

Manual NSE Version 1.0

Emergency power supply unit NSE for UCM A3 safety control and the A3 brake element (coil)

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In preparing this manual we have used the utmost care, but we cannot guarantee the accuracy of this manual, because mistakes cannot be avoided 100%.

The contents of this manual can be changed anytime without notice. For improving information we will be grateful.

This safety control is designed exclusively for use in a lift control system as power supply for an A3-brake element and may be used only as specified in this manual.

This description contains the information necessary for the intended use of the power supply unit NSE.

Knowledge about the safety of the operating field 'Lift' is assumed.
These skills are fundamental for the understanding of this description.

General:

The power supply unit NSE is destined for use as power supply of an A3 safety control and the A3 brake element.

It guarantees an uninterrupted supply of power for the control unit ENA3 and the 24V trigger coil of the actuator (A3 brake element). This prevents an unwanted triggering of the actuator caused by a power failure.

The NSE consists of a pre-wired and pre-assembled ENA3 controller, a 24V power supply and battery backup (NSE).

The power supply NSE requires an input voltage of 13.6 V DC, galvanically isolated from the mains power supply.

The power supply NSE generates the charging voltage for a 12V battery and an uninterruptible buffered voltage of 24VDC for the A3 safety control as well as for the A3 brake element (coil).

Legend:

Particularly important information in the manual are identified as follows:



DANGER! + WARNING!

This notice must be strictly observed. The sign warns of imminent danger, which can cause serious injury and death.



ATTENTION!

This note indicates attention to a hazard and informs of appropriate precautions to prevent minor injuries and property damages.



IMPORTANT! - INFO!

This note presents situations that can lead to damage of equipment or facilities, and provides tips for proper application and also provides information on key passages and other special features.

Safety guidelines:



The safety instructions are an important part of the operating manual. In consequence of non-compliance of the instructions, all warranty claims and warranties, as well as potential liability claims are lost. Moreover all regulations on accident prevention for lifts must be observed. All local rules must be taken into account to prevent damage due to improper handling with voltages and currents. Especially concerning protection measure and correct earthing.

Training of the installation and operation personnel:



The operator may only use people for installation and commissioning, which have the basic rules of accident prevention and safety knowledge and have read and understood the safety instructions in this manual.

Warranty and liability management:



Warranty and liability claims will be lost if the control is not used as intended or if any damage due to non-observance of the operating instructions or if the installation and operating personnel have not been trained properly.

Intended use:



The application of ENA3 safety controls are provided solely lift systems. The control may not be used in of other systems or particular in industrial plants. The safety control ENA3 may only be used for the case defined in EN81 Annex 3, to prevent of an unintended movement of the car from a standstill.

Commercial data:

Name:	Emergency Power Supply Unit NSE
Packaging Unit:	1 Piece
Customer Tariff:	85044081
Weight / Piece	5N

Product details:

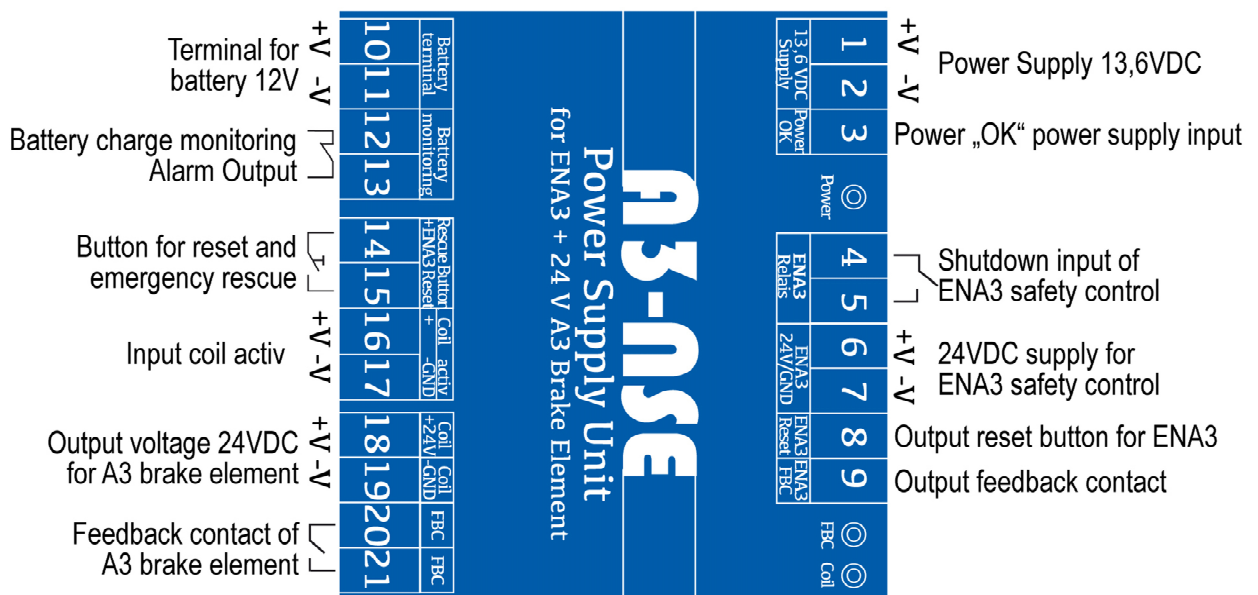
Function:

