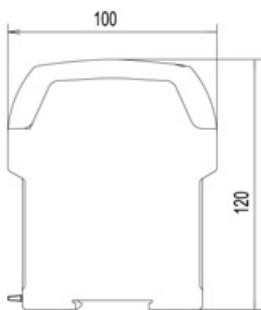


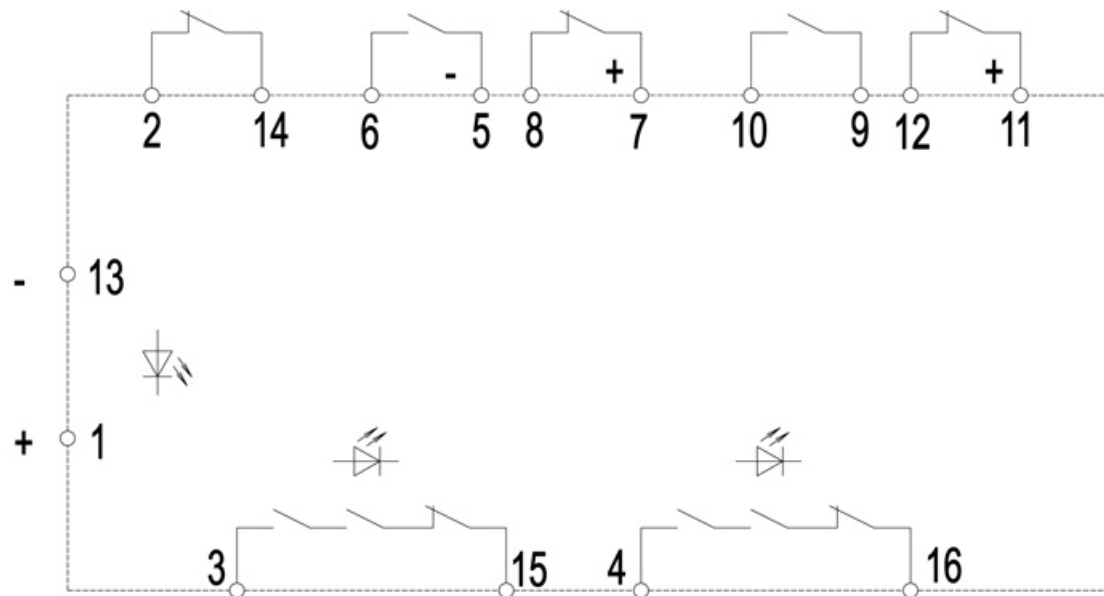
470 121 H1
470 121 H1U



- D Betriebsanleitung**
Auswerteeinheit
- GB Operating instructions**
Control unit
- F Notice d'utilisation**
Unité de contrôle
- I Istruzioni d'impiego**
Unità di controllo



470 121 H1, 470 121 H1 U



1 Technical data

1.1 Terminal assignment

Terminal	Assignment
1	Operating voltage +
2	External contactor
3	Safety output 1, floating
4	Safety output 2, floating
5	Sensor 1 contact maker -
6	Sensor 1 contact maker
7	Sensor 1 contact breaker +
8	Sensor 1 contact breaker
9	Sensor 2 contact maker
10	Sensor 2 contact maker
11	Sensor 2 contact breaker +
12	Sensor 2 contact breaker
13	Operating voltage -
14	External contactor
15	Safety output 1, floating
16	Safety output 2, floating

1.2 Type denomination/Variants

The following example and table are given to explain the type denomination of the control units.

Example:

470 121 H1

4ab cde fg

Placeholder	Characteristic		Meaning
4ab	Housing type and housing width	470	Housing width 22.5 mm
cd	Specification safety input	12	Control unit for contact makers/breakers for sensors
e	Operating voltage	1	24 V
f	Other	H	Category 4 according to EN 954-1
g	Other	1	Complete basic equipment with control output, LED and external contactor

1.3 Electrical and mechanical data

The control unit in a deenergized state is depicted on the circuit diagram of the fold-out page.

