

WSU 26/2 – WEU 26/2 Photoelectric Safety Switch

- ▶ EASY INSTALLATION ◀
- ▶ UNIVERSAL USABILITY ◀
- ▶ SOLID CONSTRUCTION ◀



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Standards and Regulations

To be observed in use and installation



Warning

Failure to observe may result in dangerous operation



Usage

Information regarding how to use the product correctly and efficiently

Approvals

EU Europe

EC prototype test conducted by

BG - Berufsgenossenschaft (Trade association)
 Fachausschuß Eisen und Metall III (Technical committee for iron and metal III)
 Graf-Recke-Str. 69
 D-40239 Düsseldorf

Approval number: 97074



This technical description must be observed when installing and commissioning the WSU 26/2 - WEU 26/2. Inspection and commissioning must be carried out by specialists, if this is specified in the directives or guidelines.

Generally recognized technical regulations and quality assurance system ISO 9000 are carefully applied during the development and production of SICK products.

1 General Introduction

The WSU 26/2 / WEU 26/2 photoelectric safety switch is a single-beam non-contact protective system. It consists of a WSU light sender and a WEU light receiver. The light beam between the emitting and receiving units provides access protection for hazardous areas.

The safety switch is designed for industrial applications. Its features include

- ▶ universal usability
- ▶ easy installation
- ▶ solid construction
- ▶ heated front screen, i.e. it can be deployed even in unfavorable ambient conditions.

The WSU/WEU complies with safety requirements according to pr EN 50:100, safety category type 4.

The following key data are applicable in practical use:

Scanning range	0.5 ... 18 m
	15 ... 70 m
Beam diameter	23 mm

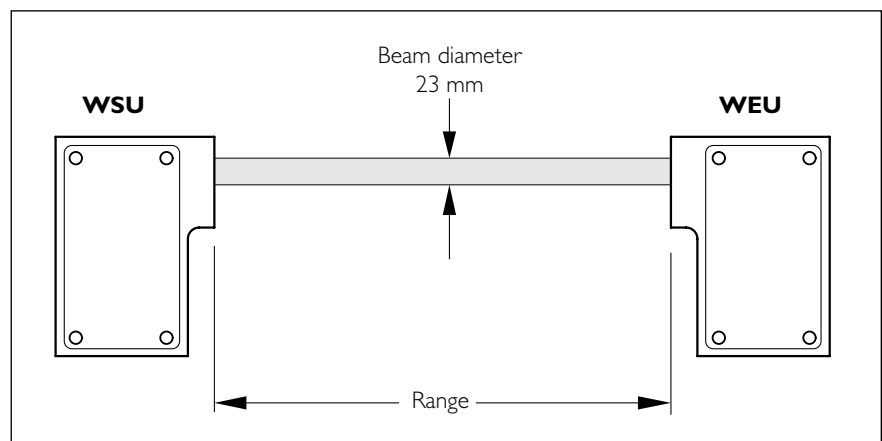


Fig. 1: System construction of the WSU 26/2 / WEU 26/2 photoelectric safety switch

2 Device/System Construction


The WSU/WEU comprises:

- ▶ WSU 26/2 sender unit and
- ▶ WEU 26/2 receiver unit

Each complete break in the light beam between the light sender and light receiver triggers a signal which can be used to immediately stop the dangerous movement of the power-driven machinery (abbreviated as "PDM").

The WSU 26/2 / WEU 26/2 serves as a protective cut-off device to protect hazardous areas on power-driven machinery. The machinery may be:

- ▶ plastics machinery
- ▶ stackers
- ▶ settling machinery in the stoneworking industry
- ▶ machining centers



The WSU/WEU 26/2 must not be used as a hand or finger guard.

3 Description of Function

The WSU and WEU are mounted separately in die-cast housings. Each has its own power supply (Fig. 2). The WSU contains a clock generator and the sender diode. The diode emits infrared pulses at the clock rate set by the generator, which are evaluated by the receiver unit WEU if the light path is uninterrupted. The WEU contains the output relays A and B, which pick up if the light path is uninterrupted. If the light path or the connection between terminals 10 and 11 on the WSU is interrupted (testing), both relays are released.

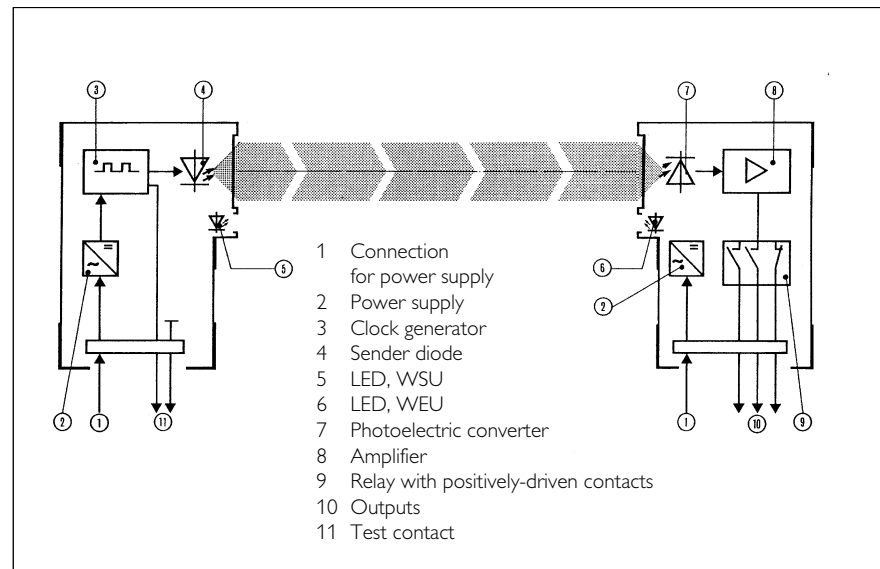


Fig. 2: Principle of function of the WSU/WEU 26/2, AC version

4 Possible Areas of Application and Application Conditions

4.1 Possible Areas of Application

The WSU/WEU provides access protection for hazardous areas (Fig. 3).

4.2 Application Conditions

Safe cut-off can only be effected when the light beam diameter of 23 mm is fully covered.

The protective function of the WSU/WEU is ensured when the conditions set out in the adjacent box are met.



The power-driven machinery ("PDM") must be controllable by electrical means.

The dangerous movement of the machine must be able to be stopped at any time.

The WSU/WEU must be positioned so that entry into the hazardous area is only possible by breaking the light beam.

The *command unit* must be positioned so that it cannot be activated from the hazardous area.

5 Mechanical Arrangement and Mounting

5.1 Safety distance

The WSU/WEU must be attached such that, if the light beam is broken during hazardous movement of the machinery, the point-of-operation can only be reached when this hazardous movement has ceased. For this purpose, a safety distance *S* must be maintained between the nearest boundary of the point-of-operation and the light beam (Fig. 4). The safety distance depends on the machine stopping time and on the approach speed of the personnel.

The machine stopping time must be determined by repeating measurements under practical conditions. 1.6 m/s is the recommended approach speed. The safety distance is calculated as follows:

$$S = v (t_1 + t_2) + C$$

- S Safety distance (mm)
- v Approach speed
1.6 m/s
- t₁ Machine stopping time (ms)
- t₂ Response time of WEU (22 ms)
- C Dependent on number of beams (1, 2, or 3), see Table 1

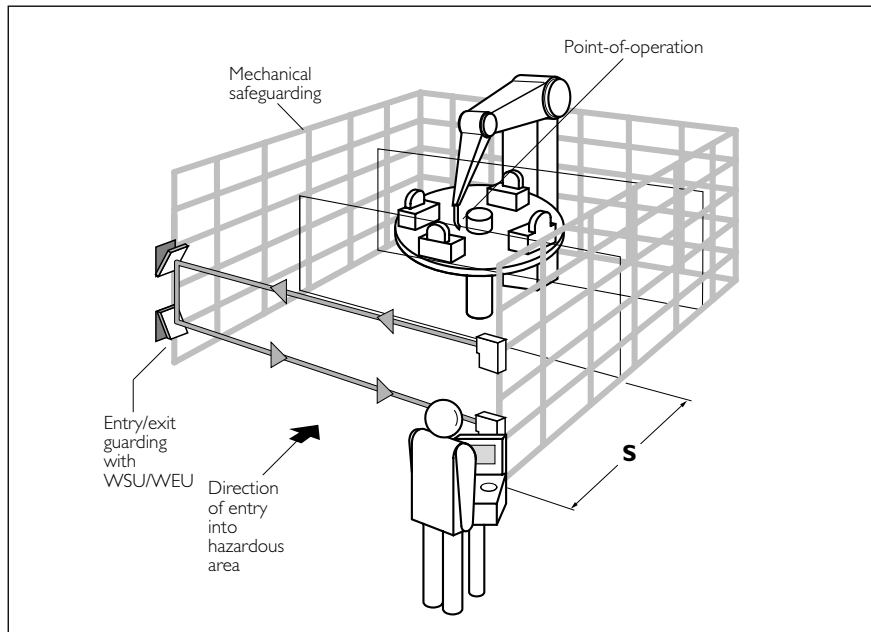



Fig. 4: Safety distance to light beam


Table 1 shows which C value must be used for which application.

Number of beams	1	2	3
Height of beam(s) above floor (mm)	750	400 900	300 700 1100
C	1200	850	850

Table 1: Height of beams above floor



pr EN 999
Safety of machinery
Approach speed of body parts
for arrangement of protective
systems



The WSU/WEU must be attached such that, if the light beam is broken during hazardous movement of the machinery, the point-of-operation can only be reached when the power-driven machinery is no longer in a hazardous state.

For this purpose, a safety distance must be maintained between the light beam and the nearest boundary of the point-of-operation. This safety distance is determined according to pr EN 999.

People within the hazardous area but outside the light beam are not detected. It must, however, be ensured that any hazardous state can only be initiated when there is no one in the hazardous area.

Use and mounting of the protective systems is subject to the relevant official rules and regulations. These provisions differ depending on the area of application.

5.2 Mechanical Mounting

The WSU and WEU units can be mounted on one of the sides of their housing or using the mounting bracket, depending on site circumstances. The mounting bracket greatly assists alignment. The devices can be mounted in any operating position. However, the WSU and WEU should be mounted such that the axis of the light beam emitted by the WSU always matches the axis of the WEU optic (alignment sight).



The mounting brackets should be affixed so that all fixing screws are easily accessible for alignment purposes. Figure 5 shows examples. The devices should be attached such that the opposing device can be aligned in the alignment sight.

If, for reasons of space, the devices need to be arranged as shown in Figures 5 a and b, hexagon screws must be used.



When using the 15 + PE plug, mounting modes a and b are not possible.

Order number
Mounting bracket
2 007 900

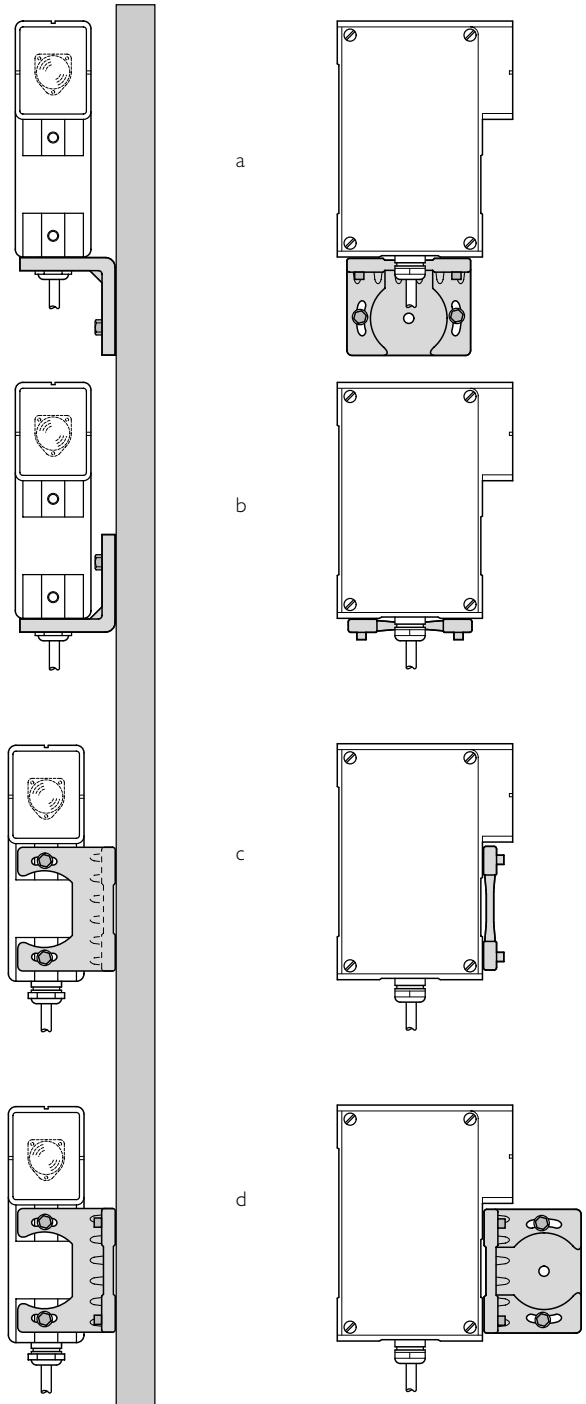



Fig. 5: Mounting options using a mounting bracket

5.3 Multiple Safeguarding

When using two WSU/WEU units in a protective system, the possibility of mutual interference must be excluded. Since the light beam of the WSU diverges, the cross-section of the beam increases as the distance between the WSU and WEU grows. The following conditions must therefore be met when arranging the WSU/WEU:

5.3.1 Mutual Interference

The light beam of the WSU must only be received by the corresponding WEU. To prevent mutual interference between several WSU/WEU installations arranged adjacent to or above each other, the specified beam diameters must be taken into account when mounting the devices (Fig. 6).



