

### Inductive sensor

# NJ2-12GK-SN-10M

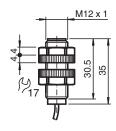
- 2 mm flush
- Usable up to SIL 3 acc. to IEC 61508
- ATEX approval Ex-i and Ex-nA/tc for zone 0-2 and zone 20-22
- Degree of protection IP68







### **Dimensions**



## **Technical Data**

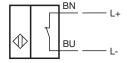
General specifications		
Switching function		Normally closed (NC)
Output type		NAMUR with safety function
Rated operating distance	S <sub>n</sub>	2 mm
Installation		flush
Assured operating distance	Sa	0 1.62 mm
Reduction factor r <sub>Al</sub>		0.4
Reduction factor r <sub>Cu</sub>		0.3
Reduction factor r <sub>304</sub>		0.85
Safety Integrity Level (SIL)		up to SIL3 acc. to IEC 61508 <b>Danger!</b> In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.  Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.
Output type		2-wire
Nominal ratings		
Nominal voltage	Uo	8.2 V
Switching frequency	f	0 2000 Hz

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Safety Integrity Level (SIL)         SIL 3           MTTFd         10660 a           Mission Time (Tw)         20 a           Diagnostic Coverage (DC)         0 %           Compliance with standards and directives           Standard conformity           NAMUR         EN 60947-5-6:2000 [EC 60947-5-6:1999]           Standards         EN 60947-5-2:2007 [EC 60947-5-2:2007]           EC 60947-5-2:2007 [EC 60947-5-2:2007]         EC 60947-5-2:2007 [EC 60947-5-2:2007]           EAC conformity         TA CU 012/2011           FM approval         TE CU 012/2011           Control drawing         116-0165           UL approval         CULus Listed, General Purpose           Ordinary Location         E501628           Control drawing         116-0454           CCC approval         CCC approval / marking not required for products rated ≤36 V           Ambient temperature         40 100 °C (-40 212 °F)           Mechanical specifications         Core cross-section           Core cross-section         0.34 mm²           Housing material         Crastin (PBT), black           Sensing face         Crastin (PBT), black           Degree of protection         [P68           Cable diameter         4.8 mm ± 0.2 mm	Technical Data	
Measuring plate detected         ≥ 3 mA           Functional safety related parameters         Functional safety related parameters           Safety Integrity Level (SIL)         SIL 3           MTTFa         10660 a           Mission Time (Tw)         20 a           Diagnostic Coverage (DC)         0%           Compliance with standards and directives         Standard conformity           NAMUR         EN 60947-5-6:2000 [EC 60947-5-6:1999]           Standards         EN 60947-5-2:2007 [EC 60947-5-2:2007]           EN 60947-5-2:2007 [EC 60947-5-2:2007]           EAC conformity         TR CU 012/2011           FM approval         UL approval           Control drawing         116-0165           UL approval         cULus Listed, General Purpose           Ordinary Location         E37056           Hazardous Location         E37056           Control drawing         116-0454           CCC approval         CCC approval / marking not required for products rated ≤36 V           Ambient temperature         40 100 °C (-40 212 °F)           Mechanical specifications         Control drawing           Connection type         cable silicone , 10 m           Conrection type         cable silicone , 10 m           Conspirate and temperaterial	Suitable for 2:1 technology	yes , with reverse polarity protection diode
Measuring plate detected	Current consumption	
Functional safety related parameters           Safety Integrity Level (SIL)         SIL 3           MTTF <sub>d</sub> 10660 a           Mission Time (T <sub>N</sub> )         20 a           Diagnostic Coverage (DC)         0 %           Compliance with standards and directives           Standard conformity           NAMUR         EN 60947-5-6:2000 IEC 60947-5-2:2007 EN 60947-5-2:2007 EN 60947-5-2:2007 IEC 60947-5-2:2007	Measuring plate not detected	≥ 3 mA
Safety Integrity Level (SIL)         SIL 3           MTTFd         10660 a           Mission Time (Tw)         20 a           Diagnostic Coverage (DC)         0 %           Compliance with standards and directives           Standard conformity           NAMUR         EN 60947-5-6:2000 [EC 60947-5-6:1999]           Standards         EN 60947-5-2:2007 [EC 60947-5-2:2007]           EC 60947-5-2:2007 [EC 60947-5-2:2007]         EC 60947-5-2:2007 [EC 60947-5-2:2007]           EAC conformity         TA CU 012/2011           FM approval         TE CU 012/2011           Control drawing         116-0165           UL approval         CULus Listed, General Purpose           Ordinary Location         E501628           Control drawing         116-0454           CCC approval         CCC approval / marking not required for products rated ≤36 V           Ambient temperature         40 100 °C (-40 212 °F)           Mechanical specifications         Core cross-section           Core cross-section         0.34 mm²           Housing material         Crastin (PBT), black           Sensing face         Crastin (PBT), black           Degree of protection         [P68           Cable diameter         4.8 mm ± 0.2 mm	Measuring plate detected	≤ 1 mA
