



A handle on safety.

The transponder-coded safety system **ESL**

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More than safety.

Transponder-coded safety system **ESL**

The safety system ESL combines a safety switch, door handle and door stop in one device. It consists of a handle module and an interlocking module equipped with integrated transponder-coded safety technology. The ESL is used to safe guard and monitor safety guards such as small hinged doors and flaps on machines and installations. Thanks to an assured switch-off distance (Sar) of 0 mm it is particularly suitable for usage in laser installations.

■ Simple function and operation

The ergonomically designed handle module permits convenient operation of the safety guard. In the open state the safety outputs remain switched off. In this way the control system detects that dangerous machine functions cannot be carried out. If the door is closed and the latch is in closed position, the transponder data are detected by the electronics in the interlocking module and the safety outputs are switched. As protection against unintentional machine stop, the safety system can be optionally equipped with a lock.

■ Quick mounting

The safety system is mounted quickly and easily using four screws, e.g. directly on a profile. The handle module is fastened to the moving part of the safety guard and the interlocking module is fastened to the fixed part. For protection against tampering the screws are fitted with caps. Therefore, removal during operation is much more difficult.

Thanks to the compact and symmetrical design, the safety system ESL can be mounted on doors hinged on the right or left. The device is directly connected via a M12 plug connector. Depending on the required cable routing, the plug connector can be aligned either upward or downward.

■ Maximum safety

Transponder coding ensures maximum safety. The requirements in all relevant standards can already be met with a single ESL. Irrespective of whether category 4/PL e according to EN ISO 13849-1 must be achieved or whether the requirements in EN ISO 14119 must be met – you're always on the safe side with the ESL.

■ Different coding levels

Unicode coding

Each ESL has a unique coding and significantly surpasses the requirements in EN ISO 14119 for a type 4 switch with high coding level. The uniquely coded handle module is unambiguously assigned to the interlocking module using a teach-in operation. As a consequence bypassing the safety guard using an identical handle module is effectively prevented. In this way the requirement in the standard for effective protection against tampering is met. In the event of a fault a new handle module can be taught-in at any time. If a new handle module is taught-in, the previous handle module automatically ceases to be valid.

Multicode coding

For applications in which an ESL with high coding level is not required, it is possible to use multicode versions. Here the handle module is not uniquely assigned to the interlocking module. It is only checked whether the handle module is valid or not.

■ Detailed diagnostic function

For fast diagnostics the ESL is equipped with two LEDs. These make it possible to read the device status easily at glance. In addition, the monitoring output can be connected directly to the control system.



ESL in detail

Interlocking module
with integrated evaluation electronics

Handle module
ergonomically shaped handle for intuitive operation

Hidden mounting
protects effectively against tampering

Robust metal housing
with degree of protection IP 67, ideally suited to industrial usage

