

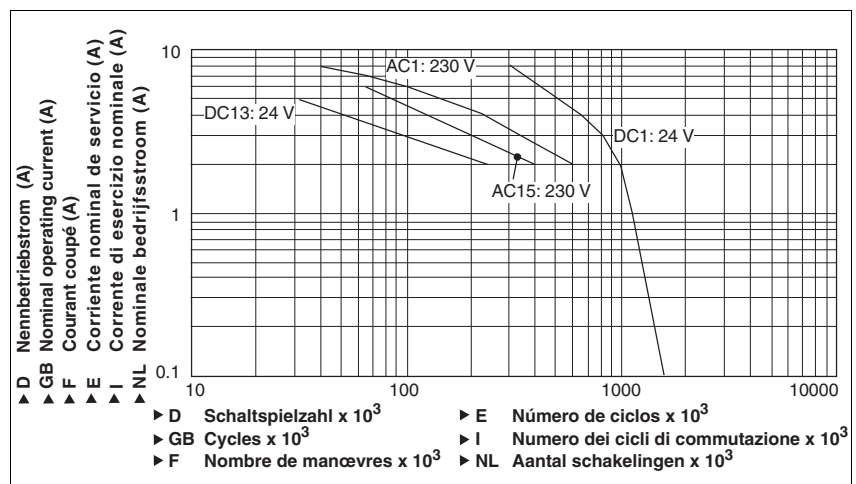
Up to PL e of EN ISO 13849-1 P2HZ X4P

Notice

This data sheet is only intended for use during configuration. Please refer to the operating manual for installation and operation.

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: 2 A
 - ▶ Utilisation category: AC15
 - ▶ Contact service life: 400 000 cycles
- Provided the application requires fewer than 400 000 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 contactors, use freewheel diodes for spark suppression.

Technical details

Electrical data

Supply voltage	
Supply voltage U _B AC	24 V
Supply voltage U _B DC	24 V
Voltage tolerance	-15 %/+10 %
Power consumption at U _B AC	4.0 VA No. 777354, 787354
Power consumption at U _B DC	2.5 W No. 777355, 787355
Frequency range AC	50 - 60 Hz
Residual ripple DC	10 %
Voltage and current at	
Input circuit DC: 24.0 V	
N/O contact	15 mA
N/C contact	20 mA No. 777355, 787355
	25 mA No. 777354, 787354
Feedback loop DC: 24.0 V	25.0 mA No. 777354, 787354
	30.0 mA No. 777355, 787355
Number of output contacts	
Safety contacts (S) instantaneous:	3
Auxiliary contacts (N/C):	1

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Electrical data

Utilisation category in accordance with **EN 60947-4-1**

Safety contacts: AC1 at **240 V**

I_{min} : **0.01 A**, I_{max} : **5.0 A**

P_{max} : **1250 VA**

Safety contacts: DC1 at **24 V**

I_{min} : **0.01 A**, I_{max} : **5.0 A**

P_{max} : **125 W**

Auxiliary contacts: AC1 at **240 V**

I_{min} : **0.01 A**, I_{max} : **2.5 A**

P_{max} : **600 VA**

Auxiliary contacts: DC1 at **24 V**

I_{min} : **0.01 A**, I_{max} : **2.5 A**

P_{max} : **60 W**

Utilisation category in accordance with **EN 60947-5-1**

Safety contacts: AC15 at **230 V**

I_{max} : **2.5 A**

Safety contacts: DC13 at **24 V** (6 cycles/min)

I_{max} : **1.5 A**

Auxiliary contacts: AC15 at **230 V**

I_{max} : **2.5 A**

Auxiliary contacts: DC13 at **24 V** (6 cycles/min)

I_{max} : **1.5 A**

Conventional thermal current

5.0 A

Contact material

AgSnO₂ + 0.2 µm Au

External contact fuse protection ($I_K = 1$ kA) to **EN 60947-5-1**

Blow-out fuse, quick

Safety contacts:

6 A

Auxiliary contacts:

4 A

Blow-out fuse, slow

Safety contacts:

4 A

Auxiliary contacts:

2 A

Circuit breaker 24 VAC/DC, characteristic B/C

Safety contacts:

4 A

Auxiliary contacts:

2 A

Max. overall cable resistance R_{lmax} per input circuit

14 Ohm

Safety-related characteristic data

PL in accordance with **EN ISO 13849-1: 2006**

PL e (Cat. 4)

Category in accordance with **EN 954-1**

Cat. 4

SIL CL in accordance with **EN IEC 62061**

SIL CL 3

PFH in accordance with **EN IEC 62061**

3.01E-09

SIL in accordance with **IEC 61511**

SIL 3

PFD in accordance with **IEC 61511**

3.24E-06

T_M [year] in accordance with **EN ISO 13849-1: 2006**

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Times

Delay-on de-energisation (reaction time in accordance with EN 574)

N/O contact

15 ms

N/C contact

30 ms

Recovery time

250 ms

Simultaneity, channel 1 and 2

500 ms

Environmental data

EMC

EN 60947-5-1, EN 61000-6-2

Vibration to **EN 60068-2-6**

Frequency

10 - 55 Hz

Amplitude

0.35 mm

Climatic suitability

EN 60068-2-78

Airgap creepage in accordance with **EN 60947-1**

Pollution degree

2

Overvoltage category

III

Rated insulation voltage

250 V

Rated impulse withstand voltage

4.00 kV

Ambient temperature

-25 - 55 °C

Storage temperature

-40 - 85 °C

Up to PL e of EN ISO 13849-1

P2HZ X4P

Environmental data	
Protection type	
Mounting (e.g. cabinet)	IP54
Housing	IP40
Terminals	IP20
Mechanical data	
Housing material	
Housing	PPO UL 94 V0
Front	ABS UL 94 V0
Cross section of external conductors with screw terminals	
1 core flexible	0.25 - 2.50 mm ² , 24 - 12 AWG No. 777354, 777355
2 core, same cross section, flexible:	
with crimp connectors, without insulating sleeve	0.25 - 1.00 mm ² , 24 - 16 AWG No. 777354, 777355
without crimp connectors or with TWIN crimp connectors	0.20 - 1.50 mm ² , 24 - 16 AWG No. 777354, 777355
Torque setting with screw terminals	0.50 Nm No. 777354, 777355
Cross section of external conductors with spring-loaded terminals: Flexible with/without crimp connectors	0.20 - 1.50 mm ² , 24 - 16 AWG No. 787354, 787355
Spring-loaded terminals: Terminal points per connection	2 No. 787354, 787355
Stripping length	8 mm No. 787354, 787355
Dimensions	
Height	101.0 mm No. 787354, 787355 94.0 mm No. 777354, 777355
Width	22.5 mm
Depth	121.0 mm
Weight	215 g No. 787354, 787355 220 g No. 777354, 777355

No. stands for order number.

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 switching frequency and the load on the relay output.
If the service life graphs are not accessible, the stated PFH value can be

used irrespective of the switching 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.

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.

The standards current on **2010-07** apply.

Order reference			
Type	Features	Terminals	Order no.
P2HZ X4P C	24 VAC	Spring-loaded terminals	787 354
P2HZ X4P	24 VAC	Screw terminals	777 354
P2HZ X4P C	24 VDC	Spring-loaded terminals	787 355
P2HZ X4P	24 VDC	Screw terminals	777 355