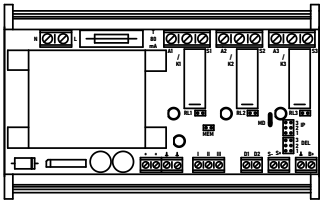
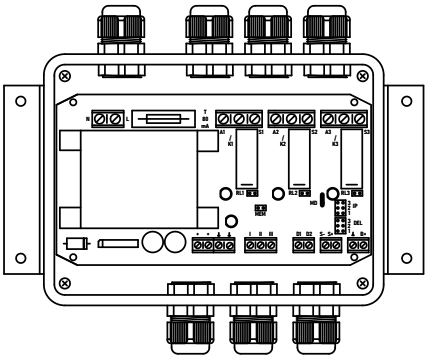
Power Supply NZ34 and NZ34–DIN

Technical Specifications and User Guide

- Power supply 12 V / 0,8 A
- Three inputs with three output power relay
- Memory function for stage II
- External siren connection
- Terminals for 12 V backup battery connection
- Delay output switch settings





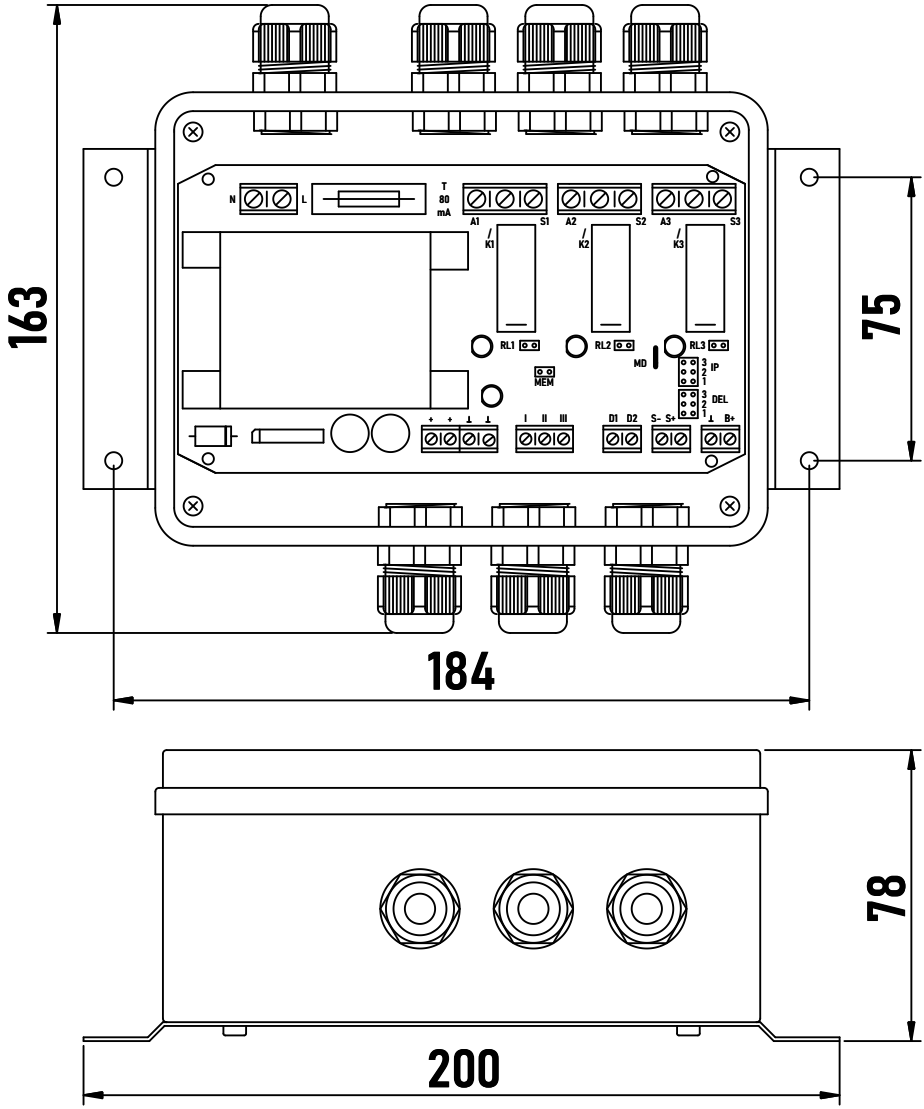
The NZ34(-DIN) power supply is designed to provide a supply voltage to one or more gas detector units. The power supply also allows to process the output signal from the detectors. Three relays, which are contained on the PCB, provide galvanic isolation of the detector power output. Relays provide easy connection to the master system or controlled action elements (such as valves, ventilators, beacons ...). An idle mode for all relays can be set here - i.e. whether the relay armature is energized or not when idle. Every relay is controlled from a separate input. In the power supply a delay in processing the signal from the detector can be set by the user. The delay of the relay response during the operation is used to prevent a random detector signaling, e.g. during a short exposure to residue of combustion in a boiler room, etc.