Optional lock
prevents unintended machine standstill

LED indication
for easy and quick status indication and diagnostics

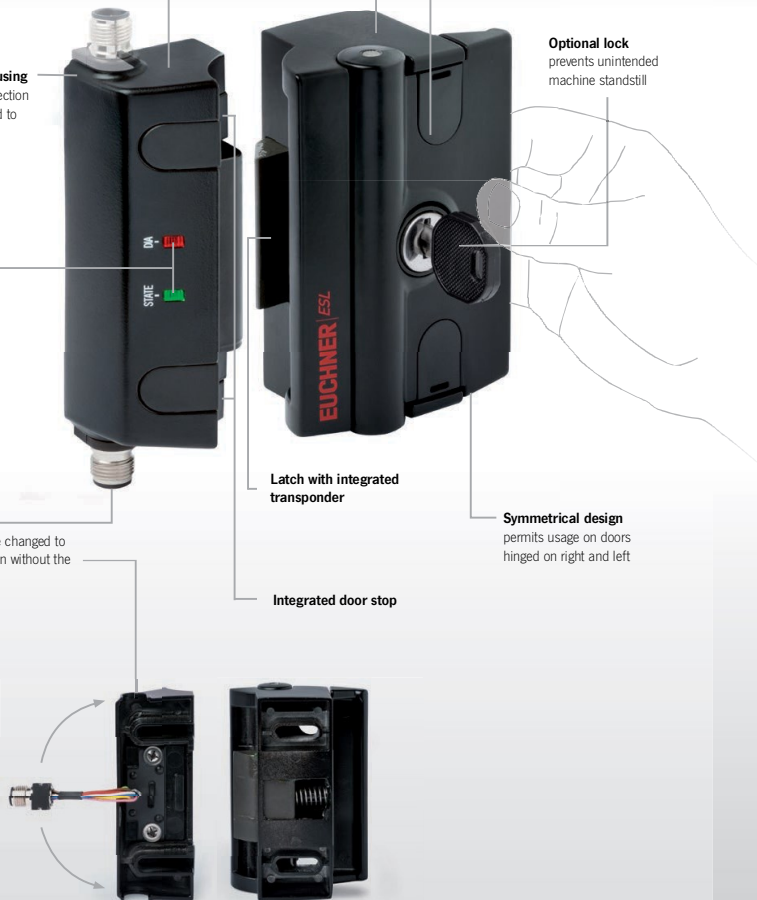
Latch with integrated transponder

Symmetrical design
permits usage on doors hinged on right and left

M12 plug
Cable outlet can be changed to the required position without the usage of tools

Integrated door stop

Rear view



System family AR

All safety systems ESL have an AR interface. This interface makes it possible to operate the devices both as separate devices and connected in series. Up to 20 ESL or other products from EUCHER with an AR interface can therefore be operated together. Three different series wiring concepts are available:

1. Series connection in the control cabinet

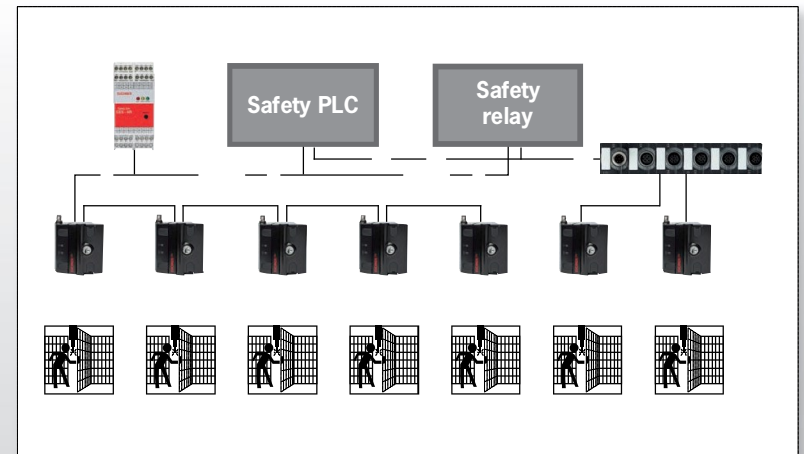
Wiring takes place in the control cabinet. All information about the status of individual products can be forwarded directly to the control system.

2. Series connection in the field

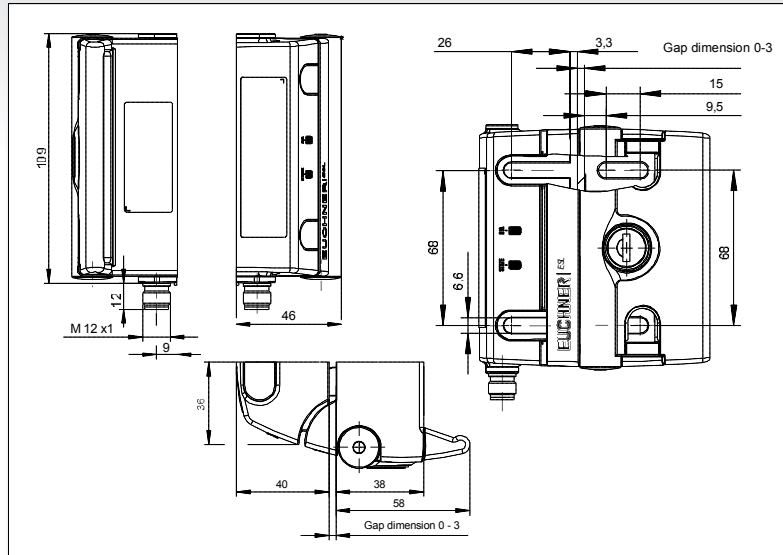
All safety switches used are interconnected by Y-plugs in the field, and the information is transmitted centrally via a single wire to the control system. The connection of only four flexes greatly reduces the wiring work. Optionally, a CES-AR evaluation unit can be used to generate status signals for each individual product. This is particularly advantageous in case of large and expansive machines and plants, because it is immediately clear which door is open or closed.

