

## ► Safety relays PNOZsigma

The compact safety relays PNOZsigma combine many years of experience with today's very latest safety technology: you can achieve maximum safety and cost-effectiveness with minimum effort. With particularly narrow housing widths and multifunctionality compressed into each unit, PNOZsigma provides maximum functionality in minimum width. So you can implement safety technology faster, with greater flexibility and therefore more efficiently, while saving space.



PNOZ s1

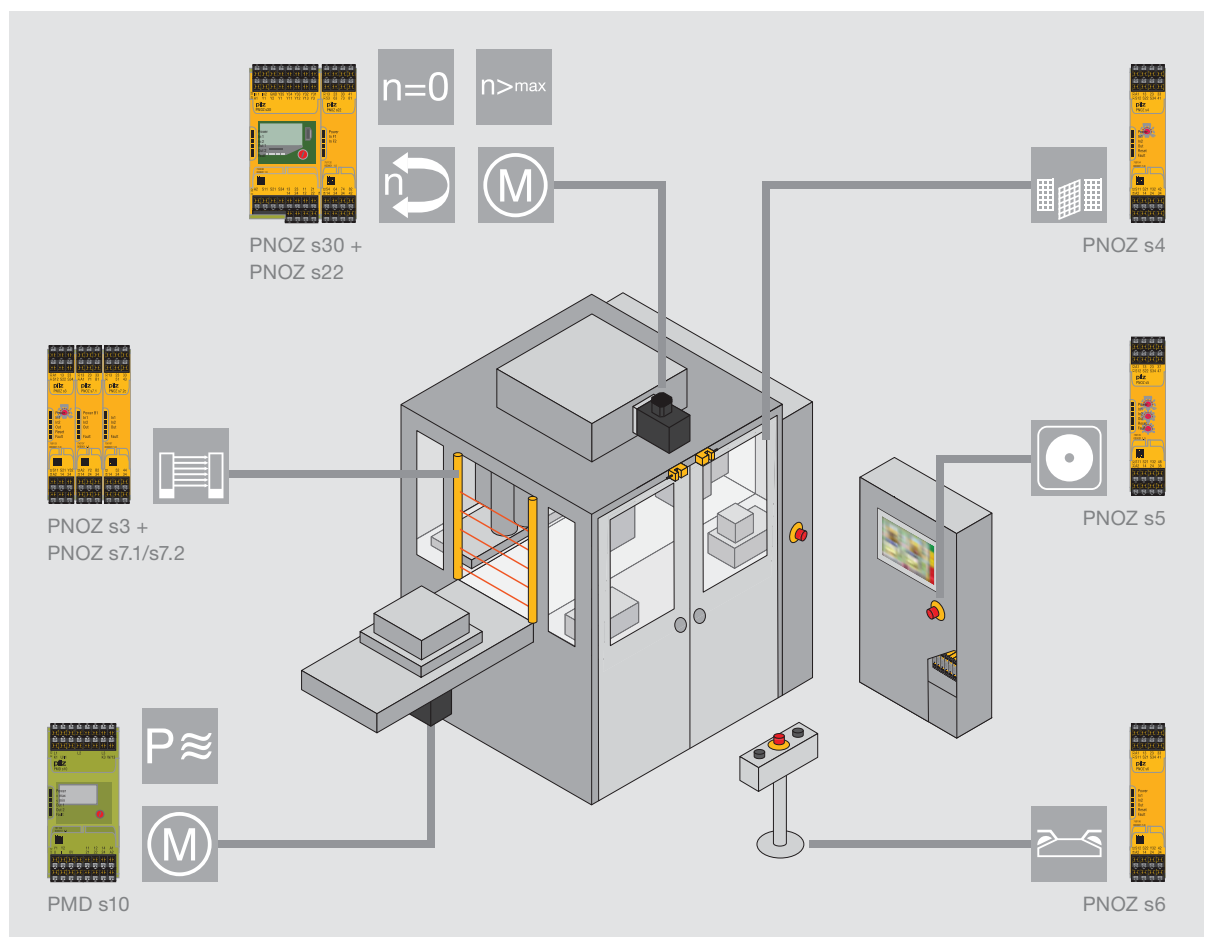
PNOZ s3

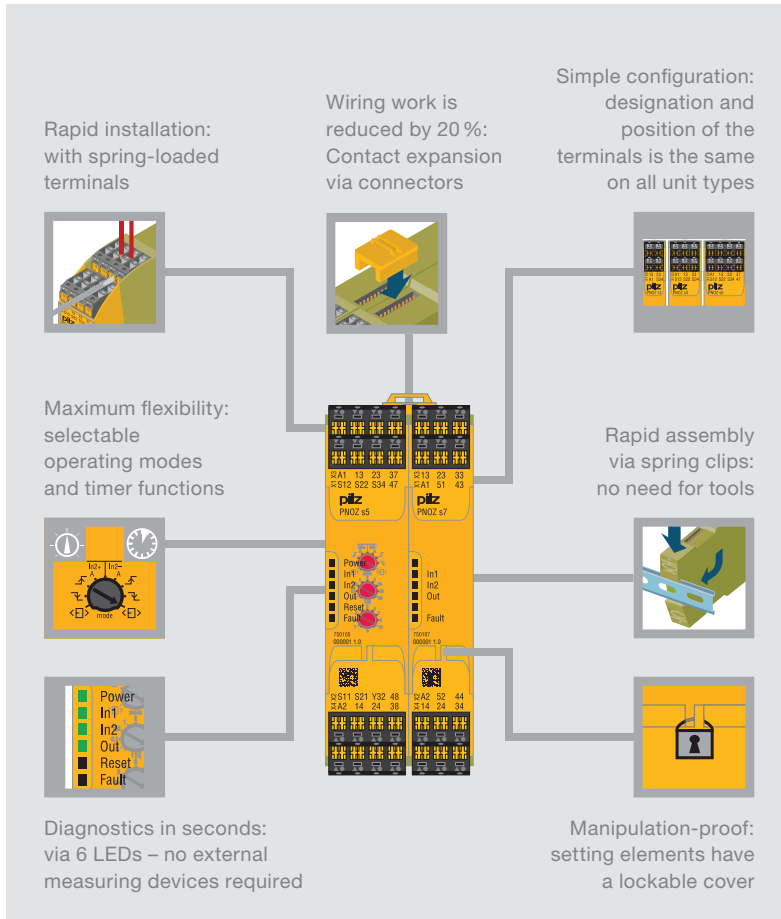
PNOZ s5

PNOZ s30

### Fewer types – suitable for a variety of uses

- Selectable operating modes and timers enable each unit to be flexible in its application
