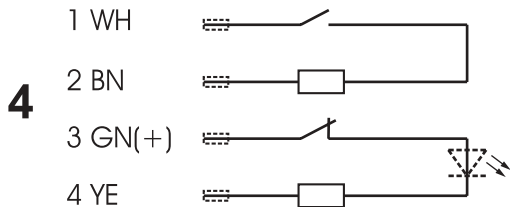
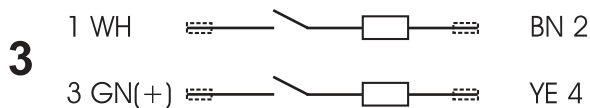
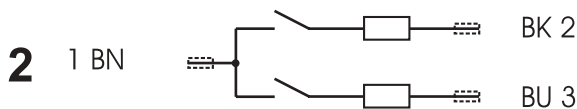
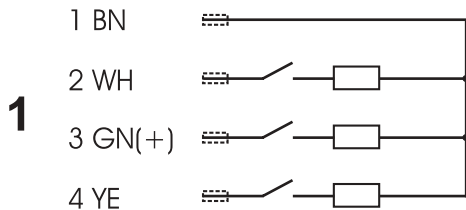
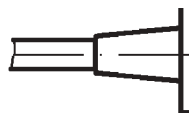
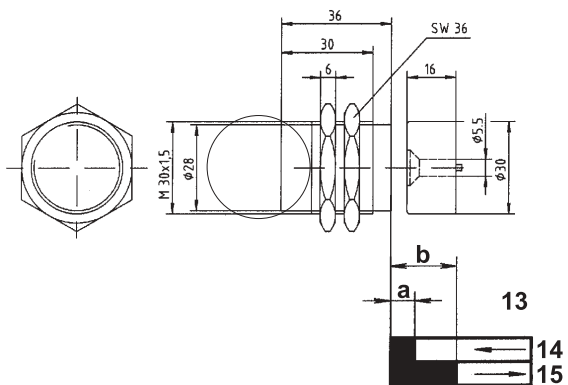




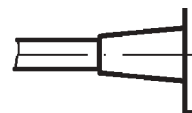
- D** **Betriebsanleitung**  
**Maschinensicherheitssensoren Serie 171**
- GB** **Operating instructions**  
**Machine safety sensors series 171**
- F** **Instructions d'opération**  
**Capteurs de sécurité pour machines série 171**
- I** **Istruzioni operazione**  
**Sensori di sicurezza per macchine serie 171**
- E** **Instrucciones de manejo**  
**Sensores de seguridad para máquinas serie 171**



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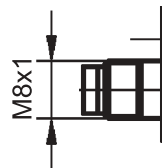
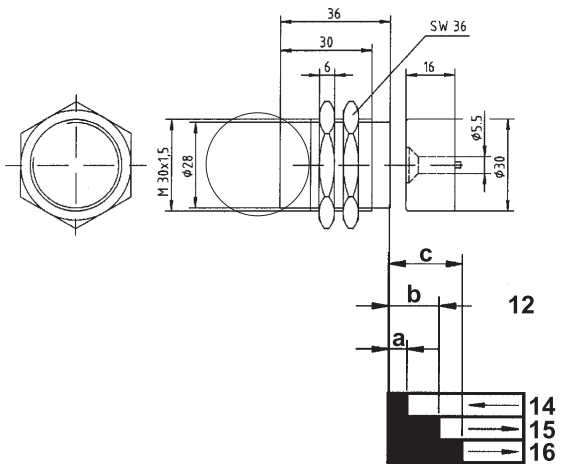


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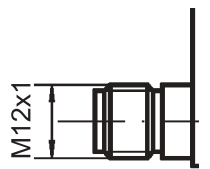
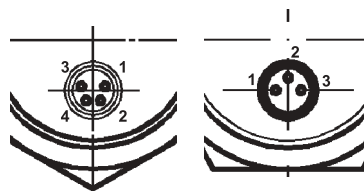


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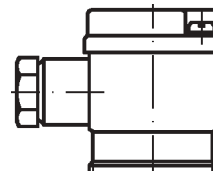
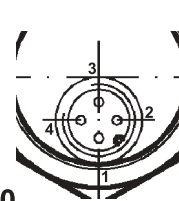
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# 1 Technical Specification

## 1.1 General

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

### Contact configurations

1. Base model 171 261
2. Base model 171 262
3. Base model 171 V62
4. Base model 171 271 (depending on model with LED)

### Mechanical data

5. Mechanical details of the various basic models

### Connection to the various models

6. Cable LIYY 3 x 0.25 mm<sup>2</sup>
7. Cable LIYY 4 x 0.25 mm<sup>2</sup>
8. Torson plug (4-pole)
9. Connector M8 x 1 (3 or 4-pole)
10. Connector M12 x 1 (4-pole)
11. Connection via terminal box

### Switching formats

12. Switching characteristics for base model 171 271
13. Switching characteristics for base models 171 261, 171 262, 171 V62

### Switching functions

14. On
15. Off
16. Off (for repeated switch-on)

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 specification

Switched voltage (V DC)	24
Switched current (mA)	100 (max.)
Series resistor (Ohms')	22
Switching capacity (W)	3
Shock resistance (Hz/g)	10 ... 2000/35
Protection class	PBT: IP 67 (IEC 529) VA: IP 68 (IEC 529)