There are two versions of the WSU, for operating ranges 0.5 ... 18 m and 15 ... 70 m. The WSU must not be used for operating ranges below 15 m. The operating range is given on the rating plate.

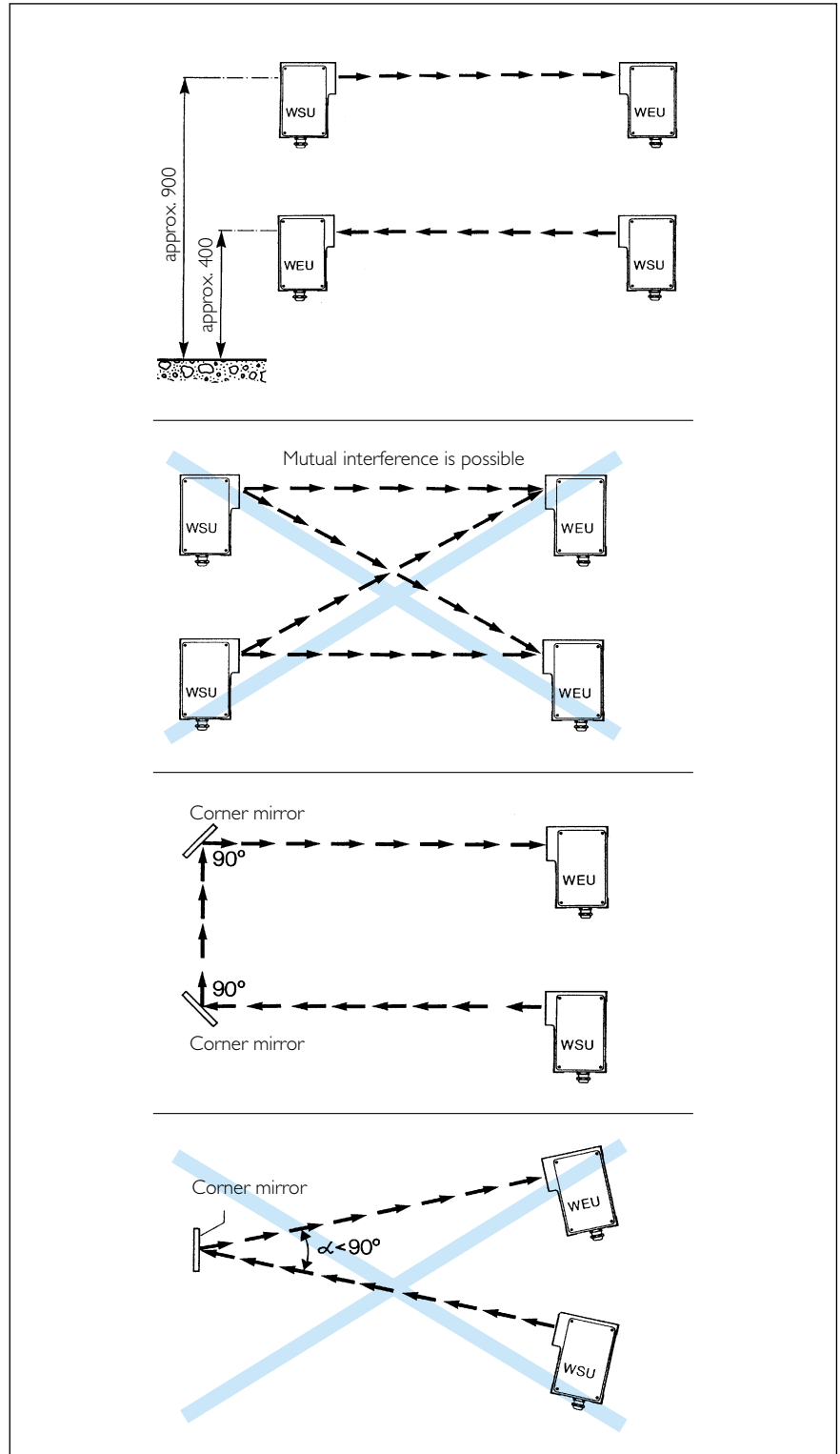


Fig. 6: Safeguarding a hazardous area with WSU/WEU

SICK WSU 26/2 – WEU 26/2

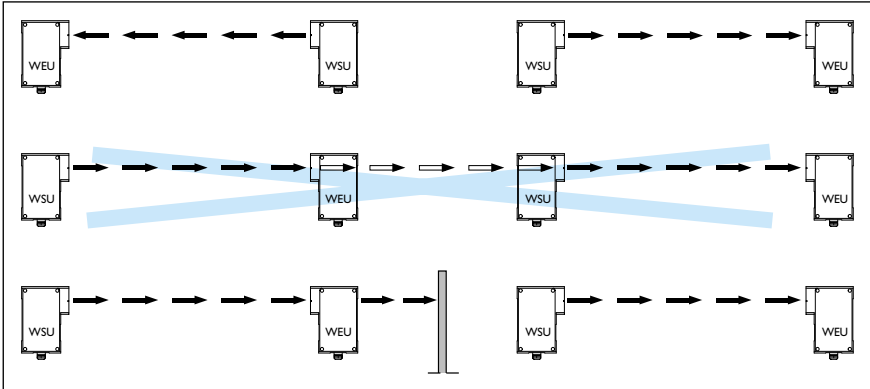


Fig. 7: Mounting of two WSU/WEU units in series

5.4 Corner mirrors

In conjunction with corner mirrors, the WSU/WEU provides multi-sided, two-beam access protection (Fig. 8 and 9).

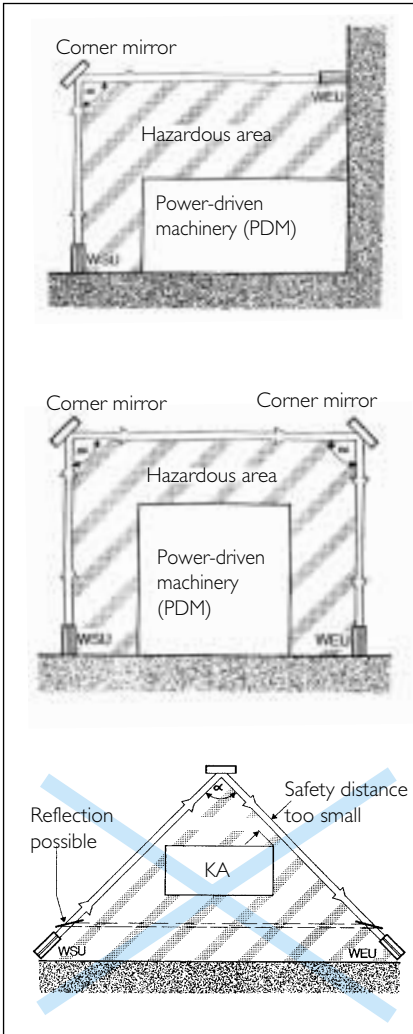


Fig. 8: Multi-sided protection of hazardous areas



The use of corner mirrors reduces the scanning range of the WSU/WEU system as cited in the table.

Number of mirrors	Reduced scanning range 0.5 ... 18 m WSU	Reduced scanning range 15 ... 70 m WEU
1	17 m	67 m
2	15.5 m	61 m
3	13 m	51 m
4	11 m	42 m

Tab. 2: Reduction in scanning range when using corner mirrors

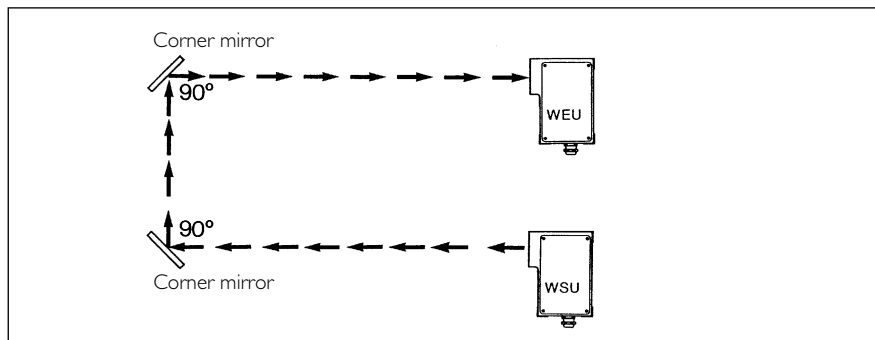


Fig. 9: Two-beam protection with a WSU/WEU 26 system



The use of more than 2 mirrors requires a very accurate alignment.

6 Mounting

6.1 Mounting Requirements

The devices should be mounted and connected in accordance with the on-site application conditions and connections, taking account of the following:



The scanning range is based on the width of the area being protected. Bypassing or encircling must be prevented by suitable (mechanical) means.
 Where one or more WSU/WEU units are used, the height and number of light beams must comply with the applicable regulations.
 There must be no reflective surfaces in the emitting or receiving beam path.
 The minimum distance must be maintained.

6.2 Detecting Reflections

The light beam must not be unintentionally reflected back to the receiver by reflective surfaces. Reflections can be detected as follows:



Cover the light beam between the sender and receiver fully with an obstacle (100 mm x 100 mm) and slowly move the obstacle from the sender unit to the receiver unit. While this is happening the green LED on the WEU must not light up. If it lights up even just briefly during this check, reflection is occurring.
 See also 8. Commissioning.

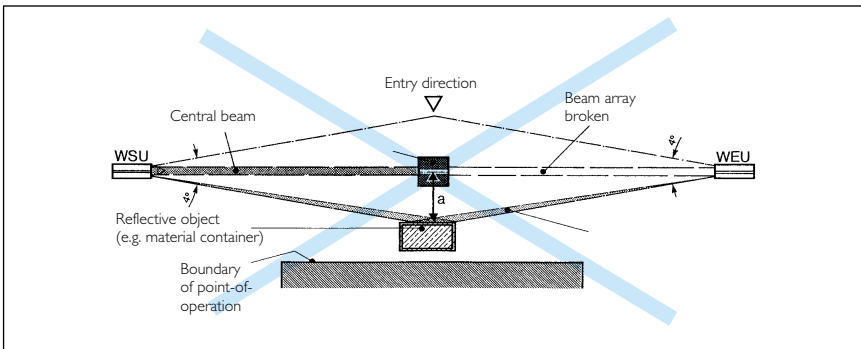


Fig. 10: Incorrect mounting: reflective object in divergent light beam. No detection of the obstacle due to reflection. No protection.

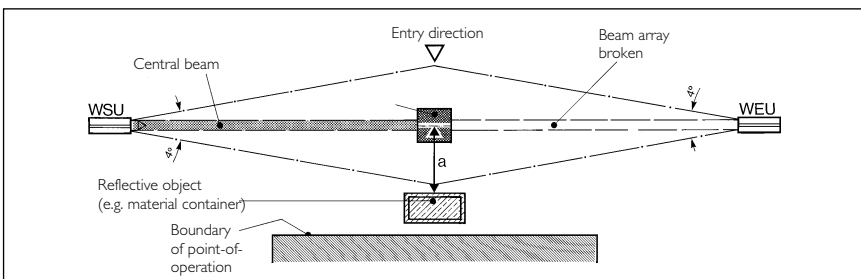


Fig. 11: Correct mounting, correctly aligned: reflective object outside divergent light beam. No reflection. The obstacle is clearly detected.

