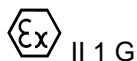


**UK Type Examination Certificate CML 21UKEX2975X Issue 0****United Kingdom Conformity Assessment**

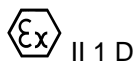
- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Cuboidal inductive proximity sensors of types FJ... NJ..., NB... and NC**
- 3 Manufacturer **Pepperl+Fuchs SE**
- 4 Address **Lilienthalstrasse 200  
68307 Mannheim  
Germany**
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.  
  
The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:  
  
EN IEC 60079-0:2018      EN 60079-11:2012
- 10 The equipment shall be marked with the following:



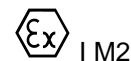
II 1 G

Ex ia IIC T6...T1 Ga

or

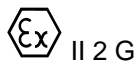


II 1 D

Ex ia IIIC T<sub>200</sub> 135°C Da

I M2

Ex ia I Mb



II 2 G

Ex ia IIC T6...T1 Gb





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## 11 Description

The cuboidal inductive proximity sensors of types FJ... NJ..., NB... and NC are used to convert mechanical displacements into an electrical signal.

The sensors are supplied from an intrinsically safe circuit and they are suitable to be used in hazardous areas of group I, group II and group III.

The area classification of the inductive sensor depends on the level of protection of the intrinsically safe circuits the sensors are connected to.

### **Electrical data**

Evaluation and supply circuit

Only for connection to a certified intrinsically safe circuit

resp. Ex ia IIC/IIB for EPL Ga  
resp. Ex ia IIIC for EPL Da  
resp. Ex ia IIC/IIB or Ex ib IIC/IIB for EPL Gb  
resp. Ex ia IIIC or Ex ib IIIC for EPL Db

Maximum values:

**Table 1**

	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>	<b>Type 4</b>
<b>U<sub>i</sub></b>	<b>16 V</b>	<b>16 V</b>	<b>16 V</b>	<b>16 V</b>
<b>I<sub>i</sub></b>	<b>25 mA</b>	<b>25 mA</b>	<b>52 mA</b>	<b>76 mA</b>
<b>P<sub>i</sub></b>	<b>34 mW</b>	<b>64 mW</b>	<b>169 mW</b>	<b>242 mW</b>

For relationship between type of the connected circuit, maximum permissible ambient temperature for group I (EPL Mb), group II (EPL Ga/Gb) resp. group III (EPL Da) equipment and temperature class as well as the effective internal reactances for the individual types of cuboidal inductive proximity sensors, reference is made to the following tables:



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Table 2 Application as Group I equipment, EPL Mb:

type	Ci [nF]	Li [μH]	type 1	type 2	type 3	type 4
			Ui = 16V Ii = 25 mA Pi = 34 mW	Ui = 16V Ii = 25 mA Pi = 64 mW	Ui = 16V Ii = 52 mA Pi = 169 mW	Ui = 16V Ii = 76 mA Pi = 242 mW
maximum permissible ambient temperature in °C						
			T	T	T	T
FJ6-110-N...	150	110	100	100	81	63
FJ7-N...	65	220	100	100	81	63
NCB2-F1-N0...	90	100	100	100	89	74
NCB2-V3-N0...	100	100	100	100	89	74
NCN2-F56-N1...	100	100	100	100	87	not permitted
NBN3-F69-N0...	100	100	100	100	71	47
NBN4-V3-N0...	100	100	100	100	89	74
NBN4-V3-N0-Y189289	120	100	100	100	71	47
NBB15-U...K-N0...	110	200	100	100	89	74
NBB20-U...K-N0...	110	200	100	100	89	74
NBN30-U...K-N0...	105	300	100	100	89	74
NBN40-U...K-N0...	105	300	100	100	89	74
NBN40-U...LK-N0...	165	130	100	100	89	74
NCN4-V3-N0...	100	100	100	100	89	74
NCB15+U...+N0...	110	160	100	100	89	74
NCN15-M...-N0...	100	100	100	100	89	74
NCB20-L2-N0...	110	200	100	100	89	74
NCB40-FP-N0...	220	360	100	100	89	74
NCN20+U...+N0...	110	160	100	100	89	74
NCN30+U...+N0...	110	160	100	100	89	74
NCN40+U...+N0...	120	130	100	100	89	74
NCN40-L2-N0...	105	300	100	100	89	74
NCN50-FP-N0...	220	360	100	100	89	74
NJ0,8-F-N...	30	50	100	100	78	57
NJ1,5-F-N...	30	50	100	100	78	57
NJ2,5-F-N...	40	50	100	100	89	74
NJ2-F1-N...	30	50	100	100	89	74
NJ2-V3-N...	40	50	100	100	89	74
NJ3-V3-N...	40	50	100	100	89	74
NJ4-F-N...	150	100	100	100	89	74
NJ6-F-N...	70	100	100	100	89	74
NJ10-F-N...	85	100	100	100	89	74
NJ15+U...+N...	140	130	100	100	89	74
NJ15-M1...-N...	140	100	100	100	89	74
NJ20+U...+N...	150	130	100	100	89	74
NJ30+U...+N...	160	130	100	100	89	74
NJ30P+U...+1N...	150	170	100	100	89	74
NJ40+...+N...	180	130	100	100	89	74
NJ50-FP-N...	320	360	100	100	89	74



