IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx DEK 11.0056X

Issue No: 1

Certificate history:
Issue No. 1 (2017-04-26)
Issue No. 0 (2011-07-26)

Status: **Current**

Date of Issue: **2017-04-26**

Applicant: **Dwyer Instruments, Inc.**
102 Indiana Highway 212
Michigan City, IN 46360
United States of America

Equipment: **Position Indicating Switch, Models Mark 1, Mark 3 and Mark 4.**

Optional accessory:

Type of Protection: **Ex db, Ex ib**

Marking:

Ex db IIC T6 Gb
Ex db IIB T6 Gb (Option SV1, SV2 only)
Ex db ib IIC T4 Gb (WirelessHART only)

Approved for issue on behalf of the IECEx Certification Body: R. Schuller

Position: Certification Manager

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

DEKRA Certification B.V.
Meander 1051,
6825 MJ Arnhem
The Netherlands

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Manufacturer: **Dwyer Instruments, Inc.**
102 Indiana Highway 212
Michigan City
IN 46360
United States of America

Additional Manufacturing location(s):

Proximity Controls, A Division of Dwyer Instruments, Inc.
1431 State Highway 210 East
Fergus Falls
MN 56537-9031
United States of America

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 apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical 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:

NL/DEK/ExTR11.0061/01

Quality Assessment Report:

CA/CSA/QAR09.0006/08

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Position Indicating Switch, Models Mark 1, Mark 3 and Mark 4 provide an indication of the position of a rotating shaft. The enclosure can be provided with switches, potentiometers or transmitters.

For details on the nomenclature, thermal data and electrical data see Annex 1 to this certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

The flame path dimensions differ from the IEC 60079-1 requirements. Repairs to be conducted by Dwyer Instruments Inc.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The following changes were assessed:
1. Update standard editions to IEC 60079-0:2011, Ed. 6 and IEC 60079-1:2014, Ed. 7
2. Addition of WirelessHART option for Mark 1 and Mark 4 models, assessed in accordance with IEC 60079-11 : 2011, Ed. 6.
3. Removal of T5 temperature code option.
4. Addition of nomenclature table with all applicable options.
5. Update information and markings for solenoid valve options (Option SV1, SV2).

Annex:

381472400.Annex 1.pdf

Annex 1 to IECEx Report NL/DEK/ExTR11.0061/01
Annex 1 to Certificate of Conformity IECEx DEK 11.0056X, issue 1
Annex 1 to EU-Type Examination Certificate KEMA 03ATEX2391 X, issue 4

Description

The Position Indicating Switch, Models Mark 1, Mark 3 and Mark 4 provide an indication of the position of a rotating shaft. The enclosure can be provided with switches, potentiometers or transmitters.

The degree of protection is IP66/IP68W according to IEC 60529 except for the WirelessHART (Output Type 91) and Solenoid Valve (Option SV1, SV2) options, which are IP66 only.

Type designation

1	**2**	**V**	**D**	**0**	**-**	**J1 IE …**
I	II	III	IV	V		VI …

Designation	Explanation	Value	Explanation
I	Construction	1	Mark 1, Magnetic Coupling
		4	Mark 4, Thru-Shaft
II	Output Type	1	1 Switch
		2	2 Switches
		3	1 kΩ Potentiometer 1/2%. Available with switches.*
		31	1 kΩ Potentiometer 1/4%. Available with switches.*
		32	2 kΩ Potentiometer. Available with switches.*
		35	5 kΩ Potentiometer. Available with switches.*
		310	10 kΩ Potentiometer. Available with switches.*
		320	20 kΩ Potentiometer. Available with switches.*
		4	4 Switches
		5	Transmitter 1 kΩ Potentiometer 1/2%. 4 to 20 mA. Available with switches.*
		51	Transmitter 1 kΩ Potentiometer 1/4%. Available with switches.*
		52	Transmitter 2 kΩ Potentiometer. Available with switches.*
		7	AS-interface and 1 Switch. Available with Switch Types B, I, R, W.
		8	AS-interface and 2 Switches. Available with Switch Types B, I, R, W.
		9	Transmitter with HART communication. Available with switches.*
		91	Transmitter with WirelessHART communication. Not available with switches.
III	Switch Type & Rating	A	SPDT, rated 15 A, 125/250/480 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc
		B	Inductive sensor, 10 to 30 Vdc, 0.1 A
		C	SPDT, rated 15.1 A, 125/250/277 Vac
		D	DPDT, rated 10 A, 125/250 Vac; 0.3 A, 125 Vdc; 0.15 A, 250 Vdc
		G	SPDT, rated 1 A, 125 Vac
		H	SPDT, rated 1 A, 125 Vac
		I	NAMUR inductive sensor, 15 mA max, 5-25 Vdc
		M	SPDT, rated 10 A, 125 Vac/Vdc
		O	No switches
		R	SPDT, rated 2 A, 125 Vac; 2 A, 24 Vdc
		S	SPDT, rated 4 A, 125/250 Vac
		T	SPDT, rated 5 A, 125/250/480 Vac
		V	SPDT, rated 10 A, 125/250 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc
		W	SPDT, rated 0.1 A, 125 Vac
IV	Driving Method	Custom	Single alpha numeric character – not critical to protection
V	Enclosure	Custom	Up to two numeric characters designation aluminum, stainless steel and/or color

