



(1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - Directive 94/9/EC

(3) EC-type-examination Certificate Number:

PTB 00 ATEX 2032 X



(4) Equipment: Cuboidal inductive sensors, types FJ..., NJ... and NC...

(5) Manufacturer: Pepperl + Fuchs GmbH

(6) Address: D-68307 Mannheim

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 00-29269.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014:1997 **EN 50020:1994**

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

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

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

II 2 G EEx ia IIC T8

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, June 30, 2000

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 2032 X**

(15) Description of equipment

The cuboidal inductive sensors, types FJ..., NJ... and NC... are used to convert displacements into electrical signals.

The cuboidal inductive sensors may be operated with intrinsically safe circuits certified for categories and explosion groups [EEx ia] IIC or IIB resp. [EEx ib] IIC or IIB. The category as well as the explosion group of the intrinsically safe cuboidal inductive sensors depends on the connected supplying intrinsically safe circuit.

Electrical data

Evaluation and supply circuit..... type of protection Intrinsic Safety EEx ia IIC/IIB resp. EEx Ib IIC/MB
only for connection to certified intrinsically safe circuits
maximum values:

type 1	type 2	type 3	type 4
$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$
$I_i = 25 \text{ mA}$	$I_i = 25 \text{ mA}$	$I_i = 52 \text{ mA}$	$I_i = 76 \text{ mA}$
$P_i = 34 \text{ mW}$	$P_i = 64 \text{ mW}$	$P_i = 169 \text{ mW}$	$P_i = 242 \text{ mW}$

The assignment of the type of the connected circuit to the maximum permissible ambient temperature and the temperature class as well as the effective internal reactances for the individual types of cuboidal inductive sensors is shown in the following table:

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types	C _i [nF]	L _i [µH]	type 1			type 2			type 3			type 4		
			maximum permissible ambient temperature in °C for application in temperature class											
			T8	T5	T4-T1	T8	T5	T4-T1	T8	T5	T4-T1	T8	T5	T4-T1
FJ 6-110-N...	150	110	73	88	100	73	88	100	62	77	81	54	63	63
FJ 7-N...	65	220	73	88	100	73	88	100	62	77	81	54	63	63
NCB2-F1-N0...	90	100	73	88	100	66	81	100	45	60	69	30	45	74
NCB2-V3-N0...	100	100	73	88	100	66	81	100	45	60	69	30	45	74
NCN4-V3-N0...	100	100	73	88	100	66	81	100	45	60	69	30	45	74
NCB15+U...+N0...	110	160	73	88	100	66	81	100	45	60	69	30	45	74
NCB40-FP-N0...	220	360	73	88	100	66	81	100	45	60	69	30	45	74
NCN15-M...-N0...	100	100	73	88	100	66	81	100	45	60	69	30	45	74
NCN20+U...+N0...	110	160	73	88	100	66	81	100	45	60	69	30	45	74
NCN30+U...+N0...	110	160	73	88	100	66	81	100	45	60	69	30	45	74
NCN40+U...+N0...	120	130	73	88	100	66	81	100	45	60	69	30	45	74
NCN50-FP-N0...	220	360	73	88	100	66	81	100	45	60	69	30	45	74
NJ 0,8-F-N...	30	50	73	88	100	67	82	100	45	60	78	30	45	57
NJ 1,5-F-N...	30	50	73	88	100	67	82	100	45	60	78	30	45	57
NJ 2,5-F-N...	40	50	73	88	100	66	81	100	45	60	69	30	45	74
NJ 2-F1-N...	30	50	73	88	100	66	81	100	45	60	69	30	45	74
NJ 2-V3-N...	40	50	73	88	100	66	81	100	45	60	69	30	45	74
NJ 4-F-N...	150	100	73	88	100	66	81	100	45	60	69	30	45	74
NJ 6-F-N...	70	100	73	88	100	66	81	100	45	60	69	30	45	74
NJ 10-F-N...	85	100	73	88	100	66	81	100	45	60	69	30	45	74
NJ 15+U.+N...	140	130	73	88	100	66	81	100	45	60	69	30	45	74
NJ 15-M1.-N...	140	100	73	88	100	66	81	100	45	60	69	30	45	74
NJ 20+U.+N...	150	130	73	88	100	66	81	100	45	60	69	30	45	74
NJ 30+U.+N...	160	130	73	88	100	66	81	100	45	60	69	30	45	74
NJ 30P+U.+1N...	150	170	73	88	100	66	81	100	45	60	69	30	45	74
NJ 40+...+N...	180	130	73	88	100	66	81	100	45	60	69	30	45	74
NJ 50-FP-N...	320	360	73	88	100	66	81	100	45	60	69	30	45	74

(16) Test report: PTB Ex 00-20269

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EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

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(17) Special conditions for safe use

1. For the application within a temperature range of -60 °C to -20 °C the cuboidal inductive sensors, types FJ..., NJ... and NC... must be protected against damage due to impact by mounting into an additional housing.
2. The connection facilities of the cuboidal inductive sensors, types FJ..., NJ... and NC... shall be installed as such that at least a degree of protection of IP20 according to IEC-publication 60529:1989 is met.
3. The assignment of the type of the connected circuit to the maximum permissible ambient temperature and the temperature class as well as the effective internal reactances for the individual types of cuboidal inductive sensors is shown in the table given under item (15) of this EC-type-examination certificate.
4. With the application in group IIC inadmissible electrostatic charge of the plastic housing has to be avoided for following types of cuboidal inductive sensors (warning label on the device):

NCB40-FP-N0...	NJ 30P+U...+1N...
NCN40+U...+N0...	NJ 40+U...+N...
NCN50-FP-N0...	NJ 50-FP-N...

5. Inadmissible electrostatic charge of parts of the metal housing has to be avoided for the following types of cuboidal inductive sensors. Dangerous electrostatic charges 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) don't need to be grounded:

FJ 8-110-N...	NCN30+U4+N0...	NJ 20+U4+N...
FJ 7-N...	NCN40+U3+N0...	NJ 30+U3+N...
NCB15+U3+N0...	NCN40+U4+N0...	NJ 30+U4+N...
NCB15+U4+N0...	NCN50-FP-N0-P3...	NJ 30P+U3+1N...
NCB40-FP-N0-P3...	NCN50-FP-N0-P4...	NJ 30P+U4+1N...
NCB40-FP-N0-P4...	NJ 15+U3+N...	NJ 40+U3+N...
NCN20+U3+N0...	NJ 15+U4+N...	NJ 40+U4+N...
NCN20+U4+N0...	NJ 15-M1-N-V	NJ 50-FP-N-P3...
NCN30+U3+N0...	NJ 20+U3+N...	NJ 50-FP-N-P4...

(18) Essential health and safety requirements

Met by the standards mentioned above

Zertifizierungsstelle Explosionsschutz

By order:

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