

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.

Door signalling contact

The three possible states of a safety locking device are "Door locked and closed", "Door unlocked and closed" and "Door unlocked and open". Depending on the version, there is a contact element for the third state, which is activated when the door is opened. Both positive action normally closed contact/normally open contact combinations and normally closed contacts without positive action, are used as door signalling contacts.

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.

Locking force

The locking force gives the maximum force which can act on the locking mechanism. Depending on the type, the maximum locking force is only achieved by using additional fixing screws that are included in the supply (e.g. i200-Lock).

Locking type

Safety locking devices are equipped either with a mechanical or electric locking device.

For the mechanical locking device, the locking is activated after inserting the actuator. It can be released by applying the voltage to the locking magnet.

For the electric locking device, the voltage must be applied to the locking magnet after inserting the actuating element in order to activate the locking.

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.

Mechanical unlocking mechanism

The locking device can be unlocked, e.g. on a power failure, using the mechanical unlocking mechanism.

Safety locking devices



Safety application	Number of positive action normally closed contacts/normally open contacts ¹⁾	Housing material ¹⁾	Type of actuator ¹⁾	Door signalling contacts ¹⁾	Number x size of cable gland	Locking force ¹⁾	Locking type ¹⁾ mechanical (m)/electrical (e)	Product	Page
	2 / 1 3 / 1 4 / 0	Plastic	Tongue operated	✓	3 x M20	1200 N	m / e	i10 Lock	I-2
	2 / 1 3 / 0	Plastic	Tongue operated	—	1 x M20	1200 N	m	i14 Lock	I-9
	4 / 1 3 / 2	Plastic	Tongue operated	✓	3 x M20	2000 N	m / e	i200 Lock	I-13
	4 / 2	Metal	Handle operated	✓	1 x PG13.5	2500 N	m	i1001 Lock	I-17
	4 / 2	Metal	Tongue operated	✓	1 x PG13.5	2500 N	m	i1002 Lock	I-23

¹⁾ Explanation see page I-0



- Housing material glass-fibre reinforced thermoplastic
- Locking force 1200 N
- Five actuating directions
- Cable gland 3 x M20
- Enclosure rating IP 67
- Mechanical unlocking mechanism



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Overview of technical specifications

Number of positive action normally closed contacts	2
Number of normally open contacts (depending on type)	0 / 1
Number of positive action normally closed door monitoring contacts (depending on type)	0 / 1 / 2
Number of normally open door monitoring contacts (depending on type)	0 / 1
Number of normally closed door monitoring contacts (depending on type)	0 / 1
Housing material	Plastic
Locking force	1200 N
Locking type (depending on type)	Electrical / mechanical

Product description

- Safety switches with remote multi-coded actuator and tumbler mechanism
- Small design – ideal for direct mounting on framework
- 4-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

Ordering information

Positive action normally closed	Door monitoring				Solenoid operating voltage	Locking type	Type	Part number
	Normally open	Positive action normally closed	Normally open	Normally closed				
2	1	0	0	1	24 V DC	Electrical	i10-E0233 Lock	6022585
	0	0	1	1	24 V DC	Electrical	i10-E0253 Lock	6020536
		1	1	0	24 V DC	Electrical	i10-E0313S02 Lock	6011368
		2	0	0	24 V DC	Electrical	i10-E0453 Lock	6020598
	1	0	0	1	24 V DC	Mechanical	i10-M0233 Lock	6022580
	0	0	1	1	24 V DC	Mechanical	i10-M0253 Lock	6027397

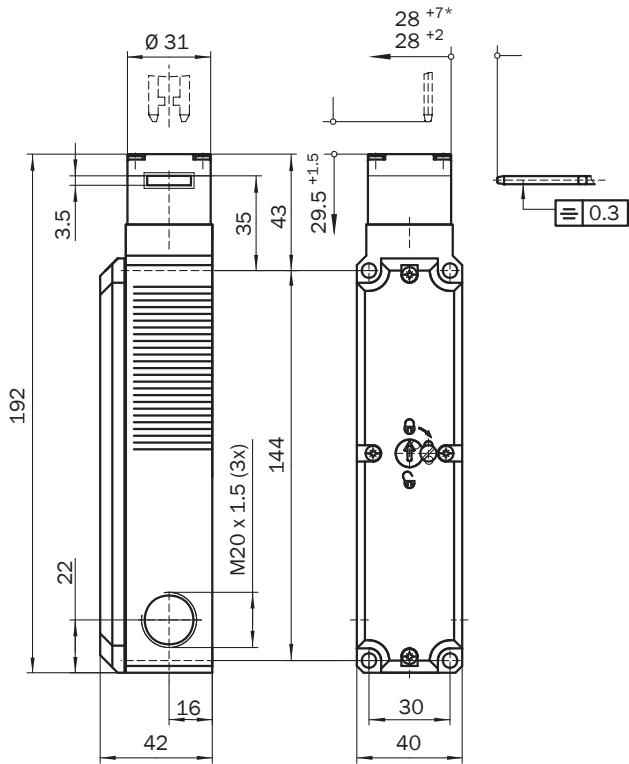
Please order actuator separately

Detailed technical specifications

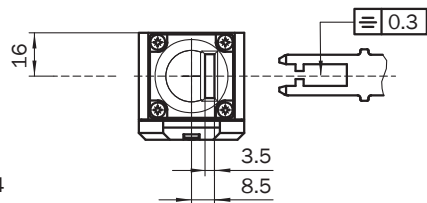
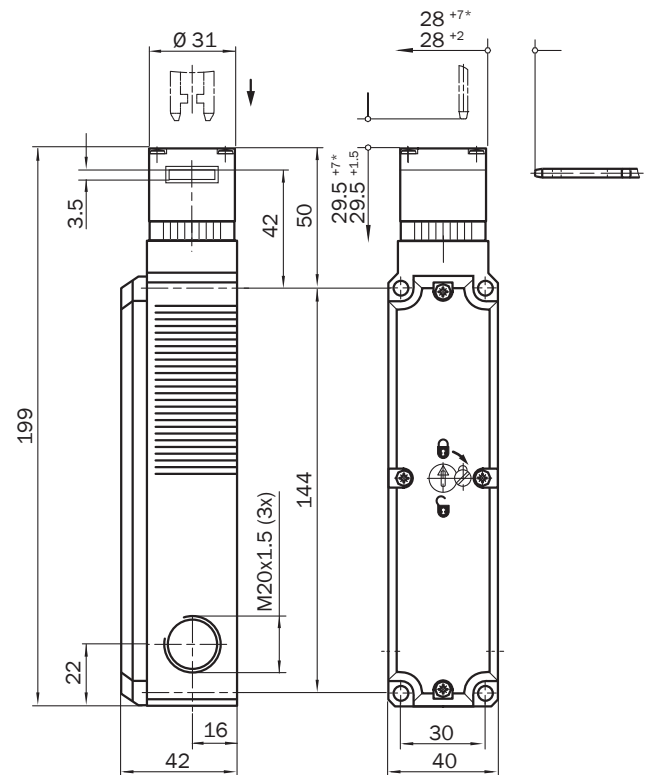
Type	i10-E0233 Lock	i10-E0253 Lock	i10- E0313S02 Lock	i10-E0453 Lock	i10-M0233 Lock	i10-M0253 Lock
Housing material	Glass-fibre reinforced thermoplastic					
Enclosure rating	IP 67					
Mechanical life (relay contacts)	1 x 10 ⁶ switching cycles, in case of radius actuator 1 x 10 ⁵ switching cycles					
Ambient operating temperature from ... to	-20 °C ... +55 °C					
Maximum approach speed	333 mm/s					
Actuation force	Min. 20 N					
Locking force	1200 N					
Actuation frequency	Max. 1.94 Hz					
Switching principle	Slow-action switch					
Number of positive action normally closed contacts	2					
Number of normally open contacts	1		0		1	0
Number of positive action normally closed door monitoring contacts		0	1	2		0
Number of normally open door monitoring contacts	0		1		0	1
Number of normally closed door monitoring contacts		1		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)					
Solenoid operating voltage	24 V (20.4 V ... 26.4 V) DC					
Power consumption	Max. 8 W					
Duty cycle	100 %					
Contact material	Silver alloy, gold flashed					
Connection type	Cable gland					
Maximum connection wire cross-section	1.5 mm ²					
Short-circuit protection	4A gG					
Weight	0.46 kg					

