

Declaration of Conformity

Functional Safety according to IEC 61508:2010
Supplement 1 / NE130 Form B.1

Endress+Hauser Wetzler GmbH+Co. KG Obere Wank 1, 87484 Nesselwang

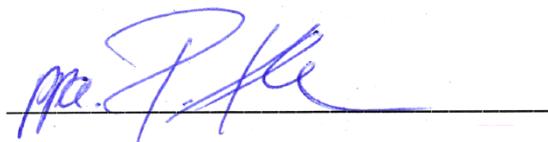
declares as manufacturer, that the following temperature transmitter

iTEMP TMT162

is suitable for the use in safety-instrumented systems up to SIL3 according to IEC61508:2010.

In safety instrumented systems according IEC 61508 and IEC 61511, the instructions of the Safety Manual have to be followed.

Nesselwang, 31.07.2019
Endress+Hauser Wetzler GmbH+Co. KG



ppa. Rainer Kühnel
Director Operations



i.V. Dieter Waldhauser
Head of Division R&D-Systemproducts

General			
Device designation and permissible types	TMT162 (Order code for "Additional approval": Option LA "SIL")		
Safety-related output signal	4...20mA		
Fault current	≤ 3,6 mA oder ≥ 21,0 mA		
Process variable/function	Temperature, Voltage, Resistance		
Safety function(s)	min., max., range		
Device type acc. to IEC 61508-2	<input type="checkbox"/> Type A	<input checked="" type="checkbox"/> Type B	
Operating mode	<input checked="" type="checkbox"/> Low Demand Mode	<input checked="" type="checkbox"/> High Demand	<input type="checkbox"/> Continuous Mode
Valid Hardware-Version	04.01.00 or higher		
Valid Software-Version	04.01.zz or higher		
Safety manual	SD01632T/09/EN		
Type of evaluation (check only <u>one</u> box)	<input checked="" type="checkbox"/>	Complete HW/SW evaluation parallel to development incl. FMEDA and change request acc. to IEC 61508-2, 3	
	<input type="checkbox"/>	Evaluation of "Proven-in-use" performance for HW/SW incl. FMEDA and change request acc. to IEC 61508-2, 3	
	<input type="checkbox"/>	Evaluation of HW/SW field data to verify „prior use" acc. to IEC 61511	
	<input type="checkbox"/>	Evaluation by FMEDA acc. to IEC61508-2 for devices w/o software	
Evaluation through / certificate no.	TÜV SÜD Rail GmbH, Germany / certificate no. Z10 012833 0004 Rev.01		
Test documents	development documents, test reports, data sheets		
SIL - Integrity			
Systematic safety integrity		<input type="checkbox"/> SIL 2 capable	<input checked="" type="checkbox"/> SIL 3 capable
Hardware safety integrity	Single channel use (HFT = 0)	<input checked="" type="checkbox"/> SIL 2 capable	<input type="checkbox"/> SIL 3 capable
	Multi-channel use (HFT ≥ 1)	<input type="checkbox"/> SIL 2 capable	<input checked="" type="checkbox"/> SIL 3 capable
FMEDA		Transmitter	
Safety function	min., max., range		
$\lambda_{DU}^{1) 2)}$	29 FIT		
$\lambda_{DD}^{1) 2)}$	269 FIT		
$\lambda_{SU}^{1) 2)}$	139 FIT		
$\lambda_{SD}^{1) 2)}$	0,2 FIT		
SFF - Safe Failure Fraction	93%		
$PFD_{avg} T1 = 1 \text{ year}^{2)}$ (single channel architecture)	$1.3 \cdot 10^{-4}$		
$PFD_{avg} T1 = 5 \text{ years}^{2)}$ (single channel architecture)	$6.4 \cdot 10^{-4}$		
PFH	$2.9 \cdot 10^{-8} \cdot 1/h$		
PTC ³⁾	96%		
MTBF ⁴⁾	142 years		
Diagnostic test interval ⁵⁾	4,3 min		
Fault reaction time ⁶⁾	< 16.2 s		
Process safety time ⁷⁾	7,2 h		
Declaration			
<input checked="" type="checkbox"/>	Our internal company quality management system ensures information on safety-related systematic faults which become evident in the future		

¹⁾ FIT = Failure In Time, Number of failures per 10⁹ h

²⁾ Valid for average ambient temperature up to +40 °C (+104 °F)

For continuous operation at ambient temperature close to +60 °C (+140 °F), a factor of 2.1 should be applied

³⁾ PTC = Proof Test Coverage

⁴⁾ MTBF (Mean time between failures) is the predicted elapsed time between inherent failures of a system during operation in accordance to Siemens SN29500

⁵⁾ All diagnostic functions are performed at least once within the Diagnostic test interval (26,1 min incl. memory test)

⁶⁾ Maximum time between error recognition and error response

⁷⁾ The Process safety time is: Diagnostic test interval x 100 (calculated acc. to IEC 61508)