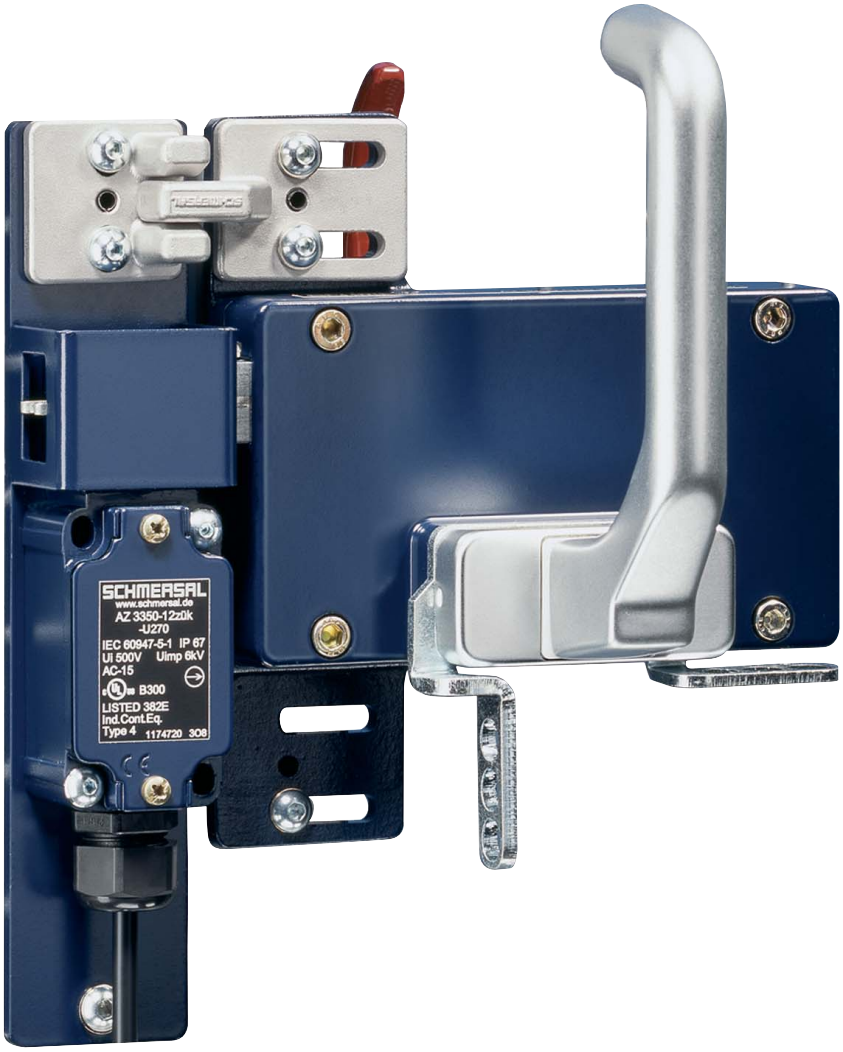
Safety door-handle system STS



SCHMERSAL

Full body access ha

EN 1037

Features
- The safety door-handle system is suitable for all types of safety guards.
- Safety switches and solenoid interlocks can be mounted inside or outside the hazardous area.
- No additional handles or levers are required on the safety guard.
- The door handle is latching.

The STS is available with
- an emergency handle to open the safety guard from within the hazardous area.
- a lockout tag against unintentional locking.
- a centring device. The centring device, which is also suitable as end stop, provides for a proper centring of the safety guard, thus enabling a smooth insertion or extraction of the actuator and can be used with all types of actuators.

Hazardous areas of machines and plants can be so large, that the machine can be entered completely by personnel.

The Machinery Directive requires that in this case personnel cannot be inadvertently locked into the hazardous area.

To prevent this situation, the Schmersal solenoid interlocks can be fitted with an emergency exit system. This allows personnel to evacuate the hazardous area easily. By opening the emergency release, the safety circuit of the machine is interrupted and the machine is shut down.

However, in order not to endanger personnel that could be inside the hazardous area during the machine start-up or restart, a few aspects have to be taken into account.

First of all, the start button must be installed in a location where the operator has a complete overview of the hazardous area. In addition, the start button must not be accessible from inside the hazardous area.

Secondly, it is strongly recommended to use a safety control module with a monitored start circuit. These safety control modules enable only a trailing edge signal from the start button, i.e. they enable when the button is released, not when it is pressed.
The trailing edge control module can thus detect a failure in the start button (e.g. contact welding) and manipulation. The safety control modules of the Schmersal Group include monitored start function.

azardous areas

Since solenoid interlocks are either locked or unlocked by a solenoid, they require different solutions for manual unlocking in power-off condition (for example during machine installation or maintenance) than for unlocking during machine operation.

Manual release
During the mounting and installation of machinery fitted with spring-to-lock (power to unlock) solenoid interlocks require a way of opening the safety guard during a power failure, usually by means of a tool such as a triangular key. The Schmersal solenoid interlocks are fitted with such an auxiliary unlocking mechanism, the so-called “manual release” (Fig. 2 and 3).

Upon operation of the manual release, the positive break safety contacts are simultaneously opened, thus preventing unexpected machine restart.

Emergency exit
The emergency exit allows an intentional opening of the safety guard from within the machine without tools, for example when personnel trapped inside a machine must quickly evacuate the hazardous area
(Fig. 1, 2 and 4).

Emergency release
With an emergency release, the safety guard can be opened from outside the hazardous area without the operator using any tool, for example when a fast intervention into the hazardous area is required to guarantee process safety.

Unlocking is possible without special tools, resetting however requires a repair-like intervention.

