# i10 Lock <br> Safety Locking Devices 

Highly flexible with narrow shape

## SICK

Sensor Intelligence．


Product description

The i10 Lock safety switch forms part of the product family of safety locking devices. Its narrow shape enables it to be mounted easily and directly on guard door frames. Different switching
elements and actuators make it very flexible, mechanically and electrically. As a result, this safety switch can be adapted to the application in question.

## At a glance

- Narrow plastic housing
- Either rigid or mobile actuators
- 3 cable entry glands M20 x 1.5 or M12 plug connector
- Locked by spring force and magnetic force
- Locking and door monitoring


## Your benefits

- Simple mounting without additional mounting plate - directly on the aluminum profile of the guard door frame
- High flexibility of the electrical connection due to three cable entry glands
- Improved diagnostics due to additional signaling contacts
- Practical adjustment: With choice of actuators - suitable for any door
- Different switching elements enable the appropriate solution for electrical installation
- Quick device exchange due to variants with M12 plug connector


## Detailed technical data

You can find more detailed data in the operating instructions. Download at www.mysick.com.
Locking type: electrical

| Type | i10-E0233 Lock | i10-E0253 Lock | $\begin{gathered} \text { i10-E0313S02 } \\ \text { Lock } \end{gathered}$ | i10-E0453 Lock | i10-E0454 Lock |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Housing material | Glass-fiber reinforced thermoplastic |  |  |  |  |
| Enclosure rating | IP 67 |  |  |  |  |
| Safety-related parameters $\mathrm{B}_{10 \mathrm{~d}} \text { parameter }$ | $3 \times 10^{6}$ switching cycles, with small load |  |  |  |  |
| Ambient operating temperature from ... to | $-20^{\circ} \mathrm{C} \ldots+55^{\circ} \mathrm{C}$ |  |  |  |  |
| Approach speed | $\leq 20 \mathrm{~m} / \mathrm{min}$ |  |  |  |  |
| Actuation force | $\geq 10 \mathrm{~N}$ |  |  |  |  |
| Locking force | $\leq 1,300 \mathrm{~N}$ |  |  |  |  |
| Actuation frequency | $\leq 7,000 / \mathrm{h}$ |  |  |  |  |
| Switching principle | Slow action switching element |  |  |  |  |
| Number of positive action N/C solenoid monitoring contacts | 2 |  |  |  |  |
| Number of N/O solenoid monitoring contacts | 1 | 0 |  |  |  |
| Number of positive action N/C door monitoring contacts | 0 |  | 1 | 2 |  |
| Number of N/O door monitoring contacts | 0 | 1 |  | 0 |  |
| Number of N/C door monitoring contacts |  | 1 |  | 0 |  |
| Usage category in compliance with IEC/EN 60947-5-1 | AC-15/DC-13 |  |  |  |  |
| Rated operating current (voltage) | $\begin{gathered} 4 \text { A (230 V AC) } \\ 4 \text { A (24 V DC) } \end{gathered}$ |  |  |  | $\begin{aligned} & 1 \text { A ( } 24 \mathrm{~V} \mathrm{AC}) \\ & 1 \text { A (24 V DC) } \end{aligned}$ |
| Rated insulation voltage $\mathrm{U}_{\mathrm{i}}$ | 250 V |  |  |  | 30 V |
| Rated impulse withstand voltage $\mathrm{U}_{\mathrm{imp}}$ | 2,500 V AC |  |  |  | 1,500 V AC |
| Switching voltage (switching current) | $\geq 12 \mathrm{VDC}(10 \mathrm{~mA})$ |  |  |  |  |
| Switching current (switching voltage) | $\geq 1 \mathrm{~mA}(24 \mathrm{~V} \mathrm{DC})$ |  |  |  |  |
| Solenoid operating voltage | 24 V (20.4 V ... 26.4 V) DC |  |  |  |  |
| Power consumption | $\leq 8 \mathrm{~W}$ |  |  |  |  |
| Duty cycle | 100 \% |  |  |  |  |
| Connection type | Cable gland |  |  |  | Connector |
| Number of cable glands $x$ size of the screwed joint | $3 \times \mathrm{M} 20$ |  |  |  | $1 \times \mathrm{M} 12,8$-pin |
| Connection cable cross-section | $0.34 \mathrm{~mm}^{2}$... 1.5 mm² |  |  |  |  |
| Short-circuit protection | 4 AgG |  |  |  | 1 A gG |
| Weight | 0.46 kg |  |  |  | 0.5 kg |