3. Series connection via passive distribution module in the field

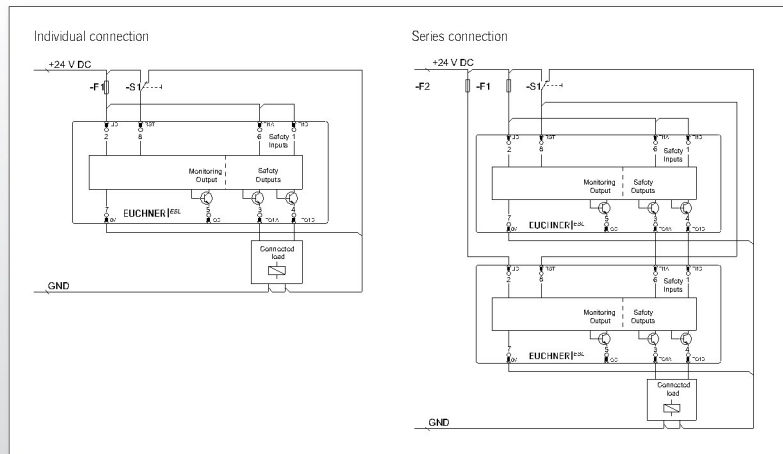
The EUCHER products are connected directly to the passive distribution module via M12 plug connectors. The electrical connection to the control system is made centrally using one cable. It is possible to connect several passive distribution modules in series. The door monitoring signal on each safety switch connected can be polled on the passive distribution module by the control system.



Dimension drawing



Wiring diagram



Ordering table safety system ESL-AR

Item	Description	Order no.
ESL-IHAR-U-R30-SA-115320	Basic device, unicode, with lock	115320
ESL-IHAR-U-R30-SA-120824	Basic device, unicode, without lock	120824
ESL-IHAR-MR30-SA-114943	Basic device, multicode, with lock	114943
ESL-IHAR-MR30-SA-120646	Basic device, multicode, without lock	120646

Accessories for connecting the ESL to a control system / relay

Item	Description	Type of cable	Length (in m)	Order no.
C-M12F08-08X025PV05,0-MA-100177	Cable M12, 8-pin, flying lead	PVC	5	100177
C-M12F08-08X025PV10,0-MA-100178	Cable M12, 8-pin, flying lead	PVC	10	100178
C-M12F08-08X025PV20,0-MA-100179	Cable M12, 8-pin, flying lead	PVC	20	100179
C-M12F08-08X025PV30,0-MA-115116	Cable M12, 8-pin, flying lead	PVC	30	115116
C-M12F08-08X025PU05,0-MA-115112	Cable M12, 8-pin, flying lead	PUR	5	115112
C-M12F08-08X025PU10,0-MA-115113	Cable M12, 8-pin, flying lead	PUR	10	115113
C-M12F08-08X025PU20,0-MA-115114	Cable M12, 8-pin, flying lead	PUR	20	115114
C-M12F08-08X025PU30,0-MA-115257	Cable M12, 8-pin, flying lead	PUR	30	115257