Dimensional drawings

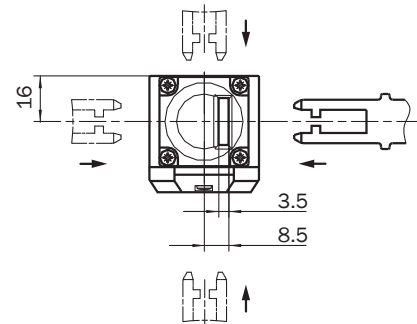
i10-E0233 Lock, i10-E0253 Lock, i10-E0453 Lock, i10-M0233 Lock, i10-M0253 Lock



i10-E0313S02 Lock



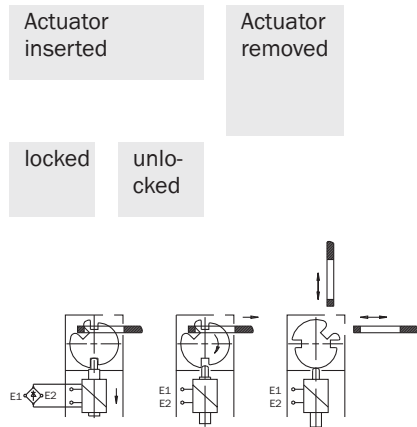
* in case of actuator with overtravel:
iE10-S4 und iE10-A4



* in case of actuator with overtravel:
iE10-S4 und iE10-A4

Dimensions in mm

Switching elements

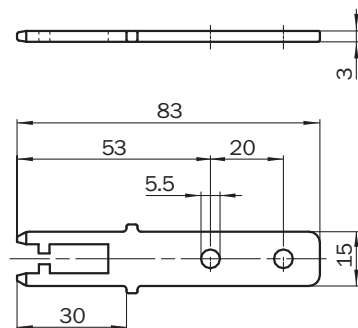


<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 35₀34 ⊕ 21₀22 ⊖ 11₀12 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 35₀34 ⊕ 21₀22 ⊖ 11₀12 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 35₀34 ⊕ 21₀22 ⊖ 11₀12 	23, 2 positive action N/C contacts + 1 N/O contact + 1 N/C as door contact
<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 15₀14 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 15₀14 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 15₀14 	25, 2 positive action N/C contacts + 1 N/O contact as door contact + 1 N/C as door contact
<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 15₀14 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 15₀14 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 15₀14 	31, 2 positive action N/C contacts + 1 N/O contact as door contact + 1 positive action N/C as door contact
<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 11₀12 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 11₀12 	<ul style="list-style-type: none"> ⊕ 41₀42 ⊖ 31₀32 ⊕ 21₀22 ⊖ 11₀12 	45, 2 positive action N/C contacts + 2 positive action N/C as door contacts

Actuators

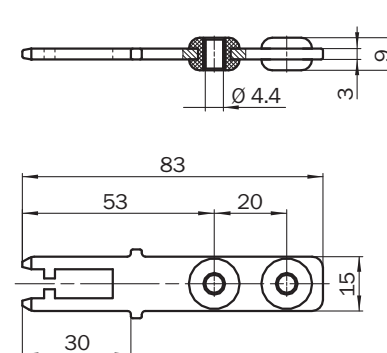
Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 1000 mm	iE10-S1	5306527
	Rubber-mounted	Min. 1000 mm	iE10-S2	5306530
	Rigid	Min. 1000 mm	iE10-S4	5308383
Angled	Rigid	Min. 1000 mm	iE10-A1	5306535
			iE10-A4	5308497
Radius	Semi flexible	Min. 90 mm	iE10-R1	5306528
		Min. 100 mm	iE10-R2	5306529

iE10-S1



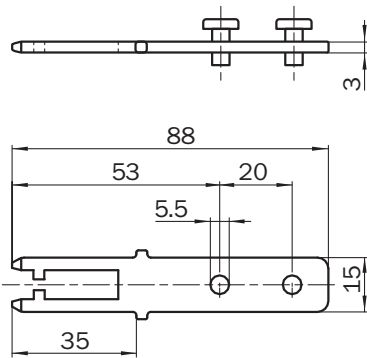
2 safety screws included.
Min. door radius 1000 mm.

iE10-S2



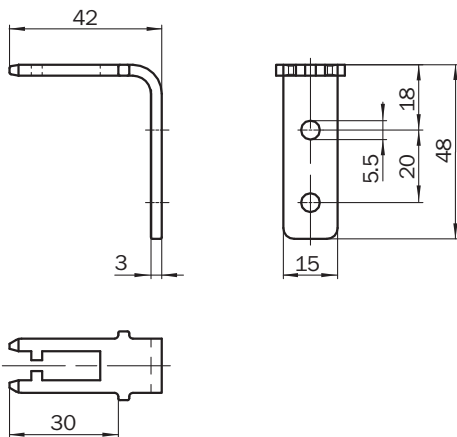
2 safety screws included.
Min. door radius 1000 mm.

iE10-S4



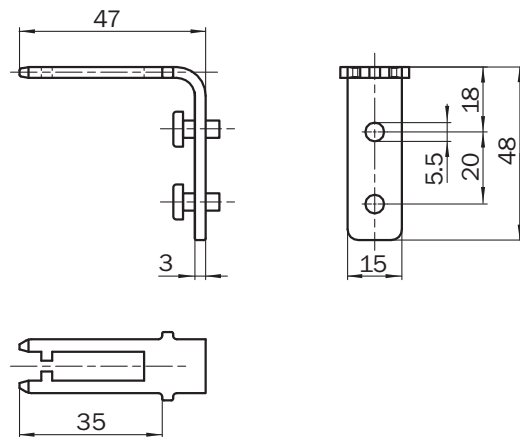
2 safety screws included
Min. door radius 1000 mm

