



Certificate / Certificat Zertifikat / 合格証

UEC 1602130 C001

exida hereby confirms that the:

100 Series

Pressure and Temperature Switches

United Electric Controls

Watertown, MA - USA

The manufacturer may use the mark:



Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-2

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A Element

SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2_H

PFH/PFD_{avg} and Architecture Constraints

must be verified for each application

Revision 1.7 March 5, 2024
Surveillance Audit Due
March 1, 2027

Safety Function:

The 100 Series switch contacts will change state when the setpoint Pressure / Temperature is reached within the stated safety accuracy.

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



Evaluating Assessor

Certifying Assessor

UEC 1602130 C001

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A Element

SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2_H

PFH/PFD_{avg} and Architecture Constraints must be verified for each application

Systematic Capability:

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This element meets *exida* criteria for Route 2_H.

Versions:

Application	Models
Pressure / Vacuum	H100
Differential Pressure	H100K
Temperature	B100, C100, E100, F100

IEC 61508 Failure Rates in FIT¹ for Single Switch²

Application	toTrip	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Pressure/Vacuum	Increase	0	74	0	152
	Decrease	0	39	0	191
Differential Pressure	Increase	0	114	0	180
	Decrease	0	61	0	239
Temperature	Increase	0	74	0	190
	Decrease	0	114	0	154

¹ FIT = 1 failure / 10⁹ hours

² Includes Dual Switch units when only one of the Switches is used for the Safety Function

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: UEC 16-02-130 R003 V3 R1 (or later)

Safety Manual: MECH-SM-01 (or later)



80 N Main St
Sellersville, PA 18960

100 Series Pressure
and Temperature
Switches