Explanations of features

Positive action normally closed contacts/normally open contacts

Safety switches have contact elements in normally closed contact/normally open contact combinations. The normally closed contacts of a safety switch are of the “positive action” type, i.e. the forced movement of the normally closed contact ensures that the contacts are separated every time. Normally open contacts primarily serve as signalling contacts and must not be used for the safety circuit.

Housing material

The housing materials used can be separated into two large groups - “metals” and “plastics”. The metal housing materials are available as both anodised die-cast light metal and painted die-cast zinc versions. Glass-fibre reinforced thermoplastics are exclusively used for the plastic housings.

Number of actuation directions

Safety switches can be actuated in different axes. The setting of the actuating direction is facilitated by the head, which can be rotated through 90 or 180 degrees. Up to 5 actuation directions can be implemented, depending on the type.

Type of actuator

The majority of safety switches have appropriately coded tongue-operated actuators that prevent simple manipulation of the switch.

The i1000 series has an additional handle-operated actuator with coded spindle. It is not actuated by applying a force but by applying a torque.

Safety switches with separate actuator

H

Safety application	Number of positive action normally closed contacts/normally open contacts [1]	Housing material [1]	Number x size of cable gland	Locking force	Type of actuator [1]	Product	Page
	1 / 1 2 / 0	Plastic	1 x M20	10 N	Tongue operated	i10	H-2
	1 / 0 2 / 1		1 x M16 or 3 x M16	10 N		i11S	H-7
	1 / 1 2 / 0 2 / 1		1 x M16	–		i12S	H-12
	1 / 1 2 / 0		3 x M20	30 N		i16S	H-17
	2 / 1		3 x M20	–		i17S	H-21
	3 / 1	Metal	1 x M20	10 N	Tongue operated	i100S	H-25
	3 / 1 2 / 2		1 x M20	5 N		i110S	H-31
	2 / 1		1 x PG13.5	–	Handle operated	i1001	H-35
	2 / 1		1 x PG13.5	–	Tongue operated	i1002	H-41

[1] Explanation see page H-0

H

- Housing material glass-fibre reinforced thermoplastic
- Five actuating directions
- Cable gland M20
- Enclosure rating IP 67

Overview of technical specifications

Number of positive action normally closed contacts (depending on type)	1 / 2
Number of normally open contacts (depending on type)	0 / 1
Type of actuator	Tongue operated
Housing material	Plastic
Number of cable entries	1
Size of the cable gland	M20
Locking force	10 N

Product description

- Safety switches with remote multi-coded actuator
- 2-pole contact element
- Various actuator versions available

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.

→ see N-0

Safety controllers

Safety controllers are utilised when the safety function (e.g. switching off a dangerous movement) is to be accomplished in a flexible way by logical combination of safety relevant signals. Operation of machinery becomes more flexible as well as generation of machine variants becomes more easy.

→ see O-0

Safety network solutions

Safety network solutions are utilised in plants and machinery of larger scale. This is saving cabling and enables modular design of the safety automation. Potential errors or faults can be easily localised and quickly trouble shooted thanks to comprehensive diagnostics functions. That significantly reduces machine down times.
SICK offers solutions for the open automation standards: AS-i Safety at Work, DeviceNet Safety and PROFIsafe.

→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
1	1	i10-A113	6022530
2	0	i10-A203	6022529

Please order actuator separately

Further information	Page
→ Actuators	H-4
→ Lockout bar	H-6
→ Other accessories	H-6
→ Services	A-2

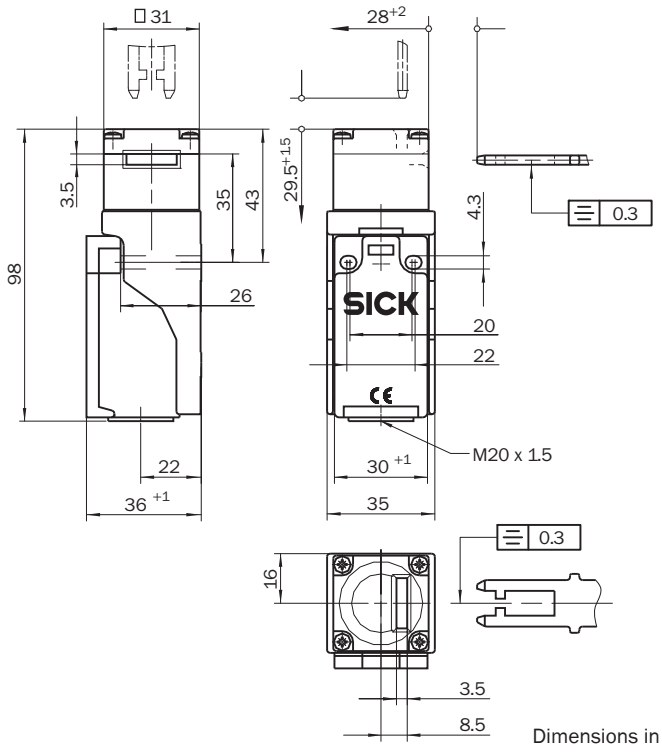
 8010889/2006-10-03

Detailed technical specifications

Type	i10-A113	i10-A203
Housing material	Glass-fibre reinforced thermoplastic	
Enclosure rating	IP 67	
Mechanical life (relay contacts)	1 x 10^6 switching cycles	
Ambient operating temperature from ... to	–20 °C ... +80 °C	
Maximum approach speed	333 mm/s	
Locking force	10 N	
Actuation frequency	Max. 1.94 Hz	
Switching principle	Slow-action switch	
Number of positive action normally closed contacts	1	2
Number of normally open contacts	1	0
Usage category in compliance with IEC 947-5-1	AC-15/DC-13	
Rated operating current (voltage)	4 A (230 V AC), 4 A (24 V DC)	
Rated insulation voltage U_i	250 V	
Rated impulse withstand voltage U_{imp}	2500 V AC	
Minimum switching voltage	24 V DC	
Minimum switching current (switching voltage)	30 mA (24 V DC)	
Contact material	Silver alloy, gold flashed	
Connection type	Cable gland	
Maximum connection cable cross-section	1.5 mm²	
Short-circuit protection	4A gG	
Weight	0.15 kg	0.14 kg

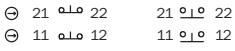
H

Dimensional drawings



Dimensions in mm

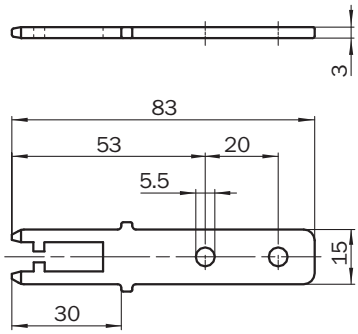
Switching elements

Actuator inserted	Actuator removed	
		11, 1 positive action N/C contact + 2 N/O contacts
		20, 2 positive action N/C contacts

Actuators

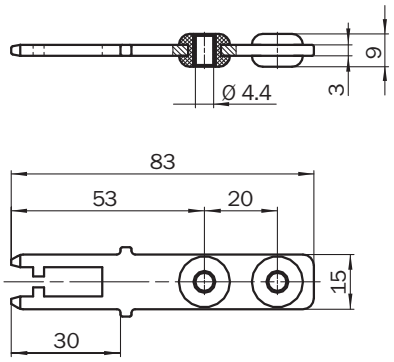
Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 1000 mm	iE10-S1	5306527
	Rubber-mounted	Min. 1000 mm	iE10-S2	5306530
Angled	Rigid	Min. 1000 mm	iE10-A1	5306535
Radius	Semi flexible	Min. 90 mm	iE10-R1	5306528
		Min. 100 mm	iE10-R2	5306529

iE10-S1



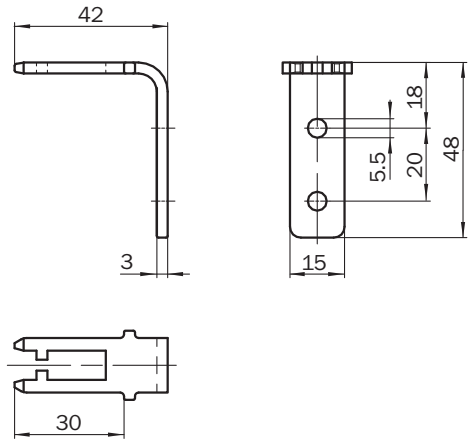
2 safety screws included.
Min. door radius 1000 mm.

iE10-S2



2 safety screws included.
Min. door radius 1000 mm.

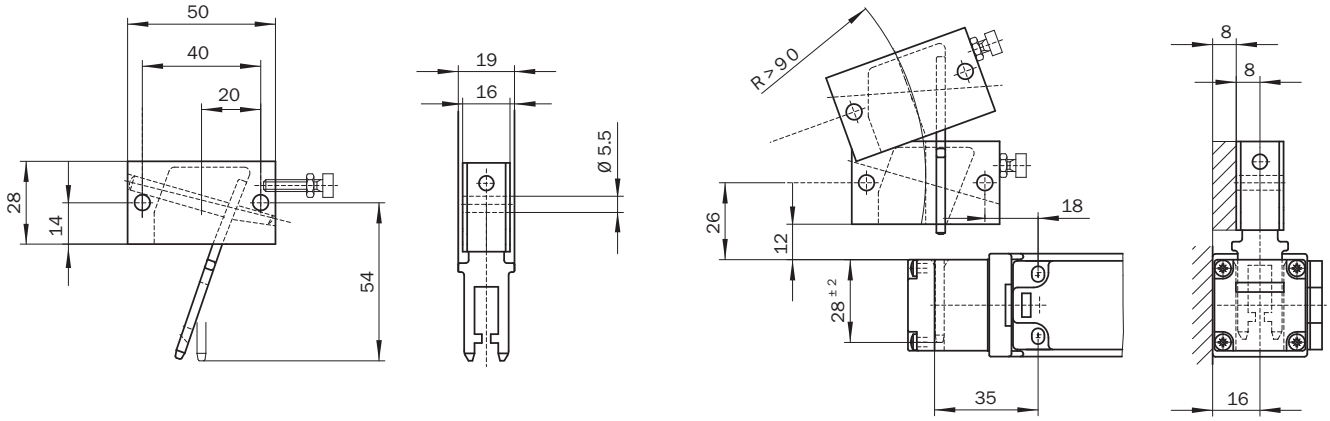
iE10-A1



2 safety screws included.
Min. door radius 1000 mm.

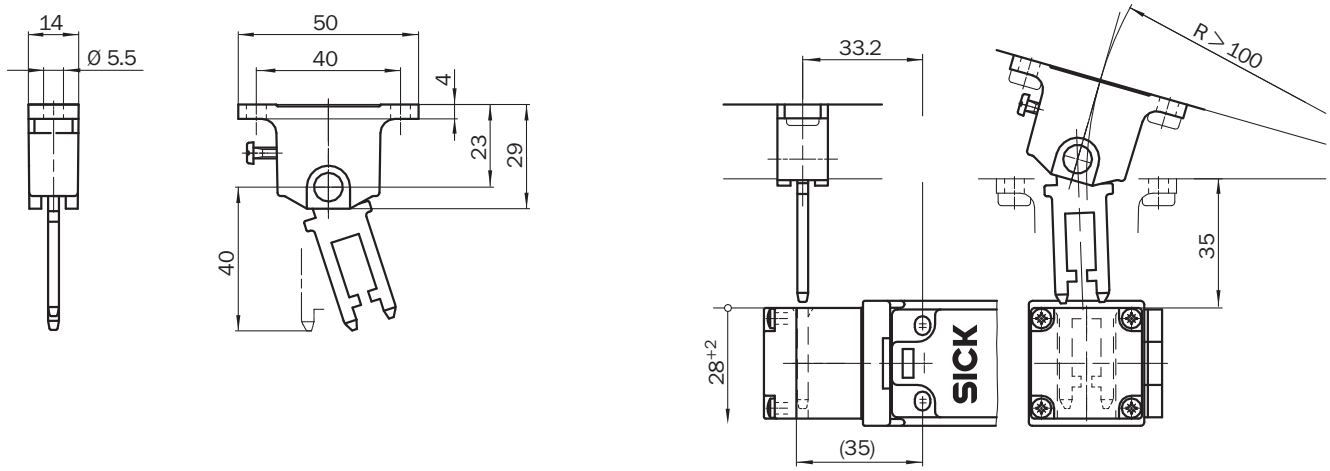
H

iE10-R1



2 safety screws included.
Min. door radius 90 mm.

iE10-R2



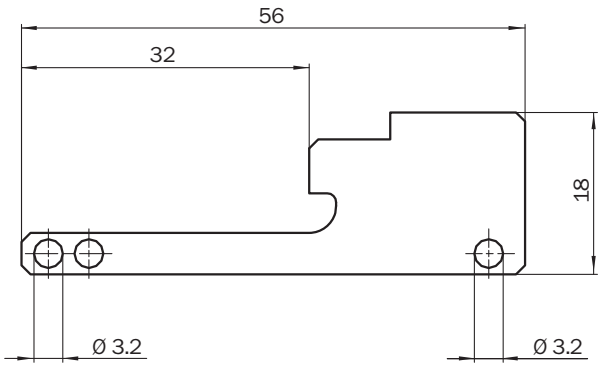
2 safety screws included.
Min. door radius 100 mm.