iE10-A1



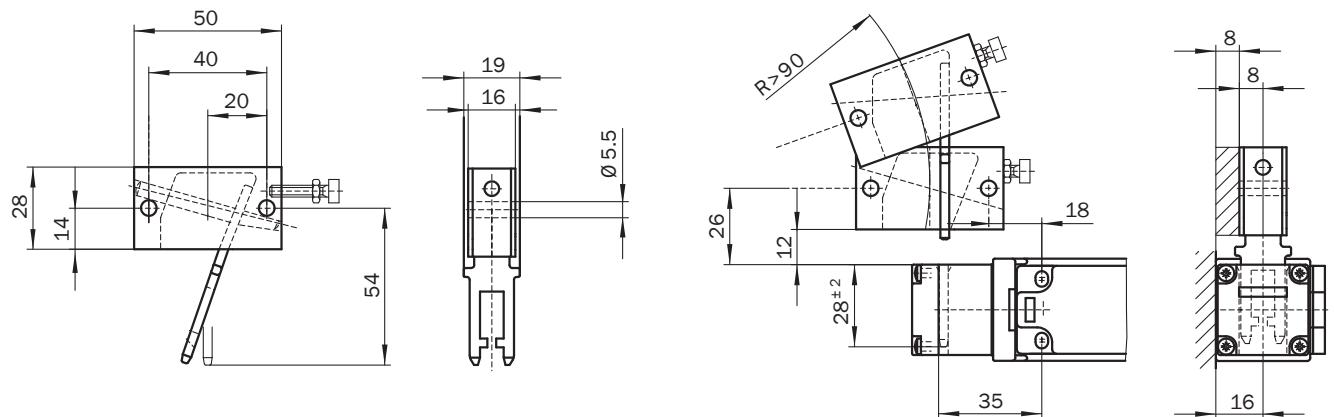
2 safety screws included.
Min. door radius 1000 mm.

iE10-A4



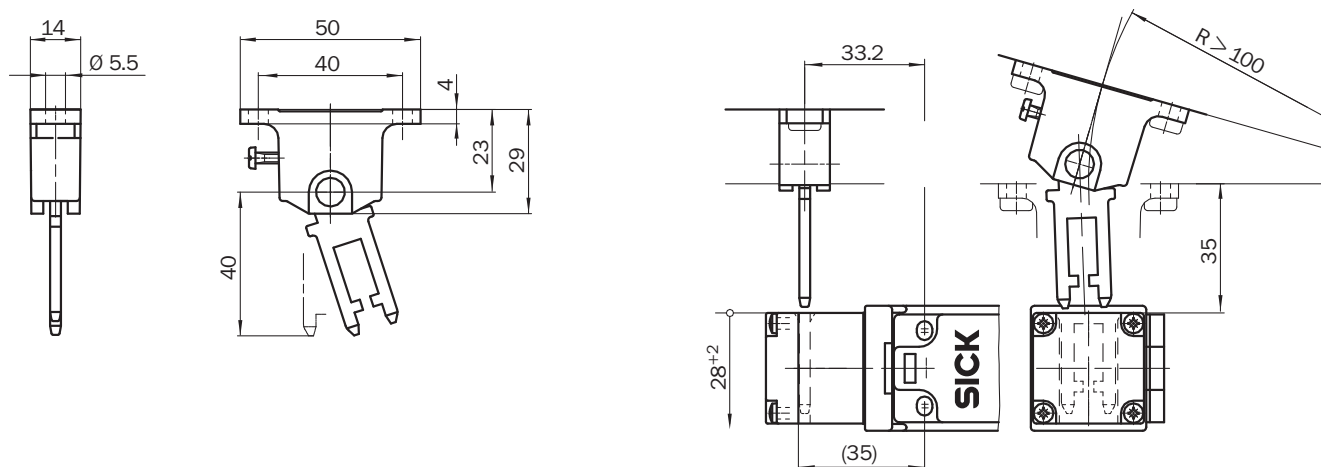
2 safety screws included
Min. door radius 1000 mm

iE10-R1



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

iE10-R2

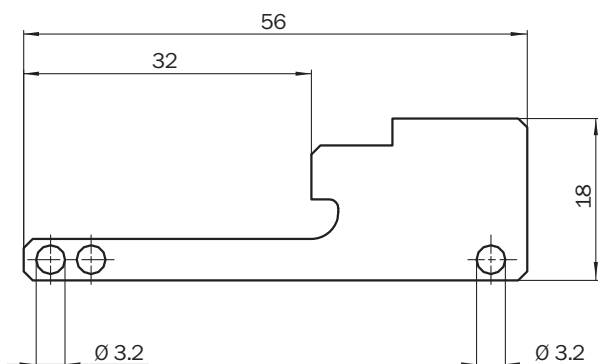


2 safety screws included.
Min. door radius 100 mm.

Lockout bar

Type	Part number
iE10-S3	5306536

iE10-S3

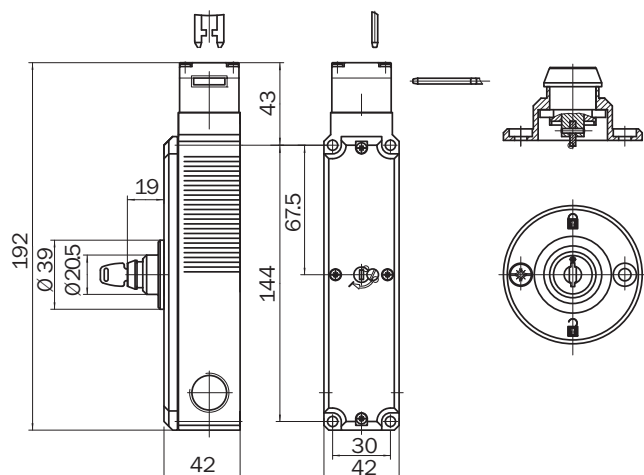


The locking bar can be inserted into the safety switch in place of the actuator when the protective device is in the open condition and can be secured to prevent its removal by standard commercially available padlocks (max. 2 pcs.). This guarantees reliable protection for persons who have to enter potentially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

Lock

Property	Delivery	Type	Part number
Parallel closing	Including key	iE10-K2	5308270

iE10-K2



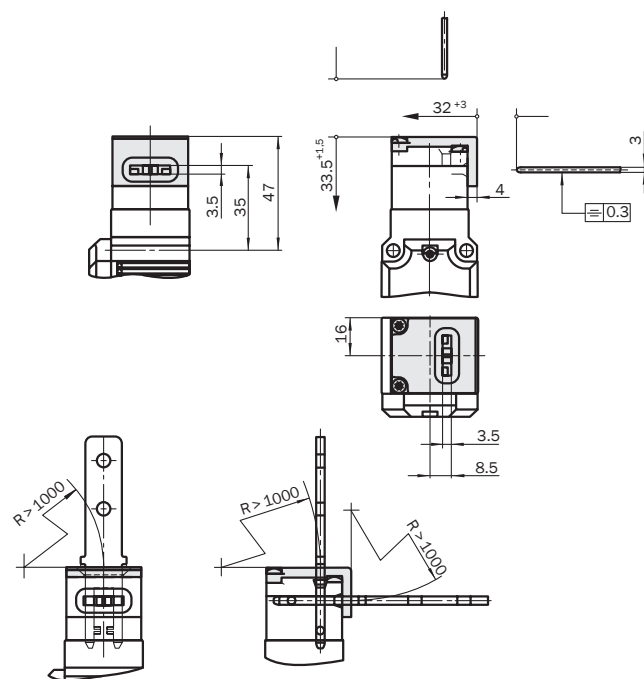
The mechanical unlocking mechanism of the i10 Lock can easily be carried out via a key. The selected lock on the front of the i10 Lock is fixed with two screws.

- Parallel closing locking mechanism
- Delivery with fixing screws and two keys

Alignment aid

Type	Part number
iE10-G1	5318460

iE10-G1



The metal alignment aid provides the actuator with a wider entry area into the safety locking device i10 Lock. With the alignment aid the safety switch is better protected against damage.

