



DECLARATION OF CONFORMITY SIL2

Manufacturer : RUEGER SA
Address : Chemin de Mongevon 9 - CH-1023 Crissier - Switzerland
Products : Temperature sensors
Types: S XX
XX = 01,10, 20, 21, 22, 30, 31, 50, 60,
61, 62, 70, 80, 81, 82, 83, 95, 96
Notified body : **LCIE** 33, av. du Général Leclerc
92266 Fontenay-aux-Roses

The manufacturer declares that the mentioned products in this report are in accordance with the configuration specified in IEC 61508 and EN 50495. The results obtained by the notified body LCIE allow a level of integrity SIL2. For low request and high request modes.

Sensors parameters related to SIL

First case : high demand of the safety function.

Resistance Temperature Detector, RTD sensors :

λ_s (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFH_{av} (FITs)	SIL calculated	SIL declared
0	381	95	80%	95	SIL3	SIL2

Thermocouple sensors :

λ_s (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFH_{av} (FITs)	SIL calculated	SIL declared
0	900	100	90%	100	SIL2	SIL2

Second case : low demand of the safety function.

Hypothesis: life time duration 10 years, low level of vibration.

Resistance Temperature Detector, RTD sensors :

λ_s (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFD_{av}	SIL calculated	SIL declared
0	381	95	80%	$4,16 \cdot 10^{-4}$	SIL2	SIL2

Thermocouple sensors :

λ_s (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFD_{av}	SIL calculated	SIL declared
0	900	100	90%	$4,39 \cdot 10^{-4}$	SIL2	SIL2



DECLARATION OF CONFORMITY SIL2 (suite)

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Sensors with transmitters, Sensors parameters related to SIL

First case : high demand of the safety function.

Transmitter with a Resistance Temperature Detector, RTD sensors :

λ_S (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFH_{av} (FITs)	SIL calculated	SIL declared
110	707	136	86%	136	SIL2	SIL2

Transmitter with a thermocouple sensors :

λ_S (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFH_{av} (FITs)	SIL calculated	SIL declared
110	1227	141	90%	141	SIL2	SIL2

Second case : low demand of the safety function.

Hypothesis: life time duration 10 years, low level of vibration.

Transmitter with a Resistance Temperature Detector, RTD sensors :

λ_S (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFD_{av}	SIL calculated	SIL declared
110	707	136	86%	$5,96 \cdot 10^{-4}$	SIL2	SIL2

Transmitter with a thermocouple sensors :

λ_S (FITs)	λ_{DD} (FITs)	λ_{DU} (FITs)	SFF (%)	PFD_{av}	SIL calculated	SIL declared
110	1227	141	90%	$6,19 \cdot 10^{-4}$	SIL2	SIL2

Crissier, October 29, 2019 / revision 3

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