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Table 3 Application as Group II equipment, EPL Ga/Gb:

				type 1 Ui = 16 V Ii = 25 mA Pi = 34mW			type 2 Ui = 16 V Ii = 25 mA Pi = 64mW			type 3 Ui = 16 V Ii = 52mA Pi = 169 mW			type 4 Ui = 16 V Ii = 76mA Pi = 242 mW		
				maximum permissible ambient temperature in °C for application in temperature class											
Type	EPL	Ci / nF	Li / µH	T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1
FJ6-110-N...	Ga/Gb	150	110	73	88	100	73	88	100	62	77	81	54	63	63
FJ7-N...	Ga/Gb	65	220	73	88	100	73	88	100	62	77	81	54	63	63
NCB2-F1-NO...	Ga/Gb	90	100	73	88	100	66	81	100	45	60	89	30	45	74
NCB2-V3-NO...	Ga/Gb	100	100	73	88	100	66	81	100	45	60	89	30	45	74
NCN2-F56-N1...	Ga/Gb	100	100	75	90	100	70	85	100	55	70	87	not permitted		
NBN3-F69-NO...	Ga/Gb	100	100	72	87	100	65	80	100	41	56	63	24	37	37
NBN4-V3-NO...	Ga/Gb	100	100	73	88	100	66	81	100	45	60	89	30	45	74
NBN4-V3-NO-Y189289	Ga/Gb	120	100	72	87	100	65	80	100	41	56	63	24	37	37
NBB15-U...K-NO...	Ga/Gb	110	200	73	88	100	66	81	100	45	60	89	30	45	74
NBB20-U...K-NO...	Ga/Gb	110	200	73	88	100	66	81	100	45	60	89	30	45	74
NBN30-U...K-NO...	Ga/Gb	105	300	73	88	100	66	81	100	45	60	89	30	45	74
NBN40-U...K-NO...	Ga/Gb	105	300	73	88	100	66	81	100	45	60	89	30	45	74
NBN40-U...LK-NO...	Ga/Gb	165	130	73	88	100	66	81	100	45	60	89	30	45	74
NCN4-V3-NO...	Ga/Gb	100	100	73	88	100	66	81	100	45	60	89	30	45	74
NCB15+U...+NO...	Ga/Gb	110	160	73	88	100	66	81	100	45	60	89	30	45	74
NCN15-M...-NO...	Ga/Gb	100	100	73	88	100	66	81	100	45	60	89	30	45	74
NCB20-L2-NO...	Ga/Gb	110	200	73	88	100	66	81	100	45	60	89	30	45	74
NCB40-FP-NO...	Ga/Gb	220	360	73	88	100	66	81	100	45	60	89	30	45	74
NCN20+U...+NO...	Ga/Gb	110	160	73	88	100	66	81	100	45	60	89	30	45	74
NCN30+U...+NO...	Ga/Gb	110	160	73	88	100	66	81	100	45	60	89	30	45	74
NCN40+U...+NO...	Ga/Gb	120	130	73	88	100	66	81	100	45	60	89	30	45	74
NCN40-L2-NO...	Ga/Gb	105	300	73	88	100	66	81	100	45	60	89	30	45	74
NCN50-FP-NO...	Ga/Gb	220	360	73	88	100	66	81	100	45	60	89	30	45	74
NJ0,8-F-N...	Ga/Gb	30	50	73	88	100	67	82	100	45	60	78	30	45	57
NJ1,5-F-N...	Ga/Gb	30	50	73	88	100	67	82	100	45	60	78	30	45	57
NJ2,5-F-N...	Ga/Gb	40	50	73	88	100	66	81	100	45	60	89	30	45	74
NJ2-F1-N...	Ga/Gb	30	50	73	88	100	66	81	100	45	60	89	30	45	74
NJ2-V3-N...	Ga/Gb	40	50	73	88	100	66	81	100	45	60	89	30	45	74
NJ3-V3-N...	Ga/Gb	40	50	73	88	100	66	81	100	45	60	89	30	45	74
NJ4-F-N...	Ga/Gb	150	100	73	88	100	66	81	100	45	60	89	30	45	74
NJ6-F-N...	Ga/Gb	70	100	73	88	100	66	81	100	45	60	89	30	45	74
NJ10-F-N...	Ga/Gb	85	100	73	88	100	66	81	100	45	60	89	30	45	74
NJ15+U...+N...	Ga/Gb	140	130	73	88	100	66	81	100	45	60	89	30	45	74
NJ15-M1...-N...	Ga/Gb	140	100	73	88	100	66	81	100	45	60	89	30	45	74
NJ20+U...+N...	Ga/Gb	150	130	73	88	100	66	81	100	45	60	89	30	45	74
NJ30+U...+N...	Ga/Gb	160	130	73	88	100	66	81	100	45	60	89	30	45	74
NJ30P+U...+1N...	Ga/Gb	150	170	73	88	100	66	81	100	45	60	89	30	45	74
NJ40+...+N...	Ga/Gb	180	130	73	88	100	66	81	100	45	60	89	30	45	74
NJ50-FP-N...	Ga/Gb	320	360	73	88	100	66	81	100	45	60	89	30	45	74



