CERTIFICATE

(1) EU-Type Examination

(2) **Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **DEKRA 18ATEX0079 X** Issue Number: **1**

(4) Product: **Switch Box Types LDNA- IS.. and LDN-IS..**

(5) Manufacturer: **EL-O-MATIC GmbH**

(6) Address: **Siemensring 112, 47877 Willich, Germany**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., Notified Body number 0344 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the 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 test report number 222915400 issue 1.

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

EN IEC 60079-0 : 2018 **EN 60079-11 : 2012**

except in respect of those requirements listed at item 18 of the Schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of 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 this certificate.

(12) The marking of the product shall include the following:

II 1 G Ex ia IIC T6 … T4 Ga
II 1 D Ex ia IIIC T_{200} T41 °C … T80 °C Da
or
II 2 G Ex ia IIC T6 … T4 Gb
II 2 D Ex ia IIIC T_{200} T41 °C … T80 °C Db

Date of certification: 21 April 2022

DEKRA Certification B.V.

R. Schuller
Certification Manager

PRODUCTS RvA C 001

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(13) # SCHEDULE

(14) **to EU-Type Examination Certificate DEKRA 18ATEX0079 X** Issue No. **1**

(15) **Description**

Switch Boxes types LDNA- IS.. and LDN-IS.. are assemblies of one or two switches and an enclosure. The Switch Boxes are used for electronic on/off control and on/off position feedback for pneumatic 90° rotation actuators.

The relation between the assembly type, enclosure type, switch type and equipment category are as per table 1.

Table 1				
Switch type	Enclosure type			
	LDNA		LDN	
	Assembly type and equipment category		Assembly type and equipment category	
SJ3,5-SN	LDNA-IS1	1 G or 1 D	LDN-IS1	1 G
SJ3,5-N	LDNA-IS2	1 G or 1 D	LDN-IS2	1 G
NJ2-11-N-G	LDNA-IS4	1 G or 1 D	LDN-IS4	1 G
PL2-F25-N4-K	LDNA-IS8	1 G or 1 D	LDN-IS8	1 G
PL3-F25-N4-K	LDNA-IS9	1 G or 1 D	LDN-IS9	1 G
SC3,5-G-N0	LDNA-IS10	1 G or 1 D	LDN-IS10	1 G

The minimum ambient temperature of the Switch Boxes is -20 °C.

The enclosure of Switch Boxes types LDNA- IS.. provides degree of protection of at least IP6X in accordance with EN 60079-0.

The electrical parameters of the switch boxes are determined by the type of switch as shown in Table 5. The equipment category and temperature data of the Switch Boxes are determined by the type of switch and the type of connection as shown in Tables 2, 3 and 4.

The maximum ambient temperature in relation to the switch type, the connection type and the temperature class for assembly type LDNA for category 1 G is listed in Table 2. For assembly type LDN, the values of the maximum ambient temperature in Table 2 shall be reduced by 10 °C.

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Table 2												
Switch type	Temperature class and maximum ambient temperature [°C] for category **1 G**											
	Connection type 1			Connection type 2			Connection type 3			Connection type 4		
	T4	T5	T6	T4	T5	T6	T4	T5	T6	T4	T5	T6
SJ3,5-SN	80	80	73	80	80	66	80	60	45	74	45	30
SJ3,5-N	80	80	73	80	80	66	80	60	45	74	45	30
NJ2-11-N-G	80	80	76	80	80	73	80	77	62	63	63	54
SC3,5-G-N0	80	80	73	80	80	66	80	60	45	74	45	30
	Connection type 1b			Connection type 2b			Connection type 3b			-		
PL2-F25-N4-K	80	55	45	80	55	45	80	55	45	-	-	-
PL3-F25-N4-K	80	55	45	80	55	45	80	55	45	-	-	-

The maximum ambient temperature in relation to the switch type, the connection type and the temperature class for assembly types LDNA for category 2 G is listed in Table 3. For assembly type LDN, the values of the maximum ambient temperature in Table 3 shall be reduced by 10 °C.

