

▶ PZW

PILZ

THE SPIRIT OF SAFETY

Operating Manual-19157-EN-10

- Safe monitoring relays



This document is the original document.

Where unavoidable, for reasons of readability, the masculine form has been selected when formulating this document. We do assure you that all persons are regarded without discrimination and on an equal basis.

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SD means Secure Digital

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Introduction

Validity of documentation

This documentation is valid for the product PZW. It is valid until new documentation is published.

This operating manual explains the function and operation, describes the installation and provides guidelines on how to connect the product.

Using the documentation

This document is intended for instruction. Only install and commission the product if you have read and understood this document. The document should be retained for future reference.

Definition of symbols

Information that is particularly important is identified as follows:



DANGER!

This warning must be heeded! It warns of a hazardous situation that poses an immediate threat of serious injury and death and indicates preventive measures that can be taken.



WARNING!

This warning must be heeded! It warns of a hazardous situation that could lead to serious injury and death and indicates preventive measures that can be taken.



CAUTION!

This refers to a hazard that can lead to a less serious or minor injury plus material damage, and also provides information on preventive measures that can be taken.



NOTICE

This describes a situation in which the product or devices could be damaged and also provides information on preventive measures that can be taken. It also highlights areas within the text that are of particular importance.

**INFORMATION**

This gives advice on applications and provides information on special features.

Safety**Intended use**

The unit operates as a pulse relay

- ▶ in accordance with EN ISO 12100:2010 section 6.2.11.10, 6.3.2.4 and 3.28.9 (inching circuit for limited movement of hazardous machine components during installation, set up and positioning)
- ▶ In safety circuits in accordance with EN 60204-1


The unit is designed for use with

- ▶ Safety relays from the PNOZ series
- ▶ Two-hand control relays from the P2HZ series

The category that can be achieved in accordance with EN ISO 13849-1 depends on the category of the base unit. PZW may not exceed this.

Improper use

The following is deemed improper use in particular:

- ▶ Any component, technical or electrical modification to the product,
- ▶ Use of the product outside the areas described in this operating manual,
- ▶ Use of the product outside the technical details (see chapter entitled [Technical Details](#) [ 14]).

**NOTICE****EMC-compliant electrical installation**

The product is designed for use in an industrial environment. The product may cause interference if installed in other environments. If installed in other environments, measures should be taken to comply with the applicable standards and directives for the respective installation site with regard to interference.

Safety regulations

Safety assessment

Before using a device, a safety assessment in accordance with the Machinery Directive is required.

The product as an individual component fulfils the functional safety requirements in accordance with EN ISO 13849 and EN IEC 62061. However, this does not guarantee the functional safety of the overall plant/machine. To achieve the relevant safety level of the overall plant/machine's required safety functions, each safety function needs to be considered separately.

Use of qualified personnel

The products may only be assembled, installed, programmed, commissioned, operated, maintained and decommissioned by persons who are competent to do so.

A competent person is a qualified and knowledgeable person who, because of their training, experience and current professional activity, has the specialist knowledge required. To be able to inspect, assess and operate devices, systems and machines, the person has to be informed of the state of the art and the applicable national, European and international laws, directives and standards.

It is the company's responsibility only to employ personnel who

- ▶ Are familiar with the basic regulations concerning health and safety / accident prevention,
- ▶ Have read and understood the information provided in the section entitled Safety
- ▶ Have a good knowledge of the generic and specialist standards applicable to the specific application.

Warranty and liability

All claims to warranty and liability will be rendered invalid if

- ▶ The product was used contrary to the purpose for which it is intended,
- ▶ Damage can be attributed to not having followed the guidelines in the manual,
- ▶ Operating personnel are not suitably qualified,
- ▶ Any type of modification has been made (e.g. exchanging components on the PCB boards, soldering work etc.).

Disposal

- ▶ In safety-related applications, please comply with the mission time T_M in the safety-related characteristic data.
- ▶ When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

For your safety

The unit meets all the necessary conditions for safe operation. However, please note the following:

- ▶ Note for overvoltage category III: If voltages higher than low voltage (>50 VAC or >120 VDC) are present on the unit, connected control elements and sensors must have a rated insulation voltage of at least 250 V.

Unit features

- ▶ Positive-guided relay outputs:
 - 1 safety contact (N/O), pulsing
 - 2 auxiliary contacts (N/C), pulsing
- ▶ LED display for:
 - Supply voltage
 - Switch state safety output
- ▶ 12 pulse times, set via rotary switch
- ▶ Feedback loop for monitoring external contactors
- ▶ See order reference for unit types

Safety features

The relay meets the following safety requirements:

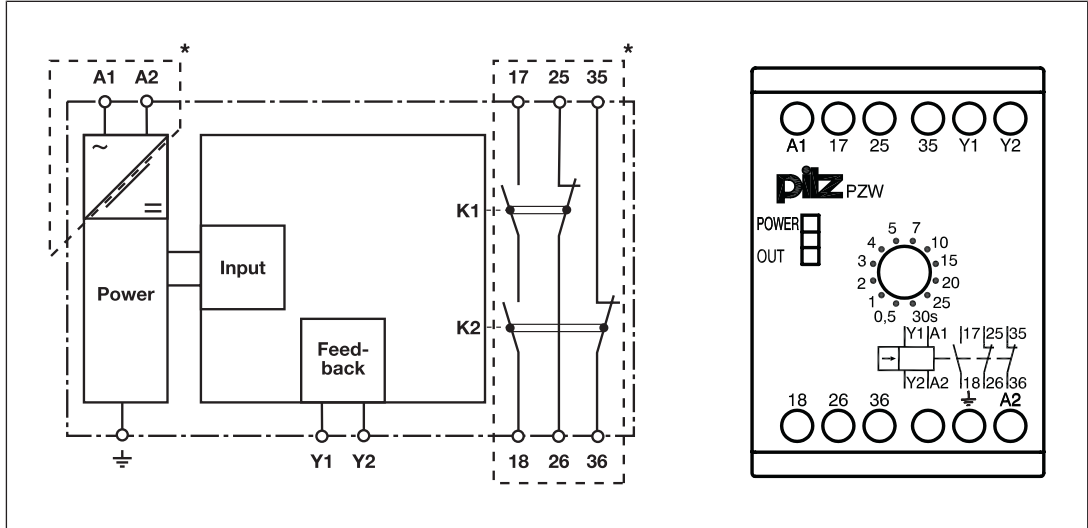
- ▶ The circuit is internally redundant with built-in self-monitoring.
- ▶ The safety device remains effective in the case of a component failure.
- ▶ The correct opening and closing of the safety device relays is tested automatically in each on-off cycle.

Block diagram/terminal configuration

Types: AC

▶ U_B : 110 - 120 VAC; Order no. 774044

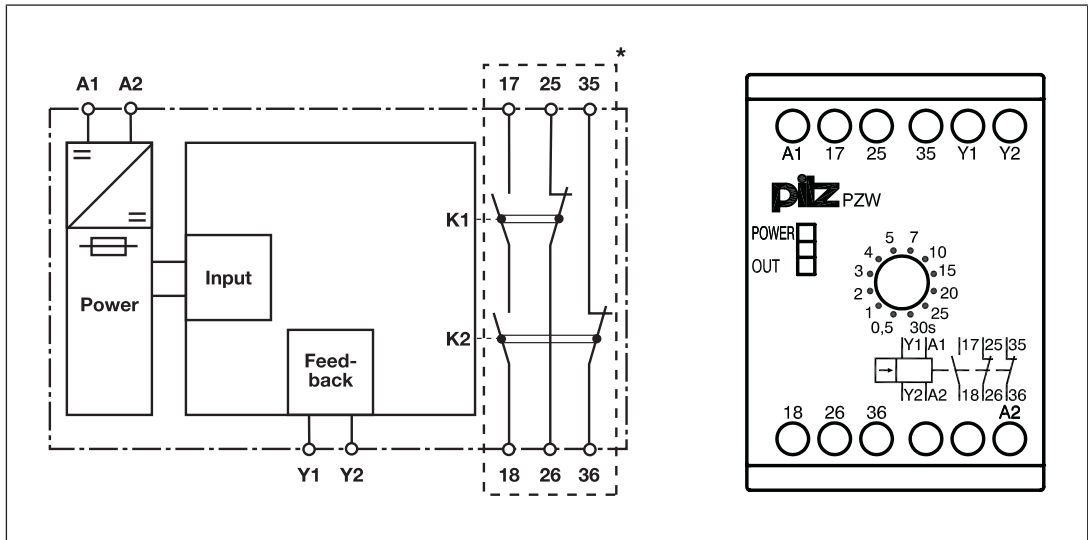
▶ U_B : 230 V AC; Order no. 774017



*Insulation between the non-marked area and the relay contacts: Basic insulation (over-voltage category III), Protective separation (overvoltage category II)

Types: DC

▶ U_B : 24 VDC; Order no. 774019, 774042



*Insulation between the non-marked area and the relay contacts: Basic insulation (over-voltage category III), Protective separation (overvoltage category II)

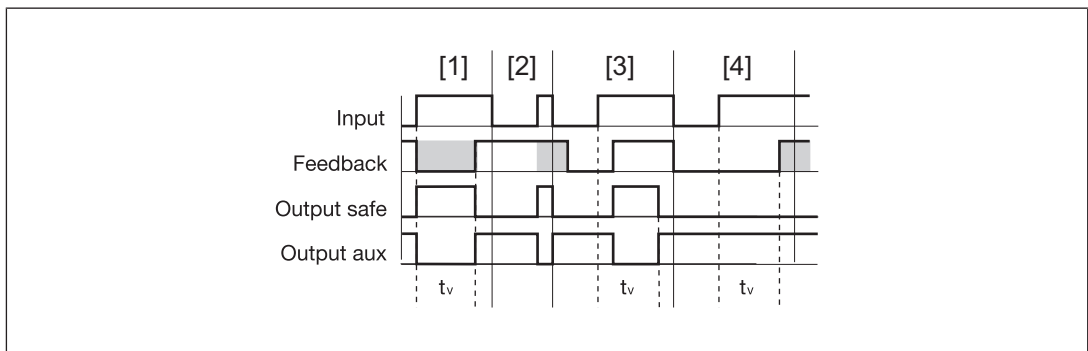
Function description

The unit is ready for operation when the feedback loop Y1-Y2 is closed.

