



# 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"> <li>1. Give an output signal to indicate that the actuator has moved from the "normal position"</li> <li>2. Give an output signal to indicate that the actuator has reached the "safe position"</li> </ol>  |                   |                        |                              |
| Mode of operation  | Low Demand Mode  |                   |                        |                              |
| <b>Random failure rates</b>  |  |                   |                        |                              |
| Configuration  | Safety function  | $\lambda_D$ [1/h] | $\lambda_S$ [1/h]      | SFF [%]                      |
| With Pepperl+Fuchs NAMUR sensors, standard NAMUR amplifier                                 | 1 / 2  | 9,6E-09           | 1,6E-08                | > 60%<br>> 99% including PST |
| With Pepperl+Fuchs NAMUR sensors, standard NAMUR amplifier, redundant configuration        | 1 / 2  | <1,0E-09          | <1,0E-08               | > 90%<br>> 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%<br>> 99% including PST |
| With Soldo™ REED and Nova V3 sensors, or micromechanical switches                          | 1 / 2  | 9,6E-09           | 1,6E-08                | > 60%<br>> 99% including PST |
| With Soldo™ REED and Nova V3 sensors, or micromechanical switches, redundant configuration | 1 / 2  | <1,0E-09          | <1,0E-08               | > 90%<br>> 99% including PST |
| Systematic capability  | 3 (Route 1 <sub>S</sub> applied)   |                   |                        |                              |
| Architectural constraints  | Route 1 <sub>H</sub> :   | Applied           | Route 2 <sub>H</sub> : | Applied                      |
|  | The product can be used in: <ul style="list-style-type: none"> <li>• single channel configuration:               <ul style="list-style-type: none"> <li>○ up to SIL 2 without external diagnostic tests</li> <li>○ up to SIL 3 considering external diagnostic tests</li> </ul> </li> <li>• double channel configuration: up to SIL 3</li> </ul>   |                   |                        |                              |
| Remarks:   | <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul> |                   |                        |                              |

END OF CERTIFICATE

Reggio Emilia, 14.02.2019

  
 Dipl. Ing. Feridoon Sergizzeza  
 TÜV INTERCERT Certification Body

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