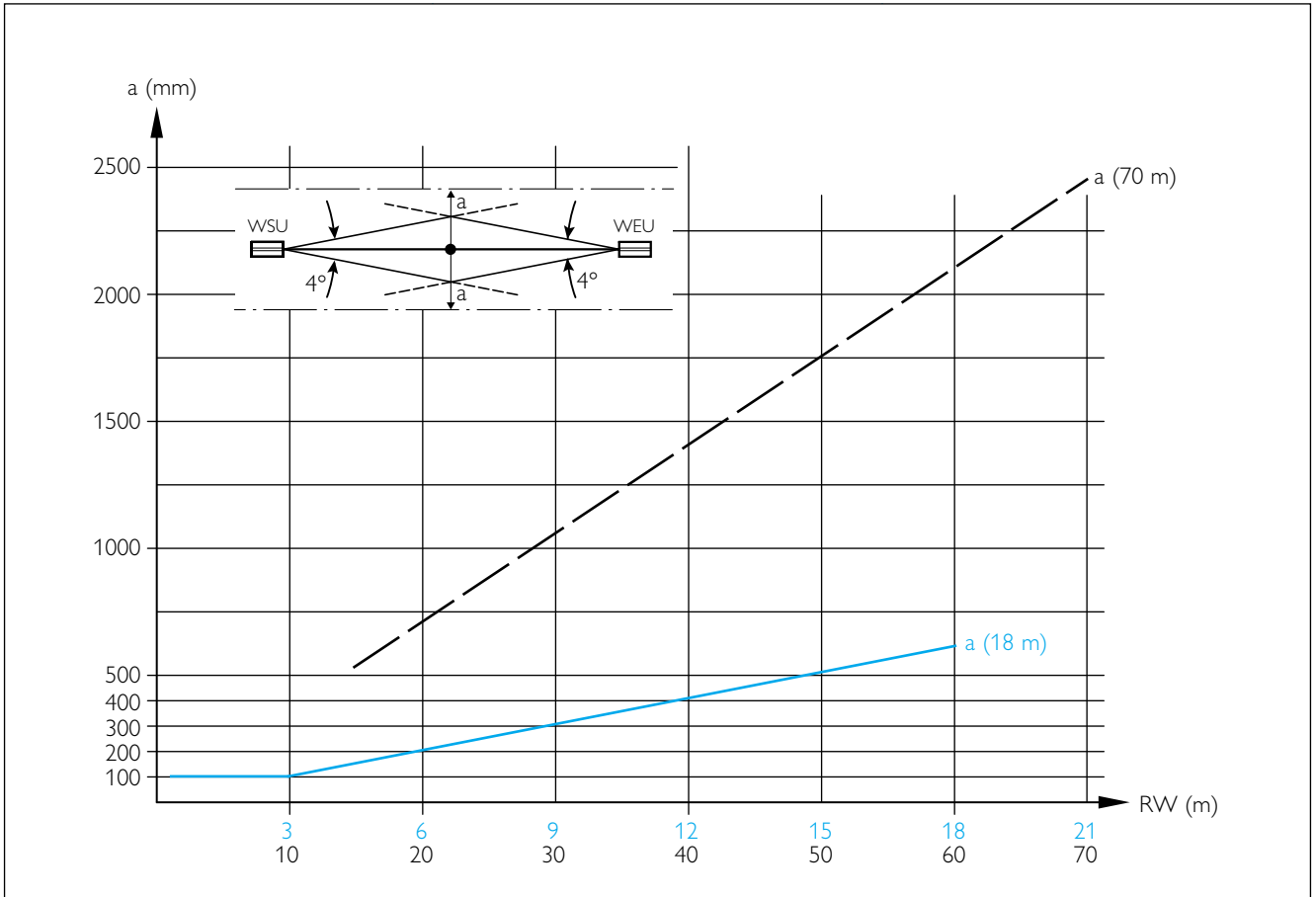


Fig. 12: Distance a as a function of scanning range SR

7 Electrical Connection

7.1 General Introduction

Depending on type, the WSU/WEU 26/2 photoelectric safety switch is available for a supply voltage of

- ▶ 24 V DC
- ▶ 115 V AC or
- ▶ 230 V AC.

The rating plate gives details.

Before connection, check that the supply voltage and mains frequency on-site are consistent with the specifications on the rating plate.

The cable is fed through the PG connector and connected inside the device, or connected to the equipment plug. The wiring diagram is depicted again on the housing cover of the respective device.

The enclosure rating for the devices can only be guaranteed when the cable is properly clamped in the PG connector and the housing seals fit perfectly. Where long leads are used, the cable cross-sections should be chosen to ensure the devices are always supplied with the required voltage (see Technical Data).

The two system components must be of the same voltage version and the same scanning ranges. Single- or fine-wire conductors up to 1.5 mm² can be connected to the screwless terminals (to VDE 0607). Stripping length: 11 mm.

At least two outputs must be connected to the downstream machine controller (Fig. 20/21). Each of the two outputs (NO contacts) must be assigned an electromagnetic switching element.



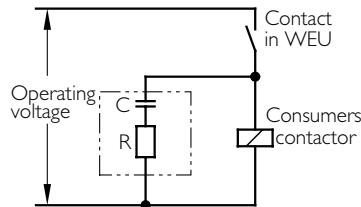
The electrical connection of the WSU/WEU must only be made or changed with the power disconnected.

Unscrew the housing cover to connect the WSU/WEU with a PG connector.



Arc-suppression elements are essential under inductive load! Arc-suppression elements must be connected in parallel with the inductance. Connection in parallel with the output contact is not permitted.

Diodes must **not** be used as arc-suppression elements.



Guide values for arc-suppression elements

Operating voltage V	Order no.	R Ω	C μF
115 ... 230	6 001 224	220	0.22
24	6 001 225	100	2.2

Plastic-encapsulated; connecting wires NYAF 0.5 dia. with cable lugs; mounting with adhesive tape or cable tie.

Tab. 3: Overview for arc-suppression elements

7.2 Wiring Diagram

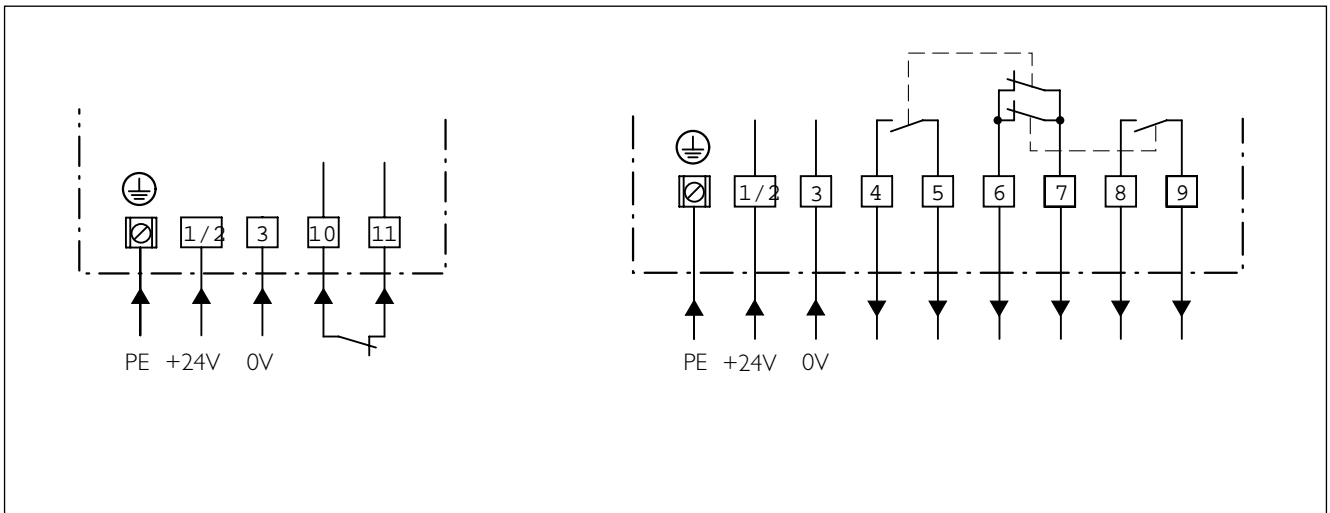


Fig. 13: Wiring diagram WSU/WEU for 24 V DC supply, with PG connector

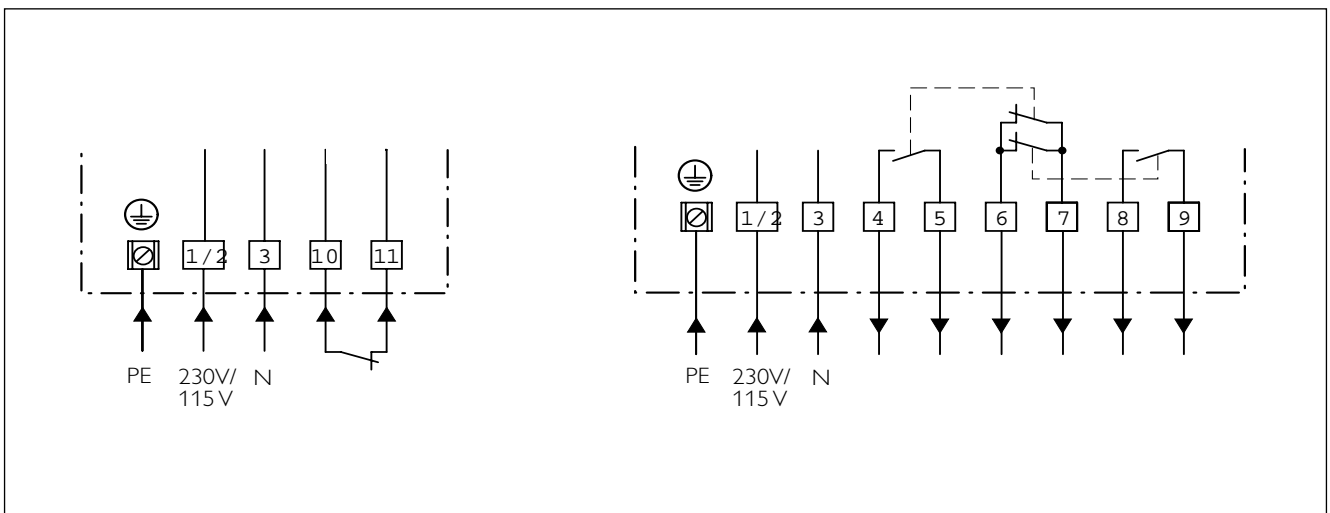


Fig. 14: Wiring diagram WSU/WEU for AC supply, with PG connector

Connecting leads max. 1.5 mm²

WSU

Test contact (10, 11)
 Floating U 24 V DC
 I 10 mA
 Opening time t ≥ 50 ms

WEU

Outputs (4 - 9)
 U_{max.} 250 V AC
 I_{max.} 2 A per output
 I_{min.} 0.02 A per output