1. NSE provides an uninterrupted supply of power for the control unit ENA3 and the trigger coil (24VDC) of the actuator (A3 brake element) for about 10 seconds after a power failure.
2. After these 10 seconds, the NSE switches off the supply voltage for the ENA3 and the coil in order not to discharge the backup battery.
3. An emergency rescue button on the box can be pushed to activate the battery again for additional 15 minutes which supplies the ENA3 and the coil.
During this time, it is possible to make an emergency rescue drive of the lift.
4. This can be repeated multiple times for another 15 minutes, if required.

Product description:

- Compact and reliable power supply unit for A3 safety elements with power supply 24VDC.
- Built-in logic for the function of an uninterruptible power supply.
- Built-in logic for safe shutdown of the A3 brake element if an A3 error occurs.
- Connection for external emergency release button with built-in logic and output terminals to reset the A3 safety circuit.
- Clamp connection for a 12V battery (to load).
- Built-in monitoring of charging and deep discharge protection of the battery.
- Relay contact output for message if battery is OK or defective.
- Built-in logic for switching between battery charging and supply
- Built-in function to create a buffer voltage of 24VDC from the 12V battery.
This only requires a single 12V battery.
- Reverse polarity protection and automatic reset fuse at the battery clamp.
- Automatic lowering of the supply voltage of the A3 brake element after tightening of the anchor. This causes a reduction of the heating of the coil of the A3 brake element and an improvement of the overall life and reliability of the A3 device.
- Input for monitoring the mains voltage
- Signal transducer (beeper / buzzer) for signalling of faults acoustically.
This makes it easier for the technician to find an error.

Layout and connections:



Technical Details:

Connection: with plug-in terminals, encoded with different numbers,
 Terminals: max. conductor cross section of 1 mm² with sleeve, or 1.5 mm² without sleeve.
 Cable length: There are no prescribed limits. Shielded cables are not necessary.

Operating ambient temperature:	+ 5°C to + 40°C
Humidity (no condensation)	< 95 %
Storage temperature:	– 25°C to + 70°C
Dimensions:	10cm x 12cm x height 5cm
Weight:	500g

Environmental conditions:

The NSE is designed so that it pollutes the environment as little as possible. It emits no pollutants and does not contain environmentally harmful substances and consumes very little power.

Conditions of use:

The NSE power supply must be used only under the following conditions:

- a.) The brake element of the protective device must be type-approved.
- b.) Appropriate self-monitoring of the correct functioning of the braking device must be provided.
The power supply unit NSE cannot execute this function.

Assembly / Mounting:

Installation of security control should preferably be close to the elevator control. If more space is available in the control box, a free DIN rail with of about 10cm length is required. If there is no space available, it is possible to mount the unit nearby to the control box.

In that case the NSE can be delivered in a special industrial plastic housing.

The unit must be installed in a housing with a protection factor of at least IP4x.

Connections and terminals description:

Terminal 1 (+V), 2 (-V): Connection of a suitable external power supply with an input voltage of 230V and an adjustable output voltage from 12VDC + / -20% min 3A. The output voltage must be set to 13.6 volts before commissioning (suitable power supply would be Meanwell MDR-40-12).

Terminal 3: Connection for the potential-free output contact (relay) "power ok" of the power supply.

Terminals 4, 5: Connection for a safety relay contact of the A3 safety control, which opens in case of an A3 error. This input is used to turn off the supply voltage of the A3 brake element if an A3 error occurs.

Terminals 6(-V), 7 (+V): Connection of the power supply 24V DC 0,3A of the A3 safety control.

Terminal 8: Reset button output for connection to the reset button input of A3 safety control.

Terminal 9: Output "feedback of the A3 brake element" to connect to the A3-safety control.
This output indicates the function of the A3 brake element. The switch position is dependent on the switch on the A3 brake element.

Terminals 10 (+V), 11 (-V): Connection of an external 12V battery. The battery can have a capacity ranging from 1.2 Ah to 7.5 Ah

Terminals 12, 13: Output (potential-free relay contact, normally closed) for reporting a battery failure.