## 1.3 Mechanical specification

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

## 1.4 Actuation magnets

Possible actuation magnets	304 200 00. 304 200 00 S. 304 200 00 V. 304 200 00 VH. (Hygiene magnet) 304 200 00 VS. (Magnet amplified) 304 200 00 SH. (Hygiene magnet)
----------------------------	--

**Air gap (mm) (switching distance) for safe switching function (base models only):**

	MIN.		ON		OFF		OFF *	
	N	S	N	S	N	S	N	S
171 271	0.5	3	4	7	11	17	16	23
171 261	0.5	3	4	7	14	20		
171 262 171 V62	0.5	3	4	7	16	20		

N Normal

S Strong

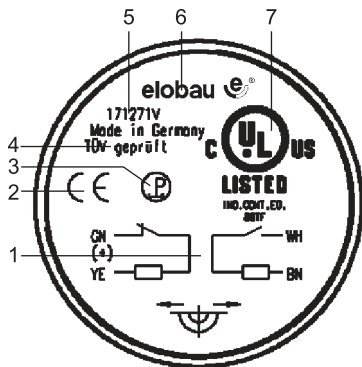
\* Both contacts changed state

MIN. Minimum air gap

*Note Only use strong type magnets where an operating gap of more than 4 mm is required.*

## 1.5 Identification

All machine safety sensors are marked with the following information.



1. Contact format
2. CE mark
3. Personal protection symbol
4. TÜV Certification mark
5. Type no.
6. elobau logo
7. UL mark (where applicable, see list)

## 2 Intended use

### 2.1 Application

- The machine safety sensors should only be used as specified by the manufacturer.  
Should they be used incorrectly, all guarantees and liabilities of the manufacturer will be void.
- Ensure that the safety requirements of individual machines are complied with.
- Ensure that International, European and National regulations are adhered to.

### 2.2 Standards and Directives

The machine safety sensors are approved in according to the Low Voltage Directive 73/23/EEC and Machine Directive 89/392/EEC.

The following models have USL/CNL approval:

Environmental Type 1, Type of ESPE Type 2

- ➔ 171 262
- ➔ 171 262 AFA
- ➔ 171 V62
- ➔ 171 262 V
- ➔ 171 271
- ➔ 171 271 AA
- ➔ 171 271 AM
- ➔ 171 271 AOD
- ➔ 171 271 AOE
- ➔ 171 271 V
- ➔ 171 271 AY
- ➔ 171 271 AZ

The hygiene magnets (VH/SH) comply with the European hygiene standard CEN/TC 153/HN108E.

## 2.3 Safety/hazards

- 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 sensor and actuating magnet are facing each other.

## 3 Function

### 3.1 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 sensor without making physical contact.

- Observe regulations for personal safety.

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

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

### 3.2 Models

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

<i>Model</i>	<i>Contact configurations</i>
171 261	Three Normally Open contacts, 4 wire
171 262	Two Normally Open contacts, 3 wire
171 V62	Two Normally Open contacts, 4 wire
171 271	Normally Open/Normally Closed contacts, 4 wire

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

#### Examples

Base model: 171 271

Catalogue model: 171 271 AY

Customer specific model: 171 271 AY01

For other differences see Technical Specification.

The machine safety sensors are suitable for the following elobau control units:

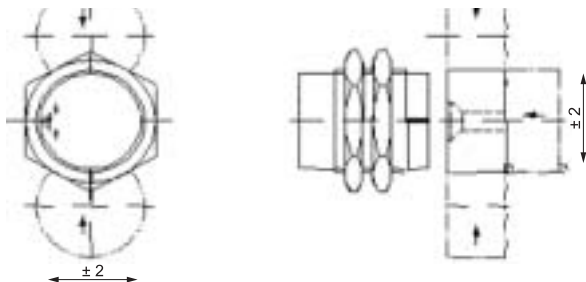
- 171 261
  - 463 13.
  - 462 151 G
- 171 262/671 V62
  - 462 141 E1
  - 462 141 H1
  - 462 M41 H3
  - 462 M41 H31
  - 462 M41 H34
  - 462 M51 H1
  - 462 M51 H11
  - 462 M51 H21
- 171 271
  - 462 12 G1
  - 462 121 E
  - 462 121 H
  - 463 12.

## 4 Mounting

### 4.1 Mounting

- ⊕ Ensure that the alignment marks on both the 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 hexagon socket guard 351040 for countersunk screws DIN 7991/M5 prevents easy removal.
- ⊕ Ensure that the sensor and actuating magnet are not installed in the presence of strong magnetic fields.
- ⊕ Keep away from ferrous swarf.
- ⊕ Ensure that sensors and actuating magnet are not used as mechanical stops.
- ⊕ Ensure that the mounting distance between two sensors is at least 50 mm.

- ☞ Take note of the mounting tolerances of  $\pm 2$  mm as shown below:



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 with plug & socket (see Technical Specification).

- ☞ Observe specified limits.
- ☞ Protect chords from mechanical damage.

*Note* Where several sensors with LEDs are used, the brightness of the LEDs decreases with the number of open guard doors.

### 4.3 Commissioning

- 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 Intended use).

## 5 Maintenance

### 5.1 Measures

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

### 5.2 Disposal

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



Datum: 18.06.2003

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