- ▶ Input circuit closed (supply voltage is present)
 "POWER" LED is illuminated. The safety contact 17-18 will be closed immediately and the auxiliary contacts 25-26, 35-36 will open, time sequence starts. The "OUT" LED is lit. The safety contact 17-18 is opened redundantly and the auxiliary contacts 25-26, 35-36 will close once the set pulse time has elapsed. The "OUT" LED is goes out.

The input circuit must be closed for at least as long as the set delay time t_v (pulse time). When the input or feedback loop is interrupted prematurely, the time sequence is cancelled. The safety contact 17-18 will open and the auxiliary contacts 25-26, 35-36 will close. The LEDs "POWER" and "OUT" go out.

The delay time t_v (pulse time) can be set in 12 stages.



Legend

- ▶ Input: Input circuit
- ▶ Feedback: Feedback loop
- ▶ Output safe: Safety contact
- ▶ Output aux: Auxiliary contacts
- ▶ t_v : Delay time (pulse time)
- [1]: Normal operating cycle
- [2]: Fault: Input circuit opened too early
- [3]: Fault: Feedback loop closed too late within t_v
- [4]: Fault: Feedback loop closed too late after t_v elapsed



NOTICE

At the latest the safety contacts open after the set delay time + 50 ms + 15% of the set value, even in the case of a component failure.

Installation

- ▶ The unit should be installed in a control cabinet with a protection type of at least IP54.
- ▶ Use the notch on the rear of the unit to attach it to a DIN rail (35 mm).
- ▶ When installed vertically: Secure the unit by using a fixing element (e.g. retaining bracket or end angle).

Wiring

Please note:

- ▶ Information given in the "[Technical details \[14\]](#)" must be followed.
- ▶ The output 17-18 is a safety contact, outputs 25-26, 35-36 are auxiliary contacts (e.g. for display).
- ▶ Do **not** use auxiliary contacts 25-26, 35-36 for safety circuits!
- ▶ To prevent contact welding, a fuse should be connected before the output contacts (see [Technical details \[14\]](#)).
- ▶ Do not connect undesignated terminals.
- ▶ Calculation of the max. cable length l_{\max} in the input circuit:

$$l_{\max} = \frac{R_{l_{\max}}}{R_l / \text{km}}$$

$R_{l_{\max}}$ = max. overall cable resistance (see [Technical details \[14\]](#))

