



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX ULD 22.0024X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2023-01-31

Applicant: **Rotork Instruments Italy srl**  
Via Portico 17  
24050  
Orio al Serio (BG)  
Italy

Equipment: **Limit switch boxes, SP\*\*\*\*\_\*\*\*\*\* and SIP\*\*\*\*\_\*\*\*\*\* series**

Optional accessory:

Type of Protection: **Intrinsic Safety "ia"**

Marking: Ex ia IIC T6...T1 Ga  
Ex ia IIIC T85°C...T135°C Db  
-20°C ≤ Ta ≤ +80°C or  
-20°C ≤ Ta ≤ +65°C (SIP/SP series provided with Hans Turck GmbH & Co.KG switches only).  
See Annex for additional temperature information.

Approved for issue on behalf of the IECEx  
Certification Body:

**Katy A. Holdredge**

Position:

**Senior Staff Engineer**

Signature:  
(for printed version)

Date:  
(for printed version)

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**UL International DEMKO A/S**  
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Denmark





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Manufacturer: **Rotork Instruments Italy srl**  
Via Portico 17  
24050  
Orio al Serio (BG)  
**Italy**

Manufacturing locations: **Rotork Instruments Italy srl**  
Via Portico 17  
24050  
Orio al Serio (BG)  
**Italy**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

#### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"  
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

#### TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DK/ULD/ExTR22.0026/00](#)

Quality Assessment Report:

[GB/ITS/QAR09.0004/08](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Limit switch boxes, series **SP** and **SIP**, are enclosed limit switches containing two electro-mechanical switches or two **Ex ia** certified inductive proximity NAMUR sensor switches. They are used to indicate the position, for example in valves and actuators, by means of electrical signal and visual indicator. They are mounted on actuator or manual valve with lever or gear. The plastic enclosure of the equipment may be provided with one or two cable entry M20x1.5 or 1/2" NPT.

Except for model **SP06/SIP06** provided with **DPDT** Electro-mechanical switches, the **SP** and **SIP** series of Limit switch boxes may also be provided with extra-poles terminal to connect an intrinsic safety solenoid valve.

The **SP** series is identical to **SIP** series except model name.

**Please see Annex for additional information.**

## SPECIFIC CONDITIONS OF USE: YES as shown below:

- Care shall be taken to prevent accumulation of electrostatic charges. See installation instructions.
- Ambient temperature and Surface temperature – See instructions.
- For installations in which both the  $C_i$  and  $L_i$  of the connected apparatus exceeds 1% of the  $C_o$  and  $L_o$  parameters (excluding the cable), then 50% of  $C_o$  and  $L_o$  parameters are applicable and shall not be exceeded. The reduced capacitance shall not be greater than 1  $\mu F$  for Groups IIA and/or IIB, and 600 nF for Group IIC.
- For Group III use:
  - Limit switch boxes, **SP** and **SIP** series, does not comply with dielectric strength requirement between intrinsically safe circuits and earth, or between separate intrinsically safe circuits in accordance with Clause 6.3.13 of IEC 60079-11;
  - The extra poles terminal block (Terminals 7, 8) must not be used;
  - Intrinsic safety Barrier selection for series with micromechanical switches shall be as follows: when both switches installed within the Limit switch box are connected, they shall be supplied by a suitable **Ex** certified 2-channel barrier which has been certified with suitable entity parameters for each channel and for both channels combined; and
  - Intrinsic safety Barrier selection for series with inductive sensors shall be as follows: when both switches installed within the Limit switch box are connected, they shall be supplied by a suitable **Ex** certified 2-channel barrier which has been certified with suitable entity parameters for each channel and for both channels combined in compliance with  $U_i$ ,  $l_i$ ,  $P_i$  requirements of the switch and also have  $L_o$ ,  $C_o$  suitable for the combined  $C_i$ ,  $L_i$  of the two switches.