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Table 4: Application as Group III equipment, EPL Da:

type	Ci [nF]	Li [μH]	type 1	type 2	type 3	type 4
			Ui = 16V li = 25 mA Pi = 34 mW	Ui = 16V li = 25 mA Pi = 64 mW	Ui = 16V li = 52 mA Pi = 169 mW	Ui = 16V li = 76 mA Pi = 242 mW
maximum permissible ambient temperature in °C						
			T	T	T	T
FJ6-110-N...	150	110	100	100	63	not permitted
FJ7-N...	65	220	100	100	63	not permitted
NCB2-F1-N0...	90	100	100	100	71	not permitted
NCB2-V3-N0...	100	100	100	100	71	not permitted
NCN2-F56-N1...	100	100	100	100	69	not permitted
NBN3-F69-N0...	100	100	100	98	52	not permitted
NBN4-V3-N0...	100	100	100	100	71	not permitted
NBN4-V3-N0-Y189289	120	100	100	98	52	not permitted
NBB15-U...K-N0...	110	200	100	100	71	not permitted
NBB20-U...K-N0...	110	200	100	100	71	not permitted
NBN30-U...K-N0...	105	300	100	100	71	not permitted
NBN40-U...K-N0...	105	300	100	100	71	not permitted
NBN40-U...LK-N0...	165	130	100	100	71	not permitted
NCN4-V3-N0...	100	100	100	100	71	not permitted
NCB15+U...+N0...	110	160	100	100	71	not permitted
NCN15-M...-N0...	100	100	100	100	71	not permitted
NCB20-L2-N0...	110	200	100	100	71	not permitted
NCB40-FP-N0...	220	360	100	100	71	not permitted
NCN20+U...+N0...	110	160	100	100	71	not permitted
NCN30+U...+N0...	110	160	100	100	71	not permitted
NCN40+U...+N0...	120	130	100	100	71	not permitted
NCN40-L2-N0...	105	300	100	100	71	not permitted
NCN50-FP-N0...	220	360	100	100	71	not permitted
NJ0,8-F-N...	30	50	100	100	59	not permitted
NJ1,5-F-N...	30	50	100	100	59	not permitted
NJ2,5-F-N...	40	50	100	100	71	not permitted
NJ2-F1-N...	30	50	100	100	71	not permitted
NJ2-V3-N...	40	50	100	100	71	not permitted
NJ3-V3-N...	40	50	100	100	71	not permitted
NJ4-F-N...	150	100	100	100	71	not permitted
NJ6-F-N...	70	100	100	100	71	not permitted
NJ10-F-N...	85	100	100	100	71	not permitted
NJ15+U...+N...	140	130	100	100	71	not permitted
NJ15-M1...-N...	140	100	100	100	71	not permitted
NJ20+U...+N...	150	130	100	100	71	not permitted
NJ30+U...+N...	160	130	100	100	71	not permitted
NJ30P+U...+1N...	150	170	100	100	71	not permitted
NJ40+...+N...	180	130	100	100	71	not permitted
NJ50-FP-N...	320	360	100	100	71	not permitted



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The dots in the labelling represent free definable parameters. This free definable parameters can be omitted or replaced by letters or digits.