- A single unit type monitors different safety functions
- Your stockholding can be reduced to a few unit types





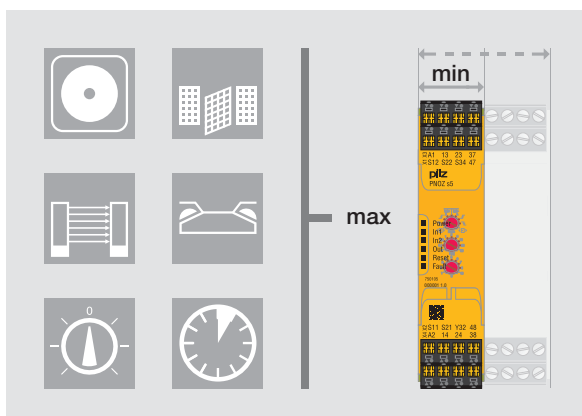
#### Your benefits at a glance

- ▶ Narrower widths save space within the control cabinet, and therefore costs!
- ▶ Reduce wiring costs through push-in technology and expand the number of contacts via connectors
- ▶ Rapid commissioning and high availability
- ▶ Low logistics costs: few unit types covering many safety functions
- ▶ Use the complete solution from Pilz and supplement the PNOZsigma with compatible, approved safety components: from E-STOP pushbuttons to safe sensors such as safety switches and light curtains, through to operator terminals for diagnostics and visualisation

