



► Terminal Block Filter

PILZ
THE SPIRIT OF SAFETY

Operating Manual-1005033-EN-03

- Accessories



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SD means Secure Digital

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1 Introduction

1.1 Validity of documentation

This documentation is valid for the product Terminal Block Filter. 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.

1.2 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.

1.3 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.

2 Filtered terminal block

The Terminal Block Filter is a filtered terminal block. It is used to suppress the switch-off test pulses on the single-pole semiconductor outputs. It can be used with products from the following product ranges:

- ▶ Electronic safety relays PNOZelog
- ▶ Configurable safe small controllers PNOZmulti Classic
- ▶ Configurable safe compact controllers PNOZmulti Mini
- ▶ Configurable safe small controllers PNOZmulti 2
- ▶ Modular safety relays myPNOZ

It may be necessary to suppress the switch-off test pulses if downstream control inputs are influenced by the switch-off test pulses from the semiconductor outputs.

The filtered terminal block can also be used to uncouple the load from the semiconductor output.

When the semiconductor output is activated, current flows from the semiconductor output to the load (diode in forward direction). During a switch-off test pulse, a current flows from the load to the semiconductor output. The load is discharged with low impedance to the semiconductor output and this can lead to an error message. This current flow should be prevented (diode in reverse direction).

When used in accordance with their intended use, the filtered terminal blocks operate without feedback and have no influence on the safety function. As a result, no safety-related characteristic data is required.

Use of the product outside its intended purpose may adversely affect the product's protection.

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](#)  16).

3 For your safety

Make sure that the following safety requirements are met:

- ▶ If the load resistance is below the specified load range, full suppression of the test pulses cannot be guaranteed.
- ▶ The filters increase the delay-on de-energisation, depending on the load resistance (see [Additional delay-on de-energisation depending on the load resistance](#)  15).
- ▶ If the load resistance is above the specified load range, then the delay-on de-energisation exceeds the values in the diagram [Additional delay-on de-energisation depending on the load resistance](#)  15.
- ▶ The switch-on delay increases by the length of the switch-off test pulses (e.g. by approx. 500 µs on products from the safety relays PNOZelog).



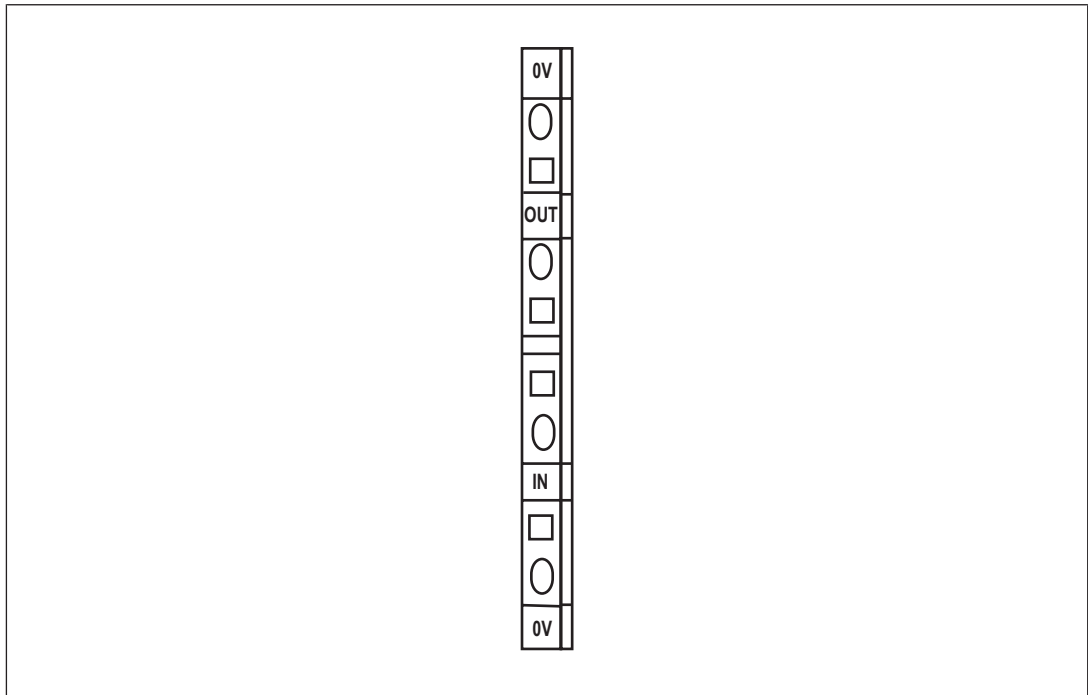
CAUTION!

