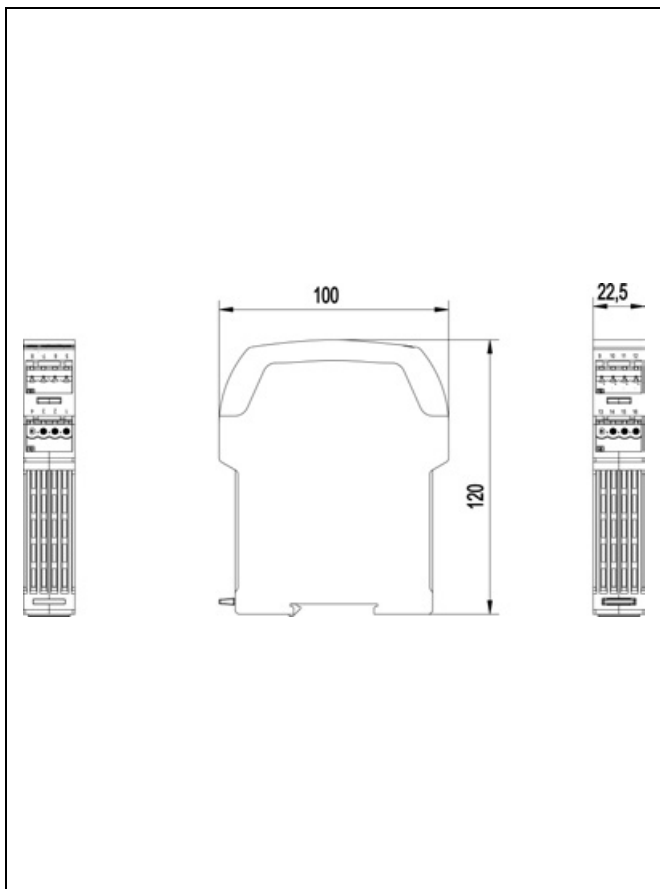


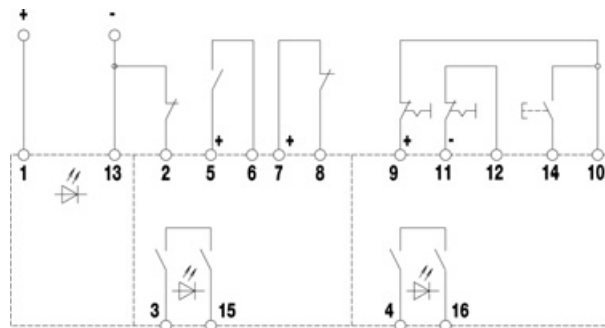


470 221 E1 U

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



470 221 E1 U



# 1 Technical data

## 1.1 Safety categories

EMERGENCY OFF	Stop class 0 (according to EN 418)
Safety	Category 3 (according to EN 954-1)

## 1.2 Terminal assignment

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

### 1.3 Type denomination/Variants

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

Example:

470 221 E1 U

4ab cde fg hi

Placeholder	Characteristic		Meaning
4ab	Housing type and housing width	470	Housing width 22.5 mm
c	Number of devices	2	2 devices in housing
d	Specification safety input	2	Control unit for contact makers/ breakers for sensors
e	Operating voltage	1	24 V DC
f	Other	E	Category 3 according to EN 954-1
g	Other	1	Basic equipment, external contactor, LEDs, controll output
h	Other	U	No cooling-off period

## 1.4 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 output	3.6 A
Operating voltage	+24 V DC $\pm$ 10 %
Power consumption	190 mA
Switching voltage	250 V AC 30 V DC
Switching current	3 A
Switching power	750 VA or 90 W
Operating temperature	0 ... +55 °C
Transport and storage temperature	-25 ... +85 °C
International protection	IP 30
Housing	PA black

### 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	Color	Meaning	Status
Operating voltage	Green	Operating voltage is applied	On
Sensor	Green	Sensor safety output switched through	On
EMERGENCY OFF	Green	EMERGENCY OFF safety output switched through	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)
- 2004/108/EC (electromagnetic compatibility guideline)
- 98/37/EC (machinery guideline)

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

Norm	Content
EN 954-1 / category 3	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

### 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

### 3.1 General

The control unit evaluates:

- a sensor connected to a protection door
- an EMERGENCY OFF switch with cross short detection

### 3.2 EMERGENCY OFF

The control unit connects the EMERGENCY OFF safety output if:

- the EMERGENCY OFF button is unlocked.
- the start button was pressed after unlocking the EMERGENCY OFF button.

The central unit switches off the EMERGENCY OFF safety output if:

- an EMERGENCY OFF button was pressed.
- a cross short was detected.

### 3.3 Sensor

The control unit switches through the safety output if:

- the contactor contact is closed.
- the contact maker was closed.
- the contact breaker was opened.

Type	Sequential order contact breaker/maker important
470 221 E1 U	No

The control unit switches off the safety output if:

- the contact breaker was closed  
or
- the contact maker was opened.

The safety output remains switched through when the contactor output is opened.

## 4 Installation



**Danger**

▶ **Danger of electrocution!**

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

- 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 magnet transmitter at rest position does not actuate the reed contact of the sensor.

If no external contactor is used:

- Bridge terminals **2** and **13**.

If an inductive or capacitive load is connected to the safety outputs:

- Connect a protective circuit to the safety outputs.

## 5 Putting into operation



**Danger**

▶ **Danger of electrocution!**

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

- Ensure the following:
  - The contact breaker is open.
  - The contact maker is closed.
  - The contactor contact is closed.
  - The EMERGENCY OFF button is not pressed.
- Apply operating voltage.

The operating voltage LED is on.

The control unit switches through the safety output.

- Press the start button.

---

The control unit switches through the EMERGENCY OFF safety output.  
The control unit is ready for operation.

## **6 Troubleshooting**

### **6.1 Restoring device to a state of readiness for operation**

#### **Contact maker of a sensor open**

If the safety output is switched off because a sensor contact maker is open:

- Close the contact breaker of the sensor.  
The sensor is de-energized.
- Open the contact breaker of the sensor.
- Close the contact maker of the sensor.

#### **Contact breaker of a sensor closed**

If the safety output is switched off because a sensor contact breaker is closed:

- Open the contact maker of the sensor.  
The sensor is de-energized.
- Close the contact maker of the sensor.
- Open the contact breaker of the sensor.

#### **EMERGENCY OFF button pressed**

If an EMERGENCY OFF button was pressed:

- Unlock EMERGENCY OFF button.
- Press the start button with the EMERGENCY OFF button unlocked.

The control unit switches through the safety outputs.  
The control unit is ready for operation.

---

## 6.2 Safety output remains switched off

- Check connections at input and output terminals:
  - Operating voltage
  - Sensors connected
  - Contactor connected
  - EMERGENCY OFF button
- 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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