When assigning the actual sensor to the table use the model description which describes the sensor best. Letters and digits describe the different types according to the model description key.

The sum of all capacitances and inductances, including tolerance and a 10 m cable, result to the given values for Ci and Li shown above.

## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	15 Sept 2021	R14112BC/00	Prime Certificate issued.

Note: Drawings that describe the equipment are listed or referred to in the Annex.

## 13 Conditions of Manufacture

None.

## 14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment

- For relationship between type of the connected circuit, maximum permissible ambient temperature and temperature class as well as the effective internal reactances for the individual types of cuboidal inductive proximity sensors, reference is made to tables 2 to 4 given in this certificate and in the operating instructions manual.
- Appropriate measures need to be taken to protect the cuboidal inductive proximity sensors against mechanical damage due to impact if they are used within an ambient temperature range between – 60 °C and – 20 °C. An ambient temperature below – 60°C is not permissible.
- The connection facilities of the cuboidal inductive proximity sensors shall be installed as such that a minimum degree of protection of IP20 according IEC 60529 is complied with.
- Inadmissible electrostatic charge of the plastic enclosures shall be avoided for the application of the following types of cuboidal inductive proximity sensors according to the explosion groups and EPL specified in the following table. When the respective types of cuboidal inductive proximity sensors are applied in potentially explosive gas atmospheres a corresponding warning note shall be affixed on the cuboidal inductive proximity sensors or near the cuboidal inductive proximity sensors respectively. When these are applied in potentially explosive gas or dust atmospheres the corresponding notes given in the operating instructions manual shall be considered.
- Cuboidal inductive proximity sensors which are marked (IIC or IIB or IIA or III) in column “Group...” need to be protected against dangerous electrostatic charges, see table 5 below.



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Table 5

Type	Group I	Group II (EPL Ga)	Group II (EPL Gb)	Group III
FJ6-110-N...	-	IIB/IIC	IIC	III
FJ7-N...	-	IIC	-	III
NCB2-F1-N0...	-	IIC	-	-
NCB2-V3-N0...	-	IIC	-	-
NCN2-F56-N1...	-	IIC	-	-
NBN3-F69-N0...	-	IIC	-	-
NBN4-V3-N0...	-	IIC	-	-
NBN4-V3-N0-Y189289	-	IIC	-	-
NBB15-U...K-N0...	-	IIC	IIC	III
NBB20-U...K-N0...	-	IIC	IIC	III
NBN30-U...K-N0...	-	IIC	IIC	III
NBN40-U...K-N0...	-	IIC	IIC	III
NBN40-U...LK-N0...	-	IIA/IIB/IIC	IIC	III
NCN4-V3-N0...	-	IIC	-	-
NCB15+U...+N0...	-	IIC	IIC	III
NCN15-M...-N0...	-	IIC	-	III
NCB20-L2-N0...	-	IIC	-	III
NCB40-FP-N0...	-	IIA/IIB/IIC	IIC	III
NCN20+U...+N0...	-	IIC	IIC	III
NCN30+U...+N0...	-	IIC	IIC	III
NCN40+U...+N0...	-	IIB/IIC	IIC	III
NCN40-L2-N0...	-	IIC	-	III
NCN50-FP-N0...	-	IIA/IIB/IIC	IIC	III
NJ0,8-F-N...	-	-	-	-
NJ1,5-F-N...	-	-	-	-
NJ2,5-F-N...	-	IIC	-	-
NJ2-F1-N...	-	IIC	-	III
NJ2-V3-N...	-	IIC	-	-
NJ3-V3-N...	-	IIC	-	-
NJ4-F-N...	-	IIC	IIC	-
NJ6-F-N...	-	IIC	-	III
NJ10-F-N...	-	IIC	-	III
NJ15+U...+N...	-	IIC	IIC	III
NJ15-M1...-N...	-	IIC	-	III
NJ20+U...+N...	-	IIC	IIC	III
NJ30+U...+N...	-	IIC	IIC	III
NJ30P+U...+1N...	-	IIB/IIC	IIC	III
NJ40+...+N...	-	IIB/IIC	IIC	III
NJ50-FP-N...	-	IIA/IIB/IIC	IIC	III



