



SIL DECLARATION OF CONFORMITY

Manufacturer: ABB Automation Products GmbH
Address: Borsigstraße 2 – D-63755 Alzenau
Product name: Temperature Sensor SensyTemp TSP111, TSP121, TSP131
Temperature Sensor SensyTemp TSP311, TSP321, TSP331

Functional safety according to IEC 61508

We as the manufacturer declare that the a.m. products are suitable for the use in a safety related application up to SIL 2 single configuration and SIL 3 dual configuration according to IEC 61508 Edition2000, provided that the attached safety instructions are observed. The assessment of the safety critical and dangerous random errors results, in case of an annual function test, in the following parameters:

Option: TSP... with Temperature Transmitter TTH200-.H or TTH300-.H

HFT (Hardware failure tolerance): 0 single / 1 dual * Type: B

SIL (Safety integrity level): 2 with single configuration * (see SIL value table)
3 with dual configuration * (see SIL value table)

Version overview:

Transmitter Type	Description	HW Version	SW Version
TTH200-.H	Head mounted temperature transmitter	1.06	1.00.06
TTH300-.H	Head mounted temperature transmitter	1.06	1.01.07

* Single configuration: use of one transmitter, dual configuration: use of two transmitters

SIL value table:

Temperature Sensor	Measuring Range	SIL-Level	SFF	PFDav	λ_{dd} λ_{du}	λ_{sd} λ_{su}
TSP... with TTH300-.H, Redundanz Mode, Drift with 2 Thermocouple low stress extension wire	gem. IEC584, 2 Sensor channels	2	98 %	$2,10 * 10^{-4}$	2323 FIT 48 FIT	0 FIT 113 FIT
TSP... with TTH300-.H, Redundanz Mode, Drift with 2 * 2/3-wire RTD low stress extension wire	gem. IEC751, 2 Sensor channels	2	96 %	$2,08 * 10^{-4}$	1274 FIT 47 FIT	0 FIT 113 FIT
TSP... with TTH300-.H, Redundanz Mode, Drift with Thermocouple and with 2/3-wire RTD low stress extension wire	gem. IEC751, gem. IEC584, 2 Sensor channels	2	97 %	$2,09 * 10^{-3}$	1799 FIT 48 FIT	0 FIT 113 FIT
TSP... with TTH200/300-.H, with Thermocouple low stress close coupled	gem. IEC584, 1 Sensor channel	2	92 %	$2,01 * 10^{-4}$	422 FIT 46 FIT	0 FIT 110 FIT
TSP... with TTH200/300-.H, with 4-wire RTD low stress extension wire	gem. IEC751, 1 Sensor channel	2	95 %	$2,01 * 10^{-4}$	822 FIT 46 FIT	0 FIT 110 FIT
TSP... with TTH200/300-.H, with 2/3-wire RTD low stress close coupled	gem. IEC751, 1 Sensor channel	2	90 %	$2,17 * 10^{-4}$	366 FIT 50 FIT	0 FIT 110 FIT

*) Remark 1 FIT = $1 * 10^{-9}$, TSP111, TSP121, TSP131, TSP311, TSP321 and TSP331 with ordering code CS

Option: TSP... without Temperature Transmitter

Temperature Sensor	Fehler	low stress close coupled	high stress close coupled	low stress extension wire	high stress extension wire
TSP...-...Y1/CS TSP...-...Y2/CS with Thermocouple	Open circuit Short circuit Drift	95 FIT 4 FIT 1 FIT	1900 FIT 80 FIT 20 FIT	900 FIT 50 FIT 50 FIT	18000 FIT 1000 FIT 1000 FIT
TSP...-...Y1/CS TSP...-...Y2/CS with 4-wire RTD	Open circuit Short circuit Drift	41,5 FIT 2,5 FIT 6 FIT	830 FIT 50 FIT 120 FIT	410 FIT 20 FIT 70 FIT	8200 FIT 400 FIT 1400 FIT
TSP...-...Y1/CS TSP...-...Y2/CS with 2/3-wire RTD	Open circuit Short circuit Drift	37,92 FIT 1,44 FIT 8,64 FIT	758,4 FIT 28,8 FIT 172,8 FIT	370,5 FIT 9,5 FIT 95 FIT	7410 FIT 190 FIT 1900 FIT

*) Remark 1 FIT = $1 \cdot 10^{-9}$, Failure rates acc. FMEDA Report, TSP111, TSP121, TSP131, TSP311, TSP321 and TSP331 with ordering code CS

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Date


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