Terminals 14, 15: Connection for an external switch for the initiation of the emergency rescue and as well as for the reset of the A3 safety control.

Terminals 16, 17: Connection for an external LED which indicates if the coil is active.

Terminals 18 (-V), 19 (+V): Output voltage 24VDC for the A3 brake element.

Terminals 20, 21: Connection for the switch (feedback control) on the A3 brake element.

Signal transmitter:

The power supply NSE has a built-in electric signal transmitter (beeper / buzzer) which generates an acoustic signal to indicate an error and easier fault location in case of error.

Getting started:



This description for the commissioning relates only to the power supply NSE and not to the type-tested A3 safety control as well as not to the mechanical A3 brake element.

- Inspection of the correct mechanical fixation of the NSE
- Inspection of all connections and terminals according to schematics and documentation
- Check the correct connection voltage of terminals 1 and 2 (13.6 VDC)
- Input of terminal 3 (Power ok) must be checked against plus (+) of the power supply, which must be 13,4 VDC if correct power is supplied.
- The input to terminals 4 and 5 must be open in case of A3 error (as well as in the test mode) and closed in normal operation.
Note: The A3 brake element (coil) can be supplied only when the terminals 4 and 5 have the same potential, which is only then when they are connected via a relay contact in the A3 safety control.
- Check the correct connection voltage at the terminals 6 and 7.
It must be 24VDC (+ / -1V). The voltage is used to supply the ENA3 safety control.
- Output terminal 8, Reset function for A3 safety control
- Terminal 9, output to forward the feedback contact of A3 safety control.
- Check the correct output voltage of 13.6 VDC at the terminals 10 and 11
- The output at terminals 12 and 13 (battery monitoring) can be tested with a continuity tester. If the battery is OK, the two terminals have the same potential.
- Check the correct connection of the emergency rescue button to terminals 14 and 15 with a continuity tester
- Terminal 16 and 17, Connection of the indication of the coil status.
If the coil is active, the voltage must be about 12V.
- Check the correct connection voltage at the terminals 18 and 19.
It must be about 24VDC. The voltage is used to supply the A3 brake element (coil with anchor).
After the coil release the anchor a reduced voltage of about 12V can be measured.
The position of the released anchor is detected by analysis of the feedback switch.
- At terminals 20 and 21 connects the feedback switch of the A3 brake element.

Troubleshooting:

- Similarly as described in the "Getting Started" section, all connections must be controlled.
- A frequent cause of error is a defective battery, this should therefore be checked first. You can check the function of the battery by turning off the power supply during an idle state of the lift and then checking whether the coil of the A3 brake element continues to be supplied and whether battery voltage remains stable over 12V.

Maintenance:

There are no direct services or maintenance measures necessary.
The power supply unit NSE must always be kept clean and dry.

The battery should be replaced periodically in accordance with the data sheet of the manufacturer.

It must be ensured that the power supply NSE is replaced after an operating period of 20 years because the specified product life cycle of the power supply unit NSE has been reached or exceeded.

Disposal and Recycling:

Unusable or irreparable devices and devices which have exceeded their lifecycle have to be disposed in accordance to the applicable waste disposal regulations for electronic waste. The plastic housing can be disposed as residual waste.

Included in delivery:

The package includes the NSE emergency power supply and the operating manual.

The NSE power supply is also available together with the A3-safety control ENA3 or REA3.

Optional: pre-wiring is possible.

A suitable power supply (Meanwell MDR-40-12) can also be offered.

The NSE power supply is supplied in a plastic housing for DIN rail mounting and should be site installed in a control box.

On request, the unit can also be supplied already mounted in an industrial plastic housing (IP65).

The complete system ENA3-NSE-BOX consists of a pre-wired and pre-assembled ENA3 controller, NSE emergency power supply, a 12V power supply (Meanwell MDR-40-12), a battery 12V; 1,2Ah.

The complete unit will be installed and delivered in an industrial plastic housing (IP65).

Ordering information and spare parts:

Title	Description	Order Number	other
Complete System ENA3-NSE: Fully wired unit with power supply and battery as well as A3-safety control already tested built in housing IP65	ENA3 + NSE + Powersupply + Battery + industrial housing IP65 Pre-wired and assambled	ENA3-NSE-BOX	
Emergency power supply unit NSE	Built into a plastic housing for DIN rail mounting	NSE-HS	
Power supply 230V	DIN rail power supply	NSE-MDR-4012	
Battery	12V, 1,2Ah	BAT12V1,2A	
Matching industrial IP65 housing	Plastic housing with transparent cover 275x225x120	NSYTBS292412T	