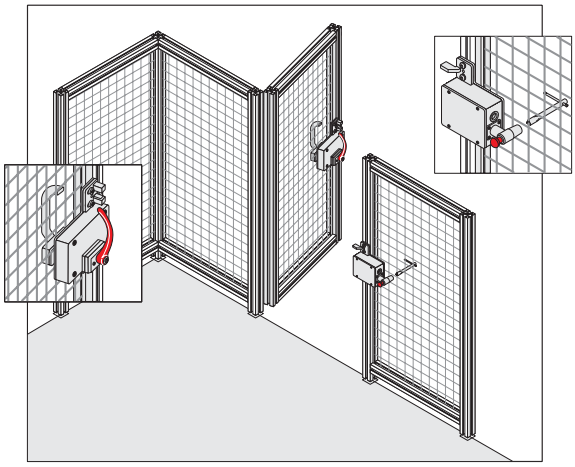


Fig. 2: Mounting of an AZM 415…TEI solenoid interlock with emergency exit inside the hazardous area and manual release outside the hazardous area

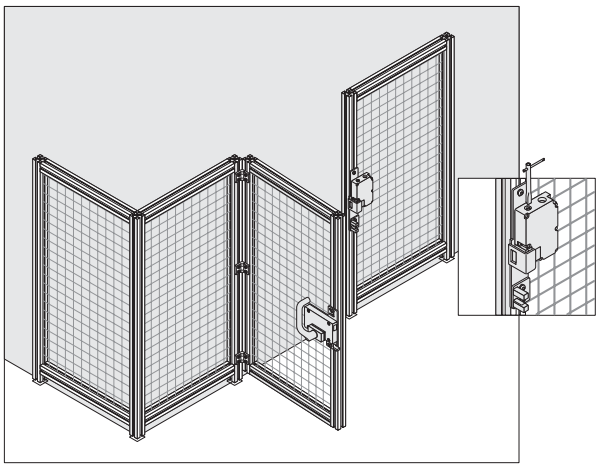


Fig. 3: Mounting of an AZM 161… solenoid interlock with manual release outside the hazardous area

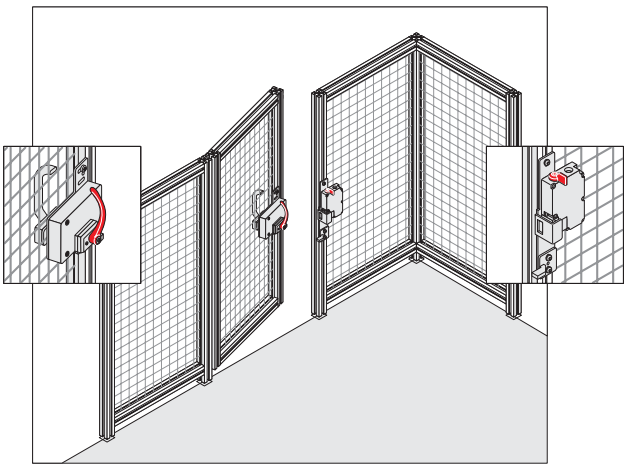


Fig. 1: Mounting of an AZM 161…T solenoid interlock with emergency exit inside the hazardous area

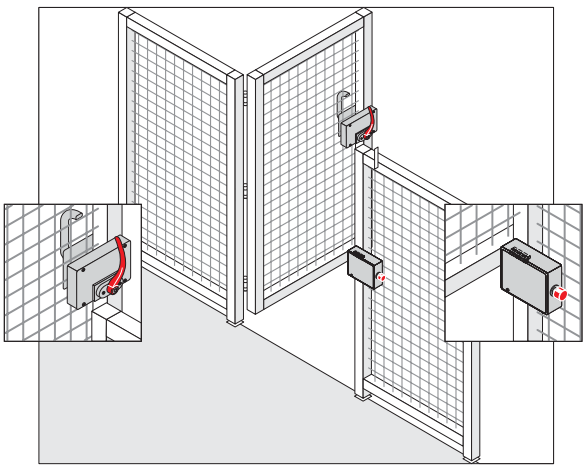
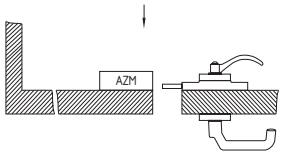
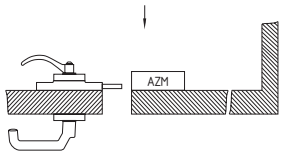
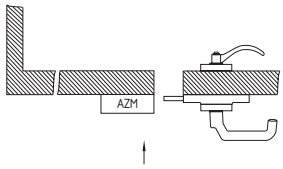
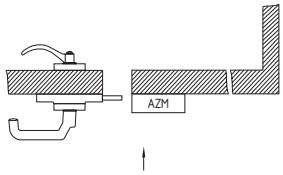
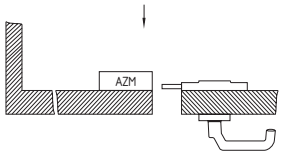
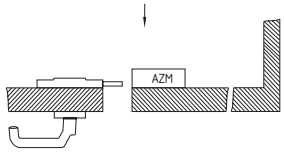
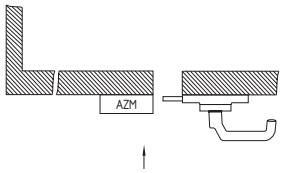
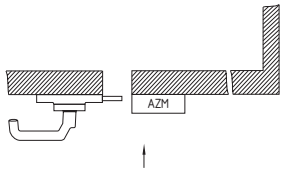


Fig. 4: Mounting of an AZM 415…T solenoid interlock with emergency exit inside the hazardous area

Selection table: Safety door-handle system

Actuator	Mounting position actuator	Door hinge	Safety switch with sepa AZ 16
With emergency handle	inside	right 	AZ 16-STS30-01 *
		left 	AZ 16-STS30-02 *
	outside	right 	AZ 16-STS30-05
		left 	AZ 16-STS30-06
Without emergency handle	inside	right 	AZ 16-STS30-03 *
		left 	AZ 16-STS30-04 *
	outside	right 	AZ 16-STS30-07
		left 	AZ 16-STS30-08

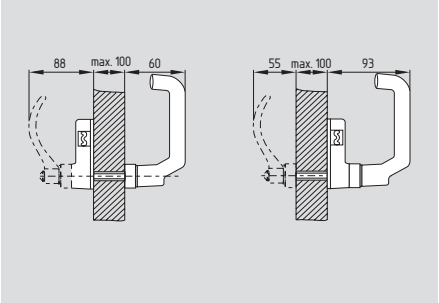
* For actuators mounted on the inside, mounting plate **MP TG-01** (see page 14, not included) must be used to fix the door handle to the profile.