The power supply allows the memory for the stage II relay to be set. The detectors do not need to have their own memory function. In this case, blocking the stage II relay in the “Alarm“ status will be provided by the power supply electronics. The memory unblocking can be done by pressing an external button. The power supply can be connected up to 5 GR or GC detectors or up to 8 GIxxx detectors. The power supply NZ34 is embedded in a plastic box with a transparent cover. Cables are brought in through bushing on the box. The version NZ34-DIN is not set in a plastic box. It can be mounted on a DIN rail in a switchboard using its plastic holder.

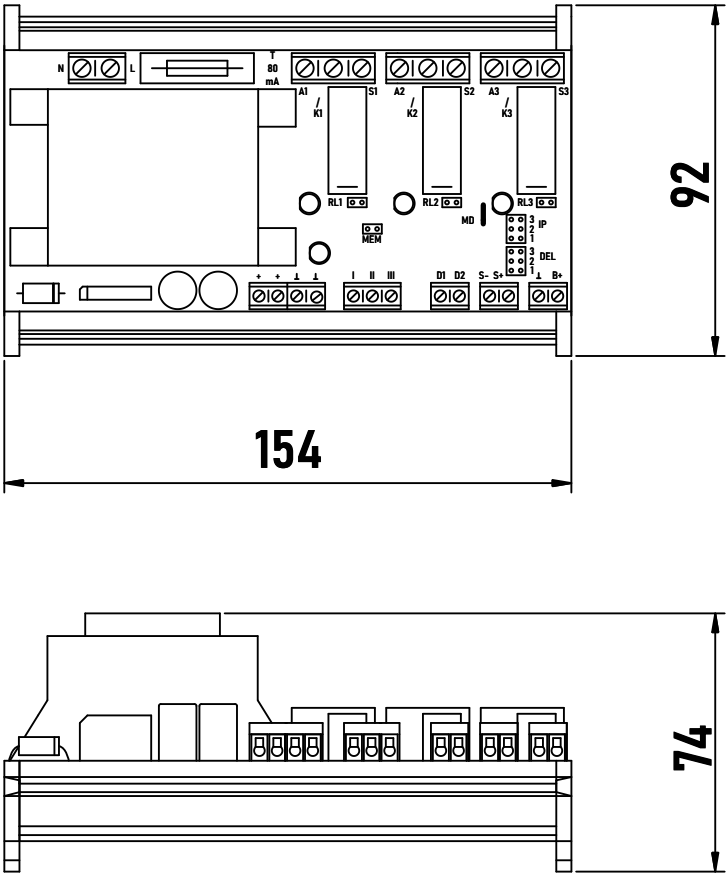
Technical Specifications

Dimensions	NZ34 NZ34-DIN	163×133×77 mm (without the holder) 154×92×73 mm
Power supply		230V (±10%) ac / 50Hz
Power consumption		16VA max
Output voltage		12V= unstabilized (12–15V) / 0,8A
Output relay	3 ×	Changeover switch 230V / 8A
Indication	ON stage I stage II stage III	Green LED Red LED + output for a siren with intermittent tone Red LED + output for a siren with continuous tone Red LED
Setting the detector signal delay		5, 15, 25 sec
Setting the detector signal delay for stage III		10 min
Overload protection		Fuse T80mA
Protection from danger of contact voltage (CSN 33 2000-4-41)	Art. 411 Art. 413	Output voltage 411.1 - SELV Casing protection, class - shielding (not for NZ34-DIN)
Protection	NZ34 NZ34-DIN	IP42 IP20
External characteristics according to	ČSN 33 2000-5-51	AB5 - normal
Class	ČSN 33 2000-4-41	Shielding
Designed according to		ČSN EN 61010-1