Table 3												
Switch type	Temperature class and maximum ambient temperature [°C] for category **2 G**											
	Connection type 1			Connection type 2			Connection type 3			Connection type 4		
	T4	T5	T6	T4	T5	T6	T4	T5	T6	T4	T5	T6
SJ3,5-SN	80	80	73	80	80	66	80	60	45	74	45	30
SJ3,5-N	80	80	73	80	80	66	80	60	45	74	45	30
NJ2-11-N-G	80	80	76	80	80	73	80	77	62	63	63	54
SC-3,5-G-N0	80	80	73	80	80	66	80	60	45	74	45	30
	Connection type 1b			Connection type 2b			Connection type 3b			-		
PL2-F25-N4-K	80	75	60	80	75	60	80	75	60	-	-	-
PL3-F25-N4-K	80	75	60	80	75	60	80	75	60	-	-	-

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The maximum surface temperature T in relation to the switch type, the connection type and the maximum ambient temperature for the assembly type LDNA for category 1 D or 2 D is listed in Table 4 and based on layer of dust thickness of maximum 200 mm.

Table 4

Switch type	Maximum temperatures for category **1 D** or **2 D**											
	Connection type 1			Connection type 2			Connection type 3			Connection type 4		
	Ambient temperature Ta [°C]											
	40	60	79	40	60	78	40	60	74	40	60	72
	Surface temperature T [°C]											
SJ3,5-SN	41	61	80	42	62	80	46	66	80	48	68	80
SJ3,5-N												
NJ2-11-N-G												
SC-3,5-G-N0												
	Connection type 1b			Connection type 2b			Connection type 3b			-		
PL2-F25-N4-K	41	61	80	42	62	80	46	66	80	-	-	-
PL3-F25-N4-K												

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Electrical data

Switch types as per Table 6:
In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to an intrinsically safe circuit with the maximum values, depending on the connection type, as per Table 5.

Table 5							
	Connection type						
	type 1	type 1b	type 2	type 2b	type 3	type 3b	type 4
U_i	16 V	15 V	16 V	15 V	16 V	15 V	16 V
I_i	25 mA		25 mA		52 mA		76 mA
P_i	34 mW		64 mW		169 mW		242 mW

The relation between the switch type and the electrical parameters C_i and L_i is as per Table 6.

Table 6		
Switch type	C_i (nF)	L_i (µH)
SJ3,5-SN	30	100
SJ3,5-N	50	250
NJ2-11-N-G	30	50
SC3,5-G-N0	150	150
PL2-F25-N4-K	100	100
PL3-F25-N4-K	100	100

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

When used in a potentially explosive atmosphere, requiring the use of apparatus of equipment category 1 D or 2 D, cable entry devices shall be used that are suitable for the application, with a degree of protection of at least IP6X according to EN IEC 60079-0 and correctly installed.

Unused apertures shall be closed with suitable blanking elements.

To avoid voltage and current addition, the separation and wiring of the intrinsically safe circuits shall be in accordance with EN 60079-14.

(16) **Report Number**

No. 222915400 issue 1.

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(17) **Specific conditions of use**

For ambient temperature range see (15).

Gas application:

- Electrostatic charges of the labels shall be avoided.
- Because the enclosure of the Switch Box type LDNA-IS.. is painted, electrostatic charges on the coated parts shall be avoided.
- Because the enclosure of the Switch Box type LDNA-IS.. is made of aluminium, if it is mounted in an area where the use of category 1 G apparatus is required, it must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

Dust application:

- Electrostatic charges of the labels due to propagating brush discharges shall be avoided.
- Because the enclosure of the Switch Box type LDNA-IS.. is painted, electrostatic charges on the coated parts due to propagating brush discharges shall be avoided.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. 222915400 issue 1.

(20) **Certificate history**

Issue 0	-	222915400	initial certificate
Issue 1	-	225596000	evaluation per EN IEC 60079-0 : 2018 minimum ambient temperature changed from -25 °C to -20 °C