H

Lockout bar

Type	Part number
iE10-S3	5306536

iE10-S3



The locking bar can be inserted into the safety switch in place of the actuator when the safety guard is in the open condition and can be secured to prevent its removal by standard commercially available padlocks (max. 2 pcs.). This guarantees reliable protection for persons who have to enter potentially hazardous areas.

Other accessories

H

Cable gland

Type	Part number
Cable gland M20	5309164

Overview of technical specifications

Number of positive action normally closed contacts (depending on type)	1 / 2
Number of normally open contacts (depending on type)	0 / 1
Type of actuator	Tongue operated
Housing material	Plastic
Number of cable entries (depending on type)	1 / 3
Size of the cable gland	M16
Locking force	10 N

Product description

- Safety switches with remote multi-coded actuator
- 1- or 3-pole contact element
- Miniature design – ideal for direct mounting on framework

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.

→ see N-0

Safety controllers

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→ see O-0

Safety network solutions

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→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
1	0	i11-S103	6022584
2	1	i11-S213	6022583

Please order actuator separately

- Housing material glass-fibre reinforced thermoplastic
- Five actuating directions
- Cable gland M16
- Enclosure rating IP 67

H

Further information	Page
→ Technical specifications	H-8
→ Dimensional drawings	H-9
→ Switching elements	H-9
→ Actuators	H-10
→ Other accessories	H-11
→ Services	A-2

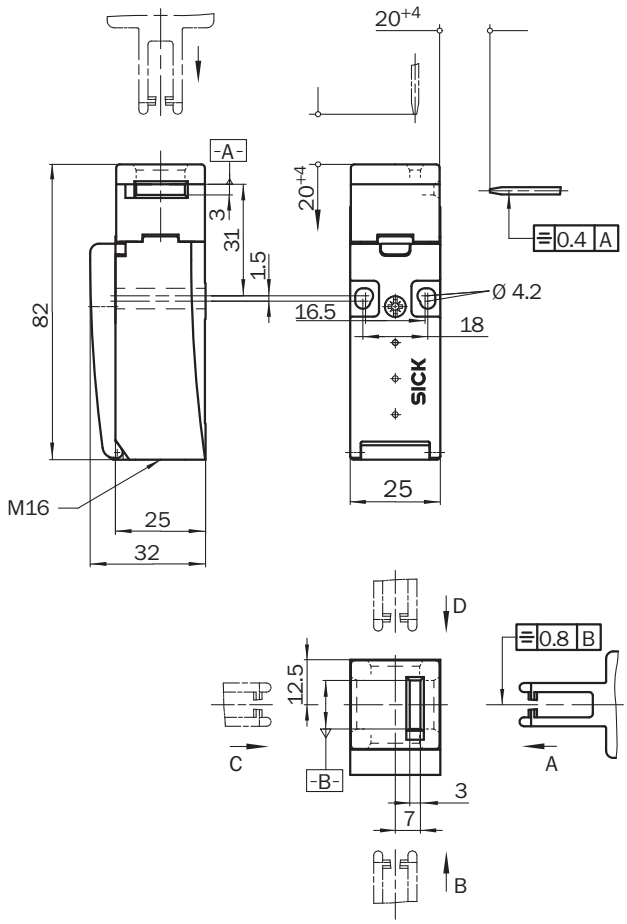
Detailed technical specifications

Type	i11-S103	i11-S213
Housing material	Glass-fibre reinforced thermoplastic	
Enclosure rating	IP 67	
Mechanical life (relay contacts)	1 x 10^6 switching cycles	
Ambient operating temperature from ... to	–20 °C ... +80 °C	
Maximum approach speed	333 mm/s	
Actuation force	Min. 6 N	
Locking force	10 N	
Actuation frequency	Max. 1.94 Hz	
Switching principle	Slow-action switch	
Number of positive action normally closed contacts	1	2
Number of normally open contacts	0	1
Usage category in compliance with IEC 947-5-1	AC-15/DC-13	
Rated operating current (voltage)	4 A (230 V AC), 4 A (24 V DC)	
Rated insulation voltage U_i	250 V	
Rated impulse withstand voltage U_{imp}	2500 V AC	
Minimum switching voltage	12 V DC	
Minimum switching current (switching voltage)	1 mA (24 V DC)	
Contact material	Silver alloy, gold flashed	
Connection type	Cable gland	
Maximum connection cable cross-section	1.5 mm²	
Short-circuit protection	4A gG	
Weight	0.1 kg	

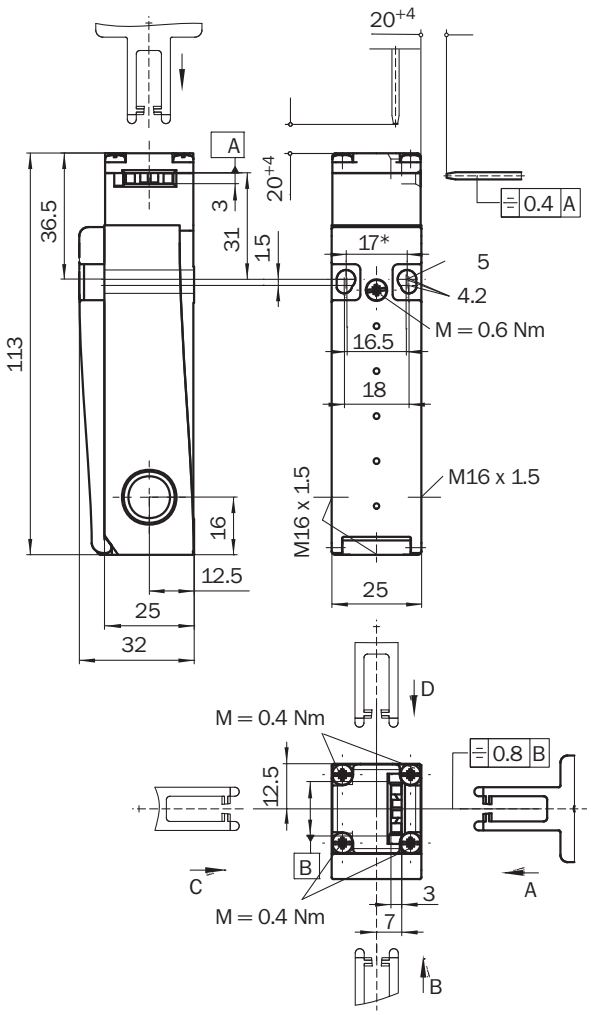
H

Dimensional drawings

i11-S103



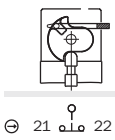
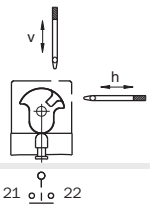
i11-S213



Dimensions in mm

H

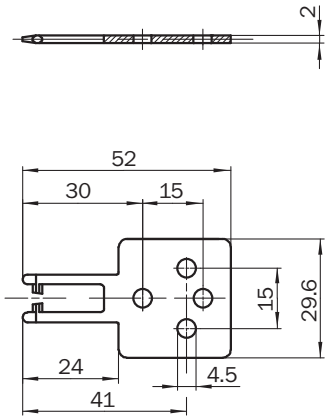
Switching elements

Actuator inserted	Actuator removed	
		
⊖ 21 22	21 22	10, 1 positive action N/C contact
⊖ 31 32 ⊖ 21 22 13 14	31 32 21 22 13 14	21, 2 positive action N/C contacts + 1 N/O contact

Actuators

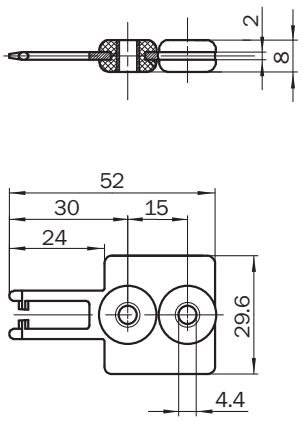
Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 150 mm	iE11-S1	5306537
	Rubber-mounted, in line	Min. 150 mm	iE11-S2	5306539
	Rubber-mounted, transversal	Min. 150 mm	iE11-S3	5306540
	Narrow	Min. 150 mm	iE11-S4	5318428
Angled	Rigid	Min. 150 mm	iE11-A1	5306538
	Rubber-mounted, transversal	Min. 150 mm	iE11-A2	5306541

iE11-S1



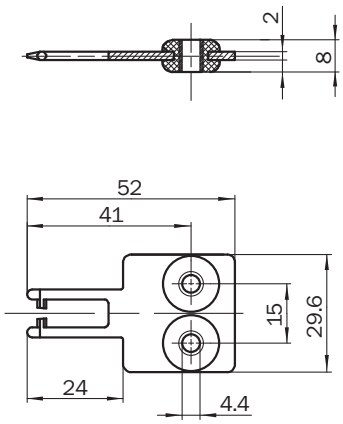
2 safety screws M4 x 14 included

iE11-S2



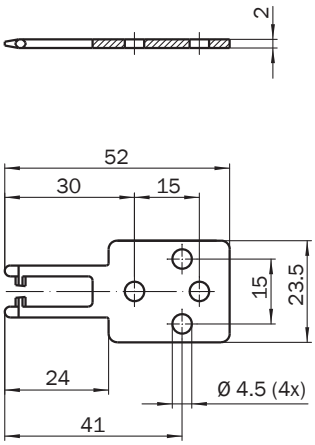
2 safety screws M4 x 14 included

iE11-S3



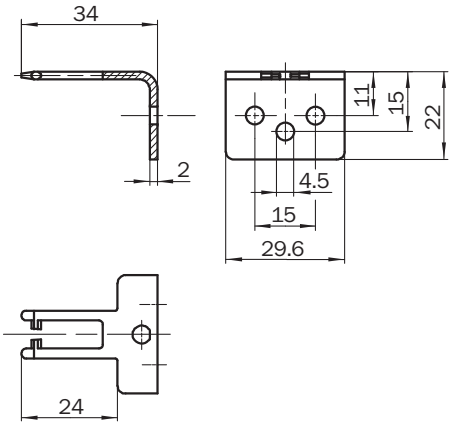
2 safety screws M4 x 14 included

iE11-S4



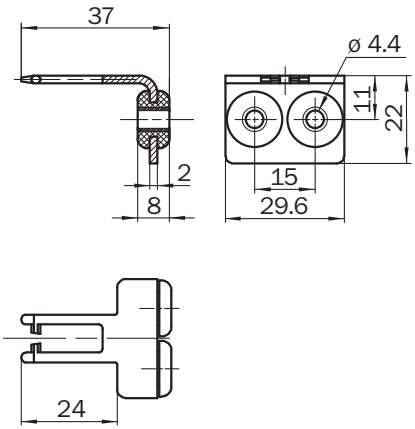
2 safety screws M4 x 14 included

iE11-A1



2 safety screws M4 x 14 included

iE11-A2



2 safety screws M4 x 14 included

Other accessories

Cable gland

Type	Part number
Cable gland M16	5309163

H

- Housing material glass-fibre reinforced thermoplastic
- Five actuating directions
- Cable gland M16
- Two designs: Miniature housing and design according to EN 50047
- Enclosure rating IP 67

H

Further information	Page
→ Dimensional drawings	H-14
→ Switching elements	H-15
→ Actuator travel diagram	H-15
→ Actuators	H-16
→ Other accessories	H-16
→ Services	A-2

Overview of technical specifications

Number of positive action normally closed contacts (depending on type)	1 / 2
Number of normally open contacts (depending on type)	0 / 1
Type of actuator	Tongue operated
Housing material	Plastic
Number of cable entries	1
Size of the cable gland	M16

Product description

- Safety switches with remote multi-coded actuator
- 2- or 3-pole contact element
- One version as miniature design – ideal for direct mounting on framework
- Suitable for very small door radius (60 mm), with appropriate actuator.

