

[1]

EU-TYPE EXAMINATION CERTIFICATE



[2]

**Equipment or Protective System intended for use
in Potentially Explosive Atmospheres
Directive 2014/34/EU**

[3]

EU-Type Examination Certificate Number: **UL 22 ATEX 2839X Rev. 0**

[4]

Product: **Limit switch boxes, SP****_***** and SIP****_***** series**

[5]

Manufacturer: **Rotork Instruments Italy srl**

[6]

Address: **Via Portico 17, Orio al Serio (BG) 24050 Italy**

[7]

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8]

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **DK/ULD/ExTR22.0026/00.**

[9]

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018

EN 60079-11:2012

[10]

If the sign "X" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11]

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

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The marking of the product shall include the following:

II 1 G **Ex ia IIC T6...T1 Ga**

II 2 D **Ex ia IIIC T85°C...T135°C Db**

Certification Manager

Thomas Wilson

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2023-01-31

Notified Body

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Schedule

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Description of Product

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.

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

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

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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

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

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 switches:

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--	-25°C to +65°C.	T6	T135°C

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Electrical Ratings:

Intrinsically safe specifications:

For series SIP/SP02, SIP/SP03, SIP/SP06, SIP/SP22, SIP/SPN3 and SIP/SPC4 provided with Electro-mechanical or magnetic reed switches, safety parameters are defined as follows:

- Ui: 30V dc
- Ii: 100 mA
- Pi: 750 mW
- Li: ~ 0 µH
- 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

For series SIP/SP__ input safety parameters comply with the ones of the certified devices installed inside the limit switch box as follows: IECEx KEM 06.0036X, Issue 6 (KEMA 02 ATEX 1090X, issue 08) – Type A.

- Ui: 20V dc
- Ii: 60 mA
- Pi: 200 mW
- Li: 150 µH (for EPL Ga) / 300 µH (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

Routine tests

N/A

[16]

Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

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Specific conditions of use:

- 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 Ci and Li of the connected apparatus exceeds 1% of the Co and Lo parameters (excluding the cable), then 50% of Co and Lo parameters are applicable and shall not be exceeded. The reduced capacitance shall not be greater than 1 µF 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 EN 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 Ui, Ii, Pi requirements of the switch and also have Lo, Co suitable for the combined Ci, Li of the two switches.

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Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information



The trademark will be used as the company identifier on the marking label.

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The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

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