View from inside the hazardous area

View from outside the hazardous area

ate actuator		Solenoid interlocks		Safety sensor
AZ 3350	AZ 415	AZM 161	AZM 415	ICS
AZ 3350-STS30-01 *	AZ 415-STS30-01 *	AZM 161-STS30-01 *	AZM 415-STS30-01 *	–
AZ 3350-STS30-02 *	AZ 415-STS30-02 *	AZM 161-STS30-02 *	AZM 415-STS30-02 *	–
AZ 3350-STS30-05	AZ 415-STS30-05	AZM 161-STS30-05	AZM 415-STS30-05	ICS 4 ST1-B30-05
AZ 3350-STS30-06	AZ 415-STS30-06	AZM 161-STS30-06	AZM 415-STS30-06	ICS 4 ST1-B30-06
AZ 3350-STS30-03 *	AZ 415-STS30-03 *	AZM 161-STS30-03 *	AZM 415-STS30-03 *	–
AZ 3350-STS30-04 *	AZ 415-STS30-04 *	AZM 161-STS30-04 *	AZM 415-STS30-04 *	–
AZ 3350-STS30-07	AZ 415-STS30-07	AZM 161-STS30-07	AZM 415-STS30-07	ICS 4 ST1-B30-07
AZ 3350-STS30-08	AZ 415-STS30-08	AZM 161-STS30-08	AZM 415-STS30-08	ICS 4 ST1-B30-08

AZ 16

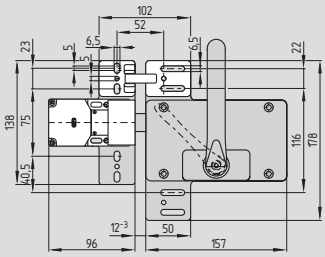


- Thermoplastic enclosure
- Long life
- Double insulated ⧈
- 3 cable entries M16 x 1.5
- Large wiring compartment
- High level of contact reliability with low voltages and currents
- Available with LED
- Available with AS-Interface Safety at Work
- Shearing force 15,000 N
- Door handle latching
- Lockout tag against unintentional locking available
- Centring device available

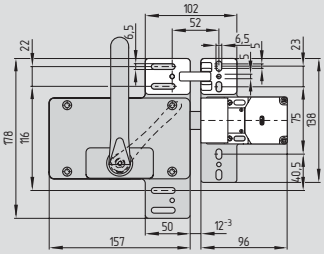
Technical data

Standards:	IEC/EN 60947-5-1 EN 1088 BG-GS-ET-15
Enclosure:	glass-fibre reinforced thermo-plastic, self-extinguishing
Actuator:	stainless steel 1.4301
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	changeover with double break Zb, or 2 NC contacts or 3 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contact with positive break
Termination:	screw terminals -ST: Connector M 12 x 1.4 poles
Cable size:	max. 2.5 mm^2 (incl. conductor ferrules)
Cable entry:	3x M 16 x 1.5
U_{imp}:	6 kV
U_i:	500 V
I_{the}:	10 A
Utilisation category:	AC-15, DC-13
I_e/U_e:	4 A / 230 VAC 4 A / 24 VDC
Max. fuse rating:	6 A gL/gG D fuse
Positive break travel:	8 mm
Positive break force:	10 N for each NC contact fitted
Ambient temperature:	– 30 °C … + 80 °C
Mechanical life:	> 1 million operations
Latching force:	30 N for ordering suffix r

AZ 16-STS30-…



AZ 16 STS30-02/-04/-05/-07



AZ 16 STS30-01/-03/-06/-08

Approvals

BG UL SP CE

Ordering details

AZ16-①zvk-②-③

N°	Replace	Description
①		1 NO/1 NC
	02	2 NC
	03	3 NC
	12	1 NO/2 NC
②		Without LED
	G24	With LED
③		Cable entry M 16
	M20	Cable entry M 20
	ST	Connector M12 x 1 (only for 2 contacts)

Notice

Included in delivery

- Mounting plate for safety switch
- Actuator incl. mounting plate
- Emergency handle (for variant -05 and -06 incl. mounting plate)

Ordering example

To order, first choose the desired safety switch and then the door handle system:
for example AZ 16-02zvrk-ST and AZ 16-STS30-01.

Accessories see page 14.

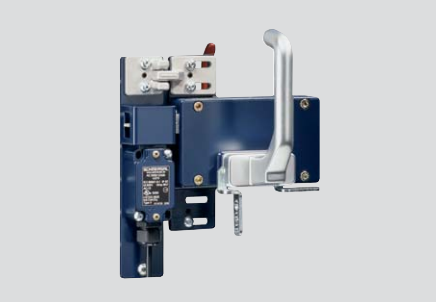
Ordering details

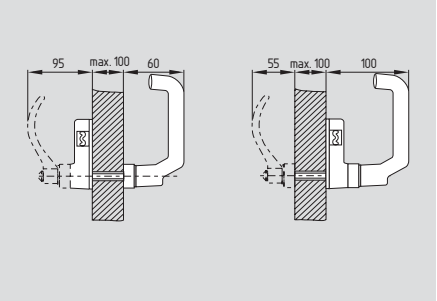
Mounting inside,	
with emergency handle	AZ 16-STS30-01
	AZ 16-STS30-02
without emergency handle	AZ 16-STS30-03
	AZ 16-STS30-04
Mounting outside,	
with emergency handle	AZ 16-STS30-05
	AZ 16-STS30-06
without emergency handle	AZ 16-STS30-07
	AZ 16-STS30-08

The drawings are always shown with a view to the switch.

Safety door-handle system

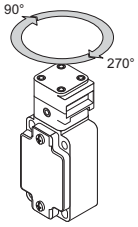
AZ 3350





- Metal enclosure
- Long life
- High level of contact reliability with low voltages and currents
- 1 cable entry M20 x 1.5
- Shearing force 15,000 N
- Door handle latching
- Lockout tag against unintentional locking available
- Centring device available

- Actuating head:

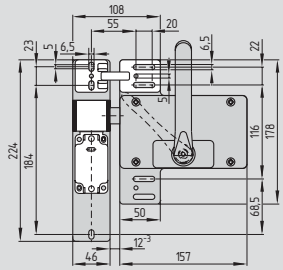


Approvals

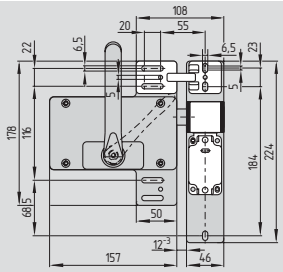
Technical data

Standards:	IEC/EN 60947-5-1 EN 1088 BG-GS-ET-15
Enclosure:	light-alloy diecast, paint finish
Actuator:	brass, blue chrome-plated
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	changeover with double break Zb, or 2 NC contacts, or 3 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contact with positive break
Termination:	screw terminals
Cable size:	max. 1.5 mm² (incl. conductor ferrules)
Cable entry:	1x M 20 x 1.5
U_{imp}:	4 kV
U_i:	250 V
I_{the}:	10 A
Utilisation category:	AC-15
I_e/U_e:	4 A / 230 V
Max. fuse rating:	6 A gL/gG D fuse
Positive break travel:	10.7 mm
Positive break force:	5 N for each NC contact fitted
Ambient temperature:	– 30 °C … + 90 °C
Mechanical life:	1 million operations

AZ 3350-STS30-…



AZ 3350 STS30-02/-04/-05/-07



AZ 3350 STS30-01/-03/-06/-08

Ordering details

AZ 3350-①-②-③

N°	Replace	Description
①	03-zk	3 NC
	12-zük	1 NO/2 NC
②	1637	Gold contacts
③	U90	Actuating head can be rotated 90° for door hinge left
	U270	270° rotation for door hinge right

Notice

Included in delivery
- Mounting plate for safety switch
- Actuator incl. mounting plate
- Emergency handle (For variant -05 and -06 incl. mounting plate)

Ordering example
To order, first choose the desired safety switch and then the door handle system:
for example AZ 3350-12-zük-U90 and AZ 3350-STS30-02.

Accessories see page 14.

Ordering details

Mounting inside,

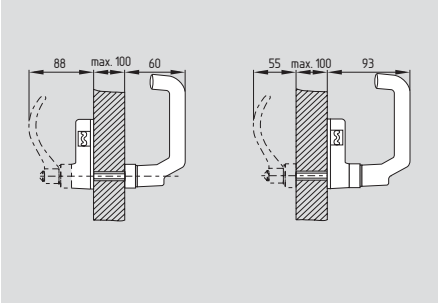
with emergency handle	AZ 3350-STS30-01
	AZ 3350-STS30-02
without emergency handle	AZ 3350-STS30-03
	AZ 3350-STS30-04

Mounting outside,

with emergency handle	AZ 3350-STS30-05
	AZ 3350-STS30-06
without emergency handle	AZ 3350-STS30-07
	AZ 3350-STS30-08

The drawings are always shown with a view to the switch.

AZ 415

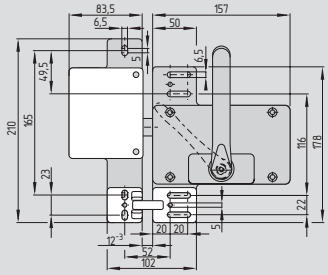


- Metal enclosure
- 2 switches with different actuating functions in a single enclosure
- Long life
- High level of contact reliability with low voltages and currents
- 2 cable entries M20 x 1.5
- Adjustable ball latch to 500 N
- Shearing force 30,000 N
- Door handle latching
- Lockout tag against unintentional locking available
- Centring device available

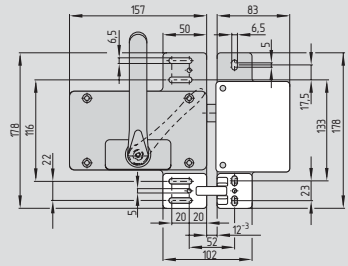
Technical data

Standards:	IEC/EN 60947-5-1 EN 1088 BG-GS-ET-15
Enclosure:	light-alloy diecast, paint finish
Actuator:	brass, blue chromed-plated
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	changeover with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contact with positive break
Termination:	screw terminals
Cable size:	max. 1.5 mm² (incl. conductor ferrules)
Cable entry:	2x M 20 x 1.5
U_{imp}:	4 kV
U_i:	250 V
I_{the}:	6 A
Utilisation category:	AC-15
I_e/U_e:	4 A / 230 VAC
Max. fuse rating:	6 A gL/gG D fuse
Positive break travel:	3.8 mm
Positive break force:	min. 31 N
Ambient temperature:	– 25 °C … + 70 °C
Mechanical life:	> 1 million operations
Latching force:	0 - 500 N (adjustable)

AZ 415-STS30-…



AZ 415 STS30-02/-04/-05/-07



AZ 415 STS30-01/-03/-06/-08

Approvals

BG UL SP CE

Ordering details

AZ 415-①zpk

N°	Replace	Description	
①		**S1: ⊖**	**S2:**
	02/11	2 NC	1 NO/1 NC
	02/02	2 NC	2 NC
	02/20	2 NC	2 NO
	11/11	1 NO/1 NC	1 NO/1 NC

Notice

Included in delivery

- Mounting plate for safety switch
- Actuator incl. mounting plate
- Emergency handle (For variant -05 and -06 incl. mounting plate)

Ordering example

To order, first choose the desired safety switch and then the door handle system:
for example AZ 415-11/11zpk and
AZ 415-STS30-01

Accessories see page 14.

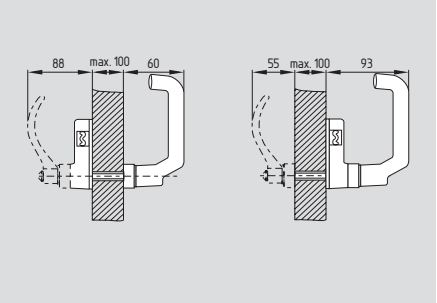
Ordering details

Mounting inside,	
with emergency handle	AZ 415-STS30-01
	AZ 415-STS30-02
without emergency handle	AZ 415-STS30-03
	AZ 415-STS30-04
Mounting outside,	
with emergency handle	AZ 415-STS30-05
	AZ 415-STS30-06
without emergency handle	AZ 415-STS30-07
	AZ 415-STS30-08

The drawings are always shown with a view to the switch.