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- For the application of the following cuboidal inductive proximity sensors in hazardous areas of group I, II and III appropriate measures need to be taken to protect the free resin surface against mechanical damage if the free resin surface is accessible after installation:  
FJ6-110-N...  
FJ7-N...  
NBN3-F69-N0...  
NBN4-V3-N0...  
NBN4-V3-N0-Y189289  
NCB2-V3-N0...  
NCN2-F56-N1...  
NCN4-V3-N0...  
NJ0,8-F-N...  
NJ1,5-F-N...  
NJ2-V3-N...  
NJ3-V3-N...
- Inadmissible electrostatic charge of parts of the metal housing have to be avoided for the following types of cuboidal inductive sensors. Dangerous electrostatic charge of parts of the metal housing can be avoided by grounding of these parts whereas very small parts of the metal housing (e.g. screws) do not need to be grounded:

FJ6-110-N...	NCB15+U4+N0...	NJ15+U3+N...
FJ7-N...	NCB20-L2-N0...	NJ15+U4+N...
NBB15-U3K-N0...	NCB40-FP-N0-P3...	NJ15-M1-N-V...
NBB15-U4K-N0...	NCB40-FP-N0-P4...	NJ20+U3+N...
NBB20-U3K-N0...	NCN20+U3+N0...	NJ20+U4+N...
NBB20-U4K-N0...	NCN20+U4+N0...	NJ30+U3+N...
NBN30-U3K-N0...	NCN30+U3+N0...	NJ30+U4+N...
NBN30-U4K-N0...	NCN30+U4+N0...	NJ30P+U3+1N...
NBN40-U3K-N0...	NCN40-L2-N0...	NJ30P+U4+1N...
NBN40-U3LK-N0...	NCN40+U3+N0...	NJ40+U3+N...
NBN40-U4K-N0...	NCN40+U4+N0...	NJ40+U4+N...
NBN40-U4LK-N0...	NCN50-FP-N0-P3...	NJ50-FP-N-P3...
NCB15+U3+N0...	NCN50-FP-N0-P4...	NJ50-FP-N-P4...





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- The maximum permissible mass fractions of metallic materials are exceeded for the following types of cubical inductive sensors when applied as EPL Ga-equipment. In hazardous areas requiring the application of EPL Ga-equipment it shall be ensured by appropriate measures that an ignition hazard due to impact or friction effects cannot occur.

NBB15-U3K-N0...	NCB40-FP-N0-P3...	NJ20+U3+N...
NBB15-U4K-N0...	NCB40-FP-N0-P4...	NJ20+U4+N...
NBB20-U3K-N0...	NCN20+U3+N0...	NJ30+U3+N...
NBB20-U4K-N0...	NCN20+U4+N0...	NJ30+U4+N...
NBN30-U3K-N0...	NCN30+U3+N0...	NJ30P+U3+1N...
NBN30-U4K-N0...	NCN30+U4+N0...	NJ30P+U4+1N...
NBN40-U3K-N0...	NCN40+U3+N0...	NJ40+U3+N...
NBN40-U3LK-N0...	NCN40+U4+N0...	NJ40+U4+N...
NBN40-U4K-N0...	NCN50-FP-N0-P3...	NJ50-FP-N-P3...
NBN40-U4LK-N0...	NCN50-FP-N0-P4...	NJ50-FP-N-P4...
NCB15+U3+N0...	NJ15+U3+N...	
NCB15+U4+N0...	NJ15+U4+N...	

## Certificate Annex

**Certificate Number** CML 21UKEX2975X  
**Equipment** Cuboidal inductive proximity sensors of types FJ... NJ..., NB... and NC  
**Manufacturer** Pepperl+Fuchs SE



The following documents describe the equipment defined in this certificate:

### Issue 0

For drawings describing the equipment, refer to attached certificate IECEx PTB 11.0021X. In addition to the drawings listed on IECEx PTB 11.0021X, the following drawings include the additional marking required for this UK Type Examination certification:

Drawing No	Sheets	Rev	Approved date	Title
16-1555CM-10	1 to 2	0	15 Sept 2021	Additional Marking Requirements for UKCA