Locking type: mechanical

| Type | i10-M0233 Lock | i10-M0253 Lock | i10-M0453 Lock | i10-M0454 Lock |
| :---: | :---: | :---: | :---: | :---: |
| Housing material | Glass-fiber reinforced thermoplastic |  |  |  |
| Enclosure rating | IP 67 |  |  |  |
| Safety-related parameters $\mathrm{B}_{10 \mathrm{~d}} \text { parameter }$ | $3 \times 10^{6}$ switching cycles, with small load |  |  |  |
| Ambient operating temperature from ... to | $-20^{\circ} \mathrm{C} \ldots+55^{\circ} \mathrm{C}$ |  |  |  |
| Approach speed | $\leq 20 \mathrm{~m} / \mathrm{min}$ |  |  |  |
| Actuation force | $\geq 10 \mathrm{~N}$ |  |  |  |
| Locking force | $\leq 1,300 \mathrm{~N}$ |  |  |  |
| Actuation frequency | $\leq 7,000 / \mathrm{h}$ |  |  |  |
| Switching principle | Slow action switching element |  |  |  |
| Number of positive action N/C solenoid monitoring contacts | 2 |  |  |  |
| Number of N/O solenoid monitoring contacts | 1 | 0 |  |  |
| Number of positive action N/C door monitoring contacts | 0 |  | 2 |  |
| Number of N/O door monitoring contacts | 0 | 1 |  |  |
| Number of N/C door monitoring contacts | 1 |  | 0 |  |
| Usage category in compliance with IEC/EN 60947-5-1 | AC-15/DC-13 |  |  |  |
| Rated operating current (voltage) | $\begin{gathered} 4 \text { A (230 V AC) } \\ 4 \text { A (24 V DC) } \end{gathered}$ |  |  | $\begin{aligned} & 1 \text { A ( } 24 \mathrm{~V} \mathrm{AC}) \\ & 1 \text { A (24 V DC) } \end{aligned}$ |
| Rated insulation voltage $U_{i}$ | 250 V |  |  | 30 V |
| Rated impulse withstand voltage $\mathrm{U}_{\mathrm{imp}}$ | 2,500 V AC |  |  | 1,500 V AC |
| Switching voltage (switching current) | $\geq 12 \mathrm{~V}$ DC ( 10 mA ) |  |  |  |
| Switching current (switching voltage) | $\geq 1 \mathrm{~mA}(24 \mathrm{~V} \mathrm{DC})$ |  |  |  |
| Solenoid operating voltage | 24 V (20.4 V ... 26.4 V) DC |  |  |  |
| Power consumption | $\leq 8 \mathrm{~W}$ |  |  |  |
| Duty cycle | 100 \% |  |  |  |
| Connection type | Cable gland |  |  | Connector |
| Number of cable glands $x$ size of the screwed joint | $3 \times \mathrm{M} 20$ |  |  | $1 \times \mathrm{M} 12,8$-pin |
| Connection cable cross-section | $0.34 \mathrm{~mm}^{2}$... $1.5 \mathrm{~mm}^{2}$ |  |  |  |
| Short-circuit protection | 4 A gG |  |  | 1 A gG |
| Weight | 0.46 kg |  |  | 0.5 kg |

## Ordering information

- Locking type: electrical

| Solenoid monitoring contacts |  | Door monitoring contacts |  |  | Connection type | Model name | Part no. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of positive action $N / C$ | Number of N/O | Number of positive action $N / C$ | Number of N/O | Number of N/C |  |  |  |
| 2 | 1 | 0 | 0 | 1 | Cable gland | i10-E0233 Lock | 6022585 |
|  | 0 | 0 | 1 | 1 |  | i10-E0253 Lock | 6020536 |
|  |  | 1 | 1 | 0 |  | i10-E0313S02 Lock | 6011368 |
|  |  | 2 | 0 | 0 |  | i10-E0453 Lock | 6020598 |
|  |  |  |  |  | Connector | i10-E0454 Lock | 6045056 |

- Locking type: mechanical

| Solenoid monitoring contacts |  | Door monitoring contacts |  |  | Connection type | Model name | Part no. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of positive action N/C | Number of N/O | Number of positive action N/C | Number of $\mathrm{N} / \mathrm{O}$ | Number of N/C |  |  |  |
| 2 | 1 | 0 | 0 | 1 | Cable gland | i10-M0233 Lock | 6022580 |
|  | 0 | 0 | 1 | 1 |  | i10-M0253 Lock | 6027397 |
|  |  | 2 | 0 | 0 |  | i10-M0453 Lock | 6029934 |
|  |  |  |  |  | Connector | i10-M0454 Lock | 6045055 |

## Application

You can find more applications using the application finder at www.mysick.com.