- It may be secured to the locking device with the two M3 x 34 self-tapping screws (screws supplied with delivery).
- It can only be used in combination with actuators with over-travel (iE10-A4, iE10-S4).
- It can not be used with special locking devices (i10-E0313S02) which have already a longer top entry overtravel.

Other accessories

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)	0 / 1
Number of positive action normally closed door monitoring contacts	0
Number of normally open door monitoring contacts	0
Number of normally closed door monitoring contacts	0
Housing material	Plastic
Locking force	1200 N
Locking type	Mechanical

Product description

- Safety switches with remote multi-coded actuator and tumbler mechanism
- Easy conversion of actuating direction through rotatable head
- 3-pole contact element

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.

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→ see P-0

Ordering information

Positive action normally closed	Normally open	Door monitoring			Solenoid operating voltage	Locking type	Type	Part number
		Positive action normally closed	Normally open	Normally closed				
2	1	0	0	0	24 V DC	Mechanical	i14-M0213 Lock	6025060
3	0	0	0	0	24 V DC	Mechanical	i14-M0303 Lock	6025062

Please order actuator separately



- Housing material glass-fibre reinforced thermoplastic
- Locking force 1200 N
- Three actuating directions
- Cable gland 3 x M20
- LED solenoid monitoring
- Mechanical unlocking mechanisms on three sides

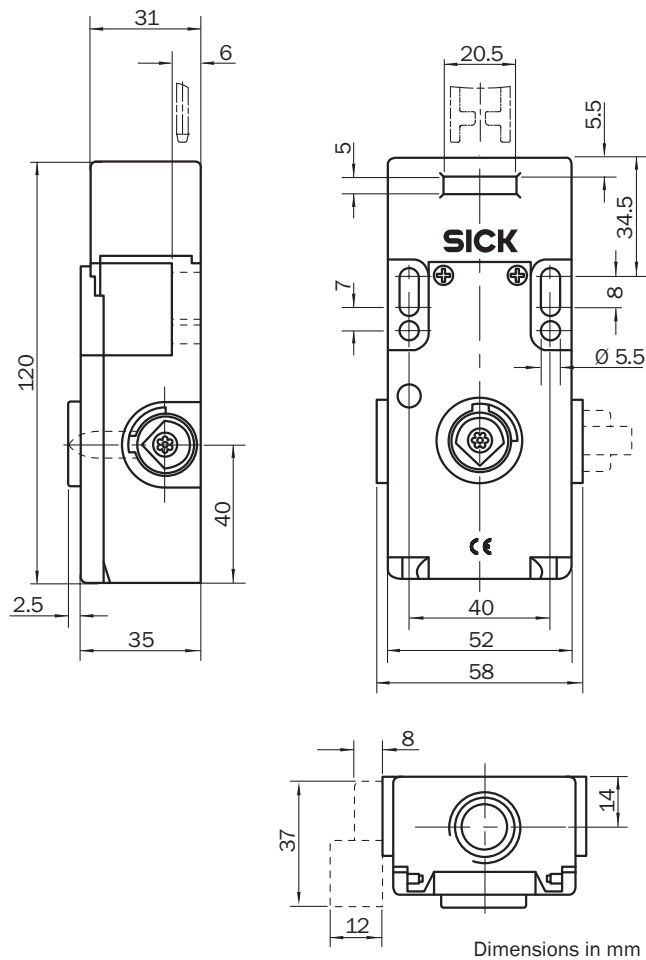


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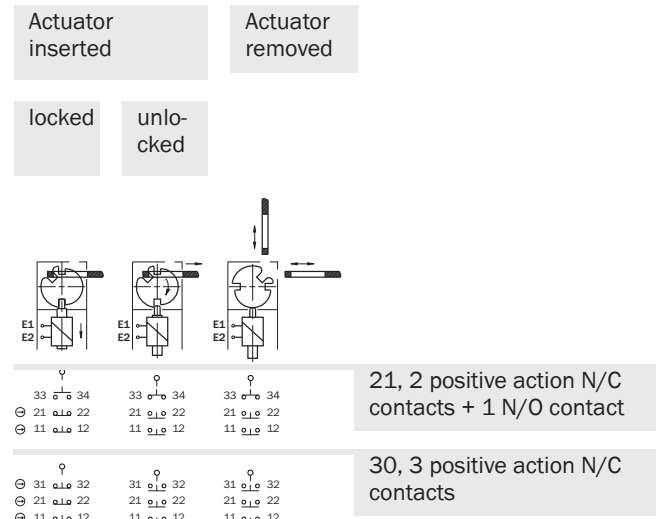
Detailed technical specifications

Type	i14-M0213 Lock	i14-M0303 Lock
Housing material	Glass-fibre reinforced thermoplastic	
Enclosure rating	IP 65	
Mechanical life (relay contacts)	1 x 10 ⁶ switching cycles	
Ambient operating temperature from ... to	-10 °C ... +60 °C	
Maximum approach speed	160 mm/s	
Actuation force	Min. 12 N	
Locking force	1200 N	
Switching principle	Slow-action switch	
Number of positive action normally closed contacts	2	3
Number of normally open contacts	1	0
Number of positive action normally closed door monitoring contacts	0	
Number of normally open door monitoring contacts	0	
Number of normally closed door monitoring contacts	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)	
Solenoid operating voltage	24 V (20.4 V ... 26.4 V) DC	
Power consumption	Max. 7 W	
Duty cycle	100 %	
Connection type	Cable gland	
Maximum connection wire cross-section	1.5 mm ²	
Short-circuit protection	2A gG	
Weight	0.37 kg	

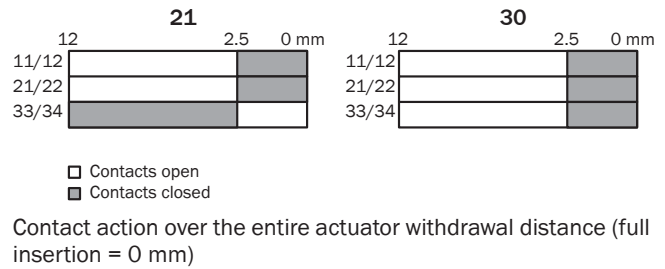
Dimensional drawings



Switching elements



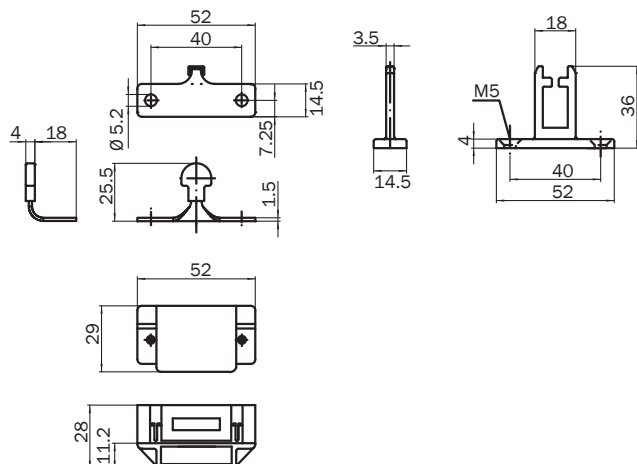
Actuator travel diagram



Actuator

Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 160 mm	iE14-S1	5311133

iE14-S1



Key

Mechanical unlocking mechanism	Type	Part number
✓	iE14-E01	5311282

iE14-E01



Other accessories

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
Number of positive action normally closed door monitoring contacts	2
Number of normally open door monitoring contacts	1
Number of normally closed door monitoring contacts	0
Housing material	Plastic
Locking force	2000 N
Locking type (depending on type)	Electrical / mechanical