General

Operating voltage fuse	1.0 A
Fuse safety outputs	4 A
Operating voltage	+ 24 V DC \pm 10 %
Power consumption	190 mA
Switching voltage	250 V AC or 30 V DC
Switching current	4 A
Switching power	1000 VA or 120 W
Operating temperature	0 °C ... +55 °C
Transport and storage temperature	-25 °C ... +85 °C
International protection	IP 30
Housing	PA black
Category according to EN 954-1	4

Cooling-off period

The cooling-off period is the maximum time permitted on a sensor between the closing of the contact maker and the opening of the contact breaker.

The cooling-off period depends on the version of the control unit.

Type	Cooling-off period
470 121 H1	300 ms
470 121 H1U	None

LED displays

The LEDs indicate the operating status of the control unit. All safety outputs are switched through if all green LEDs are on.

LED	Meaning	Color	Status
Operating voltage	Operating voltage is applied	Green	On
Safety output	Safety outputs switched through	Green	On
Sensor 1 contact maker	Sensor 1 contact maker closed	Green	On
Sensor 1 contact breaker	Sensor 1 contact breaker open	Green	On
Sensor 2 contact maker	Sensor 2 contact maker closed	Green	On
Sensor 2 contact breaker	Sensor 2 contact breaker open	Green	On

2 Appropriate use

The control unit is intended for use exclusively to protect against hazards.

2.1 Norms and guidelines

The control unit complies with the following European guidelines:

- 73/23/EEC (low voltage guideline)
- 89/336/EEC (EMC guideline)
- 98/37/EC (machinery guideline)

The construction of the control unit conforms to the norms listed below.

Norm	Content
EN 954-1	Safety-related parts of control systems
EN 60947-5-2	Controlling devices and switching elements - proximity switches
EN 60947-5-3	Requirements for proximity switches with defined behaviour when errors arise (accordance to)
EN 61000-6-2	Electromagnetic compatibility, interference immunity for the industrial sector
EN 60204-1	Electrical equipment of industrial machines

2.2 Safety/Dangers

- Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.
- Ensure that the appropriate corresponding fuses (see Technical data) are used. Never bridge or repair fuses.
- Only operate the control unit when it's in an undamaged condition.
- Ensure that the control unit is only used for protection against dangers.
- Ensure that all safety requirements applying for the machine in question are observed.
- Ensure that all European guidelines and national laws/guidelines applying are observed.

3 Function

The control unit switches the two safety outputs through in the following situations:

- The contactor contact is closed.
- Both sensors are actuated.
 - The contact makers of both sensors are closed.
 - The contact breakers of both sensors are open.

The control unit switches the two safety outputs off in the following situations:

- One of the contact breakers of the sensors is closed.
- One of the contact makers of the sensors is open.

If the contactor contact is open:

- The safety outputs remain switched through.

The second safety output has two functions:

- Safety output
or
- Control output

4 Installation



► **Danger of electrocution!**

Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.

Danger

- Snap the control unit onto a mounting rail (DIN 50 022) in the switch cabinet. The control unit is attached.
- Connect control unit, see Technical data.
- Ensure that the prescribed fuses are used, see Technical data.
- Ensure that the safety outputs are fitted with a protective circuit if capacitive or inductive loads are connected.

If no external contactor is used:

- Bridge terminals 2 and 14.

5 Putting into operation



► **Danger of electrocution!**

Ensure that the control unit is only installed and put into operation by specially-trained authorised personnel.

Danger

- Close the contact of the connected external contactor.
- At both sensors:
 - Open the contact breaker.
 - Close the contact maker.
- Apply operating voltage.

With the operating voltage applied:

The operating voltage LED is on.

The control unit switches the safety outputs through.

The safety output LED is on.

The control unit is ready for operation.

6 Troubleshooting

6.1 Restoring device to a state of readiness for operation

If the safety outputs were switched off by a sensor contact firing:

- Close the contact of the connected external contactor.
- Close the contact makers of both sensors.
- Open the contact breakers of both sensors within the cooling-off time.

The control unit switches the safety outputs through.

The safety output LED is on.

The control unit is ready for operation.

6.2 Safety outputs remain switched off

- Check connections at input and output terminals:
 - Operating voltage
 - Sensors connected
 - Contactor connected
- Connections at inputs and outputs are OK:
 - Replace control unit.

7 Maintenance

7.1 Measures

The control unit is maintenance-free.

7.2 Disposal

Dispose of used parts and unwanted packaging in accordance with the regulations of the country in which the device is installed.

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