Please note: The filtered terminal blocks are not suitable for use with pressure sensitive mats!

4 Product features

- ▶ One single-pole semiconductor output can be connected to one terminal block
- ▶ One control input can be connected to one terminal block
- ▶ Two versions with different capacitance and different load ranges:
 - Filter 3 ... 10 kOhm: 1000 nF
 - Filter 10 ... 30 kOhm: 330 nF

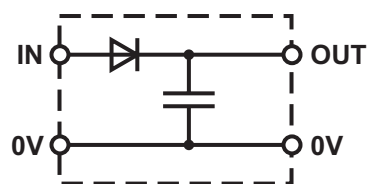
5 Front view



Legend

- IN: Connection for semiconductor output
- OUT: Connection for load / PLC input
- 0V: Reference earth

6 Block diagram



7 Function description

Filtered terminal blocks filter the switch-off test pulses on the semiconductor outputs with the aid of a capacitor. The diode prevents feedback of the load to the outputs.

The filtered terminal block can also be used to uncouple the load from the semiconductor output.

When the semiconductor output is activated, current flows from the semiconductor output to the load (diode in forward direction). During a switch-off test pulse, a current flows from the load to the semiconductor output. The load is discharged with low impedance to the semiconductor output and this can lead to an error message. This current flow should be prevented (diode in reverse direction).

The input current must be limited to 2.7 A.

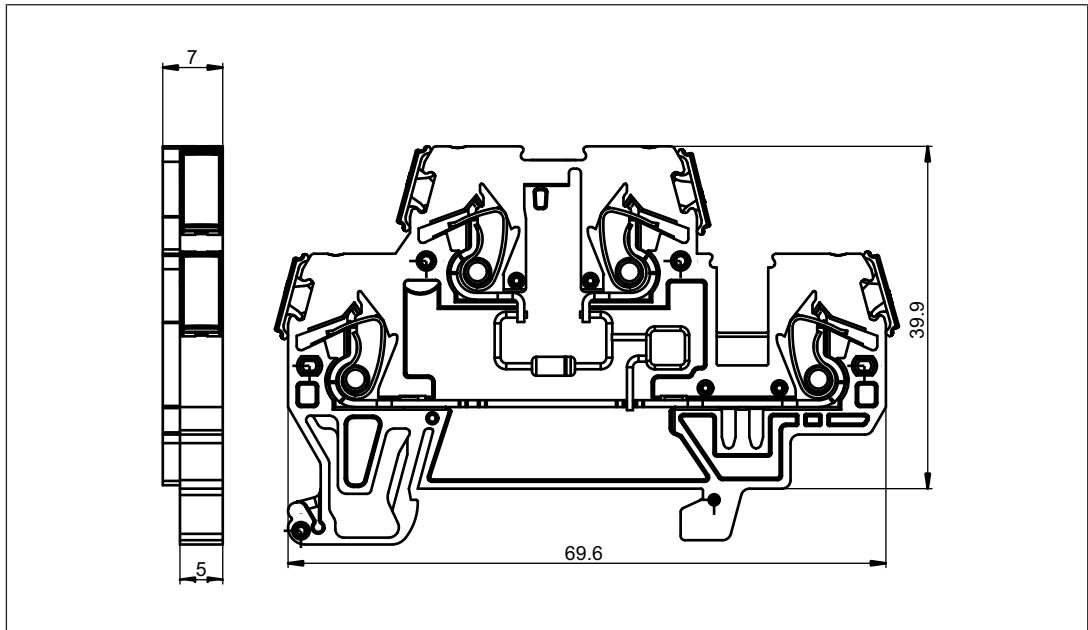


NOTICE

Please note:

The higher the load current, the lower the filter effect. Please note the information provided under [Technical details](#)  16].