#### Up to 50 % space saving

- ▶ Widths from 12.5 mm
- ▶ Housing is up to 50 % narrower with the same functionality<sup>1)</sup>
- ▶ Reduced space requirement in the control cabinet saves costs

<sup>1)</sup> Compared with standard electromechanical safety relays on the market

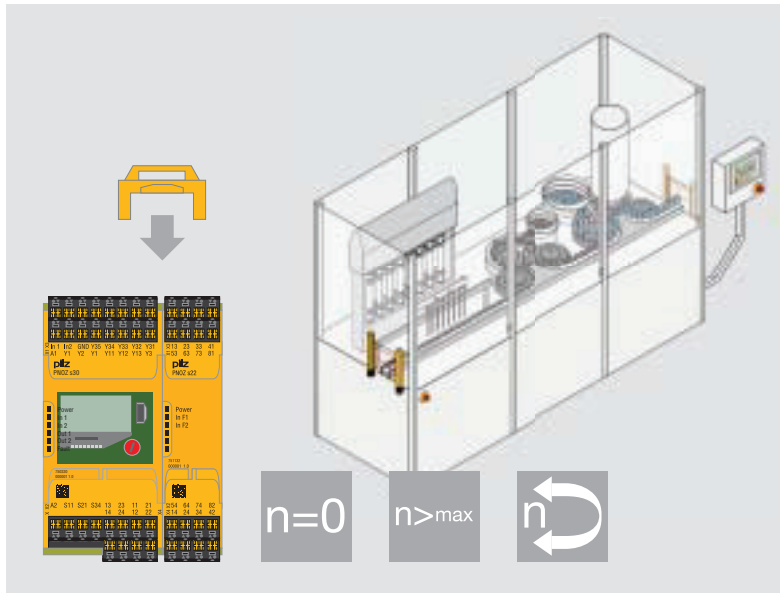


Keep up-to-date on safety relays PNOZsigma:

Webcode 5229

Online information at [www.pilz.com](http://www.pilz.com)

## ► Convenient speed monitoring



Relay contacts can be multiplied by combining PNOZ s22 and PNOZ s30.

### Safe speed monitor PNOZ s30

Convenient speed monitoring – the speed monitor PNOZ s30 provides safe monitoring of standstill, speed, direction of rotation and shear pin breakage. For example, travelling at reduced speed during set-up mode increases operator safety. Productivity is increased, as an unnecessary shutdown is prevented. This all saves costs and protects machinery as well as staff. It also enables you to comply with the requirement of the new Machinery Directive, which states that in the field of drive monitoring, the operating status must be safely monitored and maintained when the drive is brought to a standstill. Typical applications are pleasure parks, balancing machines, high bay racking, centrifuges, filling machines, machining centres, wind turbines.

### Your benefits at a glance

- Increased productivity and safety for operating personnel
- Productivity is increased by avoiding unnecessary shutdown processes: advance warning is given when a defined warning threshold is reached
- Save time during setup and when units are exchanged, thanks to convenient operation via rotary knob (push and turn)
- Suitable for all common motor feedback systems and proximity switches
- Contact expansion module PNOZ s22: duplication of the relay contacts enables the application's function range to be expanded

### Contact expansion module

#### PNOZ s22 – Twice as good

PNOZ s22 provides two relay functions that can be controlled separately in accordance with PL e of EN ISO 13849-1. Each relay function provides 3 N/O/1 N/C contact. These can be controlled separately, so that the outputs can be assigned different functions, depending on the base unit. Safe separation between the two relay functions enables different potentials to be switched.