Product description

- Safety switches with remote multi-coded actuator and tumbler mechanism
- Twin contact element for remote locking and door monitoring functions
- Straight, flexible or bolt actuator available

In-system added value

Safety relays

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

→ see N-0

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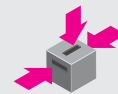
Ordering information

Positive action normally closed	Normally open	Door monitoring			Solenoid operating voltage	Locking type	Type	Part number
		Positive action normally closed	Normally open	Normally closed				
1	1	2	1	0	24 V DC	Mechanical	I200-M0323 Lock	6025113
2	0	2	1	0	24 V DC	Mechanical	I200-M0413 Lock	6025115
1	1	2	1	0	24 V DC	Electrical	I200-E0323 Lock	6026140

Please order actuator separately



- Housing material glass-fibre reinforced thermoplastic
- Entry for actuator made of stainless steel
- Locking force 2000 N
- Three actuating directions
- Cable gland 3 x M20
- Mechanical unlocking mechanisms on three sides
- LED solenoid monitoring



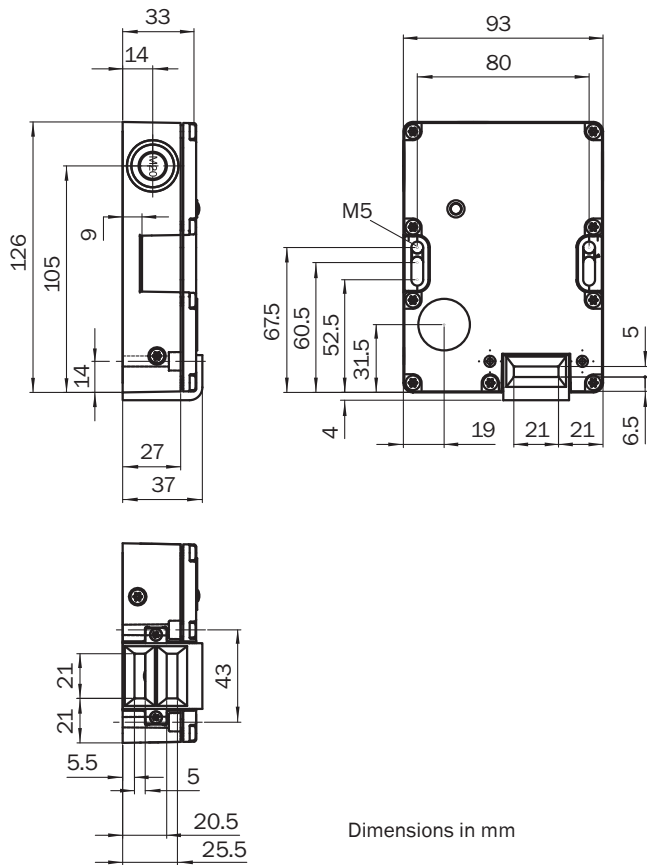
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Detailed technical specifications

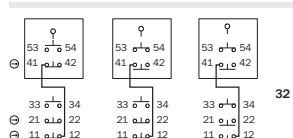
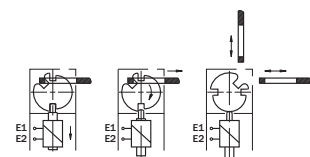
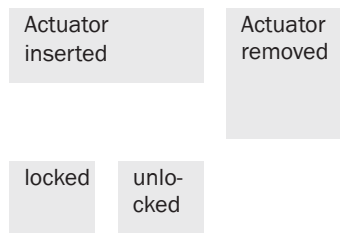
Type	I200-M0323 Lock	I200-M0413 Lock	I200-E0323 Lock
Housing material	Glass-fibre reinforced polyester		
Enclosure rating	IP 65		
Mechanical life (relay contacts)	1 x 10 ⁶ switching cycles		
Ambient operating temperature from ... to	-20 °C ... +60 °C		
Maximum approach speed	160 mm/s		
Locking force	2000 N ¹⁾		
Switching principle	Slow-action switch		
Number of positive action normally closed contacts	1	2	1
Number of normally open contacts	1	0	1
Number of positive action normally closed door monitoring contacts	2		
Number of normally open door monitoring contacts	1		
Number of normally closed door monitoring contacts	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)		
Solenoid operating voltage	24 V (20.4 V ... 26.4 V) DC		
Power consumption	Max. 7 W		
Duty cycle	100 %		
Connection type	Cable gland		
Short-circuit protection	2A gG		
Weight	0.55 kg		

¹⁾ Only in combination with the delivered fixing screws, otherwise 1500 N

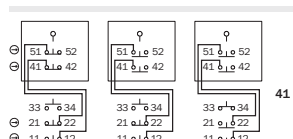
Dimensional drawings



Switching elements

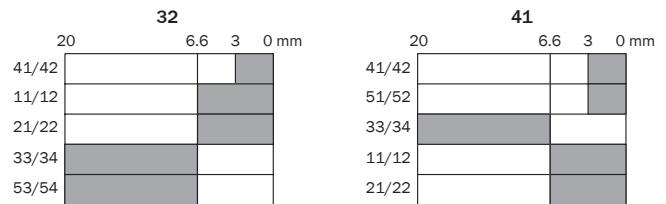


32, 1 positive action N/C contact + 1 N/O contact + 2 positive action N/C as door contacts + 1 N/O as door contact



41, 2 positive action N/C contacts + 2 positive action N/C as door contacts + 1 N/O as door contact

Actuator travel diagram



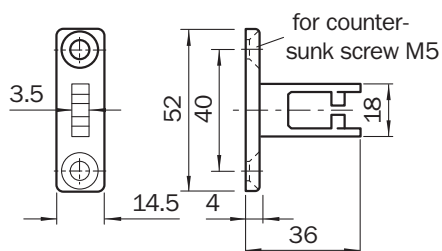
□ Contacts open
 ■ Contacts closed

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

Actuators

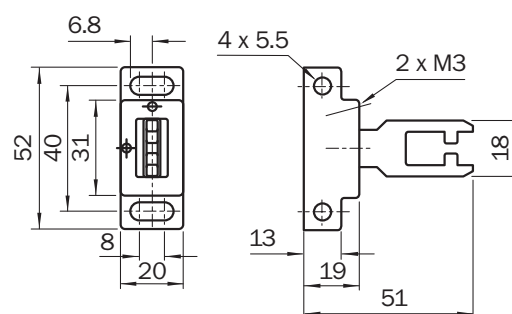
Actuation option	Way of actuation	Door radius	Type	Part number
Straight	Rigid	Min. 175 mm	iE200-S1	5308758
	Fully flexible	Min. 80 mm	iE200-F1	5308759

iE200-S1



Min. door radius 175 mm

iE200-F1

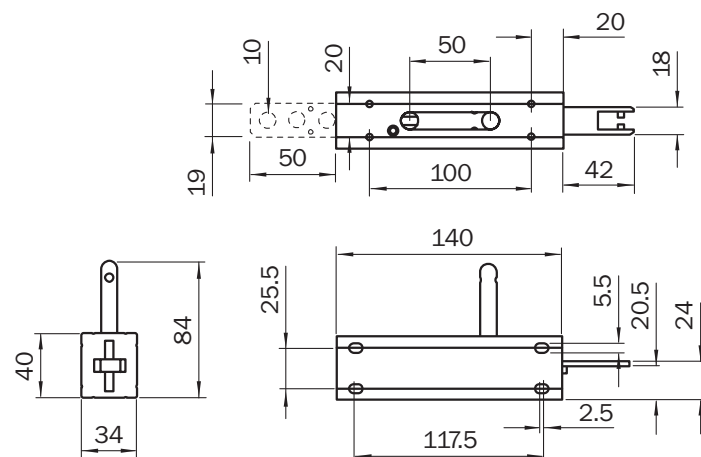


Min. door radius 80 mm

Bolt

Type	Part number
iE200-B1	5308760

iE200-B1



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
Number of positive action normally closed door monitoring contacts	2
Number of normally open door monitoring contacts	1
Number of normally closed door monitoring contacts	0
Housing material	Metal
Locking force	2500 N
Locking type	Mechanical