Safety door-handle system with solenoid interlock

AZM 161

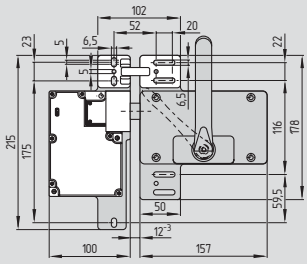


- Thermoplastic enclosure
- 6 contacts
- Manual release, emergency exit or emergency release
- Long life
- Double insulated ⧈
- High holding force 2,000 N
- Power to lock / Spring to lock
- Cage clamps or screws terminals
- 4 cable entries M16 x 1.5
- AS-Interface Safety at Work available
- Shearing force 15,000 N
- Door handle latching
- Lockout tag against unintentional locking available
- Centring device available

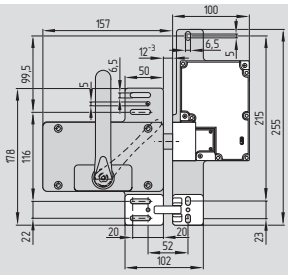
Technical data

Standards:	IEC/EN 60947-5-1 EN 1088 BG-GS-ET-19
Enclosure:	glass-fibre reinforced thermo-plastic, self-extinguishing
Actuator and latching bolt:	stainless steel 1.4301
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	changeover with double break Zb, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contact with positive break
Termination:	screw terminals or cage clamps
Cable size:	max. 1.5 mm² (incl. conductor ferrules)
Cable entry:	4x M 16 x 1.5
U_{imp}:	4 kV
U_i:	250 V
I_{the}:	10 A
Utilisation category:	AC-15, DC-13
I_e/U_e:	4 A / 230 VAC 2.5 A / 24 VDC
Max. fuse rating:	6 A gL/gG D fuse
Positive break travel:	9.5 mm
Positive break force:	10 N for each NC contact fitted
U_s:	24 VAC/DC 110/230 VAC, 50/60Hz
Solenoid:	100% ED
Power consumption:	max. 10 W
Ambient temperature:	– 25 °C … + 60 °C
Mechanical life:	> 1 million operations
F_{max}:	2,000 N
Latching force:	30 N

AZM 161-STS30-…



AZM 161 STS30-02/-04/-05/-07



AZM 161 STS30-01/-03/-06/-08

Approvals

BG UL SP CE

Ordering details

AZM 161 ①-12/12rk②-③-④

N°	Replace	Description
①	SK	Screw terminals
	CC	Cage clamps
	ST	Connector M 12 x 1 (wiring, see Main Catalogue)
②		Spring to lock
	a	Power to lock
③		Manual release
	T	Emergency exit
	N	Emergency release
④	024	U_s 24 VAC/DC
	110/230	U_s 110 / 230 VAC

Notice

Included in delivery

- Mounting plate for safety switch
- Actuator incl. mounting plate
- Emergency handle (For variant -05 and -06 incl. mounting plate)

Ordering example

To order, first choose the desired solenoid interlock and then the door handle system: for example AZM SK-12/12rk-T-024 and AZM 161-STS30-01

Accessories see page 14.

Ordering details

Mounting inside,

with emergency handle	AZM 161-STS30-01
	AZM 161-STS30-02
without emergency handle	AZM 161-STS30-03
	AZM 161-STS30-04

Mounting outside,

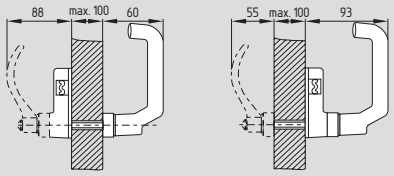
with emergency handle	AZM 161-STS30-05*
	AZM 161-STS30-06*
without emergency handle	AZM 161-STS30-07
	AZM 161-STS30-08

(* Only power to lock)

The drawings are always shown with a view to the switch.

Safety door-handle system with solenoid interlock

AZM 415



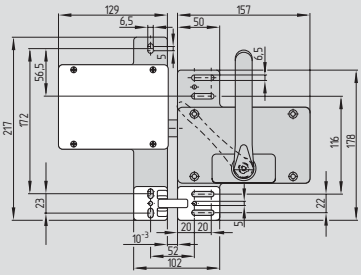
A: Adjusting screw ball latch 0 - 500 N

- Metal enclosure
- Two switches in one enclosure
- Robust design
- Long life
- High holding force 3,500 N
- Adjustable ball latch to 500 N
- Various manual and emergency releases available
- Spring to lock / Power to lock
- 2 cable entries M20 x 1.5
- EEx version available
- Shearing force 30,000 N
- Door handle latching
- Lockout tag against unintentional locking available
- Centring device available

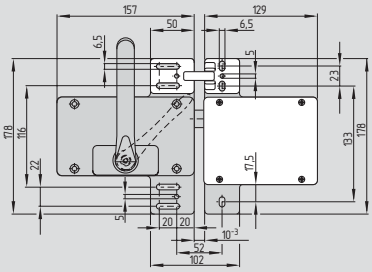
Technical data

Standards:	IEC/EN 60947-5-1 EN 1088 BG-GS-ET-19
Enclosure:	light-alloy diecast, paint finish
Actuator:	brass, blue chromed-plated
Protection class:	IP 54 or IP 67 to EN 60529
Contact material:	silver
Contact type:	changeover with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contact with positive break
Termination:	screw terminals
Cable size:	max. 2.5 mm^2 (incl. conductor ferrules)
Cable entry:	2 x M20 x 1.5
U_{imp}:	4 kV
U_i:	250 V
I_{the}:	6 A
Utilisation category:	AC-15
I_e/U_e:	4 A / 230 VAC
Max. fuse rating:	6 A (slow blow)
Positive break travel:	5 mm
Positive break force:	min. 15 N (depending on the setting of the ball latch)
Solenoid:	100% ED
U_s:	12 VDC 24 VAC/DC 110 VAC, 50/60 Hz 230 VAC, 50/60 Hz
Power consumption:	max. 10 W
Ambient temperature:	– 25 °C ... + 50 °C
Mechanical life:	> 1 million operations
F_{max}:	3,500 N
Holding force of the integrated ball latch:	0 - 500 N (adjustable)

AZM 415-STS30-...



AZM 415 STS30-02/-04/-05/-07



AZM 415 STS30-01/-03/-06/-08

Approvals

Ordering details

AZM 415 -22zpk①-②

N°	Replace	Description
①		Spring to lock
	a	Power to lock
②		Without manual release
	E	Manual release: with triangular key
	F	With triangular key (sealing screw)
	RS	Cylinder lock with key
	T	Emergency exit
	NS	Emergency release
	TE	Emergency exit inside + manual release outside, interlock mounting outside
	TEI	As above, interlock mounting inside

Notice

Included in delivery

- Mounting plate for safety switch
- Actuator incl. mounting plate
- Emergency handle (For variant -05 and -06 incl. mounting plate)

Ordering example

To order, first choose the desired solenoid interlock and then the door handle system:
for example AZM 415-22zpk-TEI and
AZM 415-STS30-01

Accessories see page 14.