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.

→ see N-0

Safety controllers

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→ see O-0

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→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
1	1	i12-SA113	6025057
2	0	i12-SA203	6025100
	1	i12-SB213	6025059

Please order actuator separately

 8010889/2006-10-03

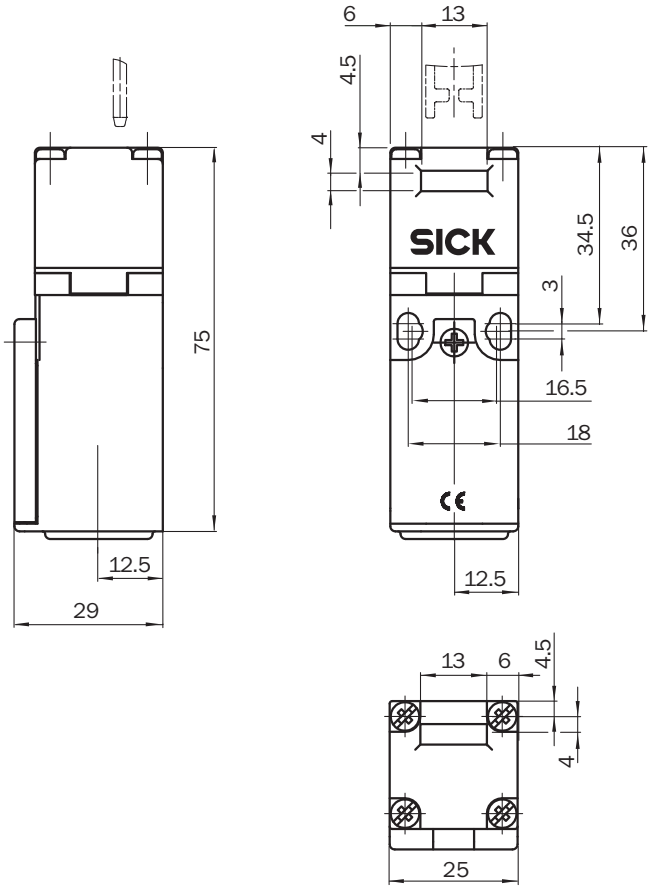
Detailed technical specifications

Type	i12-SA113	i12-SA203	i12-SB213
Housing material	Glass-fibre reinforced thermoplastic		
Enclosure rating	IP 67		
Mechanical life (relay contacts)	1 x 10^6 switching cycles		
Ambient operating temperature from ... to	–20 °C ... +80 °C		
Maximum approach speed	160 mm/s		
Actuation force	Min. 6 N		Min. 15 N
Actuation frequency	Max. 2 Hz		
Switching principle	Slow-action switch		
Number of positive action normally closed contacts	1	2	
Number of normally open contacts	1	0	1
Usage category in compliance with IEC 947-5-1	AC-15/DC-13		
Rated operating current (voltage)	3 A (240 V AC), 3 A (24 V DC)		
Rated insulation voltage U_i	240 V		
Rated impulse withstand voltage U_{imp}	2500 V AC		
Minimum switching voltage	5 V DC		
Minimum switching current (switching voltage)	5 mA (5 V DC)		
Connection type	Cable gland		
Maximum connection cable cross-section	1.5 mm²		
Short-circuit protection	3A gG		
Weight	0.08 kg		0.11 kg

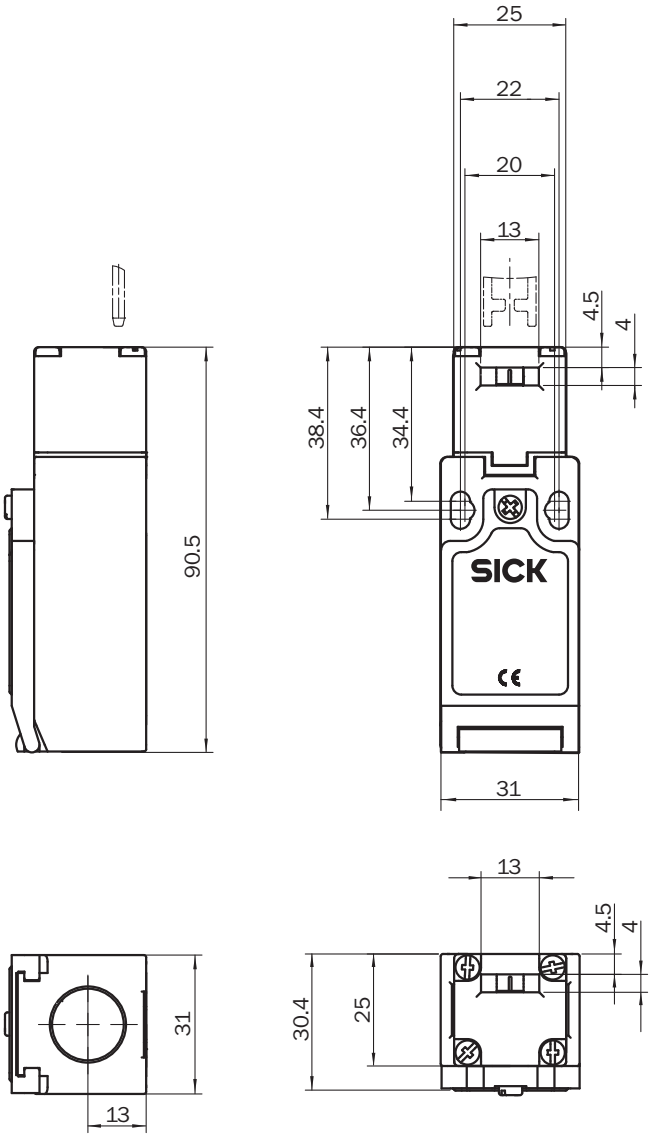
H

Dimensional drawings

i12-SA113, i12-SA203

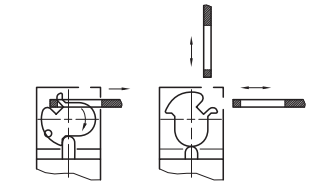
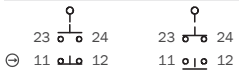
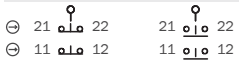


i12-SB213

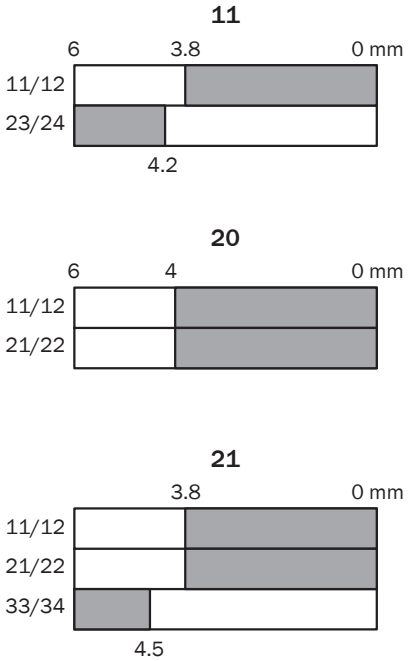


Dimensions in mm

Switching elements

Actuator inserted	Acutator removed	
		
		11, 1 positive action N/C contact + 1 N/O contact
		20, 2 positive action N/C contacts
		21, 2 positive action N/C contacts + 1 N/O contact

Actuator travel diagram



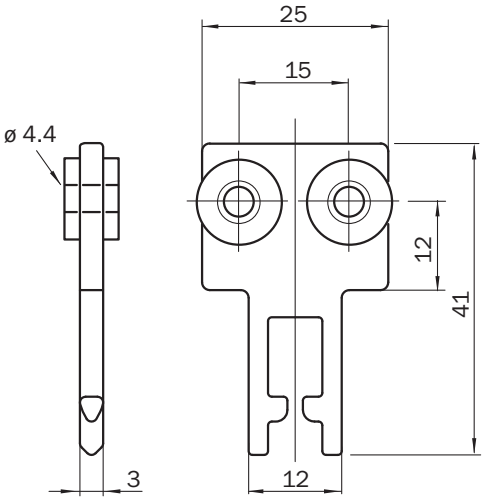
Contact action over the entire actuator withdrawal distance (full insertion = 0 mm)

H

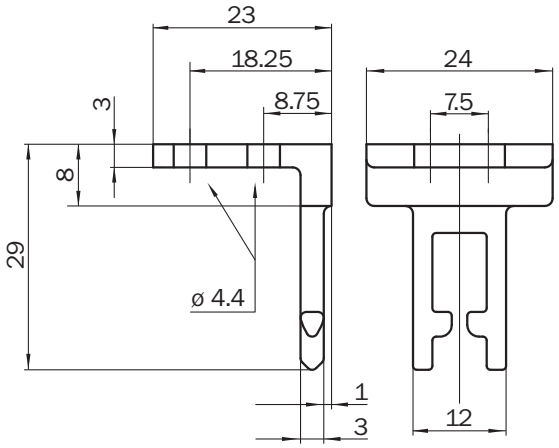
Actuators

Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 150 mm	iE12-S1	5311131
Angled	Rigid	Min. 150 mm	iE12-A1	5311132
Radius	Semi flexible	Min. 60 mm	iE12-F1	5308842

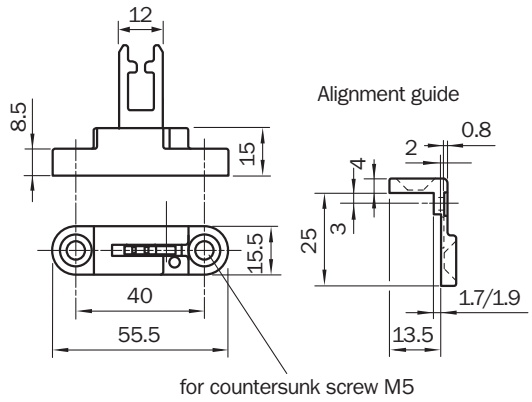
iE12-S1



iE12-A1



iE12-F1



Other accessories

Cable gland

Type	Part number
Cable gland M16	5309163

Overview of technical specifications

Number of positive action normally closed contacts (depending on type)	1 / 2
Number of normally open contacts (depending on type)	0 / 1
Type of actuator	Tongue operated
Housing material	Plastic
Number of cable entries	3
Size of the cable gland	M20
Locking force	30 N

Product description

- Safety switches with remote multi-coded actuator
- 2-pole contact element
- Easy conversion of actuating direction through rotatable head

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.