- Monitoring of rotatable, laterally sliding or removable protective devices
- Personal protection for follow-on movements
- Process protection for automated production systems


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Access protection on an injection molding machine

Dimensional drawings
i10-E0233 Lock, i10-E0253 Lock, i10-E0453 Lock, i10-M0233 Lock, i10-M0253 Lock, i10-M0453 Lock


* In case of actuator with overtravel:
iE10-S4 and iE10-A4

i10-E0313S02 Lock


All dimensions in mm
i10-E0454 Lock i10-M0454 Lock


All dimensions in mm

## Switching elements

|  | Actuator inserted |  | Actuator removed |
| :---: | :---: | :---: | :---: |
|  | locked | unlocked |  |
|  |  | $\begin{aligned} & 41 \circ^{\circ} \circ 42 \\ & 33 \sigma_{0} 34 \\ & 21 \circ \frac{\circ}{0} 22 \\ & 11 \stackrel{\circ}{\circ} 12 \end{aligned}$ | $\begin{aligned} & 41 \stackrel{\circ}{\circ} \text { o } 42 \\ & 33 \text { णo } 34 \\ & 21 \text { 잉 } 22 \\ & 11 \text { 오 } 12 \end{aligned}$ |
|  |  | $\begin{gathered} \text { 9 } \\ 41 \div 042 \\ 31 \circ 32 \\ 21 \circ 22 \\ 13 \div 14 \end{gathered}$ |  |
|  |  |  | $\begin{aligned} & 41 \text { ㅇํ } 42 \\ & 31 \text { 응 } 32 \\ & 21 \text { 웅 } 22 \\ & 13 \text { ण. } 14 \end{aligned}$ |
|  |  |  | $\begin{aligned} & \text { ㅇํ } \\ & 41 \text { ㅇ․ } 42 \\ & 31 \text { ๐ํ } 32 \\ & 21 \text { 우 } 22 \\ & 11 \text { 옹 } 12 \end{aligned}$ |

Switching element 23:
2 positive action N/C contacts +1 N/O contact + 1 N/C as door contact
Switching element 25 :
2 positive action N/C contacts + 1 N/O contact as door contact +1 N/C as door contact

## Switching element 31 :

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

## Switching element 45:

2 positive action N/C contacts +
2 positive action N/C as door contacts

## Connection diagram

i10-E0454 Lock i10-M0454 Lock


Door monitoring
Solenoid monitoring

## Accessories

Actuators

- Items supplied: Including two safety screws


Lock

| Figure | Remark | Property | Part no. |
| :---: | :--- | :--- | :--- | :---: |
|  | Lock for mechanical unlocking mechanism | Parallel closing | Type |
|  |  |  | iE10-K2 |

Alignment guide

| Figure | Type | Part no. |
| :---: | :---: | :---: |
|  | iE10-G1 | 5318460 |
|  |  |  |

Connecting cables

| Figure | Direction of cable outlet | Cable length | Part no. |  |
| :---: | :--- | :--- | :--- | :--- |
|  |  | 5 m | Type |  |
|  | Straight | 10 m | DOL-1208-G05MA | 6020993 |

Cable gland

| Figure | Type |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Dimensional drawings actuators

## iE10-A1



## iE10-A4



## iE10-R1


iE10-R2

iE10-S1

iE10-S2

iE10-S4


## Dimensional drawings lock

iE10-K2


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

- Parallel closing locking mechanism

Fixing screws and two keys supplied with delivery.

## Dimensional drawings alignment guide

iE10-G1


The metal alignment guide provides the actuator with a wider entry area into the safety switch. With the alignment guide, the safety switch is better protected against damage.

It can be secured to the safety switch with the two M3 x 34 selftapping screws (screws supplied with delivery).

It can only be used in combination with actuators with overtravel (iE10-A4, iE10-S4).
It can not be used with special locking devices (i10-E0313S02), which already have a longer top entry overtravel.

All dimensions in mm

## SICK at a glance



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[^0]:    Access protection on an assembly system