SICK WSU 26/2 – WEU 26/2

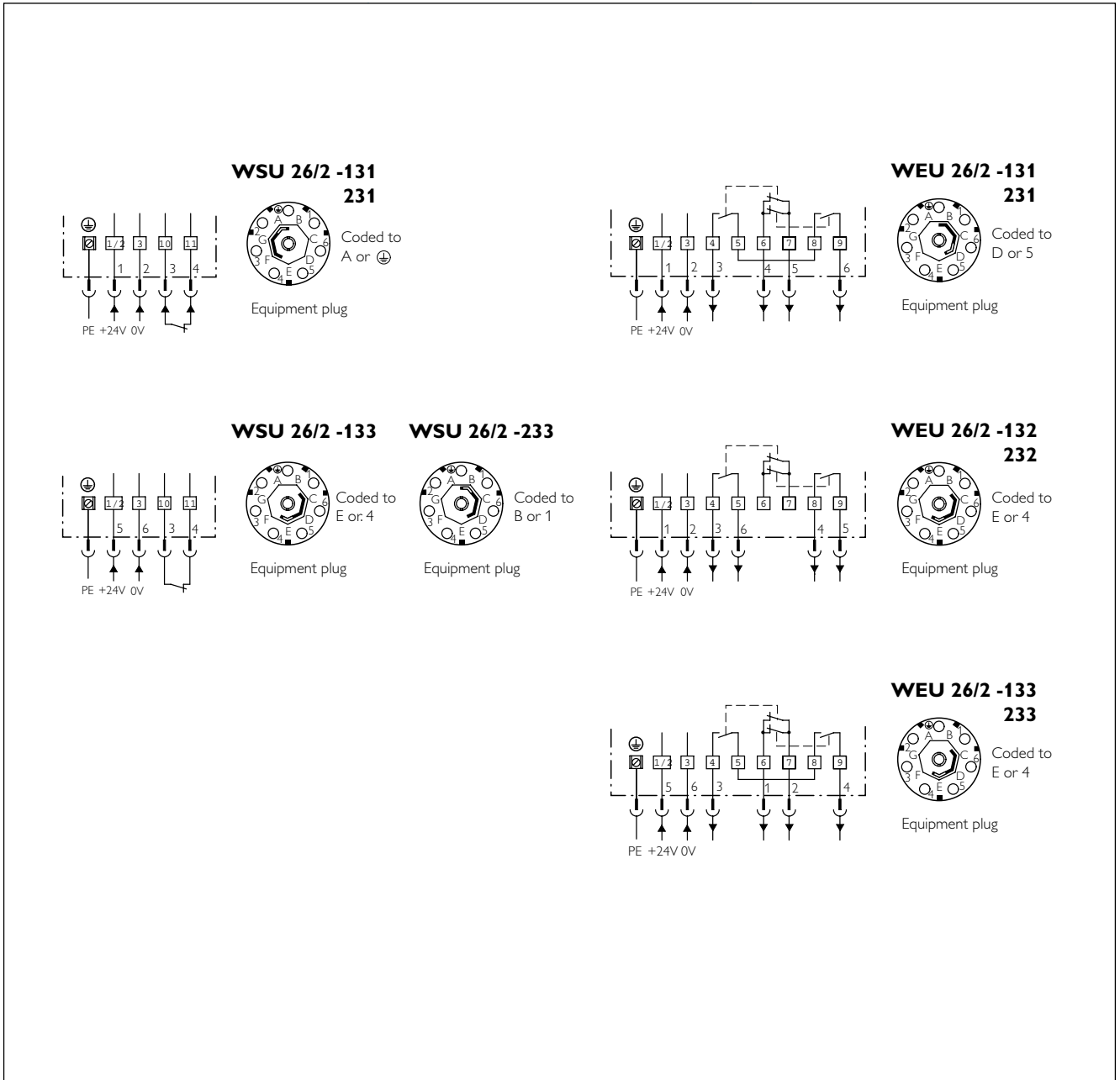


Fig. 15: Wiring diagram WSU/WEU 26/2 for 24 V DC supply, interchangeable design

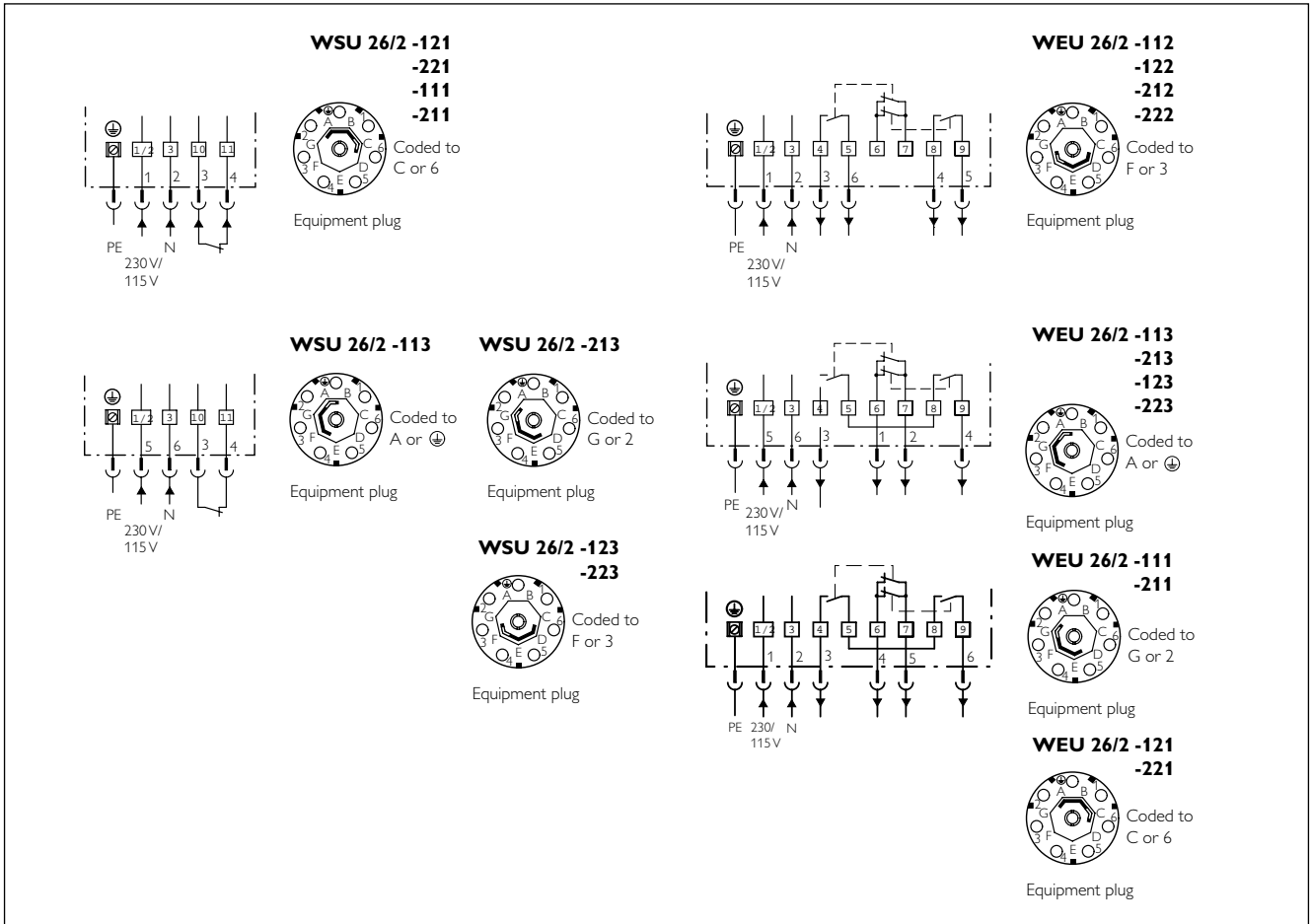


Fig. 16: Wiring diagram WSU/WEU 26/2 for AC supply, interchangeable design

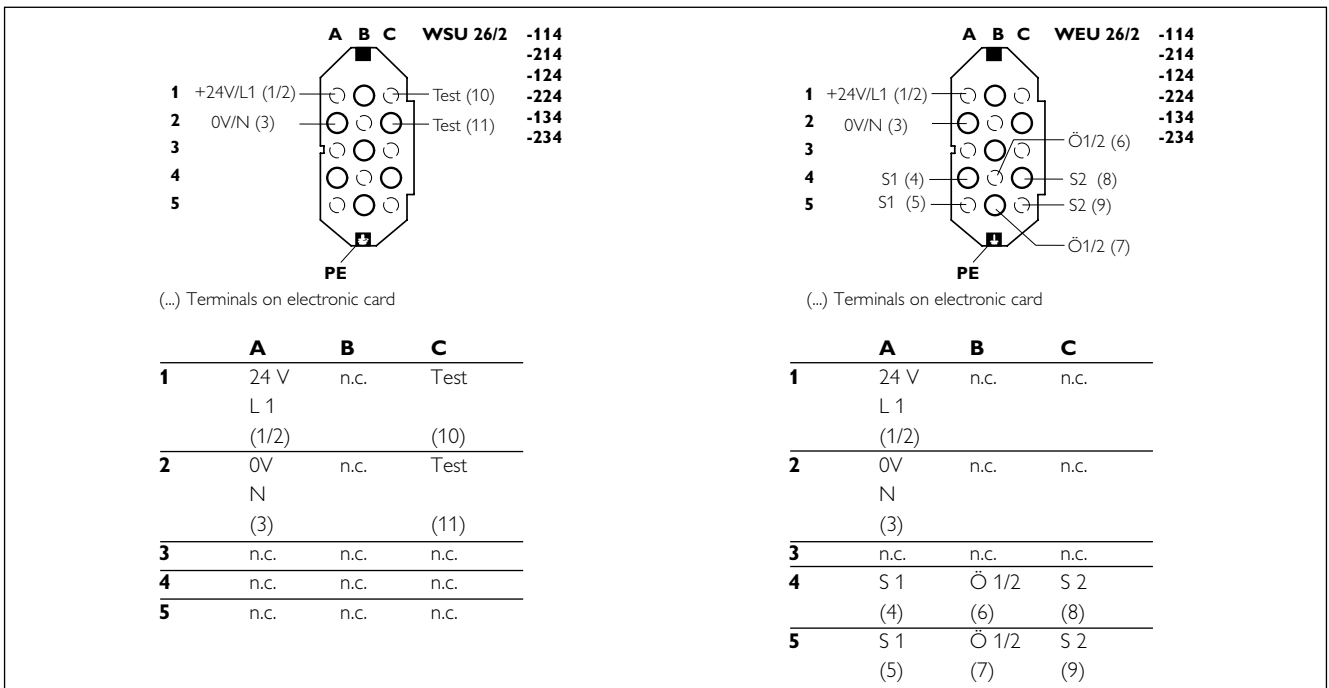


Fig. 17: Pin assignment WSU/WEU 26/2, AC/DC version with equipment plug (15 + PE)