→ see N-0

Safety controllers

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→ see 0-0

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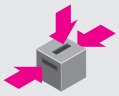
→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
1	1	i16-SA113	6025065
2	0	i16-SA203	6025063

Please order actuator separately

- Housing material glass-fibre reinforced thermoplastic
- Three actuating directions
- 30 N locking force
- Cable gland 3 x M20
- Enclosure rating IP 67



H

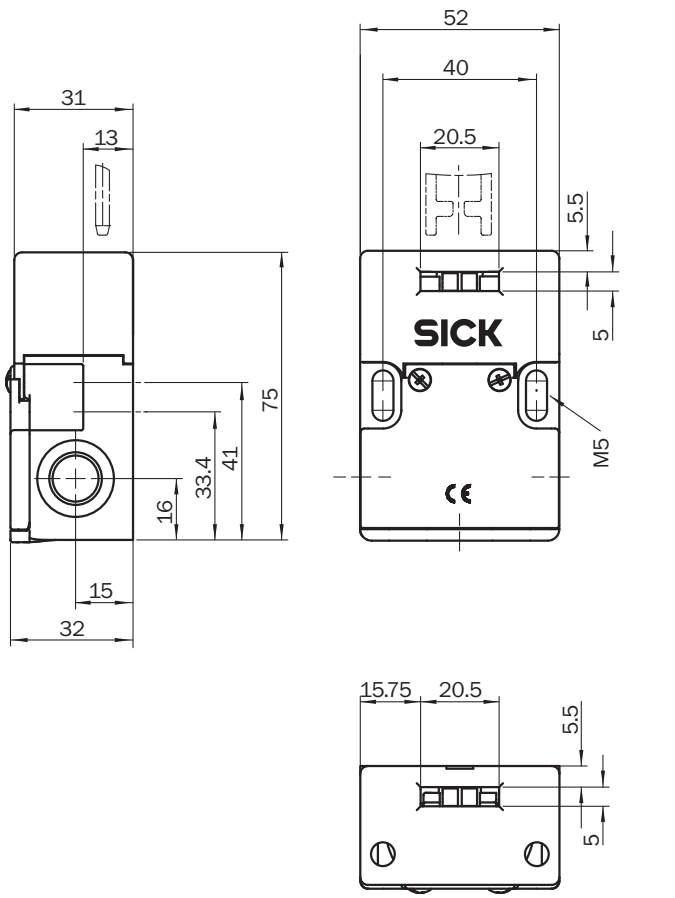
Further information	Page
→ Technical specifications	H-18
→ Dimensional drawings	H-19
→ Switching elements	H-19
→ Actuator travel diagram	H-19
→ Actuators	H-19
→ Catch and retainer kit	H-20
→ Other accessories	H-20
→ Services	A-2

Detailed technical specifications

Type	i16-SA113	i16-SA203
Housing material	Glassfibre reinforced polybutylene terephthalate (PBT)	
Enclosure rating	IP 67	
Mechanical life (relay contacts)	1 x 10^6 switching cycles	
Ambient operating temperature from ... to	–20 °C ... +80 °C	
Maximum approach speed	160 mm/s	
Actuation force	Min. 30 N	
Locking force	30 N	
Actuation frequency	Max. 2 Hz	
Switching principle	Slow-action switch	
Number of positive action normally closed contacts	1	2
Number of normally open contacts	1	0
Usage category in compliance with IEC 947-5-1	AC-15/DC-13	
Rated operating current (voltage)	2 A (250 V AC), 2 A (24 V DC)	
Rated insulation voltage U_i	250 V	
Rated impulse withstand voltage U_{imp}	2500 V AC	
Minimum switching voltage	5 V DC	
Minimum switching current (switching voltage)	5 mA (5 V DC)	
Contact material	Silver, nickel	
Connection type	Cable gland	
Maximum connection cable cross-section	1.5 mm²	
Short-circuit protection	2A gG	
Weight	0.14 kg	

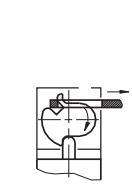
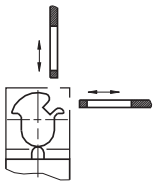
H

Dimensional drawings

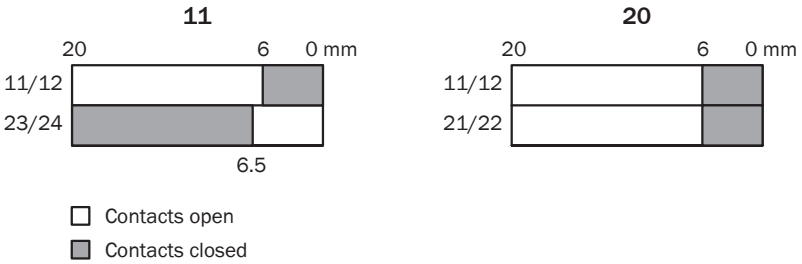


Dimensions in mm

Switching elements

Actuator inserted	Actuator removed	
		
		20, 2 positive action N/C contacts
		11, 1 positive action N/C contact + 1 N/O

Actuator travel diagram



Contacts open

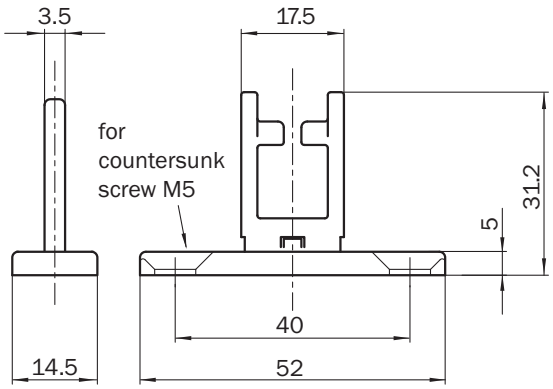
Contacts closed

Contact action over the entire actuator withdrawal distance
(full insertion = 0 mm)

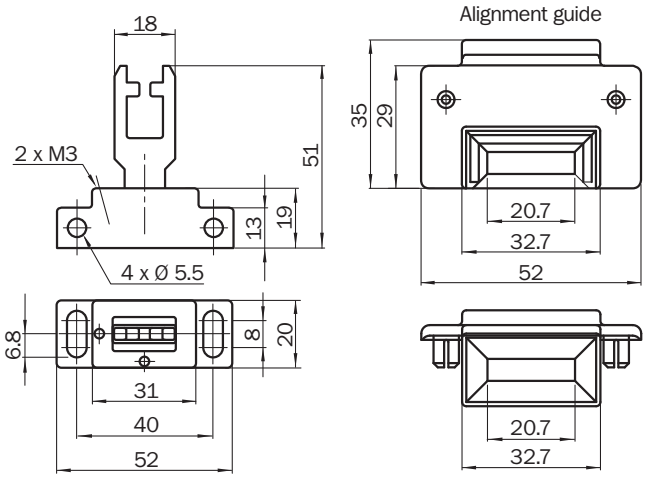
Actuators

Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 175 mm	iE16-S1	5311128
	Fully flexible	Min. 60 mm	iE16-F1	5311129
Radius	Semi flexible	Min. 60 mm	iE16-F2	5311278

iE16-S1

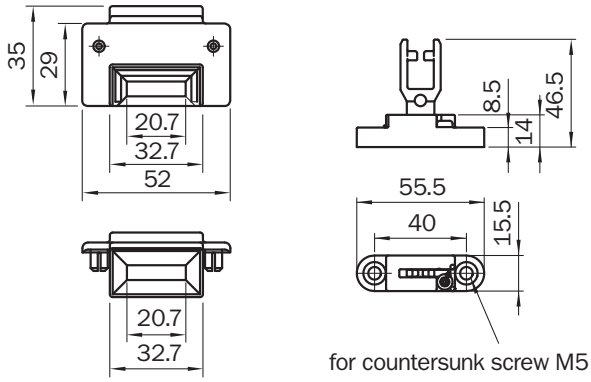


iE16-F1



The actuator facilitates movement in both horizontal and vertical planes.

iE16-F2



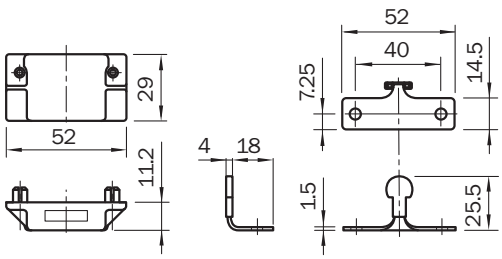
The actuator facilitates movement in the horizontal plane only.

H

Catch and retainer kit

Type	Part number
iE16-SCR	5310780

iE16-SCR



- An increase in the locking force by 50 N.
- Only in connection with rigid actuators.

Other accessories

Cable gland

Type	Part number
Cable gland M20	5309164

Overview of technical specifications

Number of positive action normally closed contacts	2
Number of normally open contacts	1
Type of actuator	Tongue operated
Housing material	Plastic
Number of cable entries	3
Size of the cable gland	M20

Product description

- Safety switch with remote multi-coded actuator
- 3-pole contact element
- Easy conversion of actuating direction through rotatable head

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant. → see N-0

Safety controllers

Safety controllers are utilised when the safety function (e.g. switching off a dangerous movement) is to be accomplished in a flexible way by logical combination of safety relevant signals. Operation of machinery becomes more flexible as well as generation of machine variants becomes more easy. → see 0-0

Safety network solutions

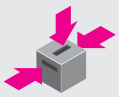
Safety network solutions are utilised in plants and machinery of larger scale. This is saving cabling and enables modular design of the safety automation. Potential errors or faults can be easily localised and quickly trouble shooted thanks to comprehensive diagnostics functions. That significantly reduces machine down times.
SICK offers solutions for the open automation standards: AS-i Safety at Work, DeviceNet Safety and PROFIsafe. → see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
2	1	i17-SA213	6025067

Please order actuator separately

- Housing material glass-fibre reinforced thermoplastic
- Three actuating directions
- Cable gland 3 x M20
- Enclosure rating IP 67



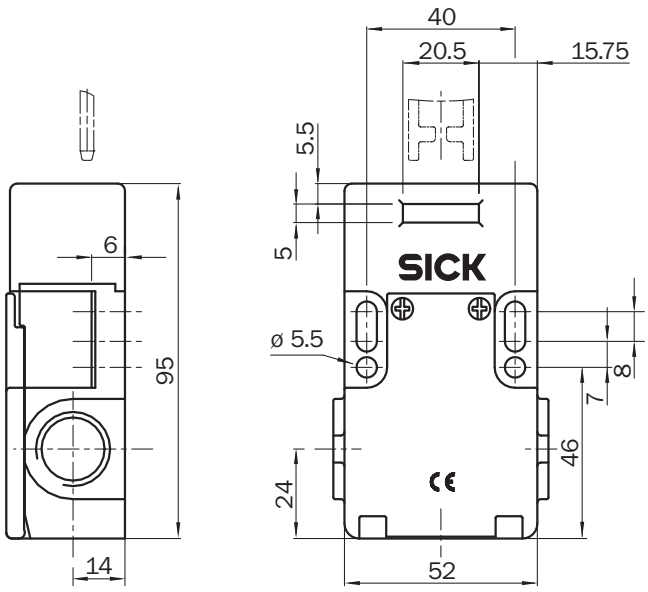
H

Further information	Page
→ Technical specifications	H-22
→ Dimensional drawings	H-23
→ Switching elements	H-23
→ Actuator travel diagram	H-23
→ Actuators	H-23
→ Catch and retainer kit	H-24
→ Other accessories	H-24
→ Services	A-2

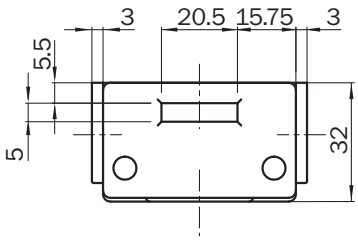
Detailed technical specifications

Housing material	Glass-fibre reinforced thermoplastic
Enclosure rating	IP 67
Mechanical life (relay contacts)	1 x 10^6 switching cycles
Ambient operating temperature from ... to	–20 °C ... +80 °C
Maximum approach speed	1000 mm/s
Actuation force	Min. 12 N
Actuation frequency	Max. 2 Hz
Switching principle	Slow-action switch
Number of positive action normally closed contacts	2
Number of normally open contacts	1
Usage category in compliance with IEC 947-5-1	AC-15/DC-13
Rated operating current (voltage)	2 A (250 V AC), 2 A (24 V DC)
Rated insulation voltage U_i	250 V
Rated impulse withstand voltage U_{imp}	2500 V AC
Minimum switching voltage	5 V DC
Minimum switching current (switching voltage)	5 mA (5 V DC)
Contact material	Silver, nickel
Connection type	Cable gland
Maximum connection cable cross-section	1.5 mm²
Short-circuit protection	2A gG
Weight	0.16 kg

