Certificate / Certificat
Zertifikat / 合格証

PREI 070902 P0002 C005

exida hereby confirms that the:

9116 Universal Converter
Product Version 9116-001

PR electronics A/S
Rønde - Denmark

Has been assessed per the relevant requirements of:

IEC 61508 : 2000 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 2 (SIL 2 Capable)

Random Capability: Type B Device

PFD_{AVG} and Architecture Constraints must be verified for each application

Safety Function:
The 9116 Universal Converter converts various sensor input signals from hazardous areas to a 4..20 mA current output signal. An additional safety related output real is available.

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

Evaluating Assessor

Certifying Assessor

The manufacturer may use the mark:

Revision 2.0 March 2, 2015

ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

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Systematic Capability: SC 2 (SIL 2 Capable)

Random Capability: Type B Device

PFD_{AVG} and Architecture Constraints must be verified for each application

9116 Universal Converter

Systematic Capability:

The Product has met manufacturer design process requirements of Safety Integrity Level (SIL) 2. 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.

9116 Universal Converter Configurations	λ_{Safe}	λ_{DD}	λ_{DU}
Resistance / RTD temperature / TC temperature Inputs, Current Output	278	352	43
Resistance / RTD temperature / TC temperature Inputs, Relay Output	359	230	62
Current Input, Current Output	444	554	42
Current Input, Relay Output	636	320	62
Voltage Input, Current Output	395	479	56
Voltage Input, Relay Output	480	353	76

All failure rates are given in FIT (failures / 10^9 hours)

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of 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: 0709-02C R014 V1R1

Safety Manual: 9116 Safety Manual V1R0

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