Ordering details

Mounting inside,

with emergency handle	AZM 415-STS30-01
	AZM 415-STS30-02
without emergency handle	AZM 415-STS30-03
	AZM 415-STS30-04

Mounting outside,

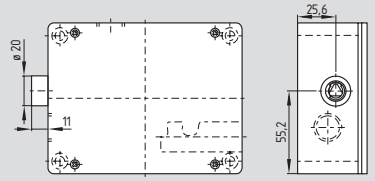
with emergency handle	AZM 415-STS30-05*
	AZM 415-STS30-06*
without emergency handle	AZM 415-STS30-07
	AZM 415-STS30-08

(* Only version TE)

The drawings are always shown with a view to the switch.

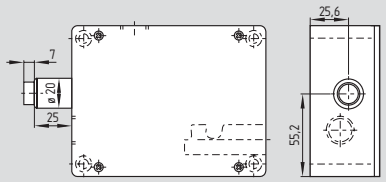
Safety door-handle system with solenoid interlock

AZM 415-22xpkE



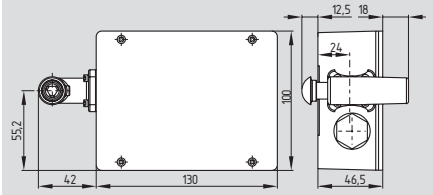
- **Manual release**
- Release by means of M5 triangular key
- M5 triangular key available as accessory
- For maintenance, setting-up, etc.
- Only used on units with spring to lock

AZM 415-22xpkNS



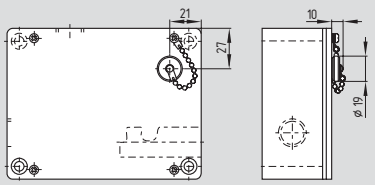
- **Emergency release**
- Emergency release is used where an „inadvertently locked-in“ person must leave a dangerous, already interlocked area
- Release by pressing in the lock button
- Resetting can only be carried out by authorised personnel using key
- In released condition, the guard device is protected against unintentional closing

AZM 415-22zpkTE



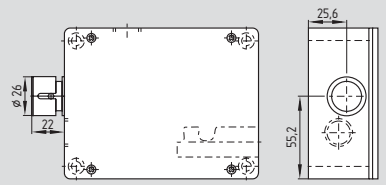
- **Manual release**
- Release and resetting using M5 triangular key
- **Emergency exit** by pushing the red latched button
- Resetting by pulling on the red latched button
- In released condition, the guard device is protected against unintentional closing
- **Interlock mounting outside**

AZM 415-22zpkF



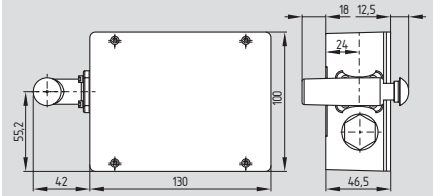
- **Manual release**
- Release by means of M5 triangular key After removing the sealing screws, manual release can be carried out using an M5 triangular key
- M5 triangular key available as accessory
- A chain secures the sealing screw against loss
- Only used on units with spring to lock

AZM 415-22xpkT



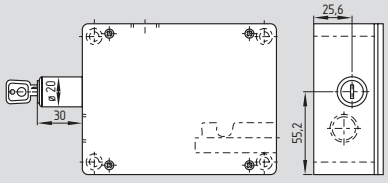
- **Emergency exit**
- Emergency exit is used where an “inadvertently locked-in” person must leave a dangerous, already interlocked area
- Emergency exit by pushing the red latched button
- Resetting by pressing in the latching pin
- In released condition, the guard device is protected against unintentional closing

AZM 415-22zpkTEI



- **Manual release**
- Release and resetting using M5 triangular key
- **Emergency exit** by pushing the red latched button
- Resetting by pulling on the red latched button
- In released condition, the guard device is protected against unintentional closing
- **Interlock mounting inside**

AZM 415-22xpkRS



- **Manual release**
- Release by means of cylinder lock
- Resetting can only be carried out by authorized personnel using key
- Only used on units with spring to lock
- In released condition, the guard device is protected against unintentional closing

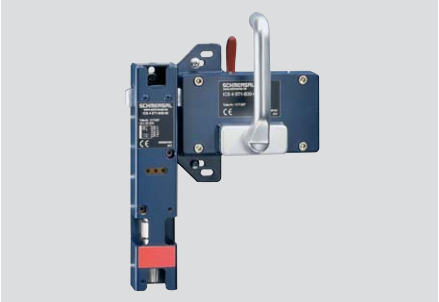
Notice

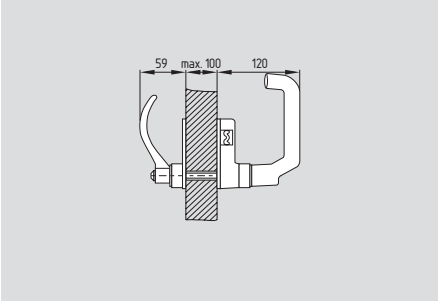
The IP protection class depends on the type of release and is indicated by an x or z in the ordering suffix.