Dimensional drawings

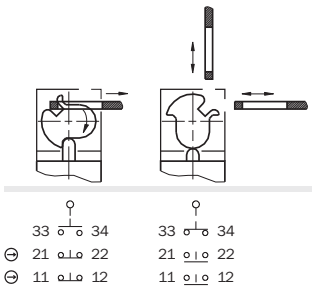


Dimensions in mm



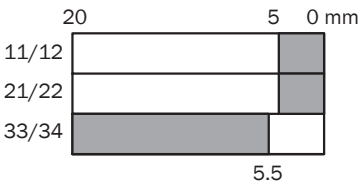
Switching elements

Actuator inserted	Actuator removed



21, 2 positive action N/C contact + 1 N/O

Actuator travel diagram



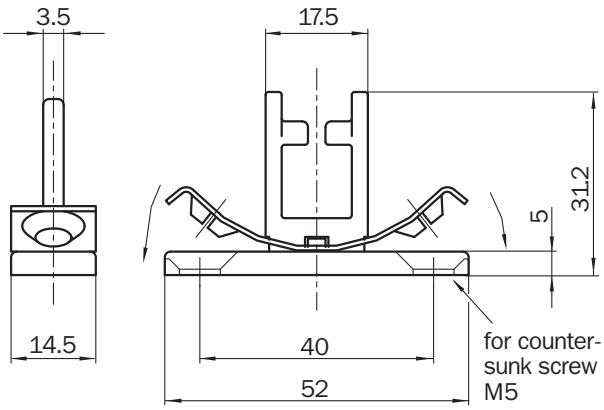
Contacts open
Contacts closed

Contact action over the entire actuator withdrawal distance (full insertion = 0 mm)

Actuators

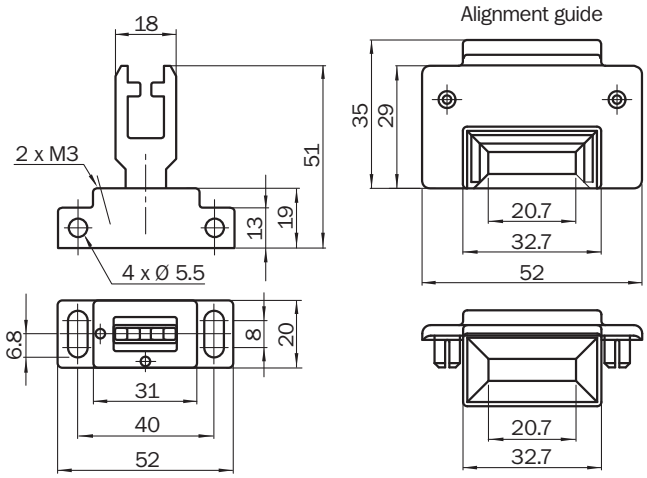
Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 175 mm	iE17-S1	5311130
	Fully flexible	Min. 60 mm	iE16-F1	5311129
Radius	Semi flexible	Min. 60 mm	iE16-F2	5311278

iE17-S1



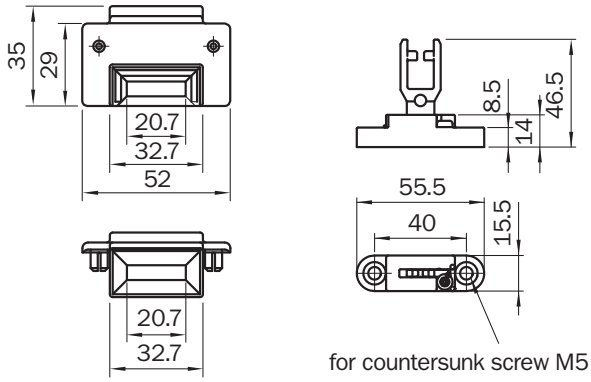
The actuator facilitates movement in the horizontal plane only.

iE16-F1



The actuator facilitates movement in both horizontal and vertical planes.

iE16-F2



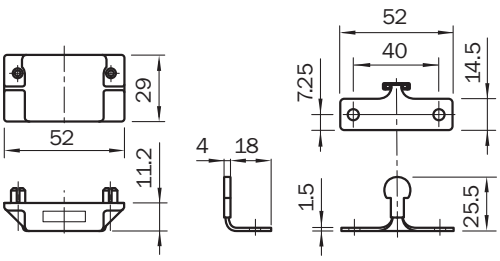
The actuator facilitates movement in the horizontal plane only.

H

Catch and retainer kit

Type	Part number
iE16-SCR	5310780

iE16-SCR



- An increase in the locking force by 50 N.
- Only in connection with rigid actuators.

Other accessories

Cable gland

Type	Part number
Cable gland M20	5309164

Overview of technical specifications

Number of positive action normally closed contacts	3
Number of normally open contacts	1
Type of actuator	Tongue operated
Housing material	Metal
Number of cable entries	1
Size of the cable gland	M20
Locking force	10 N

Product description

- Safety switches with remote multi-coded actuator
- 4-pole contact element
- Self-cleaning head element – elimination of contamination through actuator movement

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.
→ see N-0

Safety controllers

Safety controllers are utilised when the safety function (e.g. switching off a dangerous movement) is to be accomplished in a flexible way by logical combination of safety relevant signals. Operation of machinery becomes more flexible as well as generation of machine variants becomes more easy.
→ see O-0

Safety network solutions

Safety network solutions are utilised in plants and machinery of larger scale. This is saving cabling and enables modular design of the safety automation. Potential errors or faults can be easily localised and quickly trouble shooted thanks to comprehensive diagnostics functions. That significantly reduces machine down times.
SICK offers solutions for the open automation standards: AS-i Safety at Work, DeviceNet Safety and PROFIsafe.
→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
3	1	i100-S313	6022590

Please order actuator separately

- Housing material die-cast light alloy
- Four actuating directions
- Cable gland M20
- Enclosure rating IP 67
- Three-dimensional coded actuator
- Design according to EN 50041

H

Further information	Page
→ Technical specifications	H-26
→ Dimensional drawings	H-26
→ Switching elements	H-26
→ Actuators	H-27
→ Lockout bar	H-30
→ Other accessories	H-30
→ Services	A-2

Detailed technical specifications

Housing material	Die-cast light alloy
Surface treatment	Anodized
Enclosure rating	IP 67
Mechanical life (relay contacts)	2 x 10^6 switching cycles
Ambient operating temperature from ... to	–25 °C ... +80 °C
Maximum approach speed	333 mm/s
Actuation force	Min. 35 N
Locking force	10 N
Actuation frequency	Max. 1.94 Hz
Switching principle	Slow-action switch
Number of positive action normally closed contacts	3
Number of normally open contacts	1
Usage category in compliance with IEC 947-5-1	AC-15/DC-13
Rated operating current (voltage)	4 A (230 V AC), 4 A (24 V DC)
Rated insulation voltage U_i	250 V
Rated impulse withstand voltage U_{imp}	2500 V AC
Minimum switching voltage	12 V DC
Minimum switching current (switching voltage)	1 mA (24 V DC)
Contact material	Silver alloy, gold flashed
Connection type	Cable gland
Maximum connection cable cross-section	1.5 mm²
Short-circuit protection	4A gG
Weight	0.37 kg

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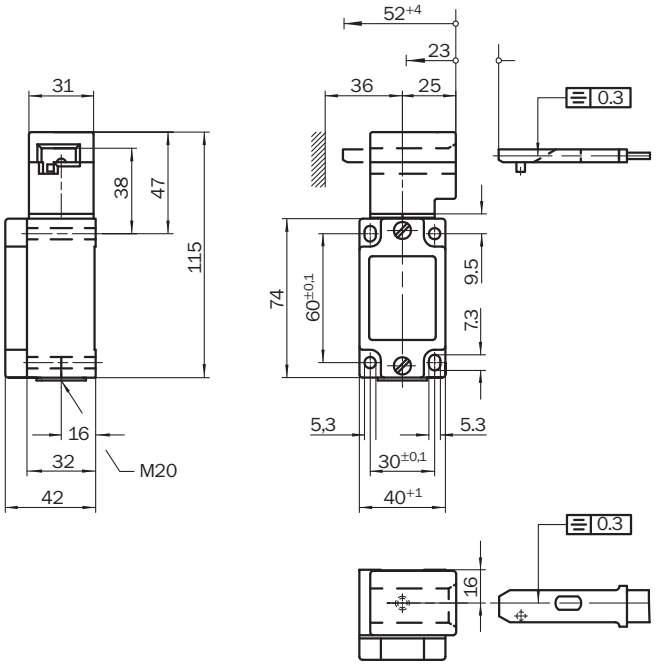
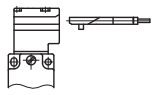
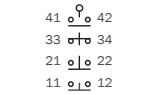
Dimensional drawings



Dimensions in mm

Switching elements

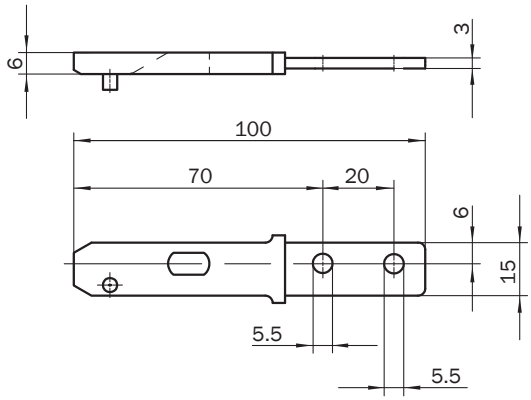
Actuator removed	Actuator inserted
	
	

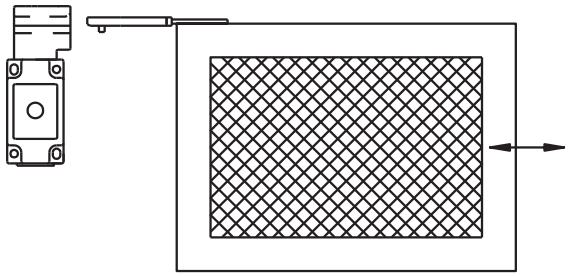
31, 3 positive action N/C contacts + 1 N/O contact

Actuators

Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 1000 mm	iE100-S1	5306497
Radius, door hinged on left	Semi flexible	Min. 400 mm	iE100-R1	5306498
Radius, door hinged on right	Semi flexible	Min. 400 mm	iE100-R2	5306499
Radius, safety flap hinged at bottom	Semi flexible	Min. 165 mm	iE100-R3	5306500
Radius, safety flap hinged at top	Semi flexible	Min. 165 mm	iE100-R4	5306526

iE100-S1 straight





Min. door radius 1000 mm.
With two safety screws for each actuator.

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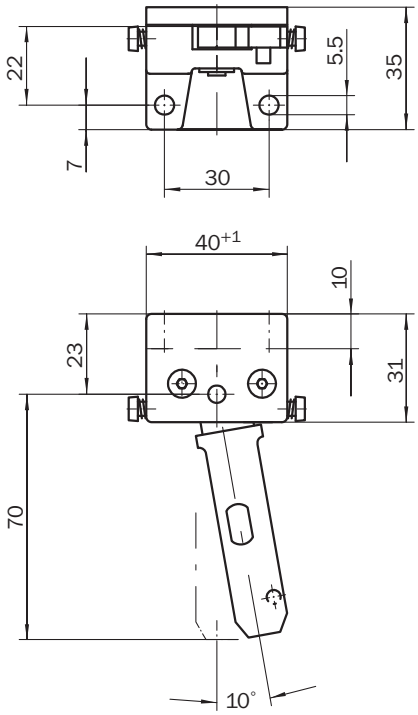
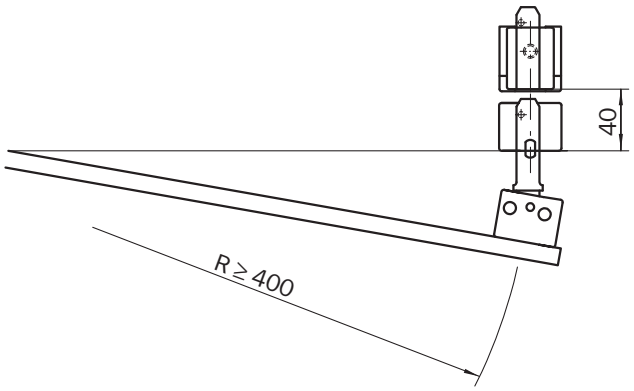
iE100-R1 radius, door hinged on left





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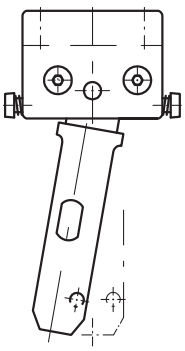
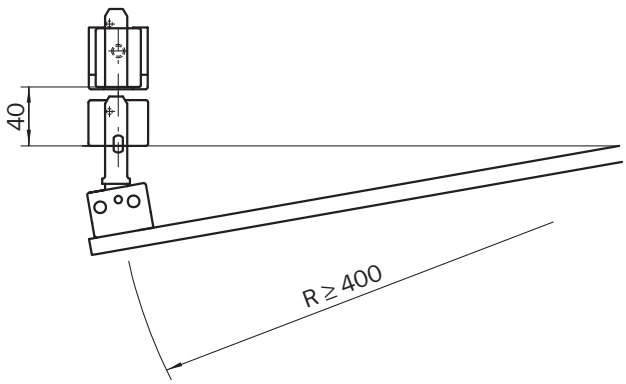
2 safety screws included.
Min. door radius 400 mm.