Accessories for using the ESL in combination with Y-plugs

Item	Description	Type of cable	Length (in m)	Order no.
Y-distributor M12	M12, 1 x 8-pin, 2 x 5-pin	-	-	097627
Bridging plug	Male plug, M12, 4-pin	-	-	097645
Y-distributor M12 with connecting cable	M12, 1 x 8-pin, 2 x 5-pin	PVC	0.2	111696
Y-distributor M12 with connecting cable	M12, 1 x 8-pin, 2 x 5-pin	PVC	1	112395
C-M12F05-05X034PV05,0-MA-100183	Cable M12, 5-pin, flying lead	PVC	5	100183
C-M12F05-05X034PV10,0-MA-100184	Cable M12, 5-pin, flying lead	PVC	10	100184
C-M12F05-05X034PV20,0-MA-100185	Cable M12, 5-pin, flying lead	PVC	20	100185
C-M12F05-05X034PV05,0-M12M05-100180	Cable M12, 5-pin, M12, 5-pin	PVC	5	100180
C-M12F05-05X034PV10,0-M12M05-100181	Cable M12, 5-pin, M12, 5-pin	PVC	10	100181
C-M12F05-05X034PV20,0-M12M05-100182	Cable M12, 5-pin, M12, 5-pin	PVC	20	100182
C-M12F05-05X034PU05,0-MA-113620	Cable M12, 5-pin, flying lead	PUR	5	113620
C-M12F05-05X034PU10,0-MA-113640	Cable M12, 5-pin, flying lead	PUR	10	113640
C-M12F05-05X034PU20,0-MA-113682	Cable M12, 5-pin, flying lead	PUR	20	113682
C-M12F05-05X034PU05,0-M12M05-119932	Cable M12, 5-pin, M12, 5-pin	PUR	5	119932
C-M12F05-05X034PU10,0-M12M05-119947	Cable M12, 5-pin, M12, 5-pin	PUR	10	119947
C-M12F05-05X034PU20,0-M12M05-119971	Cable M12, 5-pin, M12, 5-pin	PUR	20	119971

Accessories for using the ESL in combination with the passive distribution module

Item	Description	Type of cable	Length (in m)	Order no.
AC-CP-04-SA-120861	Passive distribution module	-	-	120861

A list of the various connecting cables for using the ESL in combination with the passive distribution module can be found at www.euchner.com.

Technical data

Parameter	Value			Unit
	min.	typ.	max.	
Transponder coding	Unicode or Multicode			
Housing material	Die-cast aluminum, powder coated, black			
Weight	Approx. 0.4			kg
Ambient temperature	-20	-	+55	°C
Storage temperature	-25	-	+70	°C
Degree of protection acc. to IEC 60 529	IP 67			
Installation position	Any			
Connection	M12 plug connector, 8-pin			
Operating voltage U_b (PELV, reverse polarity protected, regulated, residual ripple < 5 %)	24 ± 15 %			V DC
Current consumption	-	-	40	mA
External fuse (operating voltage)	0.25	-	3	A
Assured switch-off distance S_{off} in door opening direction	-	-	0	mm
Safety outputs				
Semiconductor outputs				
- Description	Semiconductor outputs, p-switching, short circuitproof			
- HIGH	$U_b - 1.5$	-	U_b	V DC
- LOW	0	-	1	
- Switching current per safety output	1	-	150	mA
- Utilization category acc. to EN 60947-5-1	AC-15 240V 3A / DC 13 24V 1A			
Monitoring output				
- Description	Monitoring, semiconductor output, p-switching, short circuitproof			
- Output voltage	$0.8 \times U_b$	-	U_b	V DC
- Switching current	-	-	50	mA
Reliability values according to EN ISO 13849-1				
Category	4			
Performance Level	PL e			
Mission time	20			years

Cat. 4/PL e acc. to EN ISO 13849-1 ✓

EN ISO 14119 ✓

Tamper-proof ✓

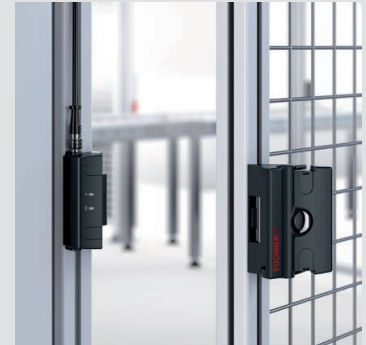
Degree of protection IP 67 ✓

Door handle with integrated safety technology ✓



Advantages of ESL at a glance

- ▶ Maximum safety category 4 / PL e
- ▶ Secure against tampering
- ▶ Robust, symmetrical metal housing
- ▶ Easy, quick profile mounting
- ▶ Series connection of up to 20 ESL
- ▶ Fast diagnostics
- ▶ Easy wiring



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