8 Dimensions



9

Installation

- ▶ The product should be installed in a control cabinet with a protection type of at least IP54.
- ▶ When installed vertically or in environments exposed to heavy vibration, the product should be secured using a retaining element (e.g. retaining bracket or end bracket).
- ▶ Install the terminal block as close to the load as possible.
- ▶ Use the notch on the rear of the product to attach it to a DIN rail (35 mm).
- ▶ The ambient temperature in the control cabinet must not exceed the figure stated in the technical details. otherwise air conditioning may be required.



NOTICE

Damage due to electrostatic discharge!

Electrostatic discharge can damage components. Ensure against discharge before touching the product, e.g. by touching an earthed, conductive surface or by wearing an earthed armband.

Guideline for UL certification

- ▶ The system must be installed in a Fire Enclosure.

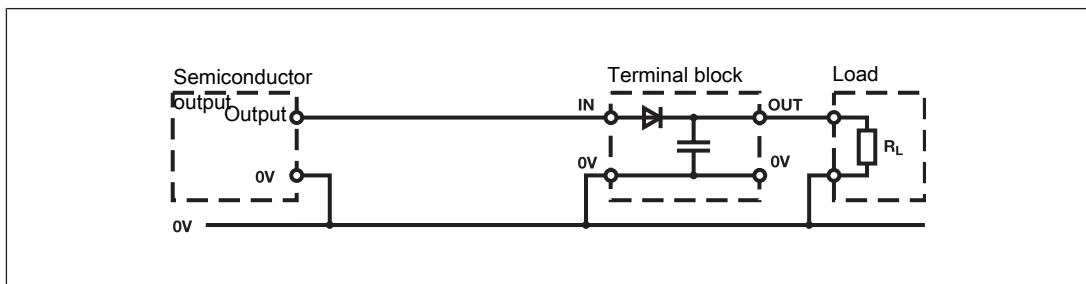
10 Wiring

Connect the terminal block Terminal Block Filter as follows:

- ▶ Use copper wiring with a temperature stability of 75 °C.
- ▶ IN terminal: Semiconductor output
- ▶ 0V terminal: 0 V (L-) on the driving unit
- ▶ OUT and 0V terminals: Load

Driven via semiconductor outputs:

- ▶ Safety relay PNOZelog
- ▶ Product from a PNOZmulti system
- ▶ Module from a myPNOZ system