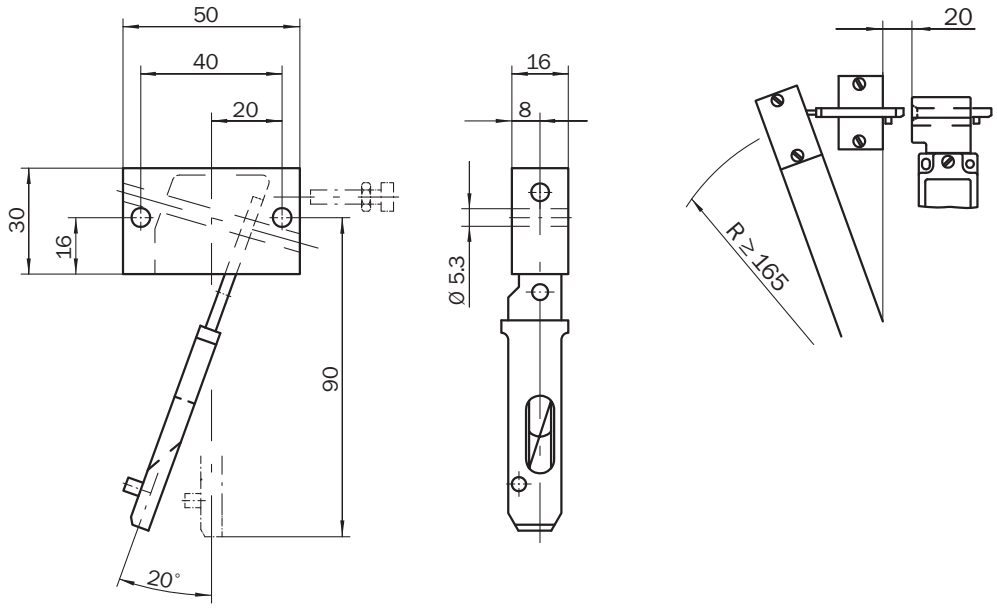
iE100-R2 radius, door hinged on right





2 safety screws included.
Min. door radius 400 mm.

iE100-R3 radius, safety flap hinged at bottom



2 safety screws included.
Min. door radius 165 mm.

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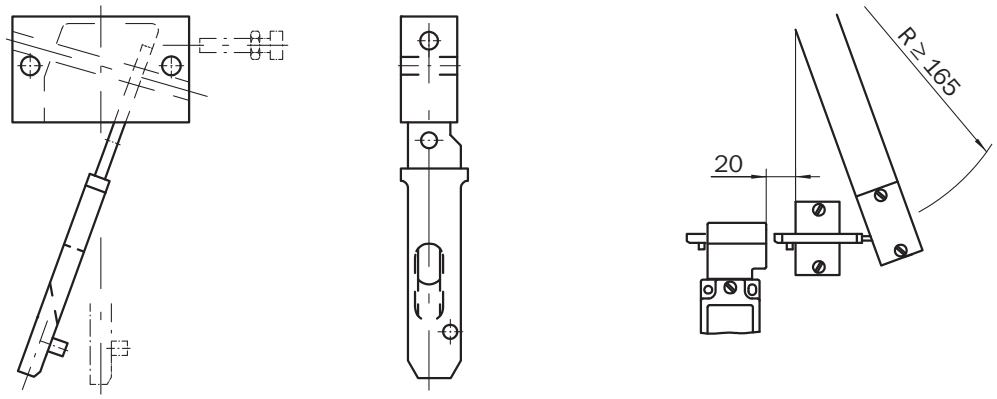
iE100-R4 radius, safety flap hinged at top

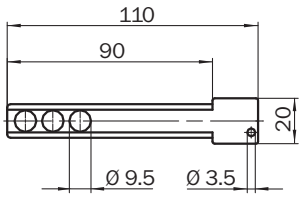


2 safety screws included.
Min. door radius 165 mm.

Lockout bar

Type	Part number
iE100-S2	5306534

iE100-S2



The lockout bar can be inserted in the safety switch instead of the actuator when the safety guard is in open condition and can then be secured to prevent removal by standard commercially available padlocks (max. 3 pcs.). This guarantees reliable protection for persons who have to enter potentially hazardous areas.

Other accessories

H

Cable gland

Type	Part number
Cable gland M20	5309164

Overview of technical specifications

Number of positive action normally closed contacts (depending on type)	2 / 3
Number of normally open contacts (depending on type)	1 / 2
Type of actuator	Tongue operated
Housing material	Metal
Number of cable entries	1
Size of the cable gland	M20
Locking force	5 N

Product description

- Safety switches with remote multi-coded actuator
- 4-pole contact element
- Small door radius (175 mm) possible even with standard actuator

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.
→ see N-0

Safety controllers

Safety controllers are utilised when the safety function (e.g. switching off a dangerous movement) is to be accomplished in a flexible way by logical combination of safety relevant signals. Operation of machinery becomes more flexible as well as generation of machine variants becomes more easy.
→ see 0-0

Safety network solutions

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SICK offers solutions for the open automation standards: AS-i Safety at Work, DeviceNet Safety and PROFIsafe.
→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Type	Part number
2	2	i110-SA223	6025074
3	1	i110-SA313	6025073

Please order actuator separately

H

- Housing material die-cast zinc
- Five actuating directions
- Cable gland M20
- Enclosure rating IP 67
- Design according to EN 50041

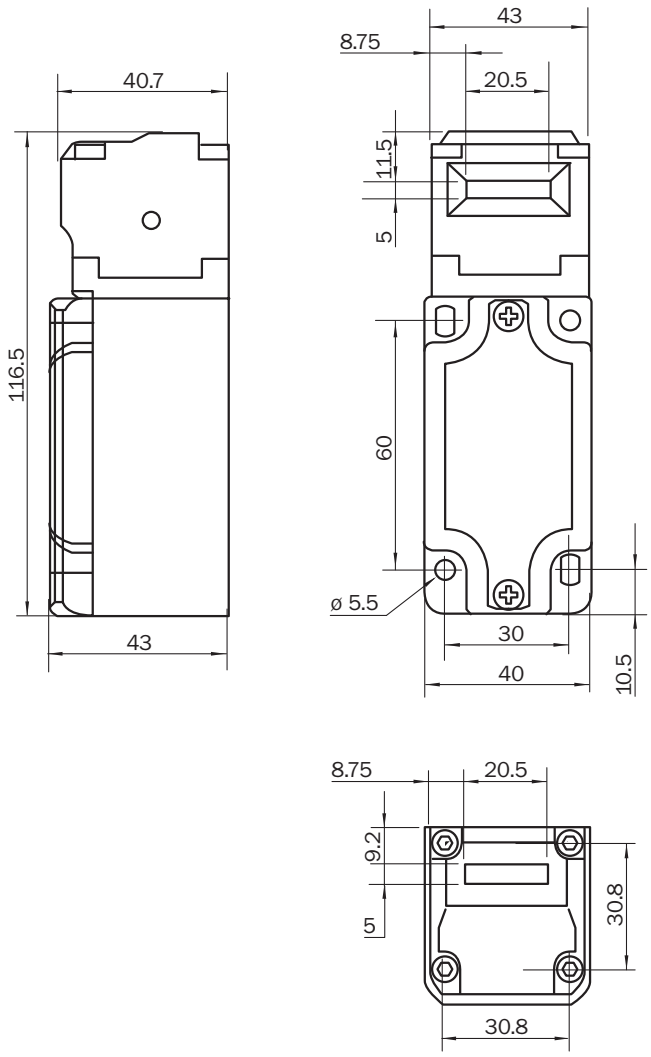
Further information	Page
→ Technical specifications	H-32
→ Dimensional drawings	H-33
→ Switching elements	H-33
→ Actuator travel diagram	H-34
→ Actuators	H-34
→ Other accessories	H-34
→ Services	A-2

Detailed technical specifications

Type	i110-SA223	i110-SA313
Housing material	Zinc die-cast	
Surface treatment	Varnished	
Enclosure rating	IP 67	
Mechanical life (relay contacts)	1 x 10^6 switching cycles	
Ambient operating temperature from ... to	–20 °C ... +80 °C	
Maximum approach speed	100 mm/s	
Actuation force	Min. 12 N	
Locking force	5 N	
Actuation frequency	Max. 2 Hz	
Switching principle	Slow-action switch	
Number of positive action normally closed contacts	2	3
Number of normally open contacts	2	1
Usage category in compliance with IEC 947-5-1	AC-15/DC-13	
Rated operating current (voltage)	3 A (240 V AC), 3 A (24 V DC)	
Rated insulation voltage U_i	250 V	
Rated impulse withstand voltage U_{imp}	2500 V AC	
Minimum switching voltage	5 V DC	
Minimum switching current (switching voltage)	5 mA (5 V DC)	
Contact material	Silver, nickel	
Connection type	Cable gland	
Maximum connection cable cross-section	1.5 mm²	
Short-circuit protection	3A gG	
Weight	0.34 kg	

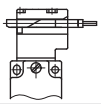
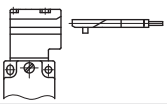
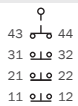
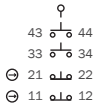
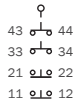
H

Dimensional drawings

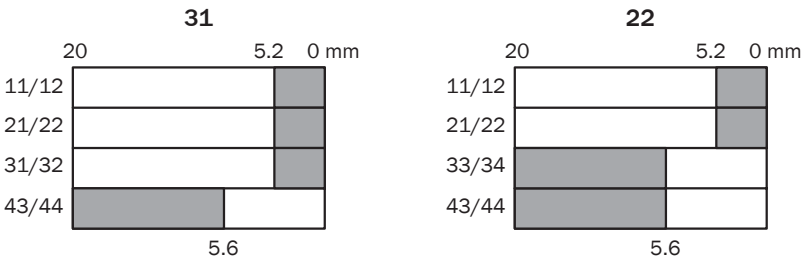


Dimensions in mm

Switching elements

Actuator inserted	Actuator removed		
			
		31	31, 3 positive action N/C contacts + 1 N/O
		22	22, 2 positive action N/C contacts + 2 N/O

Actuator travel diagram



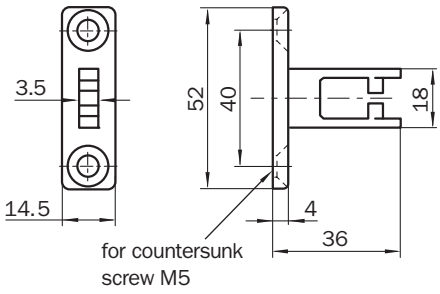
Contact action over the entire actuator withdrawal distance
(full insertion = 0 mm)

Actuators

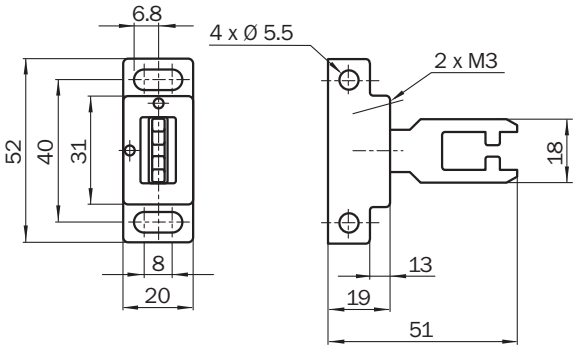
Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 175 mm	iE110-S1	5311134
	Fully flexible	Min. 60 mm	iE110-F1	5311135

H

iE110-S1



iE110-F1



Other accessories

Cable gland

Type	Part number
Cable gland M20	5309164

Overview of technical specifications

Number of positive action normally closed contacts	2
Number of normally open contacts	1
Type of actuator	Handle operated
Housing material	Metal
Number of cable entries	1
Size of the cable gland	PG13.5

Product description

- Safety switch with separate handle-operated actuator
- 3-pole contact element
- The system can compensate for any misalignment, such as caused by door drop

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.