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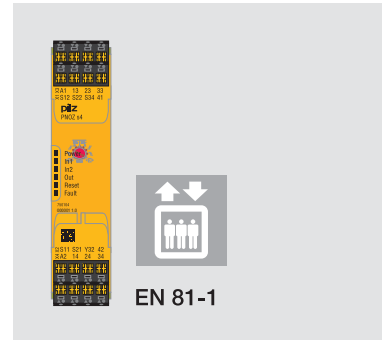
Online information  
at [www.pilz.com](http://www.pilz.com)



## ► PNOZsigma types

### Safety relay PNOZ s4 with approval in accordance with EN 81-1/A3

The “Lifts standard” EN 81-1 defines the safety rules for the “construction and installation of lifts; Part 1: Electric lifts”. The PNOZ s4 has this approval and guarantees lift operators and lift manufacturers maximum functionality in minimum width. At a width of 22.5 mm, PNOZ s4 achieves PL e of EN ISO 13849-1 and SIL CL claim 3. The application area of PNOZ s4 extends from passenger lifts and goods/service lifts through to all types of lifting machinery, which are subject to this standard.



### Safe firing with PNOZ s4.1

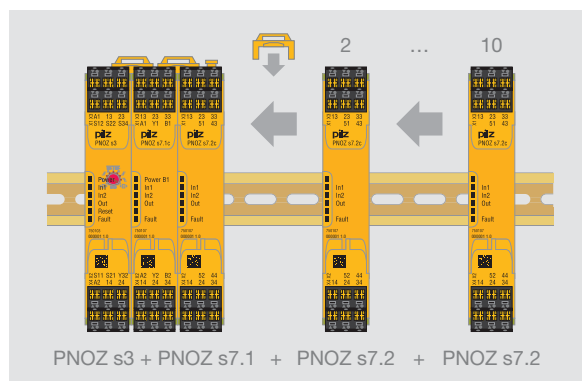
Thanks to three safe, diverse safety contacts, the PNOZ s4.1 is approved for use in burner controls. It is approved in accordance with the standard EN 50156-1 for electrical equipment on furnaces, in particular with regard to the requirements for application design and installation.



### Multiple expansion with PNOZ s7.1 and PNOZ s7.2

With a base unit and a PNOZ s7.1, the number of safety contacts can be expanded almost without limit. Up to ten PNOZ s7.2 can be connected to a PNOZ s7.1. If you need more contacts, an additional PNOZ s7.1 can be added to the series. No wiring is involved – just a connector and one simple hand movement.

At just 17.5 mm wide, the PNOZ s7.1 has three safety contacts, while the PNOZ s7.2 has four safety contacts plus one auxiliary contact. They can be combined with other PNOZsigma expansion units at any time.



Rapid contact expansion – it's easy with PNOZsigma!