R_l / km = cable resistance/km

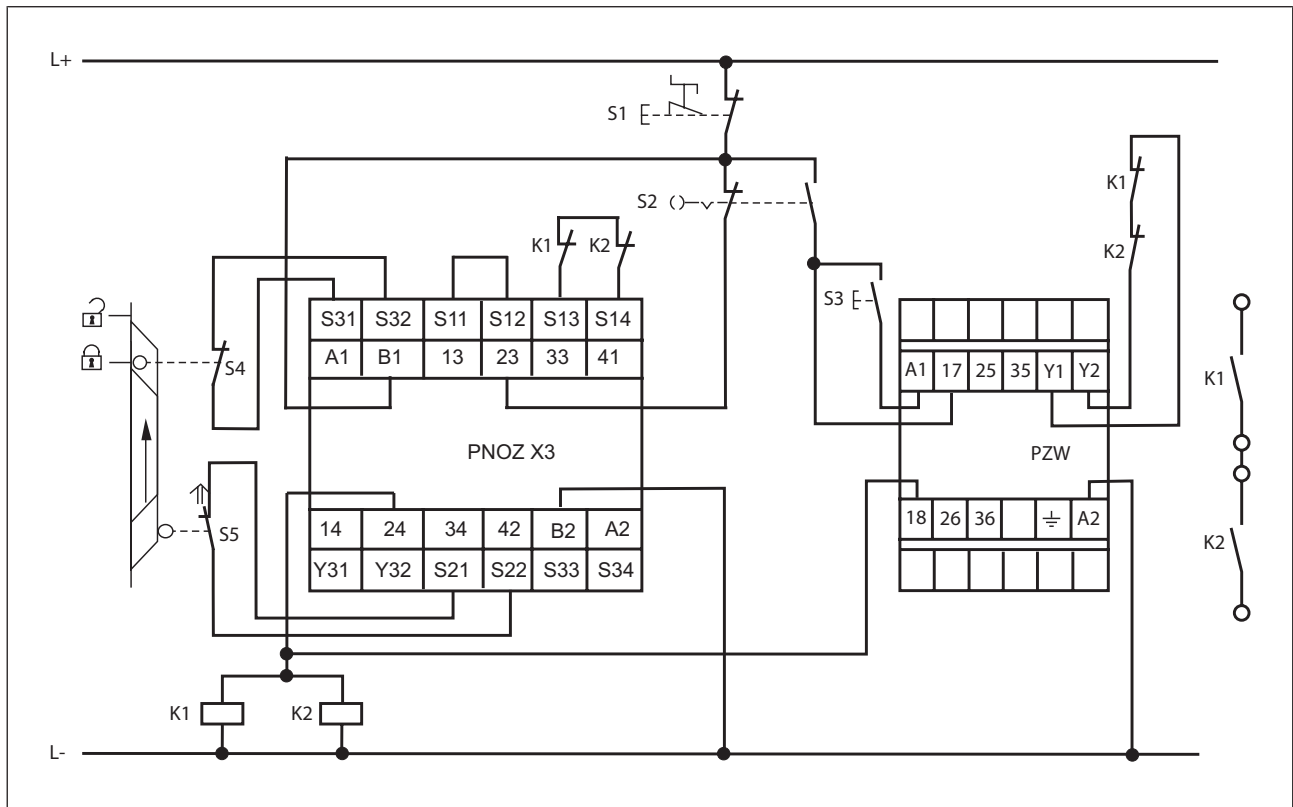
- ▶ Use copper wiring with a temperature stability of 60/75 °C.
- ▶ To prevent EMC interferences (particularly common-mode interferences) the measures described in EN 60204-1 must be executed. This includes the separate routing of cables of the control circuits (input, start and feedback loop) from other cables for energy transmission or the shielding of cables, for example.
- ▶ Adequate protection must be provided on all output contacts with capacitive and inductive loads.
- ▶ Do not switch low currents using contacts that have been used previously with high currents.
- ▶ On 24 VDC devices:
The power supply must comply with the regulations for extra low voltages with protective electrical separation (SELV, PELV) in accordance with VDE 0100, Part 410.
- ▶ In devices for 24 V DC shorts between the input circuit and feedback loop or earth faults in the feedback loop can damage the unit. We recommend the use of a short circuit-proof supply voltage with current limitation.

Preparing for Operation

Connection

Supply voltage	AC	DC
Input circuit is driven by connecting U_B		
Feedback loop	Without feedback loop monitoring	With feedback loop monitoring
Link or contacts from external contactors		

Application example



Operation

When the relay outputs are switched on, the mechanical contact on the relay cannot be tested automatically. Depending on the operational environment, measures to detect the non-opening of switching elements may be required under some circumstances.

When the product is used in accordance with the European Machinery Directive, a check must be carried out to ensure that the safety contacts on the relay outputs open correctly. Open the safety contacts (switch off output) and start the device again, so that the internal diagnostics can check that the safety contacts open correctly

- ▶ for SIL CL 3/PL d at least 1x per month
- ▶ for SIL CL 1/PL c at least 1x per year



NOTICE

The safety functions should be checked after initial commissioning and each time the plant/machine is changed. The safety functions may only be checked by qualified personnel.

Status indicators

LEDs indicate the status and errors during operation:



LED on



POWER

Supply voltage is present.



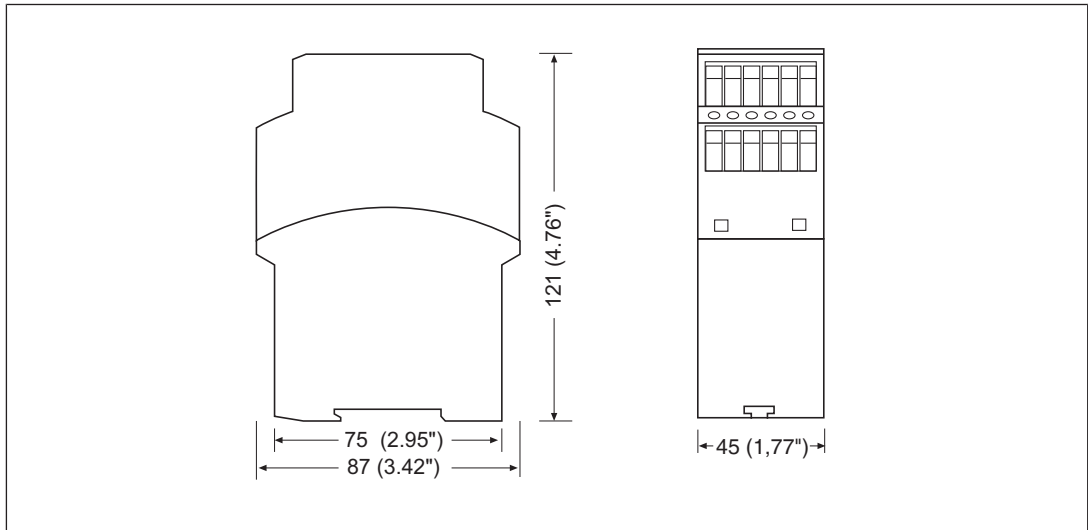
OUT

Safety contact is closed.