→ see N-0

Safety controllers

Safety controllers are utilised when the safety function (e.g. switching off a dangerous movement) is to be accomplished in a flexible way by logical combination of safety relevant signals. Operation of machinery becomes more flexible as well as generation of machine variants becomes more easy.

→ see 0-0

Safety network solutions

Safety network solutions are utilised in plants and machinery of larger scale. This is saving cabling and enables modular design of the safety automation. Potential errors or faults can be easily localised and quickly trouble shooted thanks to comprehensive diagnostics functions. That significantly reduces machine down times.
SICK offers solutions for the open automation standards: AS-i Safety at Work, DeviceNet Safety and PROFIsafe.

→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Supply voltage	Type	Part number
2	1	24 V DC	i1001-24	6021016

Actuator supplied with delivery

- Housing material powder-coated die-cast zinc
- Cable gland PG13.5
- Four actuating directions
- Enclosure rating IP 67
- LED function indicator
- Handle-operated actuator

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Further information	Page
→ Technical specifications	H-36
→ Dimensional drawings	H-36
→ Internal circuitry	H-37
→ Trapped key systems	H-37
→ Actuator	H-39
→ Lockout bar	H-40
→ Other accessories	H-40
→ Services	A-2

Detailed technical specifications

Housing material	Zinc alloy and stainless steel
Surface treatment	Varnished
Enclosure rating	IP 67
Mechanical life (relay contacts)	1 x 10^6 switching cycles
Ambient operating temperature from ... to	–5 °C ... +40 °C
Maximum approach speed	333 mm/s
Actuation frequency	Max. 2 Hz
Switching principle	Slow-action switch
Number of positive action normally closed contacts	2
Number of normally open contacts	1
Usage category in compliance with IEC 947-5-1	DC-13
Rated operating current (voltage)	10 A (24 V DC)
Rated impulse withstand voltage U_{imp}	2500 V AC
Contact material	90 % silver and 10 % nickel
Connection type	Cable gland
Maximum connection cable cross-section	2.5 mm²
Weight	1.37 kg

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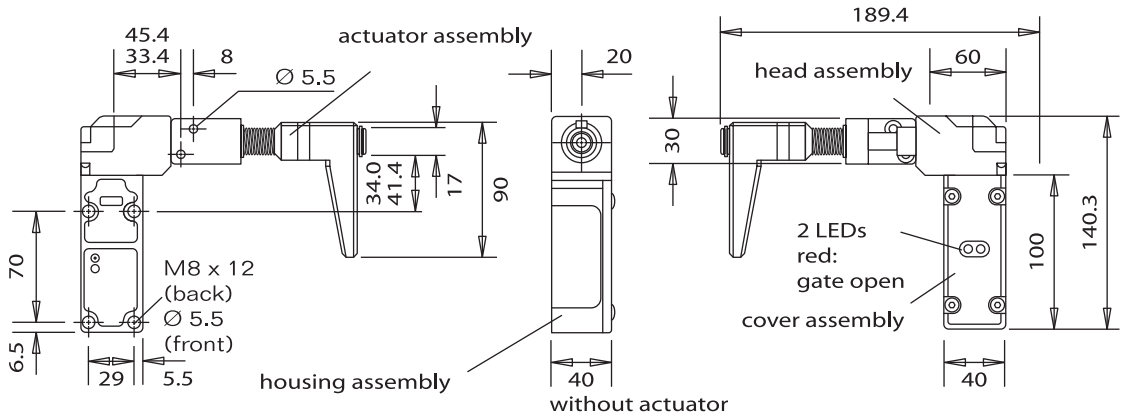
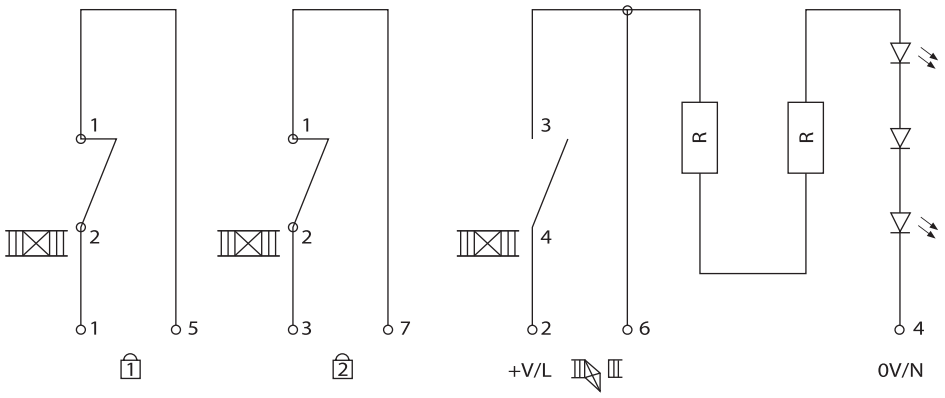
Dimensional drawings



Dimensions in mm

Internal circuitry



Trapped key systems

Accessory type	Coding	Delivery	Type	Part number
Access key adapter	1	Key supplied with delivery	iE1000-AK1	5308302
	2	Key supplied with delivery	iE1000-AK2	5308303
Safety key adapter	1	Key supplied with delivery	iE1000-SK1	5308297
	2	Key supplied with delivery	iE1000-SK2	5308298
Enabling unit	1	Key supplied with delivery	iE1000-ES1	6021019
	2	Key supplied with delivery	iE1000-ES2	6021020

Additional types on request

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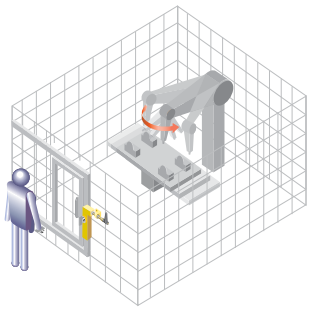
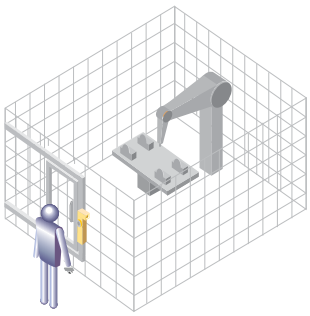
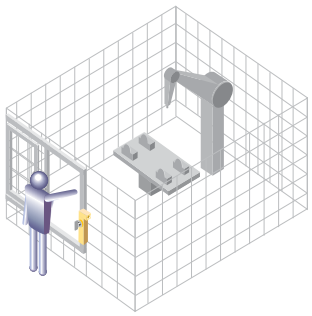
Access key adapter



Plant in action, no key inserted



Key is inserted, plant comes to a standstill

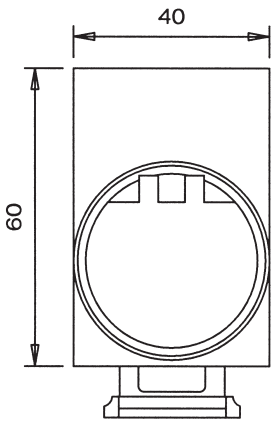


Door can now be opened

Access function

■ Application example

Basic unit + head unit + access key adapter. Only those with an access key can gain access to the machine.



The access key adapter is installed between the head and the housing of the safety switch.
If no key present in the adapter, the door is in the closed position. The door can only be opened if the safety key is inserted and turned (enabling access).

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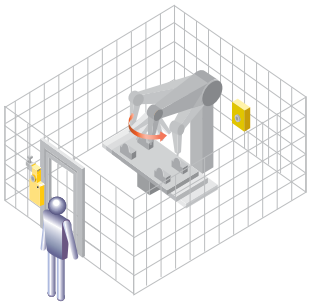
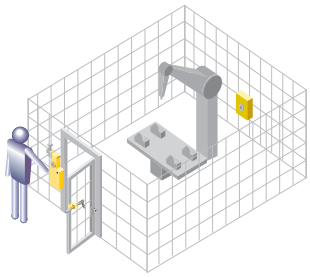
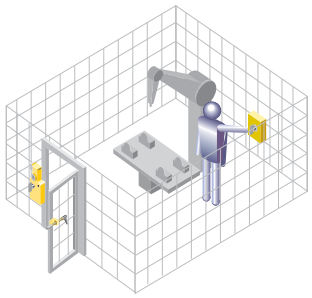
Safety key adapter



Plant in action, door closed, key inserted



Key is removed, plant comes to standstill, door can be opened

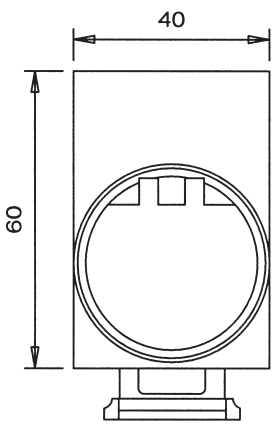


Person enters, key inserted inside, plant runs in enable mode

Enable function

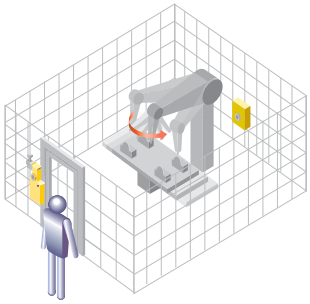
■ Application example

Basic unit + head unit + safety key adapter. In enable mode no person can set the machine in motion from outside. The machine is started from inside with the safety key.

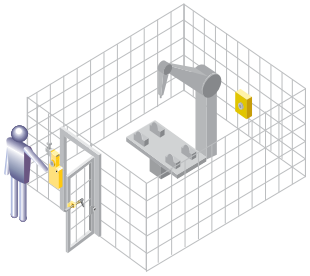


The safety key adapter is installed between the head and the housing of the safety switch. The key is securely held in the unit and the door is kept in the closed position. Only when the safety key is turned and withdrawn access is possible.

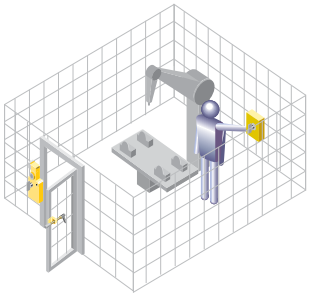
Enabling unit



Plant in action, door closed, key inserted



Key is removed, plant comes to standstill, door can be opened

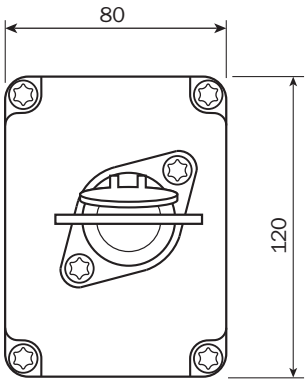


Person enters, key inserted inside, plant runs in enable mode

Enable function

■ Application example

Basic unit + head unit + safety key adapter. In enable mode no person can set the machine in motion from outside. The machine is started from inside with the safety key.



Contact set 2 x N/O + 2 x N/C for connections into the machine's stop circuit.

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Actuator

Actuation option	Way of actuation	Type	Part number
Turning lever	Fully flexible	iE1001-R1	5308316

iE1001-R1

Lockout bar

Type	Part number
iE1002-R1	5308313

iE1002-R1

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Other accessories

Key

Prevention of unintentional machine start	Access function	Enable function	Coding	Type	Part number
–	✔	–	1	Key AK1	5308686
			2	Key AK2	5308687
✔	–	✔	1	Key SK1	5308307
			2	Key SK2	5308308

Cable gland

Type	Part number
Cable gland PG13.5	5305811

Safety screws

Type	Part number
Safety allen screws	5308317

Safety switch accessories, miscellaneous

Usage	Type	Part number
For safety allen screws	BIT	5308319

Overview of technical specifications

Number of positive action normally closed contacts	2
Number of normally open contacts	1
Type of actuator	Tongue operated
Housing material	Metal
Number of cable entries	1
Size of the cable gland	PG13.5

Product description

- Safety switch with remote multi-coded actuator
- 3-pole contact element
- The system can compensate for any mis-alignment, such as caused by door drop

In-system added value

Safety relays

Safety relays allow simple integration of safety components into machinery or plant.