Mechanical Dimensions – version NZ34



Mechanical Dimensions – version NZ34–DIN

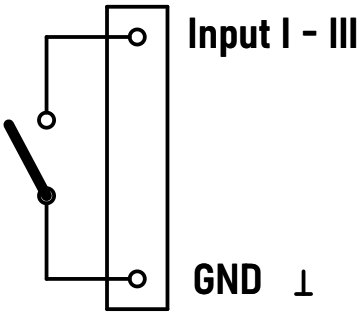


Function Description

The power supply in the detection system provides 2 functions:

1. It provides supply voltage for the connected gas detectors via the + and GND terminals.
2. The output signal from the detectors, which is connected to the inputs I to III of the source, is processed and transferred to the appropriate changeover contact of the relay at the corresponding terminals S, A, K.

The internal electronics of the power supply allows to set the idle state of the input signal to the source (if it is closed or disconnected at idle) and also the delay of the output signal. The source input is activated by connecting the input terminal to the GND potential. Following the figure shows the connection principle of the input.



Mains Voltage Connection

The power supply is connected with a fixed cable, which must be protected by a safety element of max. 2 A.

Terminal Block Outlets

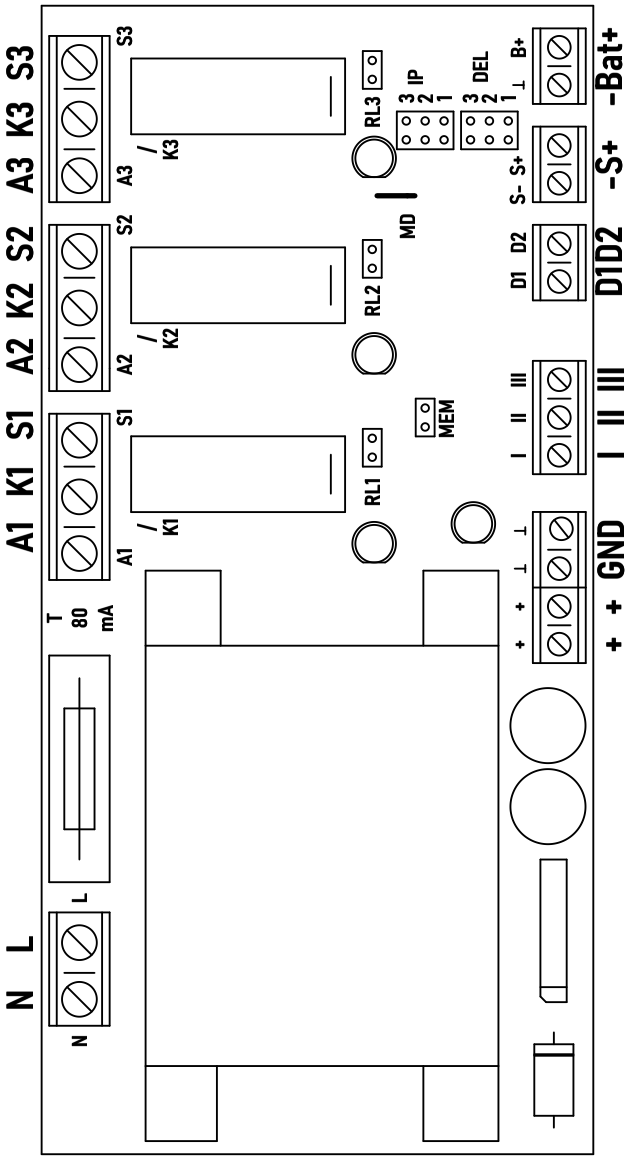
N, L	Power supply connection of 230 V / 50 Hz
S1	Common (COM) contact for stage I output relay. When idle (without detector activation) it is connected to the K1 terminal. When exceeding level I concentration on the detector, it switches to the A1 terminal.
K1	This terminal (NC) is connected through a relay to the S1 terminal when idle (without detector activation and without REL1 terminal).
A1	This terminal (NO) is connected to the S1 terminal when exceeding level I gas concentration.
K2,S2,A2	The same function as of terminals K1, S1 and A1, but for stage II.
K3,S3,A3	The same function as of terminals K1, S1 and A1, but for stage III.
+	+ 12V for detector power supply.
GND	Common (GND) wire for detector power supply.
I	Input to signal stage I of exceeding the concentration level at the detector.
II	Input to signal stage II of exceeding the concentration level at the detector.
III	Input to signal stage III of exceeding the concentration level at the detector.
D1, D2	External delocking button connection - “off when idle, on when pressed” button - see below (Note: D2 is connected to GND). The button should not be distanced from the source more than 2 m.
S-, S+	External 12 V / 100 mA siren connection (terminals have an explicit polarity). Note: S+ is connected to the + 12V terminal. When stage I is activated, siren beeps intermittently, when stage II or III is activated continuously. Siren output is 1 minute inactive after the power source start. When the button is pressed on D1, D2 the siren not respond for 10 minutes .
GND, B+	Terminals for 12 V backup battery connection

