



C E R T I F I C A T E

Certificate no. 18-SIL-0010027-01-TIC

WE HEREBY CERTIFY THAT

Product description SOLDOTM MICRO SWITCH BOXES
Series SS, SF, SB, SA, SC, SD, SG, HW, HI, HN, SX, SW, SY, SH, SI, CS, CA, XA, SK, SQ, SE, ST, ES, SP, SM

Manufacturer Rotork Instruments Italy S.r.l. **rotork**
 Viale Europa 17 – 20090 Cusago MI **Instruments**

IS IN COMPLIANCE WITH THE REQUIREMENTS OF THE STANDARDS

IEC 61508 Parts 1–7:2010

AS RESULT OF THE ASSESSMENT ACCORDING TO THE PROVISION SET OUT IN THE ABOVE-MENTIONED STANDARDS

Summary Report no. RC-0219-SIL-TIC-PC-0010027-18-02

Expiry date 13.02.2022

Note This certificate is issued upon the request of the manufacturer as voluntary certification; it does not include the production surveillance.
 This certificate does not allow the manufacturer to use the safety mark of TÜV INTERCERT.

Reggio Emilia, 14.02.2019



F. Feridoon
 Dipl. Ing. Feridoon Sergizzarea
 TÜV INTERCERT Certification Body



C E R T I F I C A T E

ANNEX to Certificate no. 18-SIL-0010027-01-TIC

| | | | | |
|--|--|-------------------|------------------------|------------------------------|
| Type | A | | | |
| HFT | 0 | | | |
| Safety functions | <ol style="list-style-type: none"> 1. Give an output signal to indicate that the actuator has moved from the "normal position" 2. Give an output signal to indicate that the actuator has reached the "safe position" | | | |
| Mode of operation | Low Demand Mode | | | |
| Random failure rates | | | | |
| Configuration | Safety function | λ_D [1/h] | λ_S [1/h] | SFF [%] |
| With Pepperl+Fuchs NAMUR sensors, standard NAMUR amplifier | 1 / 2 | 9,6E-09 | 1,6E-08 | > 60% > 99% including PST |
| With Pepperl+Fuchs NAMUR sensors, standard NAMUR amplifier, redundant configuration | 1 / 2 | <1,0E-09 | <1,0E-08 | > 90% > 99% including PST |
| With Pepperl+Fuchs NAMUR sensors, fail-safe interface | 1 / 2 | 7,0E-11 | 2,5E-08 | > 99% |
| With Pepperl+Fuchs sensor model NBB2-V3-E2 | 1 / 2 | 1,28E-08 | 1,93E-08 | > 60% > 99% including PST |
| With Soldo™ REED and Nova V3 sensors, or micromechanical switches | 1 / 2 | 9,6E-09 | 1,6E-08 | > 60% > 99% including PST |
| With Soldo™ REED and Nova V3 sensors, or micromechanical switches, redundant configuration | 1 / 2 | <1,0E-09 | <1,0E-08 | > 90% > 99% including PST |
| Systematic capability | 3 (Route 1 _S applied) | | | |
| Architectural constraints | Route 1 _H : | Applied | Route 2 _H : | Applied |
| | The product can be used in: <ul style="list-style-type: none"> • single channel configuration: <ul style="list-style-type: none"> ○ up to SIL 2 without external diagnostic tests ○ up to SIL 3 considering external diagnostic tests • double channel configuration: up to SIL 3 | | | |
| Remarks: | <ul style="list-style-type: none"> • Micro switch boxes series SS, SF, SB, SA, SC, SD, SG, HW, HI, HN, SX, SW, SY, SH, SI, CS, CA, XA, SE, ST include the "Line-Monitoring" option. • For further details, including environmental conditions, limitations of use, lifetime, failure rates traceability, mean repair times, common cause factors and systematic capability constraints, make reference to Safety Manual IOM00069_04. | | | |

END OF CERTIFICATE

Reggio Emilia, 14.02.2019


 Dipl. Ing. Feridoon Sergizzeza
 TÜV INTERCERT Certification Body

Page 2 of 2

CERTIFICATE ■ CERTIFICATO ■ ZERTIFIKAT ■ SERTİFİKA ■ CERTIFICADO ■ گواهینامه ■ ΠΙΣΤΟΠΟΙΗΤΙΚΟ ■ 証明書 ■ 証明書 ■ 인증서