Faults – Interference

- ▶ LED "POWER" does not light: Short circuit or no supply voltage.
- ▶ Contact malfunctions: If the contacts have welded, reactivation will not be possible after the input circuit has opened.

Dimensions in mm



Technical details

Order no. 774017 – 774019

See below for more order numbers

General	774017	774019
Certifications	CE, EAC, TÜV, cULus Listed	CE, EAC, TÜV, UKCA, cULus Listed
Electrical data	774017	774019
Supply voltage		
Voltage	230 V	24 V
Kind	AC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %
Output of external power supply (AC)	4,5 VA	–
Output of external power supply (DC)	–	3 W
Frequency range AC	50 - 60 Hz	–
Residual ripple DC	–	10 %
Duty cycle	100 %	100 %
External unit fuse protection F1 min.	1 A	1 A
External unit fuse protection F1 max.	Max. conductor cross section	Max. conductor cross section
Inputs	774017	774019
Voltage at		
Feedback loop DC	24 V	24 V
Current at		
Feedback loop DC	50 mA	50 mA

Relay outputs	774017	774019
Number of output contacts		
Safety contacts (N/O), delayed	1	1
Auxiliary contacts (N/C), delayed	2	2
Max. short circuit current IK	1 kA	1 kA
Utilisation category		
in accordance with the standard	EN 60947-4-1	EN 60947-4-1
Utilisation category of safety contacts		
AC1 at	240 V	240 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	1500 VA	1500 VA
DC1 at	24 V	24 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	150 W	150 W
Utilisation category of auxiliary contacts		
AC1 at	240 V	240 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	1500 VA	1500 VA
DC1 at	24 V	24 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	150 W	150 W
Utilisation category		
in accordance with the standard	EN 60947-5-1	EN 60947-5-1
Utilisation category of safety contacts		
AC15 at	230 V	230 V
Max. current	4 A	4 A
DC13 (6 cycles/min) at	24 V	24 V
Max. current	3 A	3 A
Utilisation category of auxiliary contacts		
AC15 at	230 V	230 V
Max. current	4 A	4 A
DC13 (6 cycles/min) at	24 V	24 V
Max. current	3 A	3 A

Relay outputs	774017	774019
Utilisation category in accordance with UL		
Voltage with current	240 V AC G. P. 6 A	240 V AC G. P. 6 A
Voltage with current	24 V DC Resistive 5 A	24 V DC Resistive 5 A
Pilot Duty	B300, R300	B300, R300
External contact fuse protection, safety contacts		
in accordance with the standard	EN 60947-5-1	EN 60947-5-1
Max. melting integral	240 A ² s	240 A ² s
Blow-out fuse, quick	6 A	6 A
Blow-out fuse, slow	4 A	4 A
Blow-out fuse, gG	6 A	6 A
Circuit breaker 24V AC/DC, characteristic B/C	4 A	4 A
External contact fuse protection, auxiliary contacts		
Max. melting integral	240 A ² s	240 A ² s
Blow-out fuse, quick	6 A	6 A
Blow-out fuse, slow	4 A	4 A
Blow-out fuse, gG	6 A	6 A
Circuit breaker, 24 V AC/DC, characteristic B/C	4 A	4 A
Conventional thermal current	6 A	6 A
Contact material	AgSnO ₂ + 0,2 µm Au	AgSnO ₂ + 0,2 µm Au
Times	774017	774019
Recovery time at max. switching frequency 1/s		
after power failure	80 ms	80 ms
Delay time t _v	0,5 s, 1 s, 2 s, 3 s, 4 s, 5 s, 7 s, 10 s, 15 s, 20 s, 25 s, 30 s	0,5 s, 1 s, 2 s, 3 s, 4 s, 5 s, 7 s, 10 s, 15 s, 20 s, 25 s, 30 s
Time accuracy	-15% / +15% +50 ms	-15% / +15% +50 ms
Repetition accuracy	2 %	2 %
Max. delay time	t _v + 15 % + 50 ms	t _v + 15 % + 50 ms
Environmental data	774017	774019
Climatic suitability		
Ambient temperature	EN 60068-2-78	EN 60068-2-78
Temperature range	-10 - 55 °C	-10 - 55 °C
Storage temperature		
Temperature range	-40 - 85 °C	-40 - 85 °C
Climatic suitability		
Humidity	93 % r. h. at 40 °C	93 % r. h. at 40 °C
Condensation during operation	Not permitted	Not permitted
EMC	EN 60947-5-1, EN 61000-6-2, EN 61326-3-1	EN 60947-5-1, EN 61000-6-2, EN 61326-3-1