## Annex:

[Annex to IECEX IECEX ULD 22.0024X Issue 0.pdf](#)



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## TYPE DESIGNATION

Nomenclature:

SIP	2P	1	0	0	-	D	H	A	1	X	A	1	0	0	00
I	II	III	IV	V	-	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV

I- Series:

SP or SIP – Limit switch Boxes

II- Type of Switches:

2P – Inductive proximity NAMUR sensor, Type NCN4-V3-N0, Exia, 8.2V dc, 1...3mA (single switch)

3A – Inductive proximity NAMUR sensor, Type NCB2-V3-N0, Exia, 8.2V dc, 1...3mA (single switch)

70 – Inductive proximity NAMUR sensor, Type NJ2-V3-N, Exia, 8.2V dc, 1...3mA (single switch)

\_\_ – Two alphanumeric characters – Inductive proximity NAMUR sensor, type BI2-Q10S-Y1X, Exia, 8.2V dc, 1.2...2.1mA (single switch)

02 – SPDT Electro-mechanical switch Gold-plated, 24V dc, 1A

03 – SPDT Electro-mechanical switch Gold-plated, 30V dc, 0.5A

06 – DPDT Electro-mechanical switch Gold-plated, 30V dc, 0.1A

2Z – SPDT Electro-mechanical switch Gold-plated, 30V dc, 0.1A

N3 – Micro SPDT Electro-mechanical switch Gold-plated, 30V dc, 1A

C4 – Magnetic reed SPDT, 24V dc, 1A

III- Quantity of switches:

1 – 1 switch

2 – 2 switches

IV- Terminals:

0 – Provided with additional extra-poles for solenoid valve connection (except for model SP06/SIP06)

A – Without solenoid valve connection

V- Painting:

0 – Black plastic enclosure

VI- Cable entry:

D – 1 cable entry 1/2" NPT

E – 1 cable entry M20 x 1.5

1 – 2 cable entries 1/2" NPT

2 – 2 cable entries M20 x 1.5

VII- Visual position Indicator:

H – 3D visual position indicator black and yellow

Z – Flat visual position indicator black and yellow

VIII- Approval:

X – ATEX/IECEX certified



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**IX- Marking:**

1 – Intrinsically safe certification

**X- IP Protection rating:**

X – One alphanumeric character, not safety relevant.

**XI- Temperature range:**

A – Ambient temperature range: -20°C to +80°C

B – Ambient temperature range: -20°C to +70°C

\_\_ – Any alphanumeric character (-20°C to +65°C) (SIP/SP\_\_ series only)

**XII- Material:**

1 – Glass reinforced plastic body with polycarbonate cover

**XIII- Coil rating:**

0 – No solenoid valve available

**XIV- Pneumatic connection:**

0 – no solenoid valve available

**XV- Special execution:**

00 – no special execution (in this case the last 4 digits, from Coil rating, are omitted)

21 – special corrosion resistant shaft

## **PARAMETERS RELATING TO THE SAFETY**

### **Intrinsically safe specifications:**

For series SIP/SP02, SIP/SP03, SIP/SP06, SIP/SP2Z, SIP/SPN3 and SIP/SPC4 provided with Electro-mechanical or magnetic reed switches, safety parameters are defined as follow:

Ui: 30V dc

Ii: 100 mA

Pi: 750 mW

Li: ~ 0  $\mu$ H

Ci: ~ 0 nF.

For series SIP/SP2P, SIP/SP3A and SIP/SP70 input safety parameters comply with the ones of the certified devices installed inside the limit switch box as follow: IECEX PTB 11.0021X, Issue 3 (PTB 00 ATEX 2032X, issue 01).

	Type 1	Type 2	Type 3	Type 4
Ui	16 V	16 V	16 V	16 V
Ii	25 mA	25 mA	52 mA	76 mA
Pi	34 mW	64 mW	169 mW	242 mW



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For series SIP/SP\_\_ series provided with Hans Turck GmbH & Co.KG switch only input safety parameters comply with the ones of the certified devices installed inside the limit switch box as follow: IECEX KEM 06.0036X, Issue 6 (KEMA 02 ATEX 1090X, issue 08) – Type A.