Note on detector power supply: At the maximum number of detectors, it is necessary to pay attention to losses on long lines. With higher current consumption, it may be due to these losses supply voltage to distant detectors outside their permitted tolerance. For longer ones power lines, it is advisable to reduce the number of connected detectors.

Indicator Lights

Green	indicates a proper operation of the power supply.
Red	signals exceeding the respective concentration level.

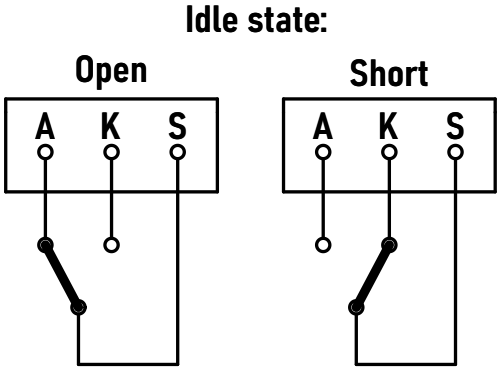
Outlets Connection



Jumpers

RL1, RL2, RL3 Jumpers

	Relay jumper open (inverse)	Relay jumper short (standard)
Relay function	When idle (the alarm is off) the relay armature is not energized, outlets S–A are connected. When the alarm turns on, the relay armature gets energized and the outlets S–K connect.	When idle (the alarm is off) the relay armature is energized, outlets S–K are connected. When the alarm is on or during power failure, the relay "falls off" and the outlets S–A connect.



Stage II memory jumper MEM

	Jumper short	Jumper open
Stage II relay memory	Memory is active - after the alarm signal on the input II stops, the relay remains in the "ALARM" mode. The alarm can be canceled by turning off the power supply or by short-term switching-on of the terminals D1 and D2.	Memory is not active. The relay status is dependent on the input II status.

Note: When the state at terminals D1 and D2 changes, the siren is deactivated for a short time. This is feature that allows the operator to determine the cause of an idle alarm without an audible alarm signal for 10 minutes, is activated when the button is pressed. When the power is turned on, siren is inactive for 1 minute.

Delay setting jumpers DEL1 - DEL3

Jumpers DEL1 to DEL3 allow to set a delayed response to the triggered alarm. This function is mainly used in buildings where there is a risk of short-term alarms from other sources of interfering gases.

Jumper status	DEL1 - open DEL2 - open	DEL1 - short DEL2 - open	DEL1 - open DEL2 - short	DEL1 - short DEL2 - short
The relay time delay after the alarm signal on the input	max. 1 sec	approx. 5 sec	approx. 15 sec	approx. 25 sec
Relay recovery time (release to idle position)	max. 1 sec	max. 1 sec	max. 1 sec	max. 1 sec

Delay setting jumper DEL3

When the DEL3 jumper is connected, the output signal at relay III is delayed another 10 minutes.