SICK WSU 26/2 – WEU 26/2

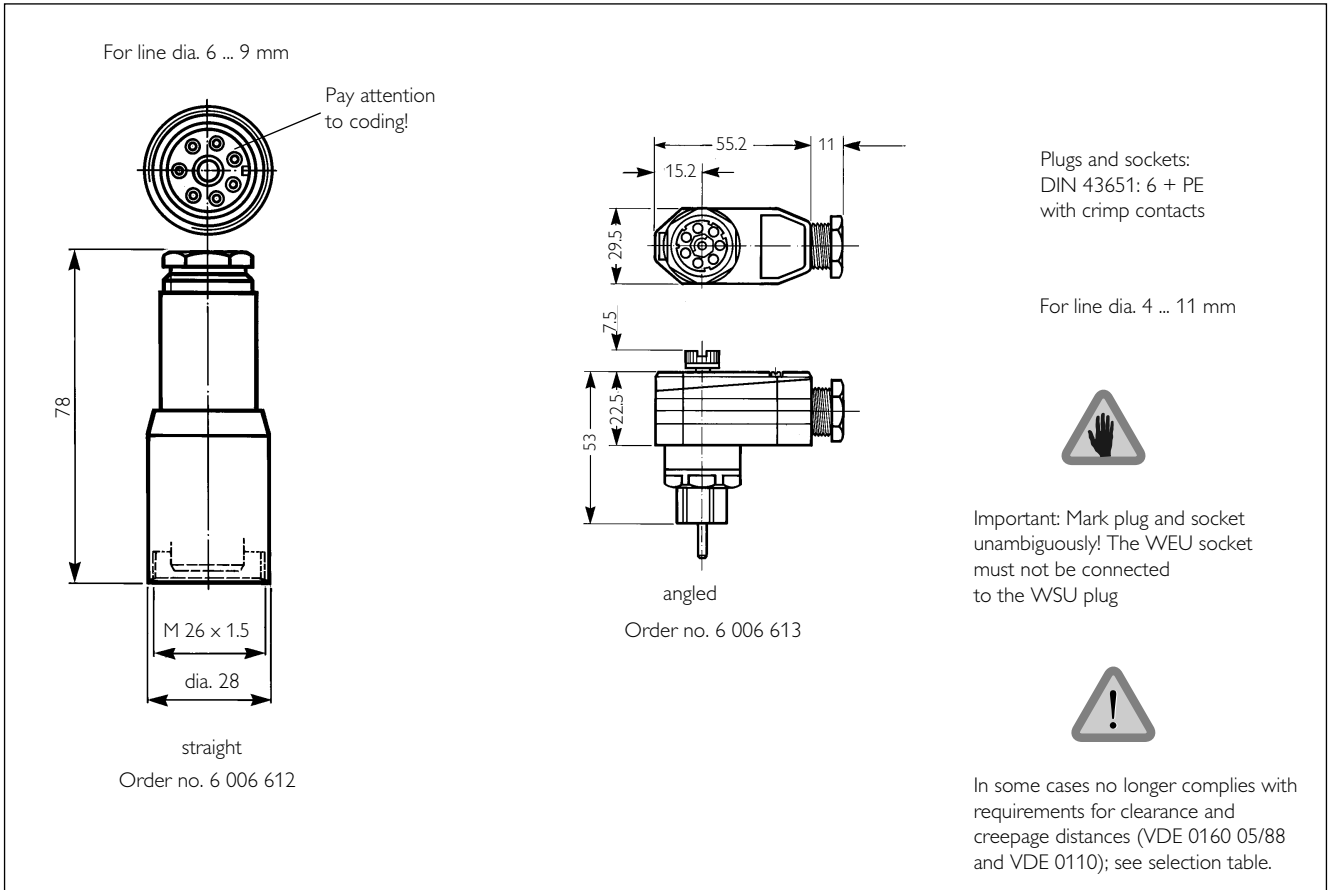


Fig. 18: Cable receptacles 6 + PE

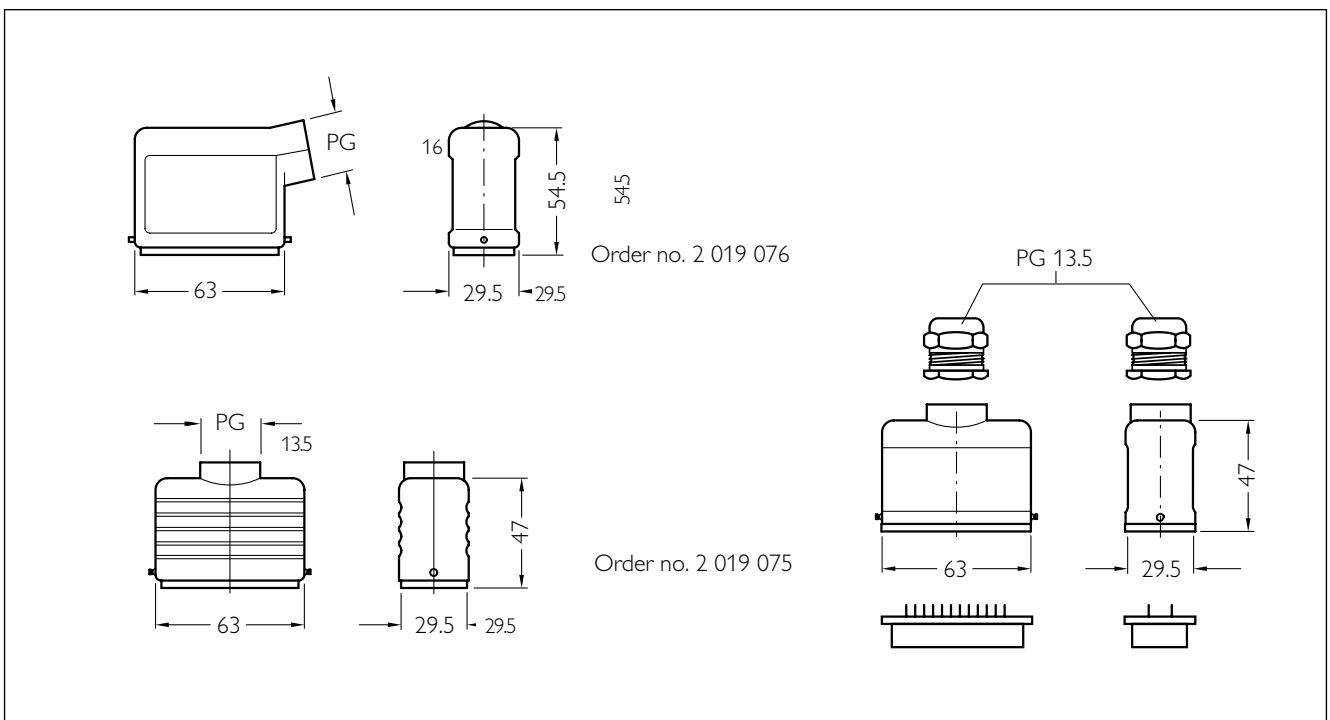


Fig. 19: Cable receptacles 15 + PE

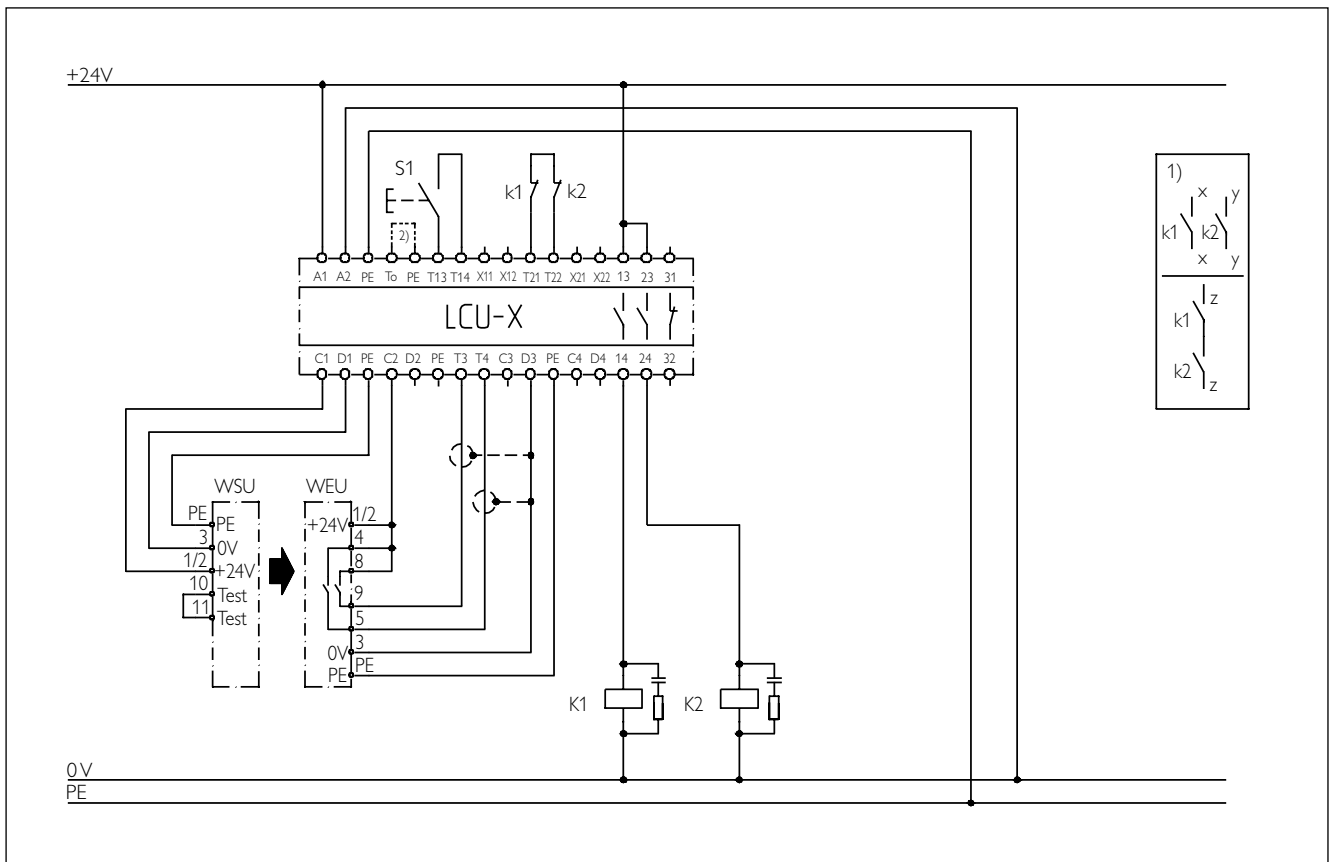
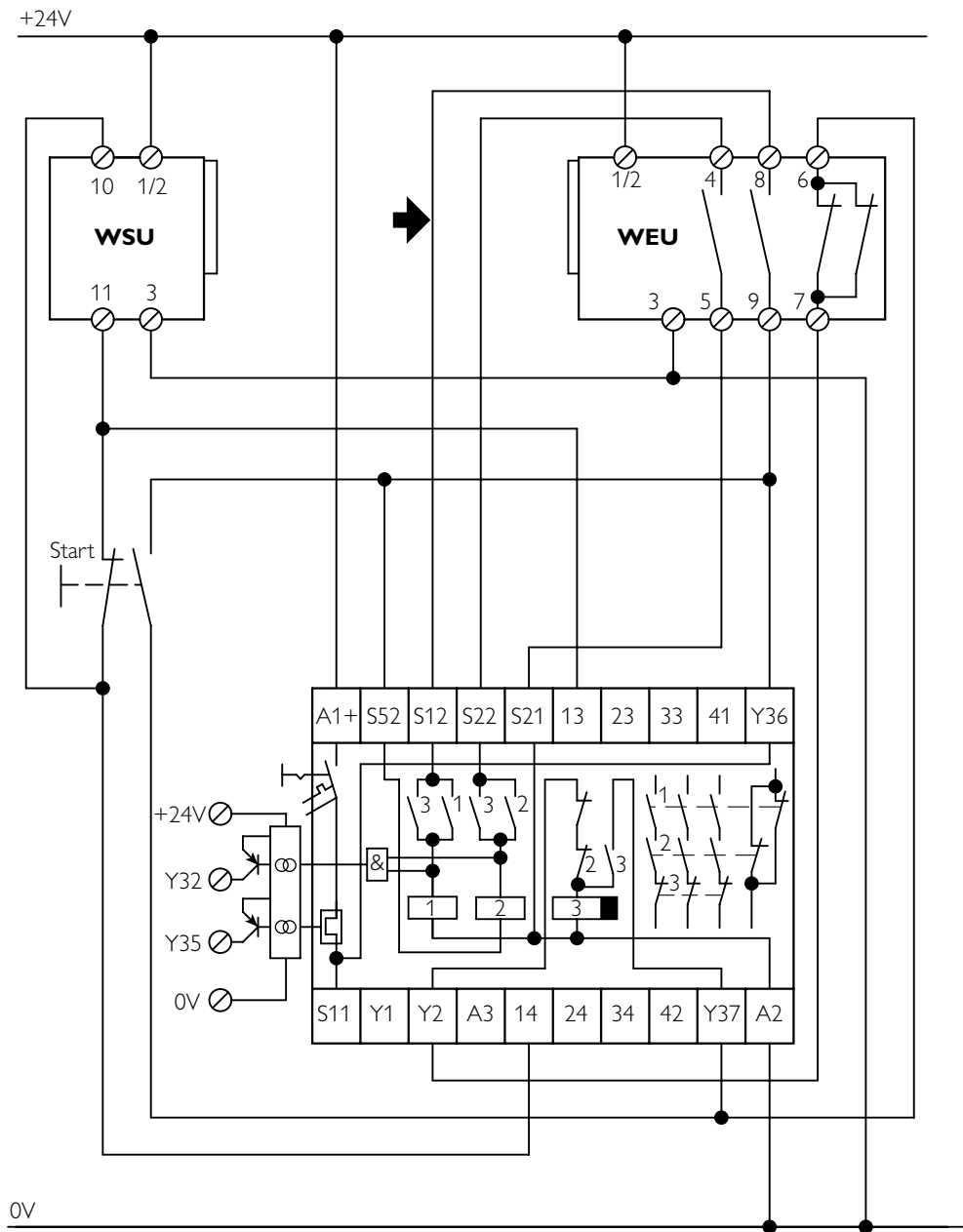


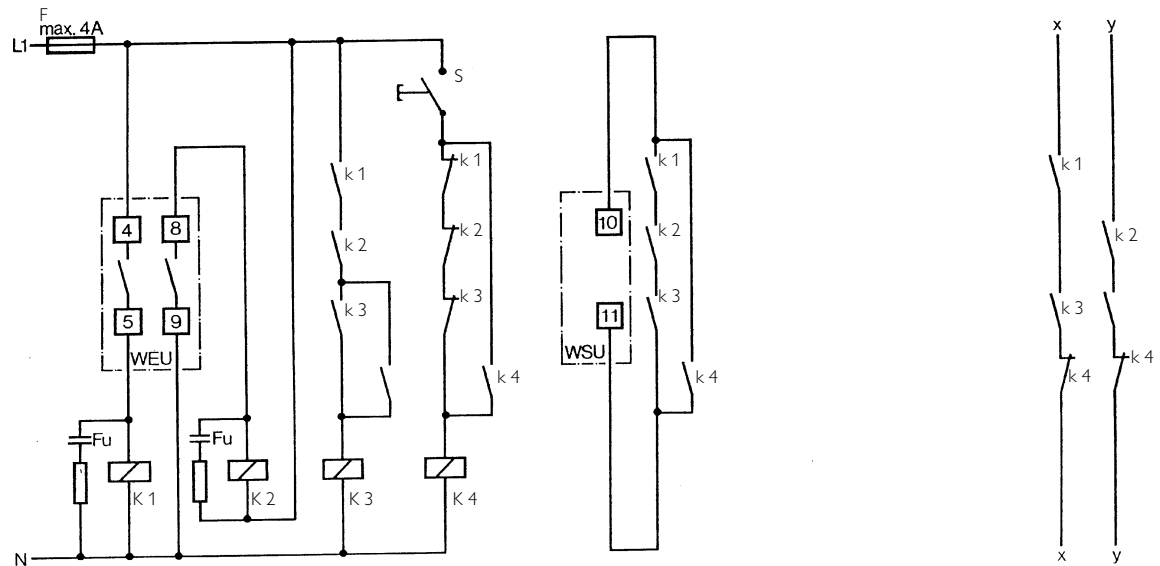
Fig. 20: WSU/WEU 26/2 with Safety Interface LCU-X

SICK WSU 26/2 – WEU 26/2

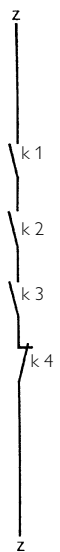
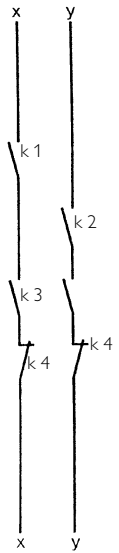


Outside switch cabinet separate line laying to receiver. Terminals 1, 3, 8 and 9 and 4, 5, 6 and 7 respectively in one plastic-sheathed cable. Use PG 21 (order no. 5 305 978) and PG extension (order no. 5 306 052).

