J. Schmalz GmbH
Johannes-Schmalz-Str. 1
D - 72293 Glatten
Tel +49 +7443 / 2403 - 0
Fax +49 +7443 / 2403 - 259
www.schmalz.com
e-mail: schmalz@schmalz.de

Safety

Instructions for the installation, maintenance and operating staff

This unit should only be installed and maintained by qualified specialist personnel (electricians).
Everybody in the company of the operator responsible for setting up, commissioning, operating, maintaining and repairing the unit must have read and understood the operating instructions well, in particular the “Safety” chapter.
The operator’s company must take internal measures to ensure:

- ⇨ that each user of the device is trained
- ⇨ that they have read and understood the operating instructions
- ⇨ and that the operating instructions are accessible at all times

The responsibilities for the various tasks on the unit must be clearly specified and observed.
There may not be any unclarity as to responsibilities.

Requirements for the installation location

The unit may not be operated in rooms where there is a risk of explosion.
The ambient temperature may not exceed 50°C.
It must be connected to the power supply of the machine used.
This allows it to be activated and deactivated using the machine’s main switch.

Intended use

The unit is designed to monitor the operating vacuum.

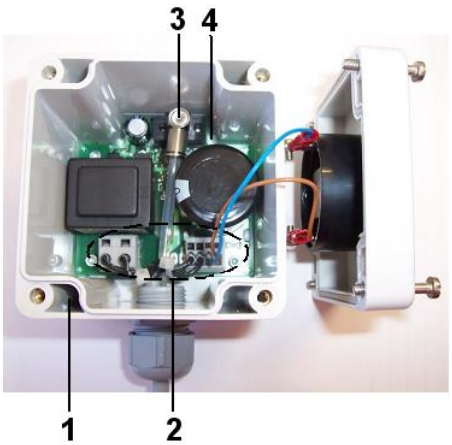
- ⇨ For safety reasons, the unit may not be modified or changed without approval.
- ⇨ The operating, maintenance and servicing conditions prescribed in these operating instructions must be observed.
- ⇨ Rectify any faults before starting the unit. Should faults occur during operation, they must be rectified immediately.

Caution

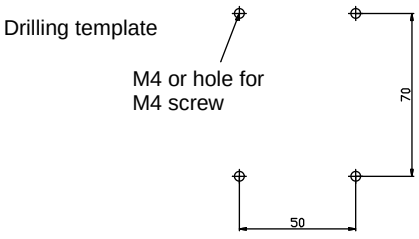
While working, always watch the manometer attached to the hoist to aid the warning device in recognising vacuum drops!

Description

The warning device monitors the operating vacuum. It emits an audible warning signal when the partial vacuum falls below the level set. A warning is also emitted if the power supply fails when the control switch is on. Two types of warning device are available. Type A is purely a warning device with an audible warning signal (in accordance with the accident prevention guidelines). This type is operated directly from the mains (e.g. 230V AC). Type B also has an output for indirect control of a vacuum pump, e.g. via a contactor. It is supplied with 24V DC.



No.	Designation
1	Attachment holes (4x)
2	Electrical connection
3	Vacuum connection
4	Warning signal alarm threshold setting



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Installation

General information

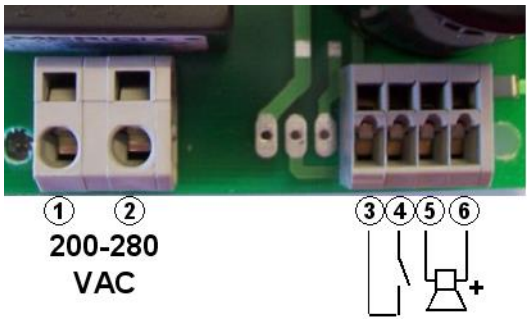
Work on electrical equipment may only be carried out by qualified electricians in accordance with the applicable regulations. The signal exit opening of the alarm signalling device may not be covered by workpieces or parts of the machine.

Mechanical installation

Attach the housing of the warning device to the corresponding device using the screw holes provided (see drilling template).

