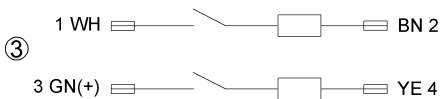
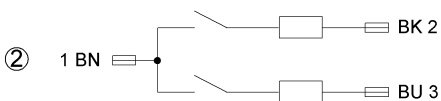
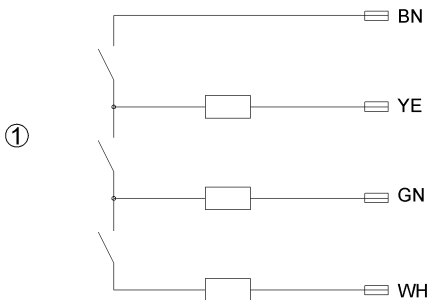
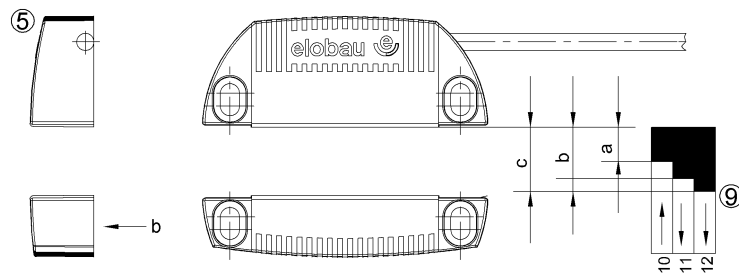
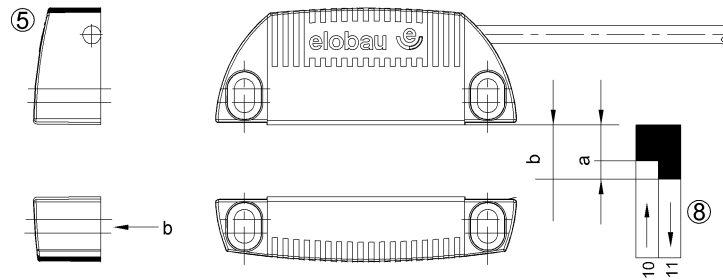
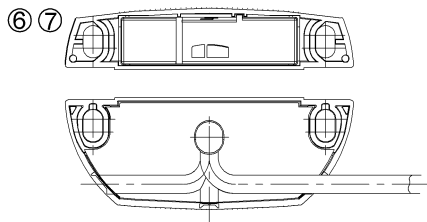


- (D) Betriebsanleitung**
Maschinensicherheitssensoren Serie 166
- (GB) Operating instructions**
Machine safety sensors series 166
- (F) Notice d'utilisation**
Capteurs de sécurité pour machines série 166
- (I) Istruzioni d'impiego**
Sensori di sicurezza per macchine serie 166





1 Technical data

1.1 General

The foldout shows the various contact configurations and the mechanical data for the various model options.

Contact configurations

1. Base model 166 260
2. Base model 166 262
3. Base model 166 V62
4. Base model 166 270

Mechanical Data

5. Mechanical details of the various base models

Connection to the various models

6. PVC 4 x 0.14 mm² cable with variable outlet
7. PVC 3 x 0.14 mm² cable with variable outlet

Switching formats

8. Switching formats for base models 166 260, 166 262, 166 V62
9. Switching formats for base model 166 270

Switching functions

10. On
11. Off
12. Off (can be switched on again)

The different features of the various base models are described in these instructions. Individual data sheets are available, on request, from elobau.

1.2 Electrical specifications

Operating voltage	24 V DC
Switching current	max. 100 mA
Series resistor	22 Ohm
Switching power	3 W
Shock resistance	10 ... 2000/35 Hz/g
International protection	IP 67 (IEC 529)

1.3 Mechanical data

Housing material	Fibreglass reinforced PBT (Pocan)
Temperature range	-25 ... 75 °C

1.4 Actuation magnets

Actuation magnet used	304 266 13
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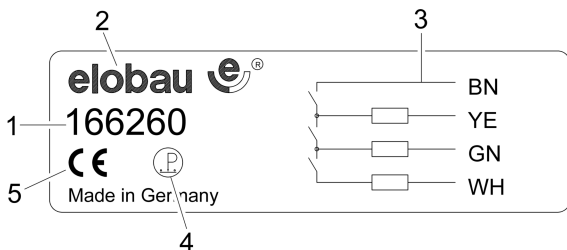
Air gap (switching distance) for safe switching function (base models only):

	MIN.	ON	OFF	OFF*
166 270	0.5	8	13	16
166 260	0.5	8	14	
166 262 166 V62	0.5	8	14	

* Can be switched on again
MIN. Minimum air gap

1.5 Identification

The machine's safety sensors are labelled. The following labels may be present:



- 1 Type no.
- 2 elobau logo
- 3 Contact format
- 4 Personnel protection symbol
- 5 CE mark

2 Appropriate use

2.1 Area of application

- The machine safety sensors should only be used correctly and as intended. In case of an incorrect use, all guarantees and liabilities of the manufacturer will be voided.
- Ensure that all safety requirements applying for the machine in question are observed.
- Ensure that International, European and National regulations are adhered to.