Product description

- Safety locking device with handle-operated actuator
- Two contact elements for separate door and solenoid monitoring
- 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 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

Ordering information

Positive action normally closed	Normally open	Door monitoring			Solenoid operating voltage	Locking type	Type	Part number
		Positive action normally closed	Normally open	Normally closed				
2	1	2	1	0	24 V DC	Mechanical	i1001-24 Lock	6021013

Actuator supplied with delivery



- Housing material powder-coated die-cast zinc
- Locking force 2500 N
- Four actuating directions
- Cable gland PG13.5
- LED status indicator
- Handle actuator

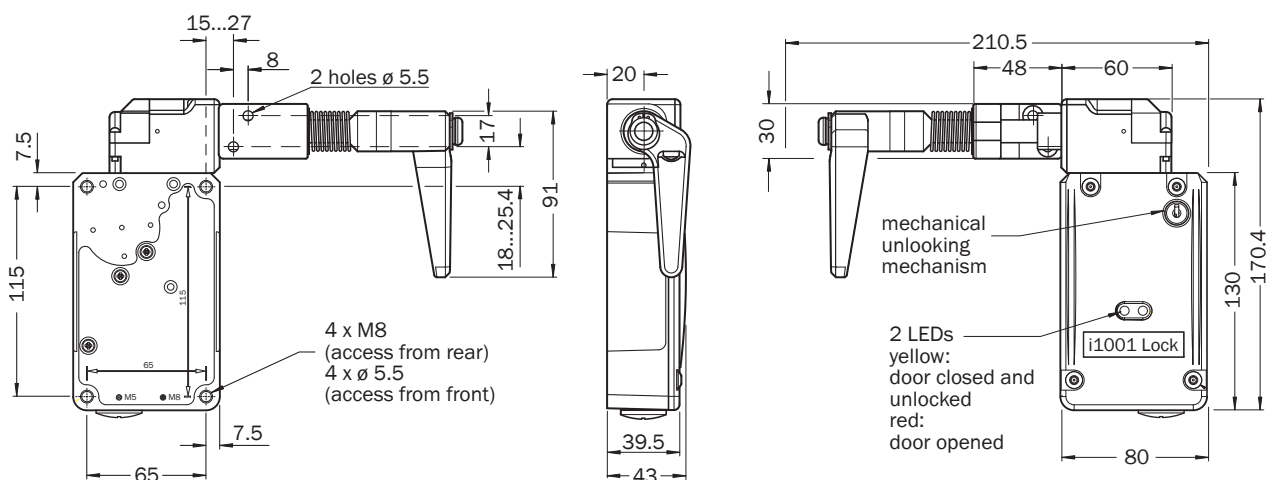


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→ Dimensional drawings	I-18
→ Internal circuitry	I-19
→ Trapped key systems	I-19
→ Actuator	I-21
→ Lockout bar	I-21
→ Other accessories	I-22
→ Services	A-2

Detailed technical specifications

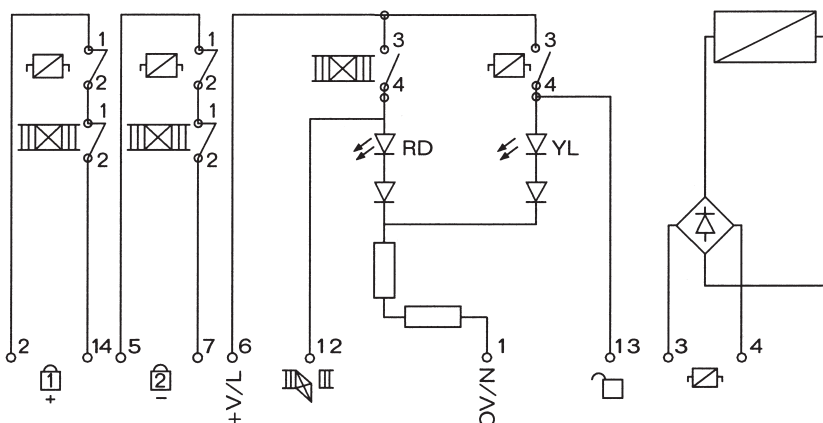
Housing material	Zinc alloy and stainless steel
Surface treatment	Varnished
Enclosure rating	IP 67
Mechanical life (relay contacts)	1 x 10 ⁶ switching cycles
Ambient operating temperature from ... to	-5 °C ... +40 °C
Maximum approach speed	333.3 mm/s
Locking force	2500 N
Switching principle	Slow-action switch
Number of positive action normally closed contacts	2
Number of normally open contacts	1
Number of positive action normally closed door monitoring contacts	2
Number of normally open door monitoring contacts	1
Number of normally closed door monitoring contacts	0
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
Solenoid operating voltage	24 V (20.4 V ... 26.4 V) DC
Power consumption	Max. 12 W
Duty cycle	100 %
Contact material	90 % silver and 10 % nickel
Connection type	Cable gland
Maximum connection wire cross-section	2.5 mm ²
Weight	2.25 kg

Dimensional drawings



Dimensions in mm

Internal circuitry

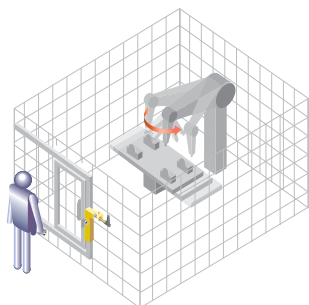


Trapped key systems

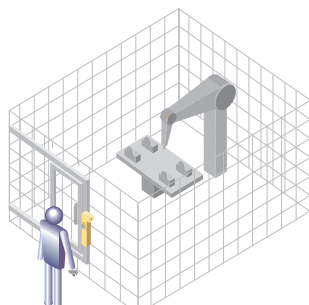
Accessory type	Coding	Delivery	Type	Part number
Access key adapter	1	Key supplied with delivery	iE1000-AK1	5308302
	2	Key supplied with delivery	iE1000-AK2	5308303
Safety key adapter	1	Key supplied with delivery	iE1000-SK1	5308297
	2	Key supplied with delivery	iE1000-SK2	5308298
Enabling unit	1	Key supplied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

Additional types on request

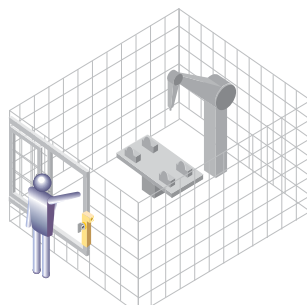
Access key adapter



Plant in action, no key inserted



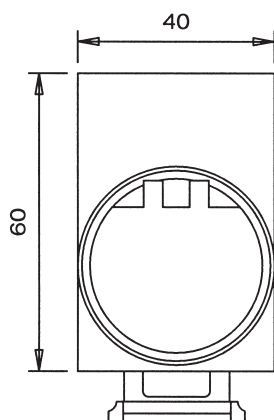
Key is inserted, plant comes to a standstill



Door can now be opened

Access function

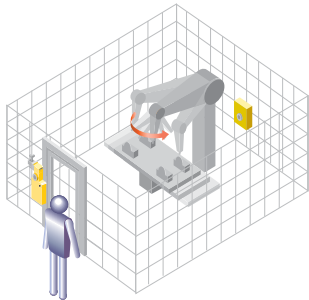
■ Application example
Basic unit + head unit + access key adapter. Only those with an access key can gain access to the machine.