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Type designation (continued)

Designation	Explanation	Value	Explanation
VI …	Options	C1	Long Dwell Cam
		C2	Double Cam
		FKM	FKM Seals
		J1	One additional conduit entry
		J2	Two additional conduit entries
		SV1	One Ex d certified solenoid valve (must be used with J1 option)**
		SV2	Two Ex d certified solenoid valves (must be used with J2 option)**
		MT	Metric conduit entries
		B	Any output except 91: KEMA 03ATEX2391 X, II 2 G Ex db IIC T6 Gb
		B	Output Type 91: KEMA 03ATEX 2391 X, II 2 G Ex db ib IIC T4 Gb
		IE	Any output except 91: IECEx DEK 11.0056X, Ex db IIC T6 Gb
		IE	Output Type 91: IECEx DEK 11.0056X, Ex db ib IIC T4 Gb
		LB	Output Type 91 together with B suffix: Battery not included
		LB	Output Type 91 together with IE suffix: Battery not included
		PP	Ex d certified blanking elements for J1 or J2 entries option
		SS	Stainless steel Ex d certified blanking elements for J1 or J2 entries option
		PT	Paper Tag (end user specified information)
		STR	Stainless Steel Tag riveted (end user specified information)
		STW	Stainless Steel Tag wired (end user specified information)
*Note:	2 Switches provided when used with switch types B, C, I, R, V or W 4 Switches provided when used with switch type S		
**Note:	When option is selected, Mark Position Indicating Switch is rated for Group IIB atmospheres		

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Type designation (continued)

3	**2**	**V**	**D**	**0**	**-**	**J1 IE …**
I	II	III	IV	V		VI …

Designation	Explanation	Value	Explanation
I	Construction	3	Mark 3, Multi-Turn
II	Output Type	2	2 Switches
		3	1 kΩ Potentiometer 1/2%. Available with switches.*
		31	1 kΩ Potentiometer 1/4%. Available with switches.*
		32	2 kΩ Potentiometer. Available with switches.*
		35	5 kΩ Potentiometer. Available with switches.*
		310	10 kΩ Potentiometer. Available with switches.*
		320	20 kΩ Potentiometer. Available with switches.*
		4	4 Switches
		5	Transmitter 1 kΩ Potentiometer 1/2%. 4 to 20 mA. Available with switches.*
		51	Transmitter 1 kΩ Potentiometer 1/4%. Available with switches.*
		52	Transmitter 2 kΩ Potentiometer. Available with switches.*
III	Switch Type & Rating	A	SPDT, rated 15 A, 125/250/480 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc
		G	SPDT, rated 1 A, 125 Vac
		M	SPDT, rated 10 A, 125 Vac/Vdc
		O	No switches
		T	SPDT, rated 5 A, 125/250/480 Vac
		V	SPDT, rated 10 A, 125/250 Vac; ½ A, 125 Vdc; ¼ A, 250 Vdc
		W	SPDT, rated 0.1 A, 125 Vac
IV	Driving Method	Custom	Single alpha numeric character – not critical to protection
V	Enclosure	Custom	Up to two numeric characters designation aluminum, stainless steel and/or color
VI …	Options	FKM	FKM Seals
		J1	One additional conduit entry
		J2	Two additional conduit entries
		MT	Metric conduit entries
		B	KEMA 03ATEX2391 X, II 2 G Ex db IIC T6 Gb
		IE	IECEx DEK 11.0056X, Ex db IIC T6 Gb
		PP	Ex d certified blanking elements for J1 or J2 entries option
		PT	Paper Tag (end user specified information)
		SS	Stainless steel Ex d certified blanking elements for J1 or J2 entries option
		STR	Stainless Steel Tag riveted (end user specified information)
		STW	Stainless Steel Tag wired (end user specified information)
*Note: 2 Switches provided when used with switch types A, G, M or T			

Thermal data

Ambient temperature range: -50 °C to +63 °C for T6
-40 °C to +65 °C for T4 (WirelessHART only)
-20 °C to +50 °C for T6 (Option SV1, SV2 only)

Process temperature range: -20 °C to +49 °C (Option SV1, SV2 only)

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Electrical data

When equipped with:

Switches:	max. 15,1 A. See "Switch Type and Rating" section of nomenclature	
Potentiometer:	max. 1,5 W	
Transmitter:	HART:	max. 30 Vdc, 4 – 20 mA
Solenoid valve:	max. 1.3 W, 12 / 24 Vdc	

or

Transmitter:	WirelessHART:	U_m = 30 V, max. 30 Vdc, 50 mA

With external antenna:
In type of protection intrinsically safe, only for connection to the associated antenna.