MTFG Mission Time (TM) Mission Time (TM) Diagnostic Coverage (DC) Compliance with standards and directives  Standard conformity  NAMUR  EN 60947-5-6:2000 EC 60947-5-6:1999  Standards  EN 60947-5-2:2007 EN 60947-5-2:200 EN 60947-5-2:2007 EN 60947	Functional safety related parameters	
Mission Time (T <sub>M</sub> ) 20 a Diagnostic Coverage (DC) 0 %  Compilance with standards and directives  Standard conformity  NAMUR EN 60947-5-6:2000 IEC 60947-5-6:1999 Standards EN 60947-5-2/A1:2012 IEC 60947-5-2/A1:2012 IEC 60947-5-2/A1:2012 IEC 60947-5-2/A1:2012 IEC 60947-5-2/AND 1:2012  Approvals and certificates  EAC conformity TR CU 012/2011  FM approval Control drawing 116-0165 UL approval cULus Listed, General Purpose Ordinary Location E87056 Hazardous Location E501628 COCC approval (The-0454) CCC approv	Safety Integrity Level (SIL)	SIL 3
Diagnostic Coverage (DC)         0 %           Compliance with standards and directives           Standard conformity           NAMUR         EN 60947-5-6:2900 [EC 60947-5-6:1999]           Standards         EN 60947-5-2:2007 [ED 60947-5-2:2007]           EN 60947-5-2:2007 [ED 60947-5-2:2007]         ED 60947-5-2:2007 [ED 60947-5-2:2007]           EAC conformity         TR CU 012/2011           FM approval         TR CU 012/2011           Control drawing         116-0165           UL approval         cULus Listed, General Purpose           Ordinary Location         E87056           Hazardous Location         E501628           Control drawing         116-0454           COC approval         CCC approval / marking not required for products rated ≤38 V           Ambient conditions         ***  Ambient temperature         -40 100 °C (-40 212 °F)           Mechanical specifications         ***  Connection type         cable silicone , 10 m           Core cross-section         0.34 mm²           Housing material         Crastin (PBT), black           Sensing face         Crastin (PBT), black           Cable diameter         4.8 mm ± 0.2 mm           Bending radius         > 10 x cable diameter	MTTF <sub>d</sub>	10660 a
Standard conformity  NAMUR  EN 60947-5-6:2000 EEC 60947-5-6:1999  Standards  EN 60947-5-2:2007 EN 60947-5-2:207 EN 60947-5-2:207 EN 60947-5-2:207 EN 6094-5-2:207 EN 6094-5-2007 EN 6094-5-2007 EN 6094-5-2007 EN 6094-5-2007 EN 6094-5-2007 EN 6094-5-	Mission Time (T <sub>M</sub> )	20 a
Standard conformity         EN 60947-5-6:2000	Diagnostic Coverage (DC)	0 %
NAMUR	Compliance with standards and directives	
EC 60947-5-6:1999	Standard conformity	
EN 60947-5-2/A1/2012   EIC 60947-5-2/AMD 1:2012   EIC 60947-6-2/AMD 1:2012   EIC 60947-6-2/AMD 1:2012   EIC 60947-6-2/AMD 1:2012	NAMUR	
EAC conformity FM approval Control drawing 116-0165 UL approval Crdinary Location E87056 Hazardous Location E501628 Control drawing 116-0454 CCC approval CCC approval CCC approval CCC approval CCC approval Ambient conditions Ambient temperature -40 100 °C (-40 212 °F) Mechanical specifications Connection type Cable silicone , 10 m Core cross-section 0.34 mm² Housing material Crastin (PBT), black Sensing face Cable Cable Cable Cable diameter Bending radius Centrol drawing 116-0454 CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V CCC approval / marking not required for products rated ≤36 V Cable diameter 4.8 mm ± 0.2 mm Sending radius Seneral information	Standards	EN 60947-5-2/A1:2012 IEC 60947-5-2:2007
FM approval  Control drawing  UL approval  Ordinary Location  E87056  Hazardous Location  E501628  Control drawing  116-0454  CCC approval  CCC approval  CCC approval  Ambient conditions  Ambient temperature  -40 100 °C (-40 212 °F)  Mechanical specifications  Cone cross-section  Housing material  Crastin (PBT), black  Sensing face  Cable  Cable  Cable diameter  Bending radius  General Purpose  cULus Listed, General Purpose  CUC approval  cULus Listed, General Purpose  culus Listed, Culus Listed  culus	Approvals and certificates	
Control drawing 116-0165  UL approval cULus Listed, General Purpose  Ordinary Location E87056 Hazardous Location E501628  Control drawing 116-0454  CCC approval CCC approval / marking not required for products rated ≤36 V  Ambient conditions  Ambient temperature -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type cable silicone , 10 m  Core cross-section 0.34 mm² Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable  Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	EAC conformity	TR CU 012/2011