## ► Selection guide – PNOZsigma

### Safety relays PNOZsigma

| Type      | Application                                                                                                                                                                                                                                                                                                                                                                                                               | Performance Level (PL) –<br>EN ISO 13849-1 |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
|           |      |                                            |
| PNOZ s1   | ◆ ◆                                                                                                                                                                                                                                                                                                                                                                                                                       | c                                          |
| PNOZ s2   | ◆ ◆                                                                                                                                                                                                                                                                                                                                                                                                                       | e                                          |
| PNOZ s3   | ◆ ◆ ◆                                                                                                                                                                                                                                                                                                                                                                                                                     | e                                          |
| PNOZ s4   | ◆ ◆ ◆                                                                                                                                                                                                                                                                                                                                                                                                                     | e                                          |
| PNOZ s4.1 | ◆ ◆ ◆                                                                                                                                                                                                                                                                                                                                                                                                                     | e                                          |
| PNOZ s5   | ◆ ◆ ◆ ◆                                                                                                                                                                                                                                                                                                                                                                                                                   | e                                          |
| PNOZ s6   | ◆ EN 574, Type IIIC                                                                                                                                                                                                                                                                                                                                                                                                       | e                                          |
| PNOZ s6.1 | ◆ EN 574, Type IIIA                                                                                                                                                                                                                                                                                                                                                                                                       | c                                          |
| PNOZ s7   | Contact expansion                                                                                                                                                                                                                                                                                                                                                                                                         | e                                          |
| PNOZ s7.1 | Contact expansion                                                                                                                                                                                                                                                                                                                                                                                                         | e                                          |
| PNOZ s7.2 | Contact expansion                                                                                                                                                                                                                                                                                                                                                                                                         | e                                          |
| PNOZ s8   | Contact expansion                                                                                                                                                                                                                                                                                                                                                                                                         | c                                          |
| PNOZ s9   | Contact expansion<br>or<br>safe timer relay ◆                                                                                                                                                                                                                                                                                                                                                                             | e                                          |
| PNOZ s10  | Contact expansion                                                                                                                                                                                                                                                                                                                                                                                                         | e                                          |
| PNOZ s11  | Contact expansion                                                                                                                                                                                                                                                                                                                                                                                                         | e                                          |
| PNOZ s22  | Contact expansion for PNOZ s30 and<br>PNOZ mm0.1p/mm0.2p                                                                                                                                                                                                                                                                                                                                                                  | e                                          |

| Type     | Application                                                                                                                                                                                                                                                 | Performance Level (PL) –<br>EN ISO 13849-1 |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
|          |    |                                            |
| PNOZ s30 | Speed monitor<br>◆ ◆ ◆                                                                                                                                                                                                                                      | e                                          |



| Safety Integrity Level (SIL) CL –<br>claim limit in accordance<br>with IEC 62061 | Output contacts                                                                   |                                                                                   |                                                                                   |                                                                                   | Universal power supply<br>48 ... 240 VAC/DC | Housing width<br>in mm |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------|------------------------|
|                                                                                  | Safe                                                                              |                                                                                   | Auxiliary contacts                                                                |                                                                                   |                                             |                        |
|                                                                                  |  |  |  |  |                                             |                        |
| 2                                                                                | 2                                                                                 | -                                                                                 | -                                                                                 | 1                                                                                 |                                             | 12.5                   |
| 3                                                                                | 3                                                                                 | -                                                                                 | 1                                                                                 | 1                                                                                 |                                             | 17.5                   |
| 3                                                                                | 2                                                                                 | -                                                                                 | -                                                                                 | 1                                                                                 |                                             | 17.5                   |
| 3                                                                                | 3                                                                                 | -                                                                                 | 1                                                                                 | 1                                                                                 | ◆                                           | 22.5                   |
| 3                                                                                | 3                                                                                 | -                                                                                 | 1                                                                                 | 1                                                                                 | ◆                                           | 22.5                   |
| 3                                                                                | 2                                                                                 | 2                                                                                 | -                                                                                 | 1                                                                                 | ◆                                           | 22.5                   |
| 3                                                                                | 3                                                                                 | -                                                                                 | 1                                                                                 | 1                                                                                 | ◆                                           | 22.5                   |
| 1                                                                                | 3                                                                                 | -                                                                                 | 1                                                                                 | 1                                                                                 | ◆                                           | 22.5                   |
| 3                                                                                | 4                                                                                 | -                                                                                 | 1                                                                                 | -                                                                                 |                                             | 17.5                   |
| 3                                                                                | 3                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |                                             | 17.5                   |
| 3                                                                                | 4                                                                                 | -                                                                                 | 1                                                                                 | -                                                                                 |                                             | 17.5                   |
| 2                                                                                | 2                                                                                 | -                                                                                 | -                                                                                 | 1                                                                                 |                                             | 12.5                   |
| 3                                                                                | -                                                                                 | 3                                                                                 | 1                                                                                 | -                                                                                 |                                             | 17.5                   |
| 3                                                                                | 4                                                                                 | -                                                                                 | 1                                                                                 | -                                                                                 |                                             | 45.0                   |
| 3                                                                                | 8                                                                                 | -                                                                                 | 1                                                                                 | -                                                                                 |                                             | 45.0                   |
| 3                                                                                | 2x3                                                                               | -                                                                                 | 2x1                                                                               | -                                                                                 |                                             | 22.5                   |