Protection class IP 54	
for example	AZM 415-22xpkNS
Protection class IP 67	
for example	AZM 415-22zpkF

Safety door-handle system with coded ICS safety sensor

ICS



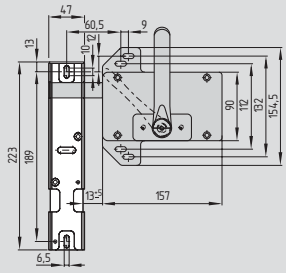


- Metal enclosure with individually coded ICS safety sensor
- Operation without physical contact
- Control category 4
- Actuator ICS-B30 incl. mounting plate for easy mounting
- Axial offset of ± 3 mm possible
- Connector ST1
- Shearing force 67,000 N
- Door handle is latching in closed condition
- Lockout tag against unintentional locking available
- Centring device available

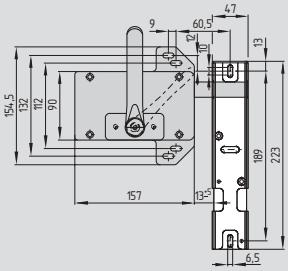
Technical data

Standards:	IEC/EN 60947-5-3 PDF/M
Control category:	4 to EN 954-1
Enclosure:	metal capsulated
Protection class:	IP 67 to EN 60529
Protection class:	II to IEC 60947-1
Termination:	connector, 6 poles, M 23 x 1 (Conninvers RC)
Operating principle:	transponder
Switching distance, hysteresis:	13 ± 5 mm, < 15%
Switching status indication:	LED, 2 x identification (green); 1 x fault (red)
Input voltage $U_{L1,L2}$:	12 ... 24 ... 30 VDC, cyclic: pulse: 1 ... 5 ms; pause: 1 ... 5 ms
Output voltage $U_{A1,A2}$:	$U_{L1,L2} - 5\ V < U_{A1,A2} < U_{L1,L2} - 1\ V$
Output current:	< 400 mA for each output
Outputs:	2 semi-conductor outputs, PNP
Response time:	> 150 ms, typ. 185 ms
Switch-off time:	> 75 ms, typ. 100 ms
Max. cable length:	300 m
Operating voltage U_{L+}:	15 ... 24 ... 30 VDC
Operating current I_e:	< 90 mA
Ambient temperature:	– 30 °C ... + 60 °C
Shock resistance:	30 g / 11 ms
Resistance to vibrations:	10 ... 55 Hz, Amplitude 1 mm

ICS 4 ST1-B30-...



ICS 4 ST1-B30-05/-07



ICS 4 ST1-B30-06/-08

Approvals

Ordering details

ICS 4 ... Ordering details see on the right

Notice

Included in delivery
- ICS... safety sensor
- Mounting plate for safety switch
- Actuator incl. mounting plate
- Emergency handle incl. mounting plate

Ordering example
To order, simply choose the desired safety sensor including the door handle system: for example ICS 4 ST1-B30-05

Accessories see page 14.

Ordering details

Mounting outside,

with emergency handle	ICS 4 ST1-B30-05
	ICS 4 ST1-B30-06
without emergency handle	ICS 4 ST1-B30-07
	ICS 4 ST1-B30-08

The drawings are always shown with a view to the switch.

Safety door-handle system with coded safety sensor

Notice

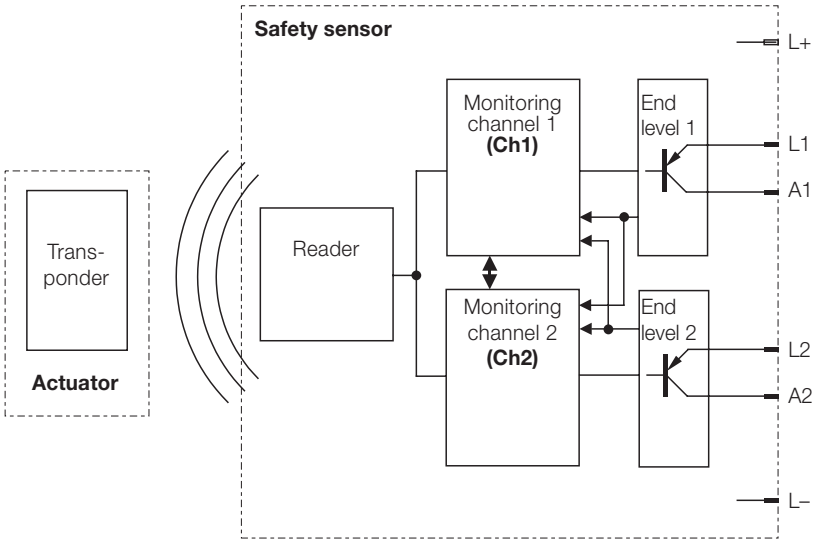
Operating principle
The ICS safety sensor in combination with its individually coded ICS-B30 actuator is based on the identification principle. The machine can only start when the ICS-B30 actuator is in locked position. Two self-monitoring channels monitor the safety code in the safety sensor. Each channel has an output with two output transistors.

This output monitoring detects short-circuits between the output and the supply and prevents the machine start-up. Earth faults and low voltage of an output cause the two outputs to be switched-off.
The safety control module typically is a safety PLC or a guard door monitor. Generally, these devices provide the power supply for the safety sensor and its two outputs. The output supply emits cyclic signals for cable breakage or cross-wire monitoring.

Function
The enabling signal for the safety circuit is active for as long as the ICS-B30 actuator is inserted and in locked position in the ICS safety sensor. In this situation, the two LED's (CH1 + CH2) of the ICS safety sensor are green. The hysteresis range is signalled by a red flashing LED (ERR) (the outputs remain enabled and show the typical hysteresis behaviour). When leaving the hysteresis range, the green LED's extinguish and the red LED lights.

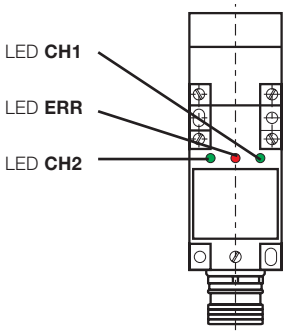
The LED indications signal the ICS status (actuated/not actuated) and possible fault situations. Below, a few possibilities are shown:

Wiring example



This diagram shows the mounting of the ICS with its dual-channel structure

LED

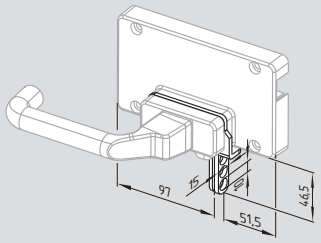


Notice

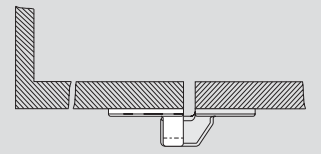
Situation	LED **CH1** (green)	LED **CH2** (green)	LED **ERR** (red)
Normal operation			
Sensor actuated	ON	ON	OFF
Sensor not actuated	OFF	OFF	ON
Hysteresis range	ON	ON	flashes
Fault situations			
Malfunction CH1	OFF	ON	ON
Malfunction CH2	ON	OFF	ON
Short-circuit CH1*	flashes	flashes	ON
Short-circuit CH2*	flashes	flashes	ON