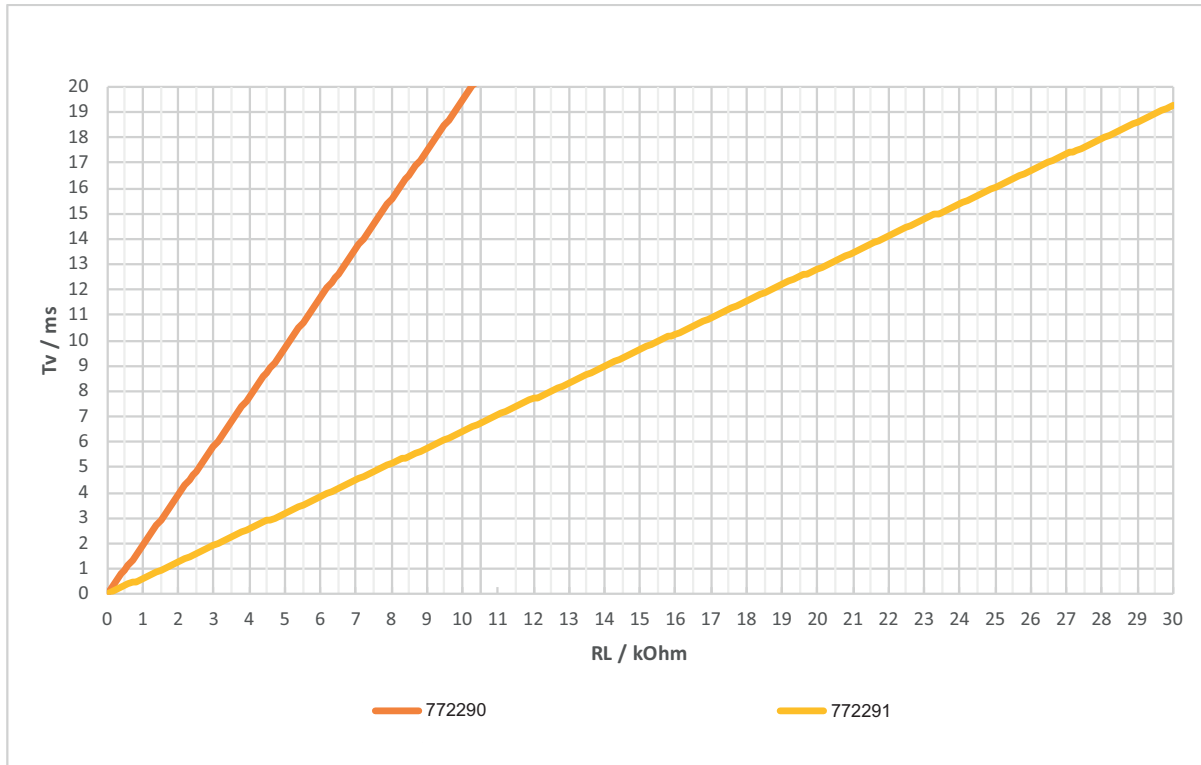
WARNING!

Hazard due to loss of the safety function

On the cable section between the terminal block and the load, shorts across contacts are not detected!

Install the terminal block close to the load/input. That way detection of shorts across contacts on the single-pole semiconductor output will be maintained until just before the load/input.

11 Additional delay-on de-energisation depending on the load resistance



12 Technical details

General	772290	772291
Certifications	CE, cULus Listed	CE, cULus Listed
Electrical data	772290	772291
Supply voltage		
Voltage	24 V	24 V
Kind	DC	DC
Voltage tolerance	-20 %/+25 %	-20 %/+25 %
Current load capacity at UB	0,5 A	0,5 A
Max. power dissipation of module	0,5 W	0,5 W
Load range	3 - 10 kOhm	10 - 30 kOhm
Environmental data	772290	772291
Ambient temperature		
Temperature range	0 - 60 °C	0 - 60 °C
Storage temperature		
Temperature range	-25 - 70 °C	-25 - 70 °C
Climatic suitability		
in accordance with the standard	EN 60068-2-30, EN 60068-2-78	EN 60068-2-30, EN 60068-2-78
Humidity	93 % r. h. at 40 °C	93 % r. h. at 40 °C
Condensation during operation	Not permitted	Not permitted
Max. operating height above SL	2000 m	2000 m
Airgap creepage		
Overvoltage category	III	III
Pollution degree	2	2
Protection type		
Housing	IP20	IP20
Terminals	IP20	IP20
Mounting area (e.g. control cabinet)	IP54	IP54
Mechanical data	772290	772291
Material		
Housing	Plastic	Plastic
Connection type	Cage clamp terminal	Cage clamp terminal
Conductor cross section with spring-loaded terminals: Flexible with/without crimp connector	0,08 - 2,5 mm², 28 - 14 AWG	0,08 - 2,5 mm², 28 - 14 AWG
Stripping length with spring-loaded terminals	6 mm	6 mm
Dimensions		
Height	39,9 mm	39,9 mm
Width	69,6 mm	69,6 mm
Depth	7 mm	7 mm
Weight	13 g	13 g

Where standards are undated, the 2018-12 latest editions shall apply.

13 Order reference

Product type	Features	Order no.
Terminal Block Filter 3-10 kOhm	Filtered terminal block 3 ... 10 kOhm	772290
Terminal Block Filter 10-30 kOhm	Filtered terminal block 10 ... 30 kOhm	772291

Support

Technical support is available from Pilz round the clock.

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

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