
- Please note the safety instructions and standards of your place of installation!

- Caution**
- Before installation: Check the limits of the controller and the application (see tech. data). Check amongst others:
 - Make sure that all wiring has been made in accordance with the wiring diagram in this manual.
 - Supply voltage (is printed on the type label).
 - Environmental limits for temperature/humidity.
 - Maximum admitted current rate for the relays.
 Outside these limits malfunction or damages may occur.
 - Emergency button cables may not be installed in parallel to high-current cables. If not, inductive interferences may occur.
 - Mounting the controller close to power relays is unfavourable. Strong electro-magnetic interference, malfunction may occur!
 - Take care that the wiring of interface lines meets the necessary requirements.

Replacement of older NA units

If you replace older units of the NA 101 series you must replace the emergency button bulbs by modern LED lamps, because the operation/standby time of the accu will be reduced significantly caused by the higher power requirement of the standard light bulbs !

Installation

Mount the PG-fittings for a water-protected cable gland.

Please ensure that no objects can stay in the horn louver !

Start-up

The NA 401 will be delivered with built-in accu, this must be activated before start-up:

Plug-in the 0,2A fuse (connecting box), the yellow LED starts flashing.

Note **Older NA units:**
 Shift back the isolation bush of the red cable in the connecting box, connect it to terminal 14.

If the accu is already charged, the yellow LED switches off after 15 minutes or after the confirm button has been pressed (mains voltage operation) or lights continuously (no mains voltage present).

Replacing the accu

To replace the accu do the following:

- Switch off mains voltage,
- Remove fuse (or red cable from terminal 14 in older units)
- Remove 4 front panel screws
- Remove front panel
- Open metal fixing of the accu
- Remove accu, remove cables
- Connect cables to the new accu (+ red, - blue)
- Insert accu, mount fixing
- Mount front panel
- Plug-in fuse
(or connect red cable to terminal 14 in older units)
- Wait for yellow continuous light resp. push confirm button
- Switch on mains voltage

Final decommissioning and disposal
 The symbol indicates that this product should not be treated as normal household waste. It can be dropped at a collection point for the recycling of electrical and electronic equipment.

Battery disposal

The device contains a lead-acid battery. It must not be disposed of with normal household waste. You can drop the battery at a public collection point or wherever batteries of this type are sold.

Battery removal

To remove the battery, the front panel (4 screws in the corners) must be removed, the metal bracket of the battery must be opened and the cable must be removed.

EG-Conformity



For all described products there is a declaration of conformity which describes that, when operated in accordance with the technical manual, the criteria have been met that are outlined in the guidelines of the council for alignment of statutory orders of the member states on EMC-Directive (2004/108/EC) and the Low Voltage Directive (LVD 2006/95/EC). This declarations are valid for those products covered by the technical manual which itself is part of the declaration. To meet the requirements, the currently valid versions of the relevant standards have been used.

This statement is made from the manufacturer / importer

by:

ELREHA Elektronische Regelungen GmbH
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 (Name / Anschrift / name / adress)

Werner Roemer, Technischer Leiter, Technical Director

Hockenheim.....**1.4.2009**.....
 Ort/city Datum/date

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 Unterschrift/sign

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