Environmental data	774017	774019
Vibration		
in accordance with the standard	EN 60068-2-6	EN 60068-2-6
Frequency	10 - 55 Hz	10 - 55 Hz
Amplitude	0,35 mm	0,35 mm
Airgap creepage		
in accordance with the standard	EN 60947-1	EN 60947-1
Overvoltage category	III / II	III / II
Pollution degree	2	2
Rated insulation voltage	250 V	250 V
Rated impulse withstand voltage	4 kV	4 kV
Protection type		
Housing	IP40	IP40
Terminals	IP20	IP20
Mounting area (e.g. control cabinet)	IP54	IP54
Mechanical data	774017	774019
Mounting position	Any	Any
Mechanical life	10,000,000 cycles	10,000,000 cycles
Material		
Bottom	PPO UL 94 V1	PPO UL 94 V1
Front	ABS UL 94 V0	ABS UL 94 V0
Top	PPO UL 94 V1	PPO UL 94 V1
Connection type	Screw terminal	Screw terminal
Mounting type	Fixed	Fixed
Conductor cross section with screw terminals		
1 core flexible	0,2 - 4 mm², 24 - 10 AWG	0,2 - 4 mm², 24 - 10 AWG
2 core with the same cross section, flexible with crimp connectors, no plastic sleeve	0,2 - 2,5 mm², 24 - 14 AWG	0,2 - 2,5 mm², 24 - 14 AWG
2 core with the same cross section, flexible without crimp connectors or with TWIN crimp connectors	0,2 - 2,5 mm², 24 - 14 AWG	0,2 - 2,5 mm², 24 - 14 AWG
Torque setting with screw terminals	0,5 Nm	0,5 Nm
Stripping length with screw terminals	6 mm	6 mm
Dimensions		
Height	87 mm	87 mm
Width	45 mm	45 mm
Depth	121 mm	121 mm
Weight	350 g	255 g

Where standards are undated, the 2022-09 latest editions shall apply.

Order no. 774042 – 774044

General	774042	774044
Certifications	CE, EAC, TÜV, UKCA, cULus Listed	CE, EAC, TÜV, UKCA, cULus Listed
Electrical data	774042	774044
Supply voltage		
Voltage	24 V	110 - 120 V
Kind	DC	AC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %
Output of external power supply (AC)	–	4,5 VA
Output of external power supply (DC)	3 W	–
Frequency range AC	–	50 - 60 Hz
Residual ripple DC	10 %	–
Duty cycle	100 %	100 %
External unit fuse protection F1 min.	1 A	1 A
External unit fuse protection F1 max.	Max. conductor cross section	Max. conductor cross section
Inputs	774042	774044
Voltage at		
Feedback loop DC	24 V	24 V
Current at		
Feedback loop DC	50 mA	50 mA
Relay outputs	774042	774044
Number of output contacts		
Safety contacts (N/O), delayed	1	1
Auxiliary contacts (N/C), delayed	2	2
Max. short circuit current IK	1 kA	1 kA
Utilisation category		
in accordance with the standard	EN 60947-4-1	EN 60947-4-1
Utilisation category of safety contacts		
AC1 at	240 V	240 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	1500 VA	1500 VA
DC1 at	24 V	24 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	150 W	150 W

Relay outputs	774042	774044
Utilisation category of auxiliary con- tacts		
AC1 at	240 V	240 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	1500 VA	1500 VA
DC1 at	24 V	24 V
Min. current	0,01 A	0,01 A
Max. current	6 A	6 A
Max. power	150 W	150 W
Utilisation category		
in accordance with the standard	EN 60947-5-1	EN 60947-5-1
Utilisation category of safety con- tacts		
AC15 at	230 V	230 V
Max. current	4 A	4 A
DC13 (6 cycles/min) at	24 V	24 V
Max. current	3 A	3 A
Utilisation category of auxiliary con- tacts		
AC15 at	230 V	230 V
Max. current	4 A	4 A
DC13 (6 cycles/min) at	24 V	24 V
Max. current	3 A	3 A
Utilisation category in accordance with UL		
Voltage with current	240 V AC G. P. 6 A	240 V AC G. P. 6 A
Voltage with current	24 V DC Resistive 5 A	24 V DC Resistive 5 A
Pilot Duty	B300, R300	B300, R300
External contact fuse protection, safety contacts		
in accordance with the standard	EN 60947-5-1	EN 60947-5-1
Max. melting integral	240 A²s	240 A²s
Blow-out fuse, quick	6 A	6 A
Blow-out fuse, slow	4 A	4 A
Blow-out fuse, gG	6 A	6 A
Circuit breaker 24V AC/DC, characteristic B/C	4 A	4 A