* For supply voltage (L+ or L-)

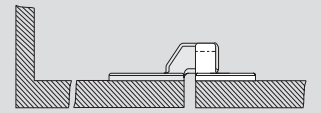
Accessories



Lockout tag SZ 415-1/-2

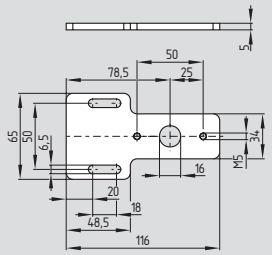


Centring device TFA

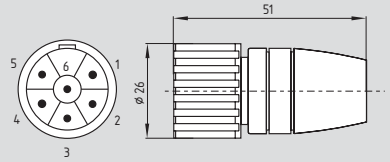


Centring device TFI

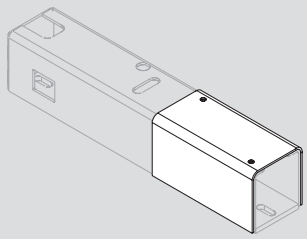
Accessories



Mounting plate MP TG-01



Euroconnector ISC 4 ST1



ICS-Cover

Ordering details

Accessories general

Lockout tag

for …STS30-01/-03/-06/-08	**SZ 415-1**
for …STS30-02/-04/-05/-07	**SZ 415-2**

Centring device:

Mounting outside	**TFA-010**
Mounting inside	**TFI-010**

Centring device only for AZ 16-STS30… and AZM 161-STS30…:

Mounting outside	**TFA-020**
Mounting inside	**TFI-020**

(Dimensions see page 15)

Ordering details

Accessories only for AZ and AZM

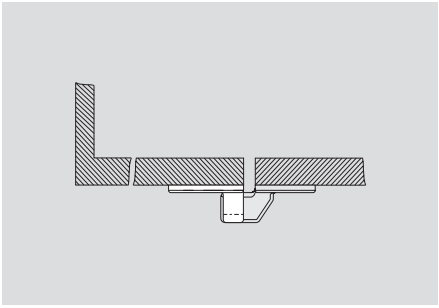
Mounting plate	**MP TG-01**

Accessories only for ICS

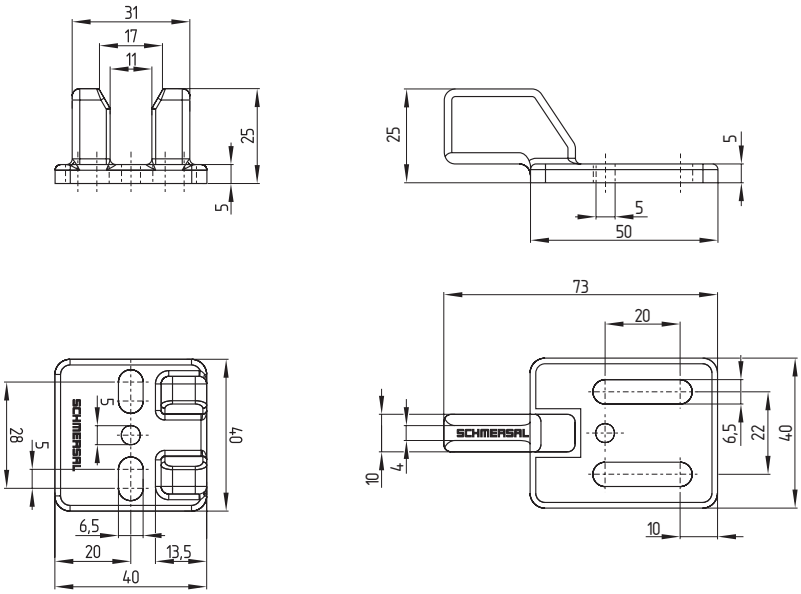
Euroconnector M23, 6 poles	**ICS 4 ST1**
Cover for connector	**ICS-Cover**

Centring device TF.

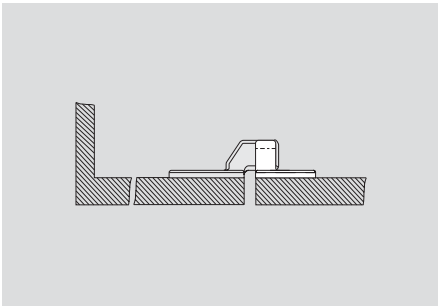
TFA



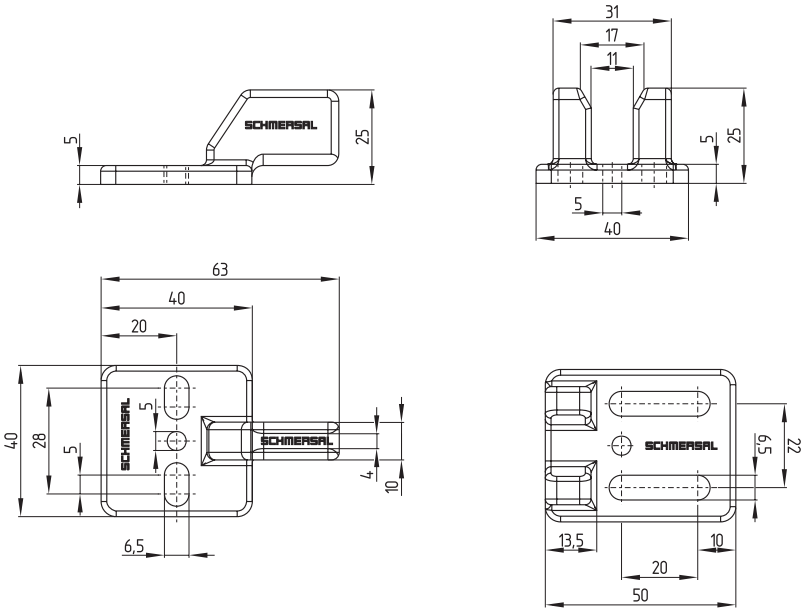
- **Mounting outside**
- Self-centring of the guard door
- End stop
- Suitable for all types of actuators
- Actuator can be easily inserted or extracted



TFI



- **Mounting inside**
- Self-centring of the guard door
- End stop
- Suitable for all types of actuators
- Actuator can be easily inserted or extracted



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