| Safety Integrity Level (SIL) CL –<br>claim limit in accordance<br>with IEC 62061 | Output contacts                                                                     |                                                                                     |                                                                                     |                                                                                     | Universal power supply<br><br>24 ... 240 VAC/DC | Housing width<br>in mm |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------|------------------------|
|                                                                                  | Safe                                                                                |                                                                                     | Auxiliary contacts                                                                  |                                                                                     |                                                 |                        |
|                                                                                  |  |  |  |  |                                                 |                        |
| 3                                                                                | 2                                                                                   | -                                                                                   | 2                                                                                   | 4                                                                                   | ◆                                               | 45.0                   |

Technical  
documentation on  
safety relays  
PNOZsigma:

 Webcode 0685

Online information  
at [www.pilz.com](http://www.pilz.com)

## ► Technical details – PNOZsigma



PNOZ s1



PNOZ s3



PNOZ s5



PNOZ s6

### Safety relays PNOZsigma

| Type             | Supply voltage (U <sub>e</sub> )                                                        | Outputs:<br>Voltage/current/rating | Dimensions<br>(H x W x D)<br>in mm |
|------------------|-----------------------------------------------------------------------------------------|------------------------------------|------------------------------------|
| <b>PNOZ s1</b>   | 24 VDC                                                                                  | DC1: 24 V/3 A/72 W                 | 100/98 <sup>1)</sup> x 12.5 x 120  |
| <b>PNOZ s2</b>   | 24 VDC                                                                                  | DC1: 24 V/6 A/150 W                | 102/96 <sup>1)</sup> x 17.5 x 120  |
| ★ <b>PNOZ s3</b> | 24 VDC                                                                                  | DC1: 24 V/6 A/150 W                | 102/96 <sup>1)</sup> x 17.5 x 120  |
| ★ <b>PNOZ s4</b> | <ul style="list-style-type: none"> <li>▶ 24 VDC</li> <li>▶ 48 ... 240 VAC/DC</li> </ul> | DC1: 24 V/6 A/150 W                | 102/96 <sup>1)</sup> x 22.5 x 120  |
| <b>PNOZ s4.1</b> | <ul style="list-style-type: none"> <li>▶ 24 VDC</li> <li>▶ 48 ... 240 VAC/DC</li> </ul> | DC1: 24 V/6 A/150 W                | 102/96 <sup>1)</sup> x 22.5 x 120  |
| ★ <b>PNOZ s5</b> | <ul style="list-style-type: none"> <li>▶ 24 VDC</li> <li>▶ 48 ... 240 VAC/DC</li> </ul> | DC1: 24 V/6 A/150 W                | 102/96 <sup>1)</sup> x 22.5 x 120  |
| <b>PNOZ s6</b>   | <ul style="list-style-type: none"> <li>▶ 24 VDC</li> <li>▶ 48 ... 240 VAC/DC</li> </ul> | DC1: 24 V/6 A/150 W                | 100/98 <sup>1)</sup> x 22.5 x 120  |
| <b>PNOZ s6.1</b> | <ul style="list-style-type: none"> <li>▶ 24 VDC</li> <li>▶ 48 ... 240 VAC/DC</li> </ul> | DC1: 24 V/6 A/150 W                | 100/98 <sup>1)</sup> x 22.5 x 120  |