Relay outputs	774042	774044
External contact fuse protection, auxiliary contacts		
Max. melting integral	240 A²s	240 A²s
Blow-out fuse, quick	6 A	6 A
Blow-out fuse, slow	4 A	4 A
Blow-out fuse, gG	6 A	6 A
Circuit breaker, 24 V AC/DC, characteristic B/C	4 A	4 A
Conventional thermal current	6 A	6 A
Contact material	AgSnO₂ + 0,2 µm Au	AgSnO₂ + 0,2 µm Au
Times	774042	774044
Recovery time at max. switching frequency 1/s		
after power failure	80 ms	80 ms
Delay time tv	0,05 s, 0,1 s, 0,2 s, 0,3 s, 0,4 s, 0,5 s, 0,7 s, 1 s, 1,5 s, 2 s, 2,5 s, 3 s	0,05 s, 0,1 s, 0,2 s, 0,3 s, 0,4 s, 0,5 s, 0,7 s, 1 s, 1,5 s, 2 s, 2,5 s, 3 s
Time accuracy	-15% / +15% +50 ms	-15% / +15% +50 ms
Repetition accuracy	2 %	2 %
Max. delay time	tv + 15 % + 50 ms	tv + 15 % + 50 ms
Environmental data	774042	774044
Climatic suitability	EN 60068-2-78	EN 60068-2-78
Ambient temperature		
Temperature range	-10 - 55 °C	-10 - 55 °C
Storage temperature		
Temperature range	-40 - 85 °C	-40 - 85 °C
Climatic suitability		
Humidity	93 % r. h. at 40 °C	93 % r. h. at 40 °C
Condensation during operation	Not permitted	Not permitted
EMC	EN 60947-5-1, EN 61000-6-2, EN 61326-3-1	EN 60947-5-1, EN 61000-6-2, EN 61326-3-1
Vibration		
in accordance with the standard	EN 60068-2-6	EN 60068-2-6
Frequency	10 - 55 Hz	10 - 55 Hz
Amplitude	0,35 mm	0,35 mm
Airgap creepage		
in accordance with the standard	EN 60947-1	EN 60947-1
Overvoltage category	III / II	III / II
Pollution degree	2	2
Rated insulation voltage	250 V	250 V
Rated impulse withstand voltage	4 kV	4 kV
Protection type		
Housing	IP40	IP40
Terminals	IP20	IP20
Mounting area (e.g. control cabinet)	IP54	IP54

Mechanical data	774042	774044
Mounting position	Any	Any
Mechanical life	10,000,000 cycles	10,000,000 cycles
Material		
Bottom	PPO UL 94 V1	PPO UL 94 V1
Front	ABS UL 94 V0	ABS UL 94 V0
Top	PPO UL 94 V1	PPO UL 94 V1
Connection type	Screw terminal	Screw terminal
Mounting type	Fixed	Fixed
Conductor cross section with screw terminals		
1 core flexible	0,2 - 4 mm², 24 - 10 AWG	0,2 - 4 mm², 24 - 10 AWG
2 core with the same cross section, flexible with crimp connectors, no plastic sleeve	0,2 - 2,5 mm², 24 - 14 AWG	0,2 - 2,5 mm², 24 - 14 AWG
2 core with the same cross section, flexible without crimp connectors or with TWIN crimp connectors	0,2 - 2,5 mm², 24 - 14 AWG	0,2 - 2,5 mm², 24 - 14 AWG
Torque setting with screw terminals	0,5 Nm	0,5 Nm
Stripping length with screw terminals	6 mm	6 mm
Dimensions		
Height	87 mm	87 mm
Width	45 mm	45 mm
Depth	121 mm	121 mm
Weight	255 g	350 g

Where standards are undated, the 2022-09 latest editions shall apply.

Safety characteristic data



NOTICE

You must comply with the safety characteristic data in order to achieve the required safety level for your plant/machine.

Operating mode	EN ISO 13849-1: 2015	EN ISO 13849-1: 2015	EN IEC 62061	EN IEC 62061	EN/IEC 61511	EN/IEC 61511	EN ISO 13849-1: 2015
	PL	Category	SIL CL/ maximum SIL	PFH_D [1/h]	SIL	PFD	T_M [year]

Safety contacts, delayed <30 s

PL d	Cat. 3	SIL 3	2,64E-09	SIL 3	1,26E-05	20
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Safety contacts, delayed ≥30 s

PL c	Cat. 1	SIL 1	2,87E-09	SIL 2	4,64E-05	20
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Explanatory notes for the safety-related characteristic data:

- ▶ Safety characteristic data in accordance with EN IEC 62061 and EN/IEC 61511 was calculated based on EN/IEC 61508.
- ▶ T_M is the maximum mission time in accordance with EN ISO 13849-1. The value also applies as the retest interval in accordance with EN/IEC 61508-6 and EN/IEC 61511 and as the proof test interval and mission time in accordance with EN IEC 62061.

All the units used within a safety function must be considered when calculating the safety characteristic data.



INFORMATION

A safety function's SIL/PL values are **not** identical to the SIL/PL values of the units that are used and may be different. We recommend that you use the PASCAL software tool to calculate the safety function's SIL/PL values.