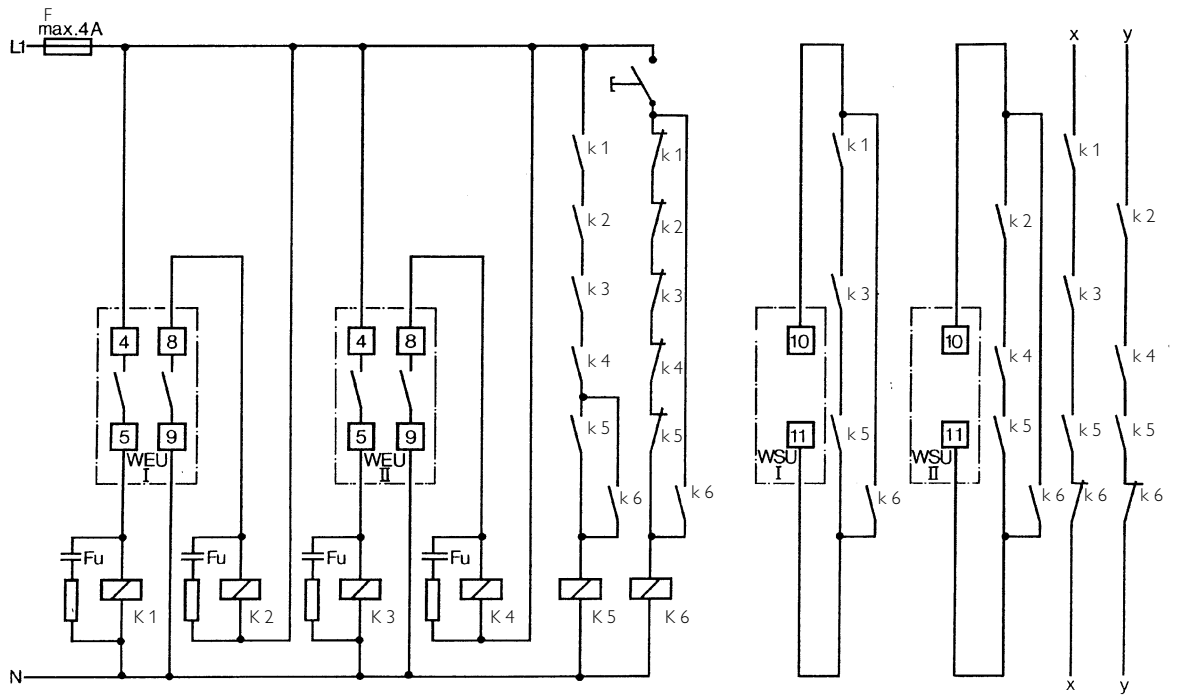
Fig. 21: WSU/WEU 26/2 with PNOZ 8 (Pilz); BIA-tested application no. 01131202933



- K1 to K4 Contactors or relays with positively-driven contacts (not supplied)
- Fu Arc-suppression, essential
- S Command unit, e.g. pushbutton, key-operated switch etc.
Press button S to start, otherwise red LED on WEU remains lit.
- x and y Insert in safe machine controller to interrupt the hazardous movement. For safety reasons, the two contact rows (x and y) must be inserted separately into the controller (two-channel).
- z If, in exceptional cases, depending on the risk assessment, the controller of the power-driven machinery is only of single-channel design, contact row z can be used.



SICK WSU 26/2 – WEU 26/2



- K1 to K6 Contactors or relays with positively-driven contacts
(not supplied)
- Fu Arc-suppression, essential
- S Command unit, e.g. pushbutton, key-operated switch etc.
Press button S to start, otherwise red LED on WEU remains lit.
- x and y Insert in safe machine controller to interrupt the hazardous
movement. For safety reasons, the two contact rows (x and y)
must be inserted separately into the controller (two-channel).
- z If, in exceptional cases, depending on the risk assessment, the
controller of the power-driven machinery is only of single-channel
design, contact row z can be used.

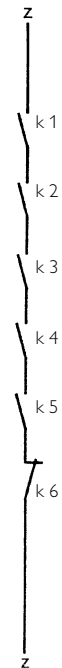


Fig. 23: Example of a connection with two WSU/WEU-26 systems

8 Commissioning

8.1 Alignment of WSU and WEU

After checking the electrical connections, loosen the fixing screws on the WSU/WEU and align the devices to each other roughly using the alignment sight. For further alignment keep pressing button S or jumper terminals 10 and 11 on the WSU and switch on the devices. When this is done the LED on the WSU (yellow LED) lights up (Fig. 24). Align the devices to each other so that the green and yellow LEDs on the WEU light up.

For optimum alignment, ascertain the limits of the emitting and receiving ranges by swiveling the WSU and WEU horizontally and vertically one after the other. Just before the limit of the optical range the yellow LED on the WEU begins to flash (Fig. 26). Beyond the optical range the red LED on the WEU lights up. Then secure the WSU and WEU respectively in the middle of the resulting ranges. The yellow LED on the WEU must be permanently lit.

8.2 Alignment of WSU and WEU with Alignment Aid AR 60

For precise alignment of the WSU and WEU the alignment aid AR 60 is available.

The alignment aid is clamped in front of the WSU and WEU respectively on a bracket (Fig. 25), which is mounted underneath the optic and held in place by two screws.

The AR 60 emits a visible laser beam which exactly marks the optical axes of WSU and WEU if they are correctly mounted.

8.3 Checking

Incorrect alignment may mean that an obstacle is not detected or that operational safety is not attained (Fig. 24).

The functional safety of the photoelectric safety switch is checked by breaking the light beam continually and along its entire length, from just in front of the WEU back to the WSU (surface area 100 mm x 100 mm). While this check is being performed, the red LED on the WEU must remain continuously lit. If it does not,

investigate the diversion of the light beam between the WSU and the WEU (reflection may be occurring, see 6.2 *Detecting Reflections*).

A function check of this kind must be carried out

- ▶ daily prior to start of production,
- ▶ after any change in the WSU/WEU configuration,
- ▶ after any servicing or maintenance work on the protective system.

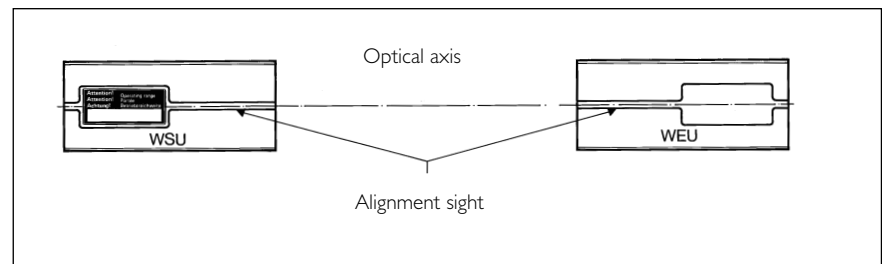


Fig. 24: Alignment with the aid of the alignment sight

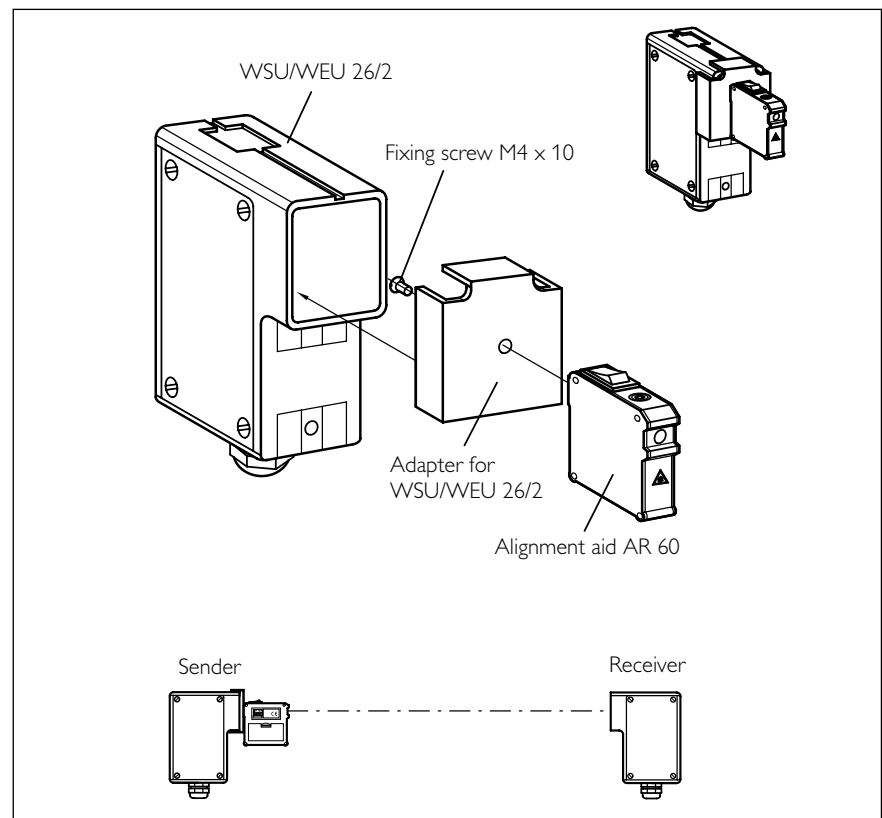


Fig. 25: Laser alignment aid AR 60 and WSU/WEU

9 Maintenance

The front screens of the WSU and WEU should be cleaned at regular intervals, according to the site conditions. The screens must only be cleaned with a clean, soft cloth or with cotton wool. Use plastic cleaner as the cleaning agent.

10 Commissioning

Since the WSU/WEU is a protective system, it is recommended that the system be commissioned into operation by an expert. Experts are deemed to be only persons trained in the handling of such safety equipment who are

- ▶ employees of SICK,
- ▶ employees of SICK subsidiaries and representatives abroad,
- ▶ employees of companies who operate large quantities of SICK safety equipment at their premises, provided they have been trained by SICK and have been assigned by their employers to perform such duties.

11 Malfunctions

11.1 Diagnostic Elements

The LEDs on the WSU and WEU indicate the following operating states (Fig. 26):

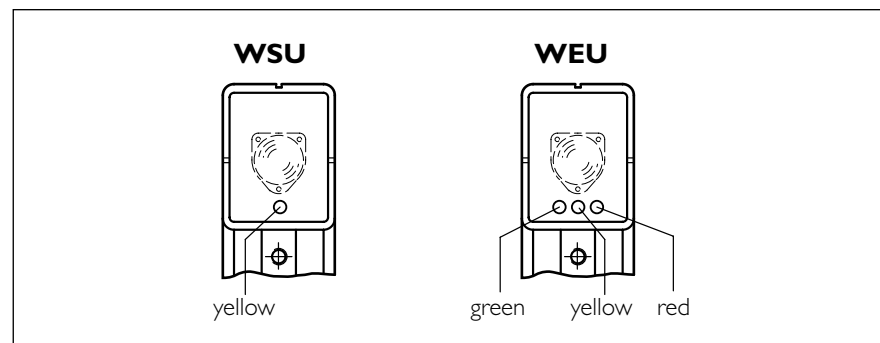




Fig. 26: LEDs of the WSU and WEU

	Continuously lit	yellow	Operating voltage applied (test contact closed)
	Off	yellow	No operating voltage applied or test active (For duration of test)
	Continuously lit	green	Light beam of sender unit reaching receiver
		yellow	Sufficient light received
		red	Light beam broken, briefly during test
		yellow + red	Interference of another emitter element
	Flashing	yellow	Insufficient light received, unit still functioning
	Off	green	No operating voltage applied, light beam broken, test performed
	yellow	Light beam broken, testing performed, no operating voltage applied	
	red	No operating voltage applied, light received from sender	

Tab. 4: Functioning of the LEDs

Simple malfunctions can be rectified by referring to the chart below. Before opening up the units clean the housing thoroughly to prevent dirt entering the interior.