Ui	20V
Ii	60 mA
Pi	200 mW
Li	150 $\mu$ H (for EPL Ga) / 300 $\mu$ H (for EPL Db)
Ci	150 nF (for EPL Ga) / 300 nF (for EPL Db)

Extra poles terminal block (except for model SIP/SP06):

Extra poles shall be connected to Intrinsically Safe circuit only, and the maximum input safety parameters are defined as follows:

Terminals 7-8: Ui: 28 V  
Ii: 110 mA  
Pi: 770 mW.

### **Environmental Ratings:**

Series SIP/SP02, SIP/SP03, SIP/SP06, SIP/SP2Z, SIP/SPN3 and SIP/SPC4:

The relationship between ambient temperature range and temperature class / Maximum surface temperature is as follow:

Model	Ambient temperature range	Temperature Class (EPL Ga)	Max. Surface Temperature (EPL Db)
SIP/SP02 SIP/SP03	-20°C to +80°C	T4	T95°C
SIP/SP06 SIP/SP2Z	-20°C to +75°C	T5	T90°C
SIP/SPN3 SIP/SPC4	-20°C to +70°C	T6	T85°C



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Series SIP/SP2P, SIP/SP3A and SIP/SP70:

Group II (EPL Ga) Equipment :

The relationship between type of the connected circuit, maximum permissible ambient temperature and temperature class as well as the effective internal reactance is as follows:

	Ci [nF]	Li [μH]	Maximum permissible ambient temperature in °C for application in temperature class											
			Type 1			Type 2			Type 3			Type 4		
			T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1
SIP/SP2P	100	100	69	80	80	62	77	80	41	56	80	26	41	70
SIP/SP3A	100	100	69	80	80	62	77	80	41	56	80	26	41	70
SIP/SP70	40	50	69	80	80	62	77	80	41	56	80	26	41	70

Group III (EPL Db) Equipment :

The relationship between type of the connected circuit and maximum permissible ambient temperature as well as the effective internal reactance is as follows:

	Ci [nF]	Li [μH]	Maximum permissible ambient temperature in °C				Max. Surface Temperature (EPL Db)
			Type 1	Type 2	Type 3	Type 4	
SIP/SP2P	200	200	80	80	66	Not permitted	T135°C
SIP/SP3A	200	200	80	80	66	Not permitted	
SIP/SP70	80	100	80	80	66	Not permitted	

Series SIP/SP\_\_ provided with Hans Turck GmbH & Co.KG switch only:

The relationship between ambient temperature range and temperature class / Maximum surface temperature is as follow:

Model	Ambient temperature range	Temperature Class (EPL Ga)	Max. Surface Temperature (EPL Db)
SIP/SP__	-20°C to +65°C.	T6	T135°C



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## MARKING

Marking has to be readable and indelible; it has to include the following indications:

Example of markings for series SIP/SP provided with Hans Turck GmbH & Co.KG switches:

SP\_2A0-EHX10\_1

Batch:

Year: 2023

UL22ATEX2839X IECEXULD22.0024X



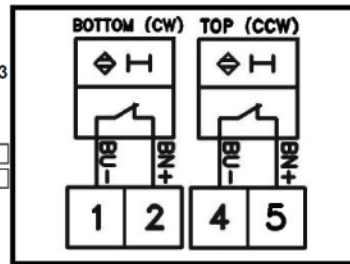
Rotork Instruments Italy  
Via Portico, 17 24050  
Orio al Serio, Italy



II 1G Ex ia IIC T6 Ga  
II 2D Ex ia IIIC T135°C Db  
-20°C ≤ Ta ≤ +65°C



Made in Italy  
www.rotork.com



For safety instruction refer to IOM.