CAUTION!

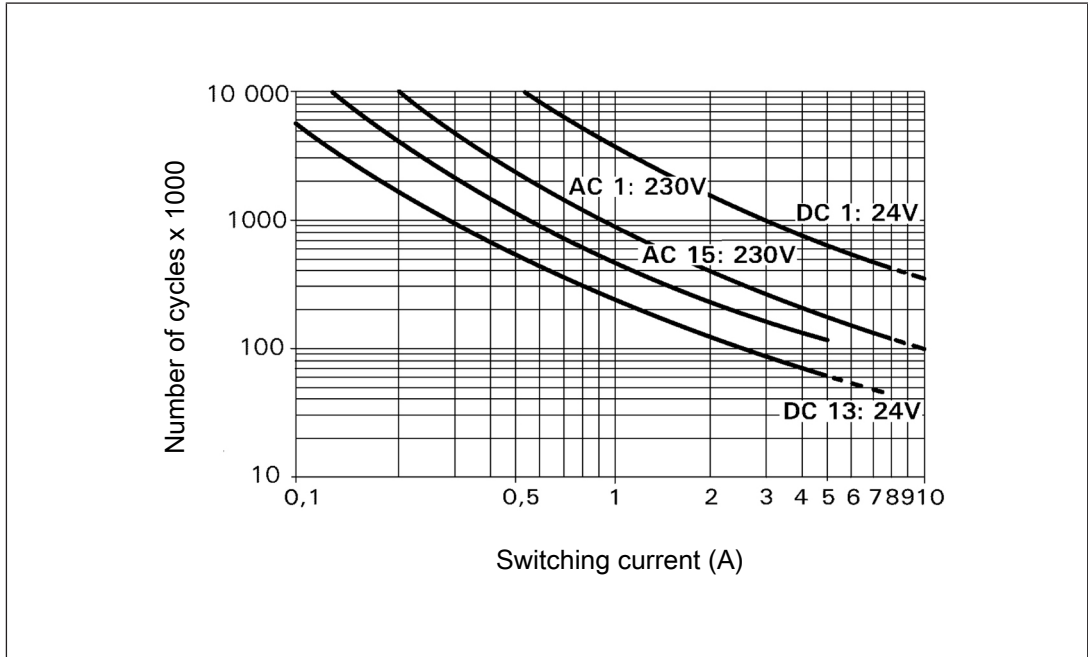
It is essential to consider the relay's service life graphs. The relay outputs' safety-related characteristic data is only valid if the values in the service life graphs are met.

The PFH value depends on the switch frequency and the load of the relay output. If the service life graphs are not accessible, the stated PFH value can be used irrespective of the switch frequency and the load, as the PFH value already considers the relay's B10d value as well as the failure rates of the other components.

Supplementary data

Service life graph

The service life graphs indicate the number of cycles from which failures due to wear must be expected. The wear is mainly caused by the electrical load; the mechanical load is negligible.



Example

- ▶ Inductive load: 0.2 A
- ▶ Utilisation category: AC15
- ▶ Contact service life: 4 000 000 cycles

Provided the application to be implemented requires fewer than 4 000 000 cycles, the PFH value (see Technical details) can be used in the calculation.

To increase the service life, sufficient spark suppression must be provided on all output contacts. With capacitive loads, any power surges that occur must be noted. With DC contactors, use flywheel diodes for spark suppression.

Order reference

Product type	Features	Connection type	Order no.
PZW	230 V AC, 30 s selectable	Screw terminals	774017
PZW	24 V DC, 30 s selectable	Screw terminals	774019
PZW	24 V DC, 3 s selectable	Screw terminals	774042
PZW	110 - 120 V AC, 3 s selectable	Screw terminals	774044

EC declaration of conformity

This product/these products meet the requirements of the directive 2006/42/EC on machinery of the European Parliament and of the Council. The complete EC Declaration of Conformity is available on the Internet at www.pilz.com/downloads.

Representative: Hansjürgen Horter, Pilz GmbH & Co. KG, Felix-Wankel-Straße 2, 73760 Ostfildern, Germany

UKCA-Declaration of Conformity

This product(s) complies with following UK legislation: Supply of Machinery (Safety) Regulation 2008.

The complete UKCA Declaration of Conformity is available on the Internet at www.pilz.com/downloads.

Representative: Pilz Automation Technology, Pilz House, Little Colliers Field, Corby, Northamptonshire, NN18 8TJ United Kingdom, eMail: mail@pilz.co.uk

► Support

Technical support is available from Pilz round the clock.

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Pilz develops environmentally-friendly products using ecological materials and energy-saving technologies. Offices and production facilities are ecologically designed, environmentally-aware and energy-saving. So Pilz offers sustainability, plus the security of using energy-efficient products and environmentally-friendly solutions.



We are represented internationally. Please refer to our homepage www.pilz.com for further details or contact our headquarters.

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