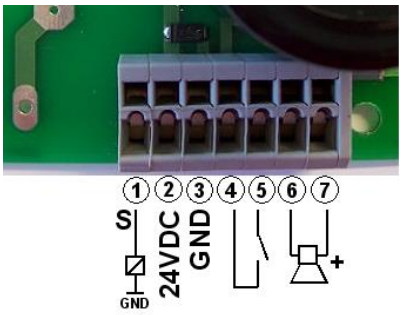
Electrical connection

Type A (230VAC)



Clamp no.	Core no.[1)]	Designation
1	1	230V AC power supply (200-280V AC)
2	2	
3	3	Control switch query
4	4	
5	-	Minus pole alarm emitter
6	-	Plus pole alarm emitter

Type B (24VDC)



Clamp no.	Core no.[1)]	Designation
1	-	24V DC control switching output
2	1	24V DC power supply
3	2	GND power supply
4	3	Control switch query
5	4	
6	-	Minus pole alarm emitter
7	-	Plus pole alarm emitter

[1)] Numbering of individual cores of factory connection line

The following must be observed for type A (230V AC):

Caution

The cable conductors for the power supply must be grouped using cable ties close to the connection terminals!
The cable conductors for the control voltages must be grouped using cable ties close to the connection terminals!

That prevents the different voltage potentials (operating and control voltage) being combined!

The following must be observed for type B (DC 24 V):

Caution

Ensure that the polarity of the power supply is correct when connecting.
The connections do not have reverse polarity protection.

Caution

Do not supply voltage to the control switch monitor. Use it as a potential-free contact only.

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Control switch query

This connection allows the supply voltage of the alarm emitter to be interrupted. This prevents accidental beeping when the lifting device is switched off or when there is no workpiece. One floating make contact of the control / motor protection switch or a workpiece query device is connected.
If this option is not used, the connections must be joined with a wire bridge.

Caution **Grid-side power failures are only monitored if the control / motor protection switch is activated!**

Caution **Do not supply voltage to the control switch monitor. Use it as a potential-free contact only.**

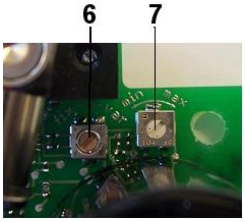
Connecting an alarm emitter

Only alarm emitters provided by Schmalz may be connected!
Ensure that the polarity of the alarm emitter is correct when connecting!

Using a controller (Type B)

The 24V DC Type B has an additional switching output, “S” for vacuum control. A 24V DC contactor can be run via the output to control a vacuum pump. The pump switches off at a fixed switch off point of approx. -750 mbar and on again at approx. -650 mbar. This operating mode means that the pump only runs when necessary.
If a control unit is used, the alarm threshold should be below the control range.
This connection is not fed out as standard.

Setting the alarm threshold



No.	Designation
6	“FIX / VAR” rotary switch
7	Adjustable potentiometer “MIN / MAX”

The FIX / VAR rotary switch allows you to switch between a fixed vacuum value of approx. -600 mbar and a variably adjustable switching value. The MIN / MAX adjustable potentiometer allows the alarm threshold to be set to any value. The alarm emitter of the warning device sends an alarm signal when the value falls below the alarm threshold set.
The fixed value set is the best threshold value for most applications.

Caution **For safety reasons, the preset alarm threshold may not be changed for lifting devices (e.g. VacuMaster)!**

Checking the function of the warning device

Check the function at least once every three months!

Testing vacuum drop

- Switch on the power supply.
- Generate operating vacuum.
- Allow vacuum to fall below the alarm threshold (e.g. create leak). The warning device sends an audible warning signal when the value falls below the switching point.

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Testing power failure

The warning device sends an audible warning signal when the power supply is switched off.

Rectify any faults before starting the unit.

Should faults occur during operation, switch the device off and rectify the faults.

Technical specifications

Feature	Type A	Type B
Power supply	200–280V AC	24V DC ± 10%
Grid frequency	50 / 60Hz	–
Working temperature	0 – 50°C	
Installation position	Signal exit opening must face downwards	
Protection class	IP53 (IP 40 for other installation positions)	
Vacuum connection	4/2mm hose	
Alarm signalling device frequency range	approx. 3000Hz	
Alarm signalling device noise level	> 95 dB(A)	
FIX alarm threshold	approx. –600 mbar	
VAR minimum value alarm threshold	approx. –100 mbar	
VAR maximum value alarm threshold	< – 950 mbar	
Maximum control switching output current at 24V DC (Type B)	–	1 A
Control range (Type B)	–	–800 to –700 mbar

Troubleshooting

Fault	Cause	Recommended action
Alarm does not sound on vacuum drop	Vacuum hose fault	Replace hose
	Switching point of the warning device change	Adjust switching point
	Electronics fault	Replace entire warning device
Signal sounds suddenly although no workpiece is held or the vacuum system is not running	Leak in vacuum system	Check for leaks –> repair leak
Control does not function (Type B)	Contactor incorrectly connected or voltage incorrect	Connect with correct voltage
	Electronics fault	Replace entire warning device

We reserve the right to make technical changes. No responsibility is taken for printing or other types of errors.