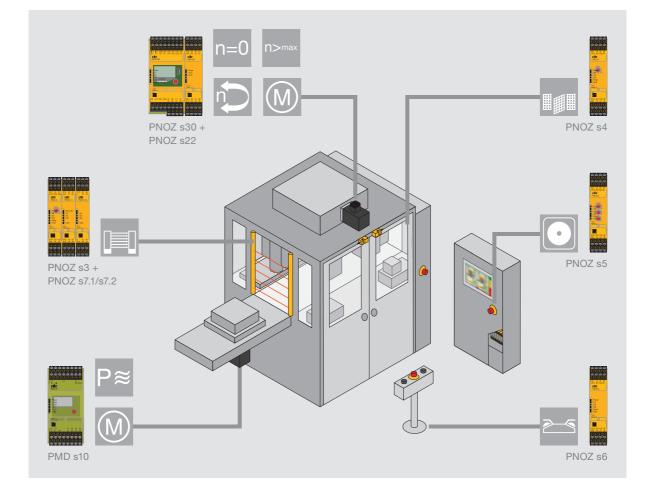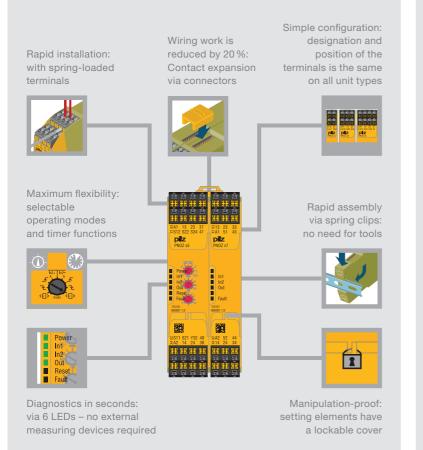# ▶ Safety relays PNOZsigma

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

PNOZ s30 +
PNOZ s22

PNOZ s3 +
PNOZ s7.1/s7.2

PMD s10

PNOZ s4

PNOZ s5

PNOZ s6

Rapid installation: with spring-loaded terminals

Wiring work is reduced by 20 %: Contact expansion via connectors

Simple configuration: designation and position of the terminals is the same on all unit types

Maximum flexibility: selectable operating modes and timer functions

Rapid assembly via spring clips: no need for tools

Diagnostics in seconds: via 6 LEDs – no external measuring devices required

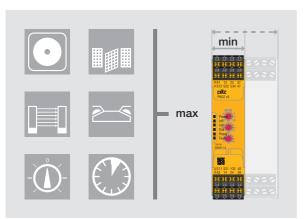Manipulation-proof: setting elements have a lockable cover

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 [1]

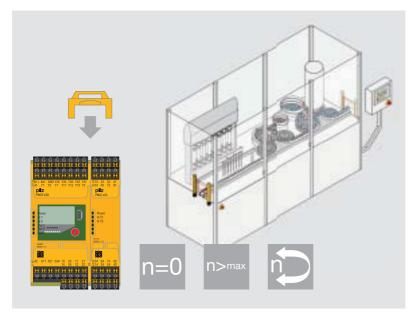▶ Reduced space requirement in the control cabinet saves costs

[1] Compared with standard electromechanical safety relays on the market

Online information at www.pilz.com

▶ Convenient speed monitoring

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

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

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.

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.

Keep up-to-date on safety relays PNOZsigma:

Webcode 5229
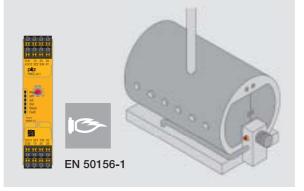
Online information at www.pilz.com

▶ 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.
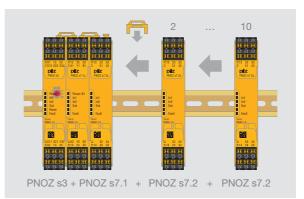
EN 81-1

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.

EN 50156-1

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.

PNOZ s3 + PNOZ s7.1 + PNOZ s7.2 + PNOZ s7.2

Rapid contact expansion – it's easy with PNOZsigma!

▶ Selection guide – PNOZsigma

Safety relays PNOZsigma

Type	Application						Performance Level (PL) – 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 or safe timer relay				◆		e
PNOZ s10	Contact expansion						e
PNOZ s11	Contact expansion						e
PNOZ s22	Contact expansion for PNOZ s30 and PNOZ mm0.1p/mm0.2p						e

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

energy saving by Pilz

Safety Integrity Level (SIL) CL – claim limit in accordance with IEC 62061	Output contacts				Universal power supply 48 … 240 VAC/DC	Housing width 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	2 x 3	-	2 x 1	-		22.5

Safety Integrity Level (SIL) CL – claim limit in accordance with IEC 62061	Output contacts				Universal power supply 24 … 240 VAC/DC	Housing width 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