Extra Pole max rating Ui: 28V li: 110mA Pi: 770mW

Miss Digit: \_\_

IP 65

Type 5 Ui: 20 Vdc li: 60mA Pi: 200mW - EPL Ga Ci: 150nF Li: 150µH -  
- EPL Db Ci: 300nF Li: 300µH -

Entry: 1 M20x1,5

For safety instruction refer to IOM

**WARNING**  
Potential electrostatic charging hazard -  
see instructions



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Example of markings for series SIP/SP2P, SIP/SP3A and SIP/SP70 provided with Pepperl+Fuchs SE switches:

SP70200-EHX10A1

Batch:

Year: 2023

UL22ATEX2839X IECEXULD22.0024X



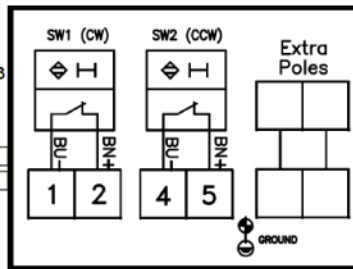
2575  
Rotork Instruments Italy  
Via Portico, 17 24050  
Orio al Serio, Italy



II 1G Ex ia IIC T6...T1 Ga  
II 2D Ex ia IIIC T135°C Db  
-20°C ≤ Ta ≤ +80°C



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For safety instruction refer to IOM.

*maximum permissible ambient temperature in °C for application in temperature class	Type 1 Ui:16V			Type 2 Ui:16V			Type 3 Ui:16V			Type 4 Ui:16V				
	li:25mA	Pi:34mW		li:25mA	Pi:64mW		li:52mA	Pi:169mW		li:76mA	Pi:242mW			
Switch Type	Ci[nF]	Li[μH]	T6	T5	T4	T6	T5	T4	T6	T5	T4	T6	T5	T4
NJ2-V3-N Ga	40	50	69	80	80	62	77	80	41	56	80	26	41	70
NJ2-V3-N Db	80	100		80			80			66				Not Permitted

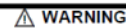
Extra Pole max rating Ui: 28V li: 110mA Pi: 770mW

Ind.Sensor NC Namur P&F NJ2-V3-N

Entry: 1 M20x1,5

For safety instruction refer to IOM

IP 65



Potential electrostatic charging hazard - see instructions

Example of markings for series SIP/SP02, SIP/SP03, SIP/SP06, SIP/SP2Z, SIP/SPN3 and SIP/SPC4:

SP032A0-EHX10Y1

Batch:

Year: 2023

UL22ATEX2839X IECEXULD22.0024X



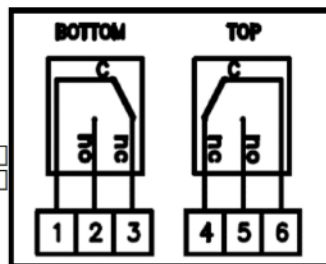
2575  
Rotork Instruments Italy  
Via Portico, 17 24050  
Orio al Serio, Italy



II 1G Ex ia IIC T6...T4 Ga  
II 2D Ex ia IIIC T85...95°C Db  
-20°C ≤ Ta ≤ +80°C



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For safety instruction refer to IOM.

Ui: 30Vdc li: 100mA Pi: 750mW Ci≈0nF Li≈0μH

Temperature Class	*Max Ambient Temperature	**Max Surface Temperature
T6	70	85
T5	75	90
T4	80	95

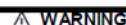
Extra Pole max rating Ui: 28V li: 110mA Pi: 770mW

SPDT Elmech Gold Pl.

Entry: 1 M20x1,5

For safety instruction refer to IOM

IP 65



Potential electrostatic charging hazard - see instructions



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## **LIST OF CERTIFIED COMPONENTS**

<b>Product</b>	<b>Certificate Number</b>	<b>Standards</b>
Inductive proximity NAMUR sensor, model NCN4-V3-N0, NCB2-V3-N0, NJ2-V3-N	IECEX PTB 11.0021X	IEC 60079-0, Ed. 7 IEC 60079-11, Ed. 6
Inductive proximity NAMUR sensor, model BI2-Q10S-Y1X	IECEX KEM 06.0036X	IEC 60079-0, Ed. 7 IEC 60079-11, Ed. 6