→ see N-0

Safety controllers

Safety controllers are utilised when the safety function (e.g. switching off a dangerous movement) is to be accomplished in a flexible way by logical combination of safety relevant signals. Operation of machinery becomes more flexible as well as generation of machine variants becomes more easy.

→ see O-0

Safety network solutions

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SICK offers solutions for the open automation standards: AS-i Safety at Work, DeviceNet Safety and PROFIsafe.

→ see P-0

Order information

Number of positive action normally closed contacts	Number of normally open contacts	Supply voltage	Type	Part number
2	1	24 V DC	i1002-24	6021010

Actuator supplied with delivery

- Housing material powder-coated die-cast zinc
- Four actuating directions
- Cable gland PG13.5
- Enclosure rating IP 67
- LED function indicator
- Separate actuator

Further information	Page
→ Technical specifications	H-42
→ Dimensional drawings	H-42
→ Internal circuitry	H-43
→ Trapped key systems	H-43
→ Actuator	H-46
→ Lockout bar	H-46
→ Other accessories	H-47
→ Services	A-2

Detailed technical specifications

Housing material	Zinc alloy and stainless steel
Surface treatment	Varnished
Enclosure rating	IP 67
Mechanical life (relay contacts)	1 x 10^6 switching cycles
Ambient operating temperature from ... to	–5 °C ... +40 °C
Maximum approach speed	333 mm/s
Actuation force	Min. 5 N
Actuation frequency	Max. 2 Hz
Switching principle	Slow-action switch
Number of positive action normally closed contacts	2
Number of normally open contacts	1
Usage category in compliance with IEC 947-5-1	DC-13
Rated operating current (voltage)	10 A (24 V DC)
Rated impulse withstand voltage U_{imp}	2500 V AC
Contact material	90 % silver and 10 % nickel
Connection type	Cable gland
Maximum connection cable cross-section	2.5 mm²
Weight	1.11 kg

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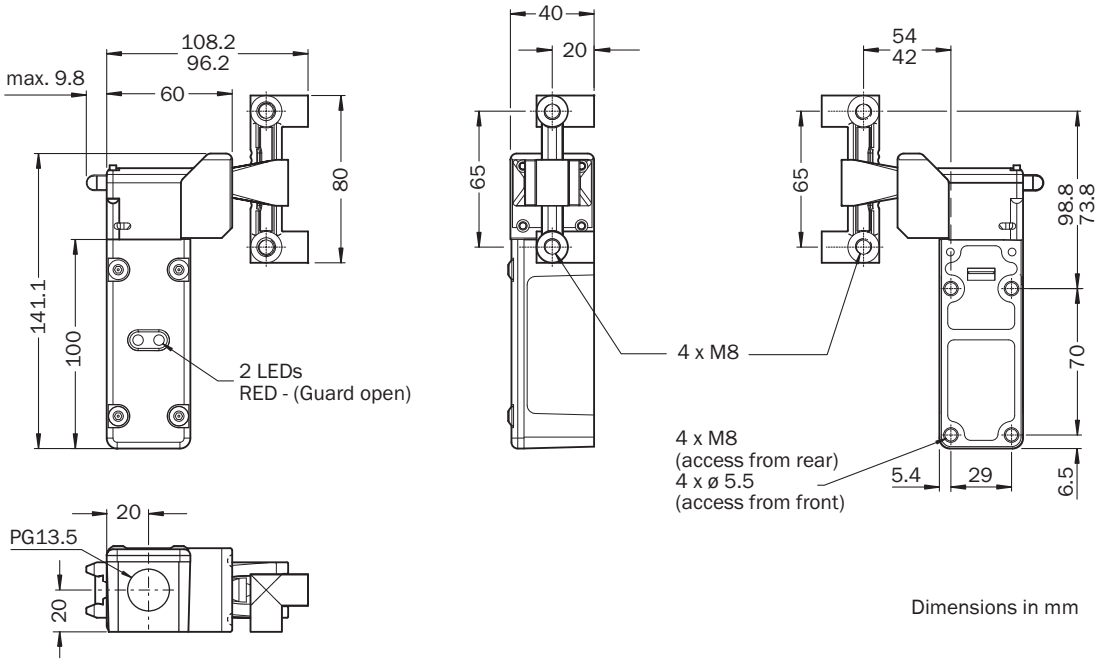
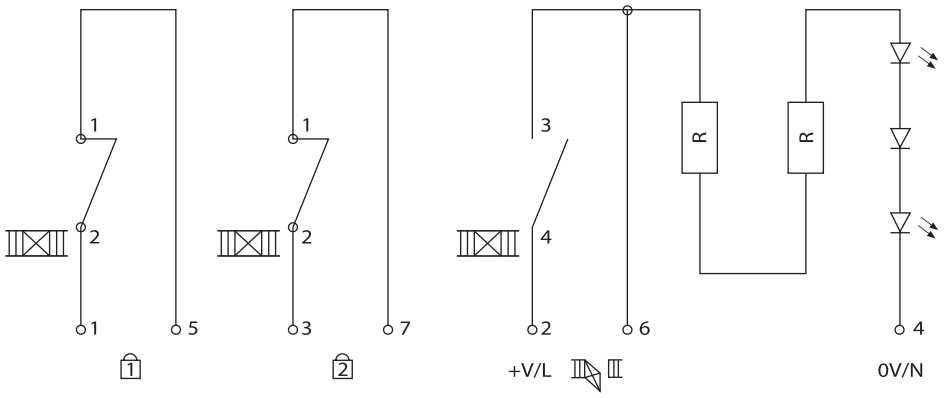
Dimensional drawings



Dimensions in mm

Internal circuitry



Trapped key systems

Accessory type	Coding	Delivery	Type	Part number
Access key adapter	1	Key supplied with delivery	iE1000-AK1	5308302
	2	Key supplied with delivery	iE1000-AK2	5308303
Safety key adapter	1	Key supplied with delivery	iE1000-SK1	5308297
	2	Key supplied with delivery	iE1000-SK2	5308298
Enabling unit	1	Key supplied with delivery	iE1000-ES1	6021019
	2	Key supplied with delivery	iE1000-ES2	6021020

Additional types on request

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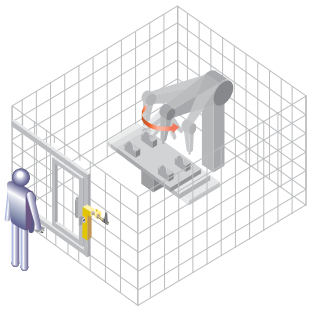
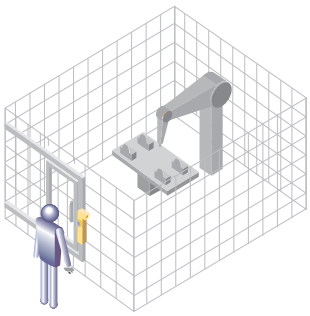
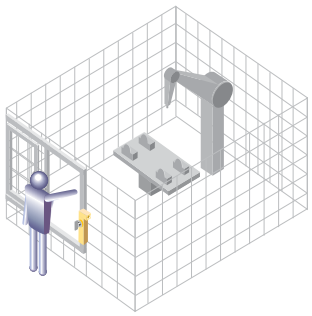
Access key adapter



Plant in action, no key inserted



Key is inserted, plant comes to a standstill

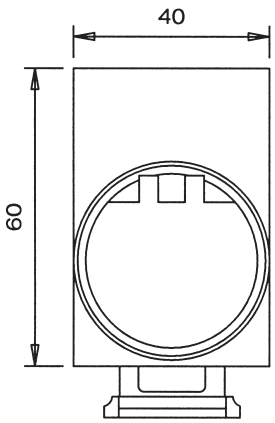


Door can now be opened

Access function

■ Application example

Basic unit + head unit + access key adapter. Only those with an access key can gain access to the machine.



The access key adapter is installed between the head and the housing of the safety switch.
If no key present in the adapter, the door is in the closed position. The door can only be opened if the safety key is inserted and turned (enabling access).

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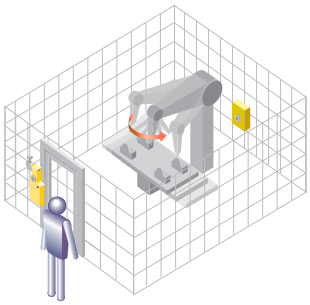
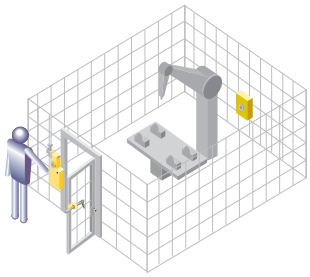
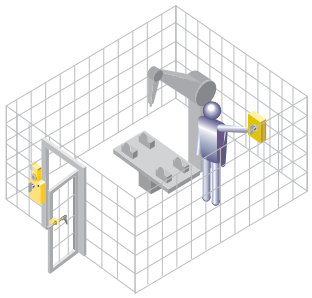
Safety key adapter



Plant in action, door closed, key inserted



Key is removed, plant comes to standstill, door can be opened

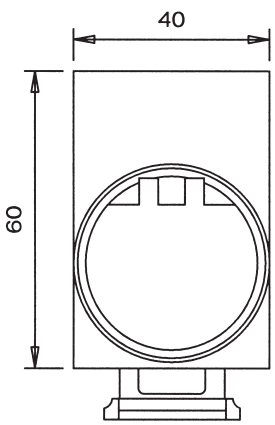


Person enters, key inserted inside, plant runs in enable mode

Enable function

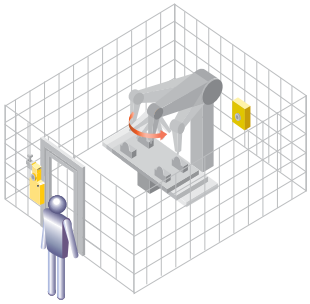
■ Application example

Basic unit + head unit + safety key adapter. In enable mode no person can set the machine in motion from outside. The machine is started from inside with the safety key.

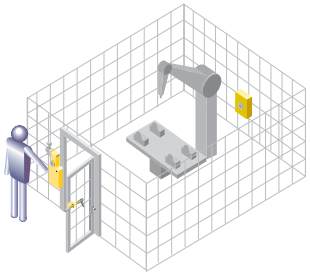


The safety key adapter is installed between the head and the housing of the safety switch. The key is securely held in the unit and the door is kept in the closed position. Only when the safety key is turned and withdrawn access is possible.

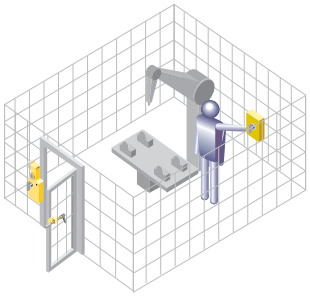
Enabling unit



Plant in action, door closed, key inserted



Key is removed, plant comes to standstill, door can be opened

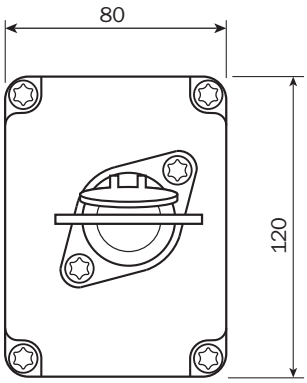


Person enters, key inserted inside, plant runs in enable mode

Enable function

■ Application example

Basic unit + head unit + safety key adapter. In enable mode no person can set the machine in motion from outside. The machine is started from inside with the safety key.



Contact set 2 x N/O + 2 x N/C for connections into the machine's stop circuit.

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Actuator

Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Semi flexible	Min. 300 mm	iE1002-S2	5308315

iE1002-S2

Lockout bar

Type	Part number
iE1002-S3	5308312

iE1002-S3