▶ Technical details – PNOZsigma

Safety relays PNOZsigma

PNOZ s1

PNOZ s3

PNOZ s5

PNOZ s6

Type	Supply voltage (U$_B$)	Outputs: Voltage/current/rating	Dimensions (H x W x D) in mm
PNOZ s1	24 VDC	DC1: 24 V/3 A/72 W	100/98 [1)] x 12.5 x 120
PNOZ s2	24 VDC	DC1: 24 V/6 A/150 W	102/96 [1)] x 17.5 x 120
★ PNOZ s3	24 VDC	DC1: 24 V/6 A/150 W	102/96 [1)] x 17.5 x 120
★ PNOZ s4	▶ 24 VDC ▶ 48 … 240 VAC/DC	DC1: 24 V/6 A/150 W	102/96 [1)] x 22.5 x 120
PNOZ s4.1	▶ 24 VDC ▶ 48 … 240 VAC/DC	DC1: 24 V/6 A/150 W	102/96 [1)] x 22.5 x 120
★ PNOZ s5	▶ 24 VDC ▶ 48 … 240 VAC/DC	DC1: 24 V/6 A/150 W	102/96 [1)] x 22.5 x 120
PNOZ s6	▶ 24 VDC ▶ 48 … 240 VAC/DC	DC1: 24 V/6 A/150 W	100/98 [1)] x 22.5 x 120
PNOZ s6.1	▶ 24 VDC ▶ 48 … 240 VAC/DC	DC1: 24 V/6 A/150 W	100/98 [1)] x 22.5 x 120

Features	Order numbers	
	Spring-loaded terminals	Plug-in screw terminals
▶ Single-channel wiring ▶ Manual/automatic reset	751 101	750 101
▶ Single-channel wiring ▶ Monitored reset ▶ Manual/automatic reset ▶ Safe separation	751 102	750 102
▶ Single- and dual-channel wiring ▶ Detection of shorts across contacts ▶ Monitored reset ▶ Manual/automatic reset ▶ Start-up testing	751 103	750 103
▶ Single- and dual-channel wiring ▶ Detection of shorts across contacts ▶ Monitored reset ▶ Manual/automatic reset ▶ Start-up testing ▶ Approval to EN 81-1/A3 in accordance with the Lifts Directive	▶ 24 VDC _____ 751 104 ▶ 48 … 240 VAC/DC ___ 751 134	▶ 24 VDC _____ 750 104 ▶ 48 … 240 VAC/DC ___ 750 134
▶ Single- and dual-channel wiring ▶ Detection of shorts across contacts ▶ Monitored reset ▶ Manual/automatic reset ▶ Start-up testing ▶ 3 safe, diverse safety contacts ▶ Approved in accordance with the standard EN 50156-1 for electrical equipment for furnaces	▶ 24 VDC _____ 751 124 ▶ 48 … 240 VAC/DC ___ 751 154	▶ 24 VDC _____ 750 124 ▶ 48 … 240 VAC/DC ___ 750 154
▶ Single- and dual-channel wiring ▶ Detection of shorts across contacts ▶ Monitored reset ▶ Manual/automatic reset ▶ Start-up testing ▶ Timer functions: delay-on de-energisation ▶ Time range: 0 … 300 s	▶ 24 VDC _____ 751 105 ▶ 24 VDC, coated version _ 751 185 ▶ 48 … 240 VAC/DC ___ 751 135	▶ 24 VDC _____ 750 105 ▶ 48 … 240 VAC/DC ___ 750 135
▶ Dual-channel wiring ▶ Detection of shorts across contacts	▶ 24 VDC _____ 751 106 ▶ 48 … 240 VAC/DC ___ 751 136	▶ 24 VDC _____ 750 106 ▶ 48 … 240 VAC/DC ___ 750 136
▶ Dual-channel wiring ▶ Detection of shorts across contacts	▶ 24 VDC _____ 751 126 ▶ 48 … 240 VAC/DC ___ 751 156	▶ 24 VDC _____ 750 126 ▶ 48 … 240 VAC/DC ___ 750 156

[1] 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

▶ Technical details – PNOZsigma

Safety relays PNOZsigma

PNOZ s7

PNOZ s8

PNOZ s10

PNOZ s30

Type	Supply voltage (U$_B$)	Outputs: Voltage/current/rating	Dimensions (H x W x D) in mm
★ PNOZ s7	24 VDC	DC1: 24 V/6 A/150 W	102/98 [1)] x 17.5 x 120
PNOZ s7.1	24 VDC	DC1: 24 V/6 A/150 W	102/98 [1)] x 17.5 x 120
PNOZ s7.2	24 VDC	DC1: 24 V/6 A/150 W	102/98 [1)] x 17.5 x 120
PNOZ s8	24 VDC	DC1: 24 V/3 A/72 W	102/98 [1)] x 12.5 x 120
PNOZ s9	24 VDC	DC1: 24 V/6 A/150 W	100/96 [1)] x 17.5 x 120
★ PNOZ s10	24 VDC	DC1: 24 V/12 A/300 W	100/98 [1)] x 45.0 x 120
PNOZ s11	24 VDC	DC1: 24 V/6 A/150 W	100/98 [1)] x 45.0 x 120
PNOZ s22	24 VDC	DC1: 24 V/6 A/150 W	100/98 [1)] x 22.5 x 120
PNOZ s30	24 … 240 VAC/DC	DC1: 24 V/4 A/100 W	100/98 [1)] 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 ▸ Safe separation of safety contacts ▸ LEDs for input and switch status ▸ 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 ▸ Timer functions: delay-on energisation, delay-on de-energisation, pulsing, retriggerable ▸ 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 ▸ 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 ▸ Parameters for device functions can be freely set ▸ Parameters are entered via rotary knob (push and turn) in conjunction with a monochrome display ▸ Set parameters are saved on a chip card ▸ Integrated display shows the set limit values/parameters as well as the current speed ▸ Tolerances can be freely set for each limit value ▸ Axis position monitoring is available as an option with the standstill function ▸ Advance warning of shutdown when a certain threshold is reached	751 330	750 330

1) 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