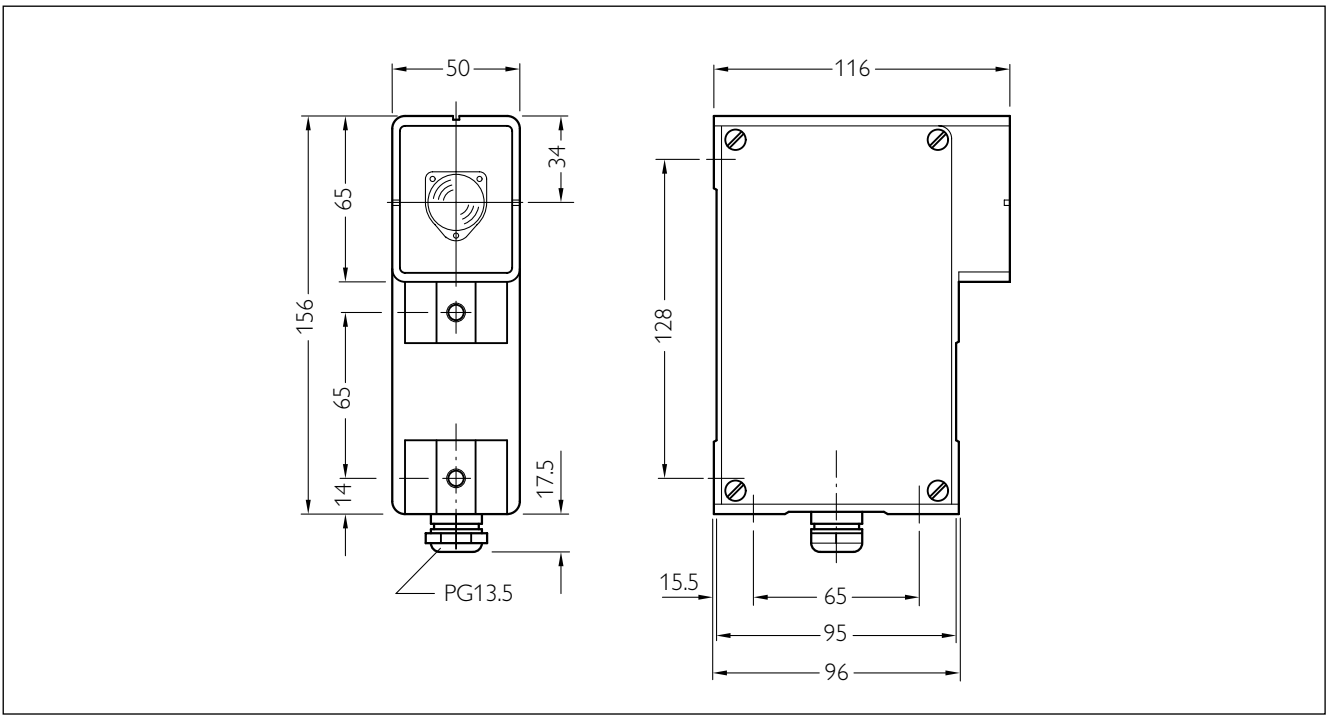
Do not touch any electrical connections when the unit is open and switched on.

Fault	Cause	Testing and remedy
LED on WSU not lit	No power supply	Check voltage
	Break between terminals 10 and 11 (test contact)	Check passage
LED on WSU lit, none of the three LEDs on the WEU lit	No power supply on WEU	Check voltage on WEU
	Break at relay contact	Replace unit
	Relay defective	
The red LED on the WEU is permanently lit (no light being received)	Unit out of alignment	Re-align WSU and WEU units
	Front screen dirty	Clean front screens of WSU and WEU
	Test input (sender) interrupted	Check testing
	Receiver WEU defective	Replace unit
	Sender WSU not emitting	On WSU briefly switch power off and on again (min. 1 s)
The yellow LED on the WEU flashes (insufficient light being received)	Sender WSU defective	Replace unit
	Units or corner mirrors out of alignment	Adjust units or corner mirrors to optimum alignment
The yellow and red LEDs on the WEU are permanently lit	Front screen of WSU/WEU or corner mirror dirty	Clean front screen or corner mirror
	Electronics activated:	On WEU briefly switch power off and on again (min. 1 s)
	Interference of another emitter element	WEU must only respond to the corresponding WSU
	Electronic card defective	Replace unit

12 Technical Data WSU 26/2 / WEU 26/2

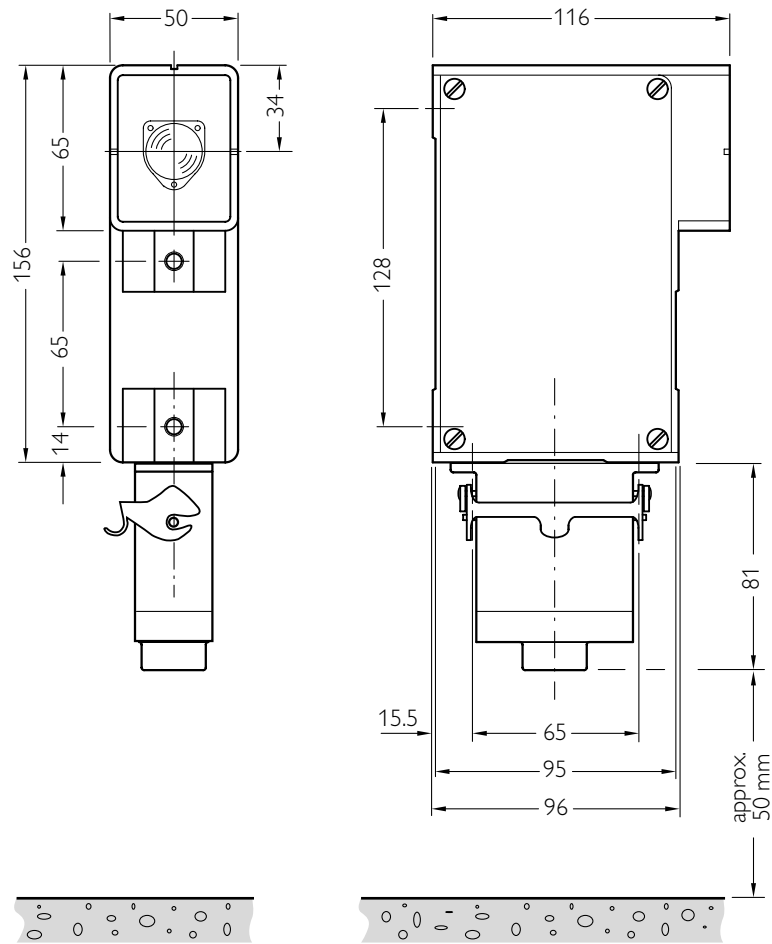
Dimensions	
Protective field range	0.5 ... 18 m, 15 ... 70 m
Number of beams	1 beam
Light beam diameter	23 mm
Sender/receiver unit	
Supply voltage (U _v)	24 V DC ± 20 %
	230 V DC ± 10 % / - 15 %
	115 V DC ± 10 % / - 15 %
Ripple	Max. 5 % of U _v
Frequency	48 ... 62 Hz with AC version
Input, sender	Test contact
Test time	max. 150 ms
Min. opening time of NC contact for test	75 ms
Power consumption (typical)	
Voltage version	24 V 115 V 230 V
Sender unit	4 W 7 W 7 W
Receiver unit	6 W 10 VA 10 VA
Synchronization	Optical
Outputs	Relay max. operating frequency 0.2 Hz (1 operation in 5 s)
Switching current (max./min.)	2 A / 0.02 A
Switching voltage (max./min.)	250 V AC / 24 V DC
Response time	≤ 22 ms
Connection cable:	PG connector: IP 67 Connection plug: IP 65
Front screen heating	As standard
Operating data	
Protection class	I
Enclosure rating	IP 65 (connection plug) IP 67 (PG connector)
Safety category	Satisfies type 4 requirements
Requirements	To pr EN 61496 Part I/Part II
Ambient operating temperature	- 25 ... + 55 °C
Storage temperature	- 25 ... + 70 °C
Air humidity	15 ... 95 %
Vibrostability	5 g, 10 ... 55 Hz to IEC 68-2-6
Impact resistance	10 g, 16 ms to IEC 68-2-29
Weight	Sender unit Approx. 0.9 ... 1.3 kg Receiver unit Approx. 1.0 ... 1.4 kg

13 Dimensional Drawing

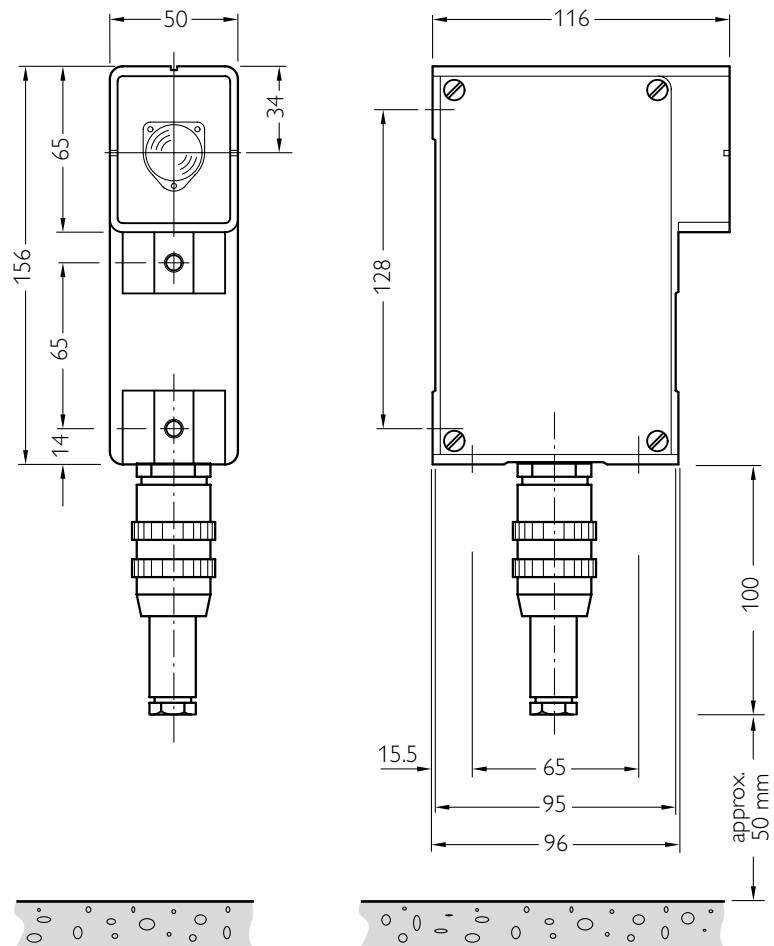


Dimensional Drawing WSU 26/2-xx0 and WEU 26/2-xx0

SICK WSU 26/2 – WEU 26/2

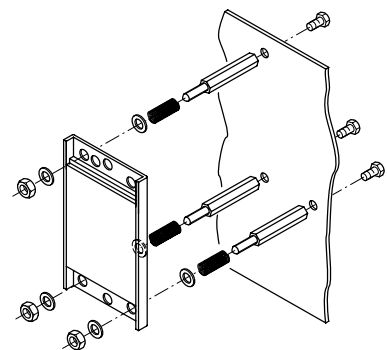
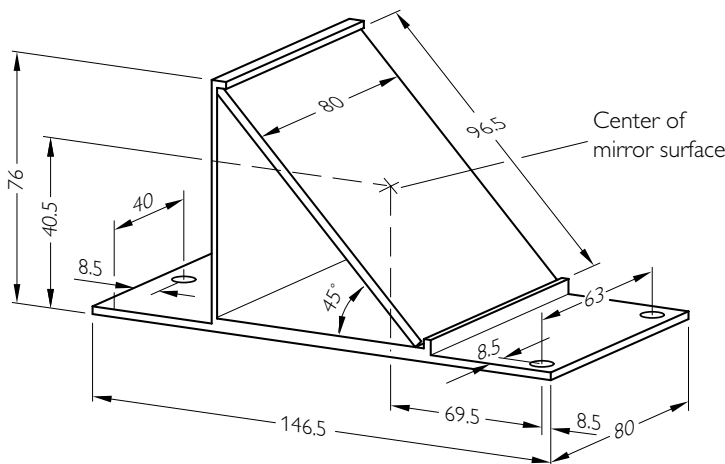
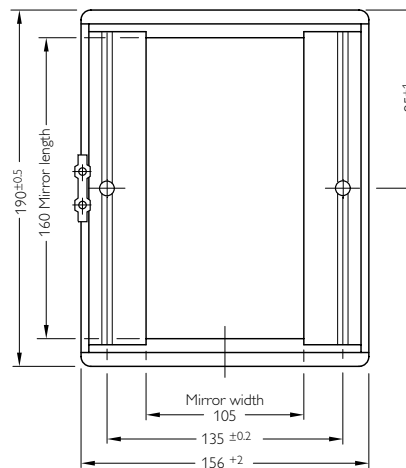
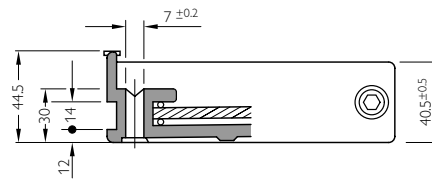
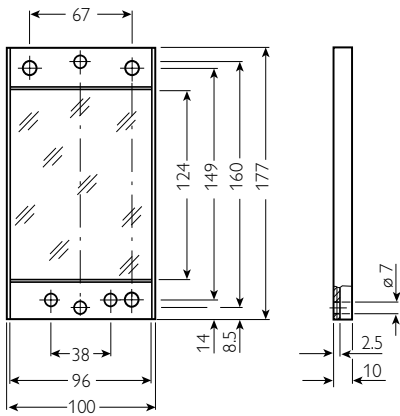
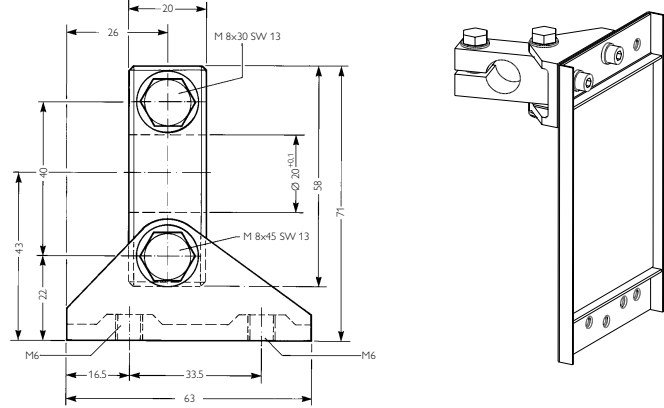
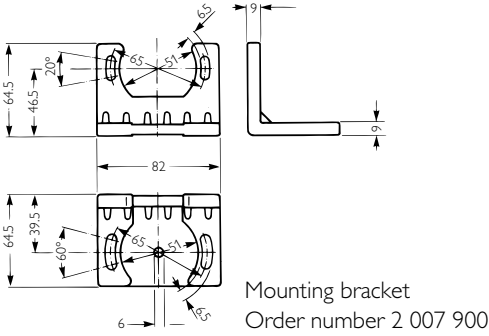