Input polarity jumpers IP1 - IP3

	Jumper open	Jumper short
Input	The input is in idle state (no alarm signal) when not connected to GND. After activation of the input (connected to a common wire GND), the power supply starts the alarm by switching the relay.	The idle state (without alarm signal) corresponds to connecting the input to GND wire (see MD jumper). Input disconnection (free input) means an alarm signal on the output relay.

MD jumper for short-circuit monitoring of inputs II and III

The MD jumper determines whether inputs II and III accept a short circuit at the source input as an acceptable condition. It is used for older types of detection systems where the power source is replaced by NZ34 - eg power source NZ12 or NZ23. After cutting this jumper, it monitors the source short circuit on the input and announces an alarm condition. If the MD jumper is disconnected, it is necessary use outputs with internal diode (GC20P and GI30W series).

Procedure for mounting the power supply

The installation of the power supply may only be performed by a person with the appropriate electrical qualification.

1. Depending on the design of the source, we mechanically attach it to a suitable place. Power source NZ34-DIN we put with the holder on the rail into the switchboard. For the NZ34 power source prepare holes for mounting according to the holes in the holder. We screw on the device to the designated location using 4 screws (or bolts) through the holes in the holder. The place, where the device is located, it must not be damp by any substances (eg oil, petrol, solvent vapors, etc.) and any damage to the box must be avoided.

2. According to the project documentation of the detection system we connect the terminals of the power source with appropriate wires when the supply voltage is switched off.

3. According to the requirements for the function of the power source we set the jumpers (see the functions of individual jumpers).

4. We turn on the power supply and check the function of the power supply:

   - the green indicator light must come on when switched on
   - we measure the output voltage of the source and check whether it corresponds to the given parameters
   - we activate one by one connected gas detectors using the tool for the functional test. We test whether the relevant relay closes on the source when the detector is activated
   - it is also possible to activate the relevant relay using the corresponding RL or IP jumper
   - when the siren is connected, we test its function by activating input I or II
   - if memory on stage II is used and release button connected to D1,D2, check whether after activation II input, the relay remains in the alarm state and whether this state can be unlocked with release button

Risk

Improper handling of a live power supply can result in electric shock! The device must be operated only by a person who is demonstrably familiar with the operation detection system. Improper interventions in the detection system can cause it malfunction.

Prohibited manipulations

Installation and inspection of power sources must not be performed by a person without adequate electrical engineering qualifications. Manipulating the source and device detectors or other elements to the power source is performed only in the off state. It is possible to connect detectors or auxiliary elements supplied by the company J.T.O. System, s.r.o. When connecting electronic circuits from other manufacturers, the functionality and security is not guaranteed.

It is forbidden to carry out repairs of power sources outside the authorized service centers (repairs performed only by the manufacturer or authorized companies). It can be connected to the terminals intended for the siren only piezoelectric siren with required parameters. You cannot use sirens with inductive elements in their electronics.

To ensure safety, the source must not come into contact with water or others solutions (paints, etc.). The source must not be cleaned with water or when spraying paint on the surrounding wall it is necessary to ensure its safe covering or disassembly.

Fault power source check

The green light is off

- Verify that the power supply voltage is 230V (±10%).
- Check that the fuse is not open. As a possible replacement use only type T80mA.
- Measure the output voltage of the power supply and check that it is within the tolerance of the specified parameters.

The relay is closed even if the detectors do not report gas

- Check that the appropriate jumper RL1 to RL3 is set correctly and that when it switches the relay alternately (the click of the relay armature is heard).
- Verify that the appropriate IP jumper is set correctly for the polarity of the input signal.
- Measure voltage at the appropriate unconnected input of the power supply at idle (must be greater than 10V).

The siren does not sound

- Verify that at least 10 minutes have elapsed since the button for memory clearing was last manipulated.
- Measure, whether voltage is between terminals S- and S+ (the siren must be activated - stage II is on), which corresponds to the output voltage of the source.

Service

Any repairs or technical assistance can be provided at: J.T.O. System, s.r.o., 1. máje 823, 756 61 Rožnov pod Radhoštěm, Czech republic, tel. +420 571 843 343. If the device is taken out of service, it must be disposed in environmentally friendly way - eg brought to the designated collection point for disposal of electronic waste.

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