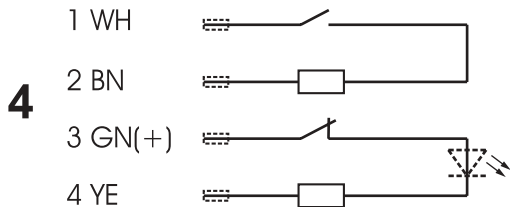
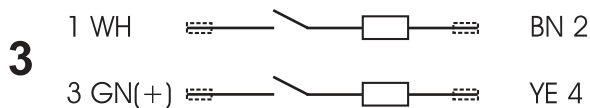
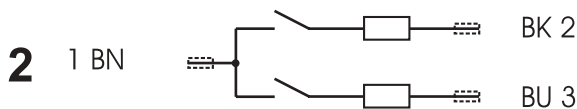
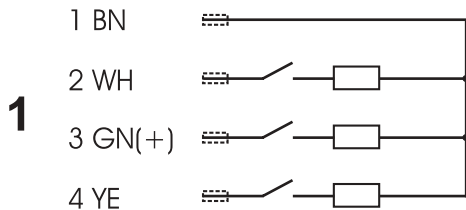
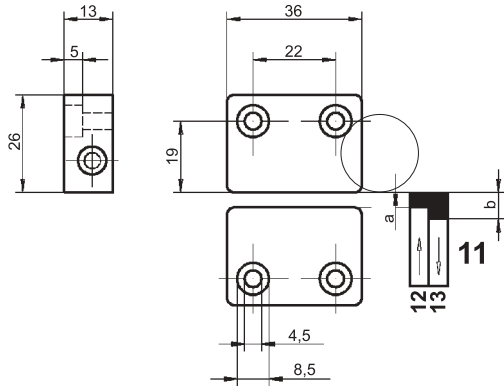




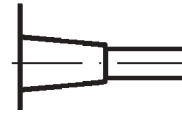
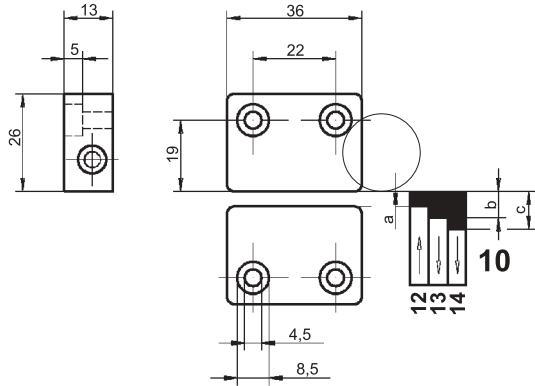
- (D) Betriebsanleitung**
Maschinensicherheitssensoren Serie 153
- (GB) Operating instructions**
Machine safety sensors series 153
- (F) Instructions d'opération**
Capteurs de sécurité pour machines série 153
- (I) Istruzioni d'impiego**
Sensori di sicurezza per macchine serie 153



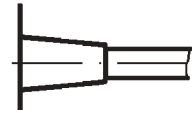
5



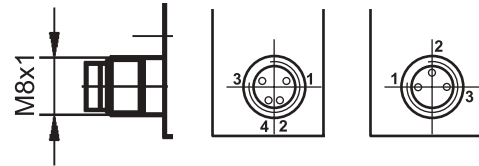
5



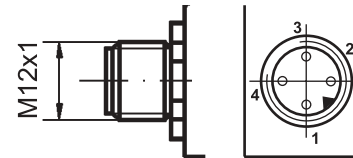
6



7



8



9

1 Technical Specifications

1.1 General

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

Contact configurations

1. Base model 153 260
2. Base model 153 262
3. Base model 153 V62
4. Base model 153 270 (depending on model with LED)

Mechanical Data

5. Mechanical details of the various base models

Connection to the various models

6. Cable LIYY 3 x 0.25 mm²
7. Cable LIYY 4 x 0.25 mm²
8. Connector M8 x 1 (3 or 4-pole)
9. Connector M12 x 1 (4-pin)

Switching formats

10. Switching characteristics for base model 153 270
11. Switching characteristics for base models 153 260, 153 262, 153 V62