UL approval cULus Listed, General Purpose  Ordinary Location E87056 Hazardous Location E501628  Control drawing 116-0454  CCC approval CCC approval / marking not required for products rated ≤36 V  Ambient conditions  Ambient temperature -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type cable silicone , 10 m  Core cross-section 0.34 mm²  Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	FM approval	
Ordinary Location E87056 Hazardous Location E501628 Control drawing 116-0454 CCC approval CCC approval / marking not required for products rated ≤36 V  Ambient conditions Ambient temperature -40 100 °C (-40 212 °F)  Mechanical specifications Connection type cable silicone , 10 m Core cross-section 0.34 mm² Housing material Crastin (PBT), black Sensing face Crastin (PBT), black Degree of protection IP68 Cable Cable diameter 4.8 mm ± 0.2 mm Bending radius > 10 x cable diameter  General information	Control drawing	116-0165
Hazardous Location E501628  Control drawing 116-0454  CCC approval CCC approval / marking not required for products rated ≤36 V  Ambient conditions  Ambient temperature -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type cable silicone , 10 m  Core cross-section 0.34 mm²  Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable  Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	UL approval	cULus Listed, General Purpose
Control drawing  CCC approval  CCC approval / marking not required for products rated ≤36 V  Ambient conditions  Ambient temperature  -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type  cable silicone , 10 m  Core cross-section  0.34 mm²  Housing material  Crastin (PBT), black  Sensing face  Crastin (PBT), black  Degree of protection  IP68  Cable  Cable diameter  Bending radius  > 10 x cable diameter  Seneral information	Ordinary Location	E87056
CCC approval CCC approval / marking not required for products rated ≤36 V  Ambient conditions  Ambient temperature -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type cable silicone , 10 m  Core cross-section 0.34 mm²  Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	Hazardous Location	E501628
Ambient conditions  Ambient temperature -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type cable silicone , 10 m  Core cross-section 0.34 mm²  Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable Cable Cable 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	Control drawing	116-0454
Ambient temperature  -40 100 °C (-40 212 °F)  Mechanical specifications  Connection type  cable silicone , 10 m  0.34 mm²  Housing material  Sensing face  Crastin (PBT), black  Crastin (PBT), black  Degree of protection  IP68  Cable  Cable diameter  4.8 mm ± 0.2 mm  Sending radius  Seneral information	CCC approval	CCC approval / marking not required for products rated ≤36 V
Connection type cable silicone , 10 m  Core cross-section 0.34 mm²  Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	Ambient conditions	
Connection type cable silicone , 10 m  Core cross-section 0.34 mm²  Housing material Crastin (PBT), black  Sensing face Crastin (PBT), black  Degree of protection IP68  Cable Cable Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	Ambient temperature	-40 100 °C (-40 212 °F)
Core cross-section         0.34 mm²           Housing material         Crastin (PBT), black           Sensing face         Crastin (PBT), black           Degree of protection         IP68           Cable         Cable diameter           Bending radius         > 10 x cable diameter           General information         Sensing face	Mechanical specifications	
Housing material  Sensing face  Crastin (PBT), black  Crastin (PBT), black  IP68  Cable  Cable diameter  Bending radius  Cable diameter  Bending radius  Cable diameter  Sensing face  Crastin (PBT), black  IP68  IP68  Cable diameter  4.8 mm ± 0.2 mm  > 10 x cable diameter  Seneral information	Connection type	cable silicone , 10 m
Sensing face         Crastin (PBT), black           Degree of protection         IP68           Cable	Core cross-section	0.34 mm <sup>2</sup>
Sensing face         Crastin (PBT), black           Degree of protection         IP68           Cable         Cable diameter           Bending radius         > 10 x cable diameter           General information         Sensing face	Housing material	Crastin (PBT), black
Cable Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information		Crastin (PBT), black
Cable diameter 4.8 mm ± 0.2 mm  Bending radius > 10 x cable diameter  General information	Degree of protection	IP68
Bending radius > 10 x cable diameter  General information	Cable	
General information	Cable diameter	$4.8 \text{ mm} \pm 0.2 \text{ mm}$
General information	Bending radius	> 10 x cable diameter
	General information	
Use in the hazardous area see instruction manuals	Use in the hazardous area	see instruction manuals

#### **Connection**



### **Accessories**



**BF 12** 

Mounting flange, 12 mm



EXG-12

Quick mounting bracket with dead stop

### **Application**

Danger!

In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.

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