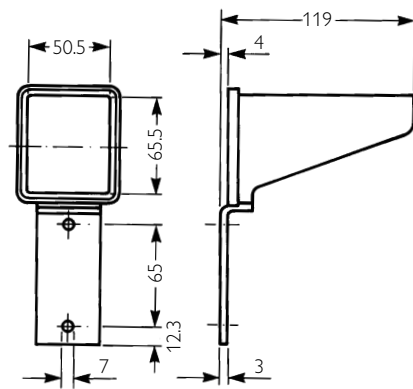
Dimensional Drawing WSU 26/2-xx4 and WEU 26/2-xx4



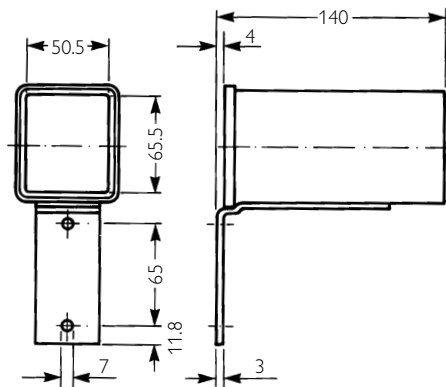
Dimensional Drawing WSU 26/2-xx1 and -xx3 and WEU 26/2-xx1, -xx2 and -xx3

SICK WSU 26/2 – WEU 26/2





Snow shield
Order number 1 003 619



Dust shield
Order number 1 003 556

SICK WSU 26/2 – WEU 26/2

14 At a glance: What is new about the WSU/WEU 26/2 in relation to the WSU/WEU 26?

Previously: WSU 26 / WEU 26
 Now: WSU 26/2 / WEU 26/2

- ▶ The optical axis of the WSU/WEU 26/2 is shifted 6 mm toward the device connection.
- ▶ There are two terminals for connection of the power supply: terminal 1/2 and terminal 3.
- ▶ Voltage versions
 - 230 V AC
 - 115 V AC
 - 24 V DC
- ▶ A new adapter is required for AR 60.
- ▶ No fiber-optic cable version is available.
- ▶ An additional marking on the side identifies the middle of the beam.
- ▶ The scanning ranges have changed:

WSU/WEU 26	WSU/WEU 26/2
0.5 ... 30 m	0.5 ... 18 m
30 ... 60 m	15 ... 70 m

- ▶ For each range segment there is a sender **and** a receiver.
- ▶ The beam diameter has changed:

WSU/WEU 26	WSU/WEU 26/2
33 mm	23 mm

- ▶ Connector version: the previous connector no longer complies with requirements for clearance and creepage distances (VDE 0160 05/88 and VDE 0110).
- ▶ New front screen: may only be cleaned with plastic cleaner.
- ▶ The power consumption has increased:

WSU/WEU 26	WSU/WEU 26/2	Version
5 VA / 7 VA	7 VA / 10 VA	115/230 V AC
3 W / 5 W	4 W / 6 W	24 V DC

- ▶ Response time
 - WSU/WEU 26: 20 ms
 - WSU/WEU 26/2: 22 ms



Components of the (new) WSU/WEU 26/2 system cannot be combined with components of the (old) WSU/WEU 26 system. When exchanging in the event of repair please note that the following combinations are not possible:

~~WSU 26 with WEU 26/2~~
~~WSU 26/2 with WEU 26~~

Exchange in pairs.

15 Selection Table WSU / WEU

Voltage	Scanning range	Termination type	Sender unit		Receiver unit		
			Type	Order number	Type	Order number	
230 V AC	0.5 ... 18 m	PG	WSU 26/2-110	1 015 615	WEU 26/2-110	1 015 616	
		Plug	WSU 26/2-111	1 015 712	WEU 26/2-111	1 015 713	
		Plug *)	WSU 26/2-113	1 015 715	WEU 26/2-113	1 015 715	
		Plug *)			WEU 26/2-112	1 015 714	
			Plug 15 + PE*)	WSU 26/2-114	1 015 834	WEU 26/2-114	1 015 835
	15 ... 70 m	PG	WSU 26/2-210	1 015 731	WEU 26/2-210	1 015 743	
		Plug	WSU 26/2-211	1 015 733	WEU 26/2-211	1 015 744	
		Plug *)	WSU 26/2-213	1 015 736	WEU 26/2-213	1 015 748	
		Plug *)			WEU 26/2-212	1 015 746	
			Plug 15 + PE*)	WSU 26/2-214	1 015 840	WEU 26/2-214	1 015 841
	115 V AC	0.5 ... 18 m	PG	WSU 26/2-120	1 015 717	WEU 26/2-120	1 015 718
			Plug	WSU 26/2-121	1 015 719	WEU 26/2-121	1 015 720
			Plug *)	WSU 26/2-123	1 015 723	WEU 26/2-123	1 015 722
Plug *)					WEU 26/2-122	1 015 721	
		Plug 15 + PE*)	WSU 26/2-124	1 015 836	WEU 26/2-124	1 015 837	
15 ... 70 m		PG	WSU 26/2-220	1 015 738	WEU 26/2-220	1 015 749	
		Plug	WSU 26/2-221	1 015 740	WEU 26/2-221	1 015 750	
		Plug *)	WSU 26/2-223	1 015 737	WEU 26/2-223	1 015 505	
					WEU 26/2-222	1 015 751	
			Plug 15 + PE*)	WSU 26/2-224	1 015 842	WEU 26/2-224	1 015 843
24 V DC	0.5 ... 18 m	PG	WSU 26/2-130	1 015 724	WEU 26/2-130	1 015 725	
		Plug	WSU 26/2-131	1 015 726	WEU 26/2-131	1 015 727	
		Plug *)	WSU 26/2-133	1 015 730	WEU 26/2-133	1 015 729	
		Plug *)			WEU 26/2-132	1 015 728	
		Plug 15 + PE*)	WSU 26/2-134	1 015 838	WEU 26/2-134	1 015 839	
	15 ... 70 m	PG	WSU 26/2-230	1 015 745	WEU 26/2-230	1 015 504	
		Plug	WSU 26/2-231	1 015 747	WEU 26/2-231	1 015 753	
		Plug *)	WSU 26/2-233	1 015 739	WEU 26/2-233	1 015 755	
		Plug *)			WEU 26/2-232	1 015 754	
			Plug 15 + PE*)	WSU 26/2-234	1 015 844	WEU 26/2-234	1 015 845

*) See electrical wiring diagram



Selection of plug variant, WSU/WEU

Since 1989 VDE 0160 05/88 and VDE 0110 have stipulated doubled clearance and creepage distances. In the following cases the necessary clearance and creepage distances of the 6-PE Hirschmann connecting plug on the WEU are not met:

Supply voltage WEU	Voltage at WEU output relays	Remarks
230 V AC	230 V AC	Only in case of separated circuits/phases (e.g. L1 to L2)
230 V AC	24 V DC	–
24 V DC	230 V AC	–

In order to meet the VDE requirements for clearance and creepage distances in these cases, the square 15-pin + PE plug must be used.

SICK WSU 26/2 – WEU 26/2

14.1 Conversion List

WSU to be replaced	Nex type 26/2		Scanning range 15 ... 70 m	
	Scanning range 0.5 ... 18 m			
WSU 26-110	WSU 26/2-110	1 015 615	WSU 26/2-210	1 015 731
WSU 26-111	WSU 26/2-111	1 015 712	WSU 26/2-211	1 015 733
WSU 26-112	WSU 26/2-113	1 015 716	WSU 26/2-213	1 015 736
WSU 26-120	WSU 26/2-120	1 015 717	WSU 26/2-220	1 015 738
WSU 26-121	WSU 26/2-121	1 015 719	WSU 26/2-221	1 015 740
WSU 26-130	WSU 26/2-130	1 015 724	WSU 26/2-230	1 015 745
WSU 26-131	WSU 26/2-131	1 015 726	WSU 26/2-231	1 015 747
WSU 26-132	WSU 26/2-133	1 015 730	WSU 26/2-233	1 015 739
WSU 26-210			WSU 26/2-210	1 015 731
WSU 26-211			WSU 26/2-211	1 015 733
WSU 26-212			WSU 26/2-213	1 015 736
WSU 26-220			WSU 26/2-220	1 015 738
WSU 26-221			WSU 26/2-221	1 015 740
WSU 26-230			WSU 26/2-230	1 015 745
WSU 26-231			WSU 26/2-231	1 015 747
WSU 26-232			WSU 26/2-233	1 015 739

WEU to be replaced	New type 26/2		Scanning range 15 ... 70 m	
	Scanning range 0.5 ... 18 m			
WEU 26-710	WEU 26/2-110	1 015 616	WEU 26/2-210	1 015 743
WEU 26-712	WEU 26/2-112	1 015 713	WEU 26/2-211	1 015 744
WEU 26-713	WEU 26/2-113	1 015 715	WEU 26/2-213	1 015 748
WEU 26-720	WEU 26/2-120	1 015 718	WEU 26/2-220	1 015 749
WEU 26-730	WEU 26/2-130	1 015 725	WEU 26/2-230	1 015 504
WEU 26-731	WEU 26/2-131	1 015 727	WEU 26/2-231	1 015 753
WEU 26-732	WEU 26/2-132	1 015 728	WEU 26/2-232	1 015 754
WEU 26-733	WSU 26/2-133	1 015 729	WEU 26/2-233	1 015 755

16 Selection Table, Accessories

Description	Order number
Alignment aid AR 60, complete	1 015 741
Adapter for alignment aid AR 60	4 031 156
Mounting bracket for WSU/WEU	2 007 900
Corner mirror PSK 1, for scanning range 0.5 ... 18 m	1 005 229
Mounting set for PSK 1	2 012 473
Hinged bracket for corner mirror PSK 1 (x 1)	2 009 292
Corner mirror PNS 105-1, for scanning range 15 ... 70 m	1 004 076
Corner mirror PSK 45	5 306 053
Cable receptacle, straight, 6 + PE (plastic)	6 006 612
Cable receptacle, angled, 6 + PE (plastic)	6 006 613
Cable receptacle, 15 + PE, lateral cable outlet, PG 16	2 019 076
Cable receptacle, 15 + PE, straight cable outlet, PG 13.5	2 019 075
Arc-suppression element 0.22 μ F + 220 Ω (115 ... 230 V)	6 001 224
Arc-suppression element 2.2 μ F + 100 Ω (24 V)	6 001 225
Switching amplifier LCU-X 24 V DC	1 013 410
Switching amplifier (PILZ)	
Switching amplifier PST 1 24 V DC	6 010 808
230 V AC	6 010 809
Switching amplifier PST 3 24 V DC	6 008 424
230 V AC	6 008 423
Switching amplifier PNOZ 8 24 V DC	6 010 810
230 V AC	6 010 811
PG cable gland PG 21	5 305 978
for use of 2 cables with PNOZ 8	
PG extension PG 13.5 to PG 21	5 306 052
for use of 2 cables with PNOZ 8	

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