exida® CERTIFICATION

CERTIFICATE

PREI 070902 P0002 C04

exida Certification S.A. hereby confirms that the

Solenoid / Alarm Driver 9203

Product Version 9203-001

PR electronics AS

Rønde, Denmark

Has been assessed per the relevant requirements of

IEC 61508

Parts 1 - 7, and meets requirements providing a level of integrity to

Systematic Integrity : SIL 2 Capable

Random Integrity : SIL 2 Capable

Safety Function

The 9203 Solenoid / Alarm Driver shall convert NPN/contact/PNP signals from safe area into digital drive signals in hazardous area.

Application Restrictions

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

Assessor

Certifying Assessor

Date: 23 April 2010

exida Certification SA, Nyon, Switzerland

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Systematic Integrity: SIL 2 Capable

SIL 2 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 the statement without "prior use" justification by end user or diverse technology redundancy in the design.

Random Integrity: SIL 2 Capable

Summary for Solenoid / Alarm Driver 9203
Low current - Type B device,
IEC 61508 failure rates:

Failure category	Failure rates [FIT=10^{-9}/h]
Fail Safe (λ_{SAFE})	416
Fail Dangerous Detected (λ_{DD})	61
Fail Dangerous Undetected (λ_{DU})	43
Total failure rate (safety function)	520 FIT
SFF	91.7%
DCD	58.7%
MTBF	176 years

Summary for Solenoid / Alarm Driver 9203
High current – Type B device,
IEC 61508 failure rates:

Failure category	Failure rates [FIT=10^{-9}/h]
Fail Safe (λ_{SAFE})	419
Fail Dangerous Detected (λ_{DD})	61
Fail Dangerous Undetected (λ_{DU})	46
Total failure rate (safety function)	526 FIT
SFF	91.2%
DCD	57%
MTBF	175 years

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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are mandatory parts this certificate:
PR electronics 0709-02-C R007 V1R0 Assessment report.
9203 Safety Manual V3R0

The holder of this certificate may use this mark.

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