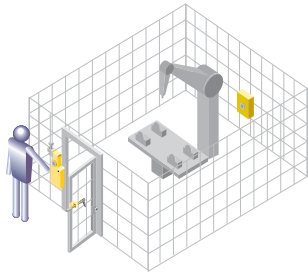
The access key adapter is installed between the head and the housing of the safety switch.

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).

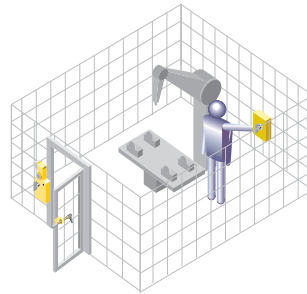
Safety key adapter



Plant in action, door closed, key inserted



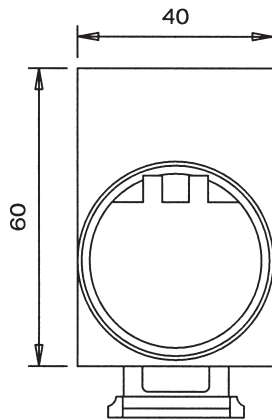
Key is removed, plant comes to standstill, door can be opened



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

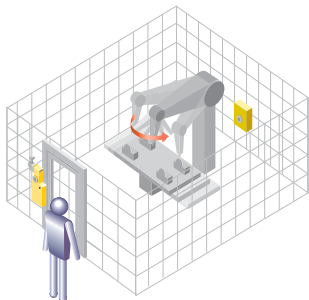
Enable function

■ 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.

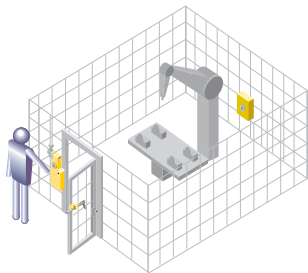


The safety key adapter is installed between the head and the housing of the safety switch. The key is securely held in the unit and the door is kept in the closed position. Only when the safety key is turned and withdrawn access is possible.

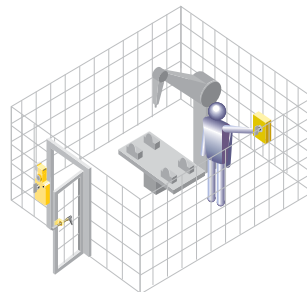
Enabling unit



Plant in action, door closed, key inserted



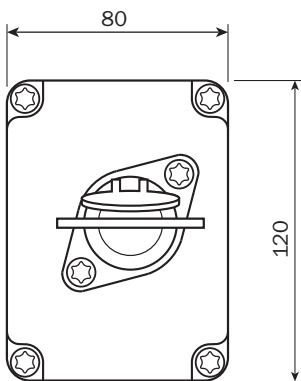
Key is removed, plant comes to standstill, door can be opened



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.

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



Other accessories

Key

Prevention of unintentional machine start	Access function	Enabling function	Mechanical unlocking mechanism	Coding	Type	Part number
–	✓	–	–	1	Key AK1	5308686
–	✓	–	–	2	Key AK2	5308687
✓	–	✓	–	1	Key SK1	5308307
✓	–	✓	–	2	Key SK2	5308308
–	–	–	✓	–	Key for emergency release	5308320

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
Number of positive action normally closed door monitoring contacts	2
Number of normally open door monitoring contacts	1
Number of normally closed door monitoring contacts	0
Housing material	Metal
Locking force	2500 N
Locking type	Mechanical

Product description

- Safety switch with separate coded actuator and guard locking
- Two contact elements for separate door and solenoid monitoring
- 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 O-0

Safety network solutions

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→ see P-0

Ordering information

Positive action normally closed	Normally open	Door monitoring			Solenoid operating voltage	Locking type	Type	Part number
		Positive action normally closed	Normally open	Normally closed				
2	1	2	1	0	24 V DC	Mechanical	i1002-24 Lock	6021007

Actuator supplied with delivery



- Housing material powder-coated die-cast zinc
- Locking force 2500 N
- Four actuating directions
- Cable gland PG13.5
- LED status indicator
- Separate actuator

