Certificate

No.: 968/FSP 1768.00/19

Product tested	Overvoltage protection circuitry	**Certificate holder**	Phoenix Contact GmbH & Co. KG Flachsmarktstr. 8 32825 Blomberg Germany
Type designation	Overvoltage protection circuitry implemented in QUINT4-PS/1AC/24DC/20/+ order numbers 2904617 and 2908940		
Codes and standards	IEC 61508 Parts 1-7:2010		IEC 61511-1:2016+ Corr.1:2016 + AMD1:2017 (in extracts)
Intended application	Overvoltage protection with a limitation of the output voltage and switch off at voltages above 30 V within 20 ms.		
Specific requirements	The instructions of the associated data sheet and the safety manual shall be considered.		

The overvoltage protection circuitry implemented in QUINT4-PS/1AC/24DC/20/+ (order numbers 2904617 and 2908940) fulfils the requirements up to SIL 3 (HFT=1) and can be used in applications up to SIL 3 according to IEC 61508 and IEC 61511.
See page 2 of this certificate for safety related data.

Valid until 2024-01-28

The issue of this certificate is based upon an examination, whose results are documented in Report No. 968/FSP 1768.00/19 dated 2019-01-28.
This certificate is valid only for products which are identical with the product tested.

Köln, 2019-01-28

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Safety function:
The safety function is to limit the output voltage and switch off at voltages above 30 V within 20 ms.
The safe state is no output voltage.

Data for use of the overvoltage protection circuitry implemented in QUINT4-PS/1AC/24DC/20/+ (order numbers 2904617 and 2908940) in a stand-alone application:

Characteristics as per IEC 61508 / IEC 61511-1	Value
SIL	SIL 3
β	2 %
β_d	2 %
HFT	1
Device Type	A
SFF	60% < SFF < 90%
Recommended time interval for proof-testing T1	15 years
PFD_{avg} for T1 = 15 year	5.58 E-05 Corresponds to 5.6 % of SIL 3
PFH [1/h]	9.1 E-10 Corresponds < 1 % of SIL 3

If the overvoltage protection circuitry is used in a redundant power application, than the values of both devices have to be considered:

Characteristics as per IEC 61508 / IEC 61511-1	Value
SIL	SIL 3
Recommended time interval for proof-testing T1	15 years
PFD_{avg} for T1 = 15 year	1.1 E-04 Corresponds to 11 % of SIL 3
PFH [1/h]	1.8 E-09 Corresponds to < 2% of SIL 3

Remark: Failure rates of the electronic components as per Siemens SN 29500, calculated based upon an ambient temperature of 60 °C.