



Certificate no. TAI-FS-C-25-0025

WE HEREBY CERTIFY THAT

Product description Soldo™ micro switch box

Models Series SS, SF, SB, HW, SX, SW, SY, SH, SI, CS, CA, XA, SK, SQ, SP

Manufacturer Rotork Instruments Italy S.r.l.
Via Portico 17
I-24050 Orio al Serio (BG)

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

Assessment reports no. TAI-FS-R-25-0025, TAI-FS-R-25-0026

Expiry date 09.07.2028

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TUV AUSTRIA ITALIA
10.07.2025, Monte Roberto (AN)

Ing. Crescenzo Di Fratta

TUV AUSTRIA ITALIA S.p.A.
Via del Commercio, 6/A 60030 Monte Roberto (AN)
+39 0731 22781 - info@tuvaustraiitalia.com - tuvaustraiitalia@pec.it
C.F./P. IVA IT01055750333 - Cap. Soc. i.v. € 400.000,00 - REA AN n. 211030
Società a socio unico, soggetta a controllo e coordinamento di:
TUV AUSTRIA HOLDING AG Deutschstrasse 10, A-1230, Vienna, Austria
www.tuvaustraiitalia.com

Annex 1 to certificate no. TAI-FS-C-25-0025

Product	Soldo™ micro switch box series SS, SF, SB, HW, SX, SW, SY, SH, SI, CS, CA, XA, SK, SQ, SP
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 With Werner Turck NAMUR sensors	1 / 2	9,6E-09	1,6E-08	> 60 > 99 including PST
With Pepperl+Fuchs NAMUR sensors, standard NAMUR amplifier, redundant configuration With Werner Turck NAMUR sensors, 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 1s applied)			
Architectural constraints	Route 1H:	Applied	Route 2H:	Applied
	The product can be used in: <ul style="list-style-type: none"> • single switch configuration: <ul style="list-style-type: none"> ○ up to SIL 2 without external diagnostic tests ○ up to SIL 3 considering external diagnostic tests (only for safety function 1) • redundant switch configuration: up to SIL 3 			

Remarks:

- Micro switch boxes series SS, SF, SB, HW, SX, SW, SY, SH, SI, CS, CA, XA include the "Line-Monitoring" option
- Specific cycling and stall testing performed and assessed at -50 °C for P+FSJ-3.5-SN
- 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_ENG

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Annex 2 to certificate no. TAI-FS-C-25-0025

Product	Soldo™ micro switch box series SS, SF, HW, SX, SW, SY, SI with position transmitter
Type	B
HFT	0
Safety functions	1. Correct measuring of the position of the actuator on which the device is mounted (normally angular position), and generation of 4-20 mA output signal proportional to the position, within ± 2 % of tolerance
Mode of operation	Low Demand Mode

Random failure rates					
Configuration	Safety function	λ_{DU} [1/h]	λ_{DD} [1/h]	λ_S [1/h]	SFF [%]
Soldo™ micro switch boxes with position transmitters Siemens TH320/420 / PR electronics 5437D	1	2,95E-08	4,66E-07	0,00E+00	94,04

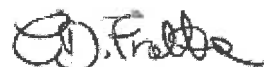
Systematic capability	3 (Route 1s applied)				
	Route 1H:	Applied	Route 2H:	--	
Architectural constraints	The product can be used in: <ul style="list-style-type: none"> • single channel configuration (1oo1): up to SIL 2 • double channel configuration (1oo2): up to SIL 3 				

Remarks:

- The above λ values are those for single channel configuration; the PFH / PFD_{AVG} values for 1oo2 configuration have to be calculated considering the β factors
- 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_ENG

END OF CERTIFICATE

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