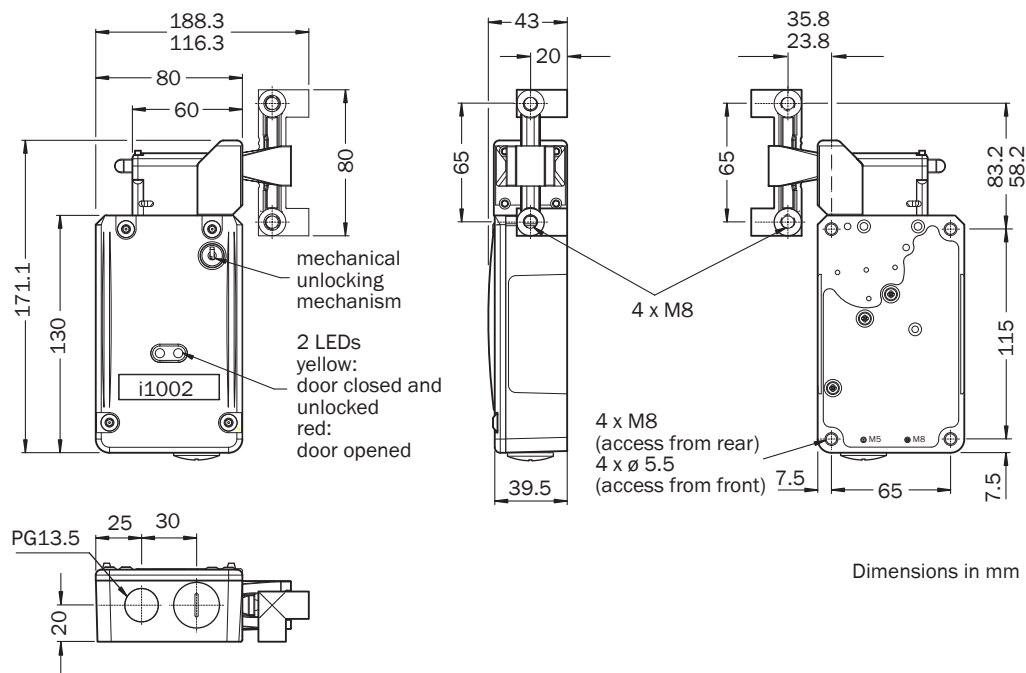


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→ Dimensional drawings	I-25
→ Internal circuitry	I-25
→ Trapped key systems	I-26
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→ Lockout bar	I-28
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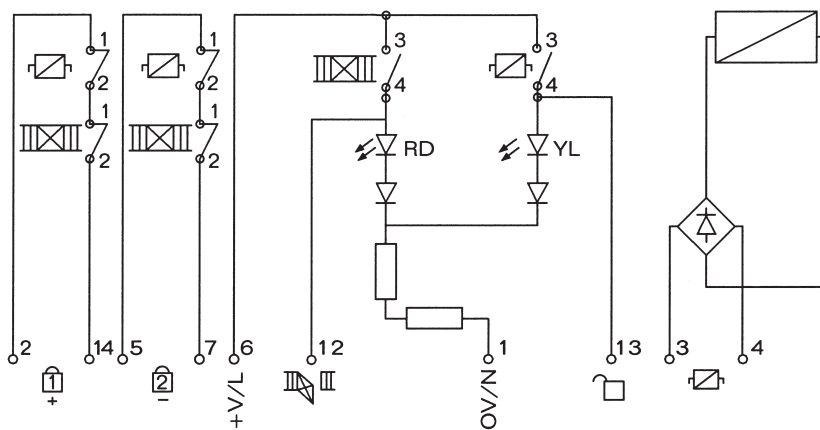
Detailed technical specifications

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	333.3 mm/s
Actuation force	Min. 5 N
Locking force	2500 N
Switching principle	Slow-action switch
Number of positive action normally closed contacts	2
Number of normally open contacts	1
Number of positive action normally closed door monitoring contacts	2
Number of normally open door monitoring contacts	1
Number of normally closed door monitoring contacts	0
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
Solenoid operating voltage	24 V (20.4 V ... 26.4 V) DC
Power consumption	Max. 12 W
Duty cycle	100 %
Contact material	90 % silver and 10 % nickel
Connection type	Cable gland
Maximum connection wire cross-section	2.5 mm ²
Weight	1.98 kg

Dimensional drawings



Internal circuitry

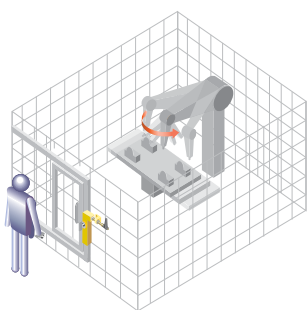


Trapped key systems

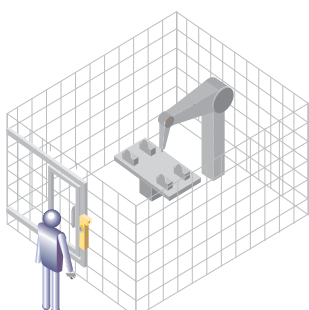
Accessory type	Coding	Delivery	Type	Part number
Access key adapter	1	Key supplied with delivery	iE1000-AK1	5308302
	2	Key supplied with delivery	iE1000-AK2	5308303
Safety key adapter	1	Key supplied with delivery	iE1000-SK1	5308297
	2	Key supplied with delivery	iE1000-SK2	5308298
Enabling unit	1	Key supplied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

Additional types on request

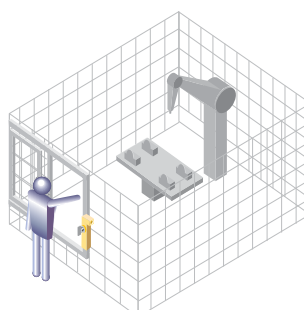
Access key adapter



Plant in action, no key inserted



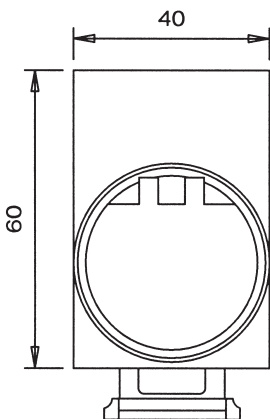
Key is inserted, plant comes to a standstill



Door can now be opened

Access function

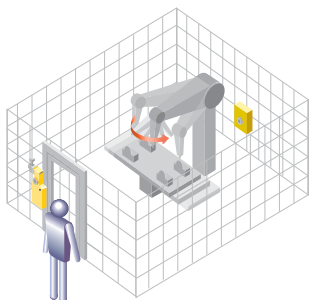
■ Application example
Basic unit + head unit + access key adapter. Only those with an access key can gain access to the machine.



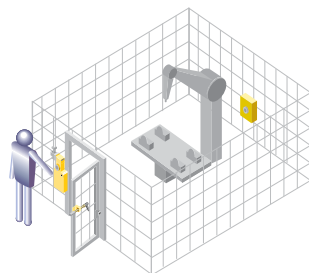
The access key adapter is installed between the head and the housing of the safety switch.

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).

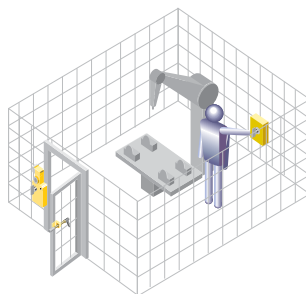
Safety key adapter



Plant in action, door closed, key inserted



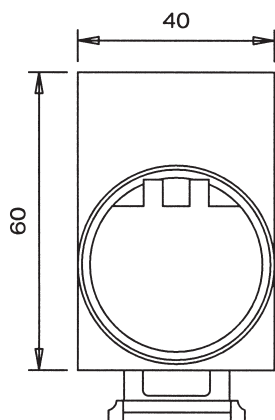
Key is removed, plant comes to standstill, door can be opened



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

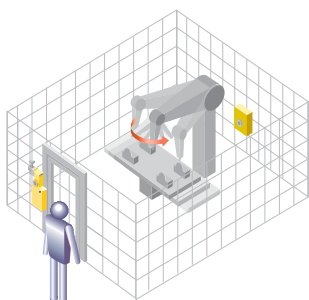
Enable function

■ 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.

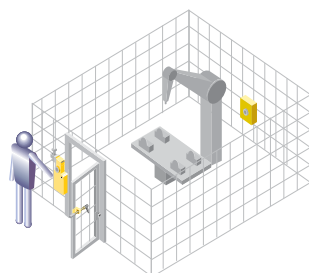


The safety key adapter is installed between the head and the housing of the safety switch. The key is securely held in the unit and the door is kept in the closed position. Only when the safety key is turned and withdrawn access is possible.

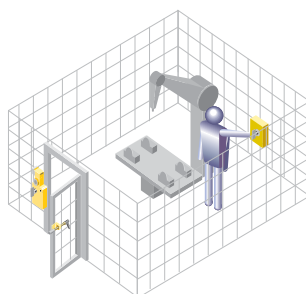
Enabling unit



Plant in action, door closed, key inserted



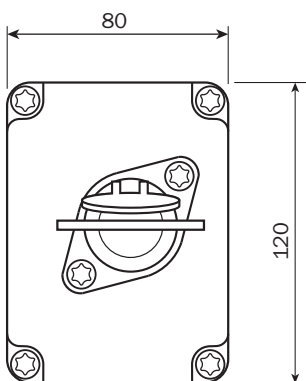
Key is removed, plant comes to standstill, door can be opened



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.

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



Other accessories

Key

Prevention of unintentional machine start	Access function	Enabling function	Mechanical unlocking mechanism	Coding	Type	Part number
–	✓	–	–	1	Key AK1	5308686
–	✓	–	–	2	Key AK2	5308687
✓	–	✓	–	1	Key SK1	5308307
✓	–	✓	–	2	Key SK2	5308308
–	–	–	✓	–	Key for emergency release	5308320

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