2.2 Norms and guidelines

The machine safety sensors are approved according to Low Voltage Directive 73/23/EWC and Machine Directive 98/37/EC.

2.3 Safety/Dangers

- For personnel protection when used in conjunction with an approved safety assessment.
- Only operate the machine safety sensors if they are totally undamaged.
- When mounting, ensure the alignment marks on both the machine safety sensor and actuating magnet are facing each other.

3 Function

These non contacting machine safety sensors utilise reed contacts. A control unit monitors the sensor for all open and short circuits. A coded magnet is used to operate the machine safety sensor without making physical contact.

- Observe regulations for personnel safety.

When the standard actuating magnet is moved towards and away from the sensor (see Actuation magnets), the following takes place:

Distance	Control unit
$\leq a$ and ≥ 0.5 mm	On
$\geq b$	Off
$\geq c$	Off (can be switched on again)

Models

The machine safety sensors differ mainly in their contact formats (see contact configurations on the inside of the foldout):

Model	Contact configuration
166 260	Three Normally Open contacts
166 262	Two Normally Open contacts
166 V62	Two Normally Open contacts, 4 wire
166 270	Normally Open/Normally Closed contacts

The machine safety sensors are divided into catalogue and customer specific models. The catalogue versions are based upon the above base models.

These machine safety sensors are suitable for use with the following elobau control units:

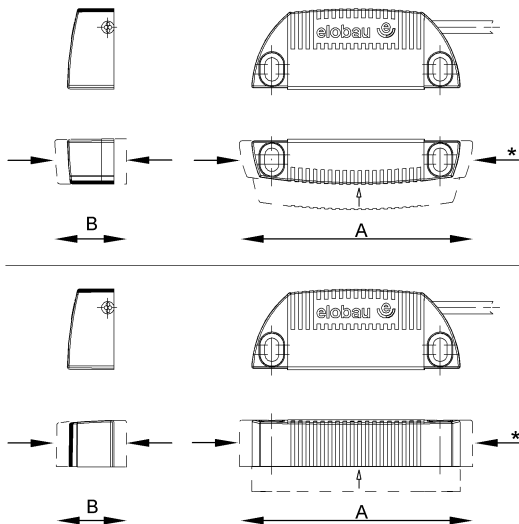
166 260	463 13. 462 151 G
166 262 166 V62	462 141 E1 462 141 H1 462 151 H1 462 M41 H3 462 M51.H1
166 270	462 12 G1 462 121 E 462 121 H 463 12.

4 Installation

4.1 Installation

- Ensure that the alignment marks on both the machine safety sensor and the actuation magnet are facing each other.
Any mounting arrangement is acceptable.
- Do not install sensor and magnet on ferrous material. Where necessary, use a 20 mm non ferrous spacer.
- Use non ferrous screws for mounting the actuation magnet.
The plastic socket head screw insert 351 040 can be used with cap screws to DIN 912/M4 to prevent easy removal.
- Ensure that the sensor and actuating magnet are not installed in strong magnetic fields.
- Keep away from ferrous swarf.
- Ensure that sensors and actuating magnet are not used as mechanical stops.
- Ensure that the mounting gap between two sensors is at least 50 mm.

- Take note of the mounting tolerances as shown:



* For model 166 270, lateral control is not possible from this direction.

	166 260, 166 262, 166 V62, 166 270
A	± 4
B	± 4

The unit is triggered:

- When magnet approaches directly
- When magnet approaches laterally

NOTE Observe the alignment marks on both the sensor and the actuation magnet.

4.2 Connection

The sensors are connected either by fixed cable or by cable with plug and socket (see Technical specifications).

- Observe the specified limits.
- Protect the cables from mechanical damage.

4.3 Putting into operation

- Ensure that the guards equipped with the machine safety sensors are only operated by trained personnel.
- Ensure that the machine safety sensors are being used in the correct manner (see Appropriate use).

5 Maintenance

5.1 Measures

- Do not modify machine safety sensors.
- Only replace failed units with original spare parts, approved for use.
- Determine suitable inspection intervals depending upon the application and the working environment.

5.2 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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elobau
Elektrobauelemente GmbH & Co. KG

Postfach 1265
88306 Isny/Allgäu
Germany

Werk:
Zeppelinstr. 44
88299 Leutkirch
Germany
Tel.: +49 7561 970-0
Fax: +49 7561 970-100
E-Mail: info@elobau.de
Web: www.elobau.de