| Features                                                                                                                                                                                                                                                                                                                                                                    | Order numbers                                                                                                                                                   |                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                             | Spring-loaded terminals                                                                                                                                         | Plug-in screw terminals                                                                                             |
| <ul style="list-style-type: none"> <li>▶ Single-channel wiring</li> <li>▶ Manual/automatic reset</li> </ul>                                                                                                                                                                                                                                                                 | 751 101                                                                                                                                                         | 750 101                                                                                                             |
| <ul style="list-style-type: none"> <li>▶ Single-channel wiring</li> <li>▶ Monitored reset</li> <li>▶ Manual/automatic reset</li> <li>▶ Safe separation</li> </ul>                                                                                                                                                                                                           | 751 102                                                                                                                                                         | 750 102                                                                                                             |
| <ul style="list-style-type: none"> <li>▶ Single- and dual-channel wiring</li> <li>▶ Detection of shorts across contacts</li> <li>▶ Monitored reset</li> <li>▶ Manual/automatic reset</li> <li>▶ Start-up testing</li> </ul>                                                                                                                                                 | 751 103                                                                                                                                                         | 750 103                                                                                                             |
| <ul style="list-style-type: none"> <li>▶ Single- and dual-channel wiring</li> <li>▶ Detection of shorts across contacts</li> <li>▶ Monitored reset</li> <li>▶ Manual/automatic reset</li> <li>▶ Start-up testing</li> <li>▶ Approval to EN 81-1/A3 in accordance with the Lifts Directive</li> </ul>                                                                        | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 751 104</li> <li>▶ 48 ... 240 VAC/DC _____ 751 134</li> </ul>                                             | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 750 104</li> <li>▶ 48 ... 240 VAC/DC _____ 750 134</li> </ul> |
| <ul style="list-style-type: none"> <li>▶ Single- and dual-channel wiring</li> <li>▶ Detection of shorts across contacts</li> <li>▶ Monitored reset</li> <li>▶ Manual/automatic reset</li> <li>▶ Start-up testing</li> <li>▶ 3 safe, diverse safety contacts</li> <li>▶ Approved in accordance with the standard EN 50156-1 for electrical equipment for furnaces</li> </ul> | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 751 124</li> <li>▶ 48 ... 240 VAC/DC _____ 751 154</li> </ul>                                             | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 750 124</li> <li>▶ 48 ... 240 VAC/DC _____ 750 154</li> </ul> |
| <ul style="list-style-type: none"> <li>▶ Single- and dual-channel wiring</li> <li>▶ Detection of shorts across contacts</li> <li>▶ Monitored reset</li> <li>▶ Manual/automatic reset</li> <li>▶ Start-up testing</li> <li>▶ Timer functions: delay-on de-energisation</li> <li>▶ Time range: 0 ... 300 s</li> </ul>                                                         | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 751 105</li> <li>▶ 24 VDC, coated version _ 751 185</li> <li>▶ 48 ... 240 VAC/DC _____ 751 135</li> </ul> | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 750 105</li> <li>▶ 48 ... 240 VAC/DC _____ 750 135</li> </ul> |
| <ul style="list-style-type: none"> <li>▶ Dual-channel wiring</li> <li>▶ Detection of shorts across contacts</li> </ul>                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 751 106</li> <li>▶ 48 ... 240 VAC/DC _____ 751 136</li> </ul>                                             | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 750 106</li> <li>▶ 48 ... 240 VAC/DC _____ 750 136</li> </ul> |
| <ul style="list-style-type: none"> <li>▶ Dual-channel wiring</li> <li>▶ Detection of shorts across contacts</li> </ul>                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 751 126</li> <li>▶ 48 ... 240 VAC/DC _____ 751 156</li> </ul>                                             | <ul style="list-style-type: none"> <li>▶ 24 VDC _____ 750 126</li> <li>▶ 48 ... 240 VAC/DC _____ 750 156</li> </ul> |


<sup>1)</sup> Height with spring-loaded terminals/plug-in screw terminals

★ Type recommended by Pilz

Technical documentation on safety relays PNOZsigma:

Webcode 0685

Online information at [www.pilz.com](http://www.pilz.com)



## ► Technical details – PNOZsigma



PNOZ s7



PNOZ s8



PNOZ s10



PNOZ s30

### Safety relays PNOZsigma

| Type       | Supply voltage (U <sub>B</sub> ) | Outputs:<br>Voltage/current/rating | Dimensions<br>(H x W x D)<br>in mm |
|------------|----------------------------------|------------------------------------|------------------------------------|
| ★ PNOZ s7  | 24 VDC                           | DC1: 24 V/6 A/150 W                | 102/98 <sup>1)</sup> x 17.5 x 120  |
| PNOZ s7.1  | 24 VDC                           | DC1: 24 V/6 A/150 W                | 102/98 <sup>1)</sup> x 17.5 x 120  |
| PNOZ s7.2  | 24 VDC                           | DC1: 24 V/6 A/150 W                | 102/98 <sup>1)</sup> x 17.5 x 120  |
| PNOZ s8    | 24 VDC                           | DC1: 24 V/3 A/72 W                 | 102/98 <sup>1)</sup> x 12.5 x 120  |
| PNOZ s9    | 24 VDC                           | DC1: 24 V/6 A/150 W                | 100/96 <sup>1)</sup> x 17.5 x 120  |
| ★ PNOZ s10 | 24 VDC                           | DC1: 24 V/12 A/300 W               | 100/98 <sup>1)</sup> x 45.0 x 120  |
| PNOZ s11   | 24 VDC                           | DC1: 24 V/6 A/150 W                | 100/98 <sup>1)</sup> x 45.0 x 120  |
| PNOZ s22   | 24 VDC                           | DC1: 24 V/6 A/150 W                | 100/98 <sup>1)</sup> x 22.5 x 120  |
| PNOZ s30   | 24 ... 240 VAC/DC                | DC1: 24 V/4 A/100 W                | 100/98 <sup>1)</sup> x 45.0 x 120  |

| Features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Order numbers           |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Spring-loaded terminals | Plug-in screw terminals |
| ► Safe separation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 751 107                 | 750 107                 |
| ► Cascading module for connection to PNOZ s7.2<br>► Safe separation of safety contacts<br>► LEDs for input and switch status<br>► Can also be used with other safety control devices, without a PNOZsigma base unit: one input circuit affects the output relays                                                                                                                                                                                                                                                                                                                                          | 751 167                 | 750 167                 |
| ► Contact expansion module in conjunction with PNOZ s7.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 751 177                 | 750 177                 |
| -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 751 108                 | 750 108                 |
| ► Safe separation<br>► Timer functions: delay-on energisation, delay-on de-energisation, pulsing, retriggerable<br>► Time range: 0 ... 300 s                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 751 109                 | 750 109                 |
| ► Safe separation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 751 110                 | 750 110                 |
| ► Safe separation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 751 111                 | 750 111                 |
| ► Two safety contacts that can be controlled separately<br>► Contact expansion for the speed monitor PNOZ s30 and the base units PNOZ mm0.1p/mm0.2p of the configurable safety relays PNOZmulti Mini                                                                                                                                                                                                                                                                                                                                                                                                      | 751 132                 | 750 132                 |
| ► Safe monitoring of standstill, speed, direction of rotation and shear pin breakage<br>► Parameters for device functions can be freely set<br>► Parameters are entered via rotary knob (push and turn) in conjunction with a monochrome display<br>► Set parameters are saved on a chip card<br>► Integrated display shows the set limit values/parameters as well as the current speed<br>► Tolerances can be freely set for each limit value<br>► Axis position monitoring is available as an option with the standstill function<br>► Advance warning of shutdown when a certain threshold is reached | 751 330                 | 750 330                 |


<sup>1)</sup> Height with spring-loaded terminals/plug-in screw terminals

★ Type recommended by Pilz

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