Switching functions

12. On
13. Off (one contact changed state)
14. Off (both contacts changed state, allowing restart)

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

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	IP 67 (IEC 529)

1.3 Mechanical specifications

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

1.4 Actuation magnets

Possible actuation magnets	304 281 12 A. 304 281 12 B. 304 281 12 A. 304 281 02 B.
----------------------------	--

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

	MIN.		ON		OFF		OFF *	
	N	S	N	S	N	S	N	S
153 270	0,5		3	9	7	17	10	21
153 260	0,5		3		9			
153 262 153 V62	0,5		3		10			

N Normal

S Strong

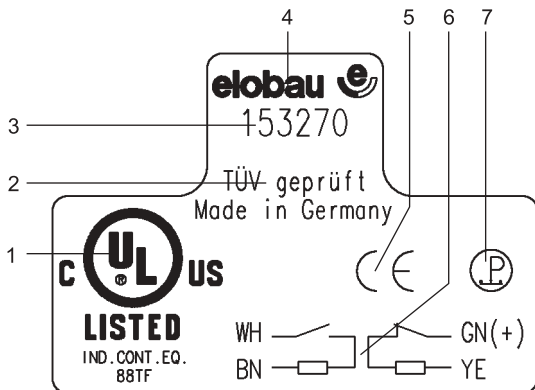
* Both contacts changed state

MIN. Minimum air gap

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

1.5 Identification

The machine safety sensors are marked with the following information.



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

2 Intended 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 the safety regulations of the 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 according to Low Voltage Directive 73/23/EWC and Machine Directive 89/392/EEC.

The following models have USL/CNL approval:

Environmental Type 1, Type of ESPE Type 2

- ➔ 153 260
- ➔ 153 262
- ➔ 153 262 AFA
- ➔ 153 V62
- ➔ 153 270
- ➔ 153 270 AA
- ➔ 153 270 AOD
- ➔ 153 270 AOE

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 personnel 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 ≥ 0.5 mm	On
$\geq b$	Off (cannot be switched on from this position)
$\geq c$	Off (can be switched on again)

3.2 Models

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

<i>Model</i>	<i>Contact configuration</i>
153 260	Triple make-contact system
153 262	Two Normally Open contacts, 3 wire
153 V62	Two Normally Open contacts, 4 wire
153 270	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: 153 270

Catalogue model: 153 270 AA

Customer-specific model: 153 270 AA01

Other differences see Technical Specifications.

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

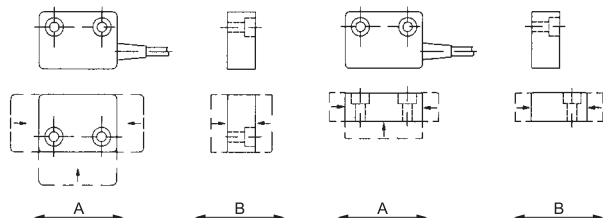
- 153 260
 - 463 13.
 - 462 151 G
- 153 262/153 V62
 - 462 141 E1
 - 462 141 H1
 - 462,151 H1
 - 462 M41 H3
 - 462 M51.H1
- 153 270
 - 462 12 G1
 - 462 121 E
 - 462 121 H
 - 463 12.

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 washers 350 004 for magnet 304 281 12 if necessary.
- ⊕ Use non ferrous screws for mounting the actuation magnet.
The plastic socket head screw insert 351040 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 of ± 3 mm as shown.



	153 260 153 262 153 V62	153 270
A	± 1	-0,5/+1
B	± 2	$\pm 0,5$

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 & socket (see Technical Specifications).

- ☞ Observe the specified limits.
- ☞ Protect the cables 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 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.

Datum: 05.09.2003

elobau 

elobau
Elektrobauelemente GmbH & Co. KG

Postfach 1265
88306 Isny/Allgäu
Germany

Werk:
Zeppelinstr. 44
88299 Leutkirch
Germany
Tel.: +49 75 61/970 - 0
Fax: +49 75 61/970 - 100
E-Mail: info@elobau.de
Web: www.elobau.de

CE 0123