



### Model Number

**NJ8-18GK-SN-10M-Y70101418**

### Features

- 8 mm non-flush
- ATEX approval Ex-i for zone 0-2 and zone 20-22
- Degree of protection IP68

### Accessories

**BF 18**  
Mounting flange, 18 mm

## Technical Data

### General specifications

Switching function		Normally closed (NC)
Output type		NAMUR with safety function
Rated operating distance	$s_n$	8 mm
Installation		non-flush
Assured operating distance	$s_a$	0 ... 6.48 mm
Reduction factor $r_{AI}$		0.4
Reduction factor $r_{Cu}$		0.3
Reduction factor $r_{304}$		0.85
Output type		2-wire

### Nominal ratings

Nominal voltage	$U_o$	8.2 V
Switching frequency	$f$	0 ... 200 Hz
Current consumption		
Measuring plate not detected		$\geq 3$ mA
Measuring plate detected		$\leq 1$ mA

### Functional safety related parameters

MTTF <sub>d</sub>		11850 a
Mission Time ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0 %

### Ambient conditions

Ambient temperature		-40 ... 100 °C (-40 ... 212 °F)
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### Mechanical specifications

Connection type		cable silicone, 10 m
Core cross-section		0.75 mm <sup>2</sup>
Housing material		Crastin (PBT), black
Sensing face		Crastin (PBT), black
Degree of protection		IP68
Cable		
Bending radius		> 10 x cable diameter

### General information

Use in the hazardous area		see instruction manuals
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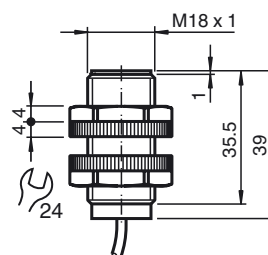
### Compliance with standards and directives

Standard conformity		
NAMUR		EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards		EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012

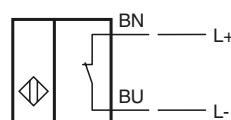
### Approvals and certificates

EAC conformity		TR CU 012/2011
CCC approval		CCC approval / marking not required for products rated $\leq 36$ V

## Dimensions



## Electrical Connection



**Data for application in connection with hazardous areas**

Equipment protection level	Ga , Gb , Gc (ic) , Da , Mb	
<b>Equipment protection level Ga</b>		
Type of protection	intrinsic safety	
CE marking	CE 0102	
<b>Certificates</b>		
Appropriate type	NJ 8-18GK-SN...	
ATEX certificate	PTB 00 ATEX 2049 X	
ATEX marking	Ex II 1G Ex ia IIC T6...T1 Ga	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEX certificate	IECEX PTB 11.0092X	
IECEX marking	Ex ia IIC T6...T1 Ga	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	$C_i$	$\leq 120 \text{ nF}$ A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 200 \text{ }\mu\text{H}$ A cable length of 10 m is considered.
Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values.	
for ATEX	at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 34 \text{ mW}$ , T6 : 57 °C (134.6 °F) T5 : 69 °C (156.2 °F) T4 : 97 °C (206.6 °F) T3 : 97 °C (206.6 °F) T2 : 97 °C (206.6 °F) T1 : 97 °C (206.6 °F) at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 64 \text{ mW}$ , T6 : 52 °C (125.6 °F) T5 : 64 °C (147.2 °F) T4 : 92 °C (197.6 °F) T3 : 92 °C (197.6 °F) T2 : 92 °C (197.6 °F) T1 : 92 °C (197.6 °F) at $U_i = 16 \text{ V}$ , $I_i = 52 \text{ mA}$ , $P_i = 169 \text{ mW}$ , T6 : 34 °C (93.2 °F) T5 : 46 °C (114.8 °F) T4 : 74 °C (165.2 °F) T3 : 74 °C (165.2 °F) T2 : 74 °C (165.2 °F) T1 : 74 °C (165.2 °F) at $U_i = 16 \text{ V}$ , $I_i = 76 \text{ mA}$ , $P_i = 242 \text{ mW}$ , T6 : 22 °C (71.6 °F) T5 : 34 °C (93.2 °F) T4 : 61 °C (141.8 °F) T3 : 61 °C (141.8 °F) T2 : 61 °C (141.8 °F) T1 : 61 °C (141.8 °F)	
for IECEx	at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 34 \text{ mW}$ , T6 : 73 °C (163.4 °F) T5 : 88 °C (190.4 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 64 \text{ mW}$ , T6 : 69 °C (156.2 °F) T5 : 84 °C (183.2 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16 \text{ V}$ , $I_i = 52 \text{ mA}$ , $P_i = 169 \text{ mW}$ , T6 : 51 °C (123.8 °F) T5 : 66 °C (150.8 °F) T4 : 80 °C (176 °F) T3 : 80 °C (176 °F) T2 : 80 °C (176 °F) T1 : 80 °C (176 °F) at $U_i = 16 \text{ V}$ , $I_i = 76 \text{ mA}$ , $P_i = 242 \text{ mW}$ , T6 : 39 °C (102.2 °F) T5 : 54 °C (129.2 °F) T4 : 61 °C (141.8 °F) T3 : 61 °C (141.8 °F) T2 : 61 °C (141.8 °F) T1 : 61 °C (141.8 °F)	

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## Equipment protection level Gb

Type of protection	intrinsic safety
CE marking	CE 0102

## Certificates

Appropriate type	NJ 8-18GK-SN...
ATEX certificate	PTB 00 ATEX 2049 X
ATEX marking	Ⓔ II 1G Ex ia IIC T6...T1 Ga
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012
IECEX certificate	IECEX PTB 11.0092X
IECEX marking	Ex ia IIC T6...T1 Ga
Standards	IEC 60079-0:2011 , IEC 60079-11:2011

Effective internal capacitance	$C_i$	$\leq 120$ nF A cable length of 10 m is considered.
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Effective internal inductance	$L_i$	$\leq 200$ $\mu$ H A cable length of 10 m is considered.
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Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW , T6 : 73 °C (163.4 °F) T5 : 88 °C (190.4 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW , T6 : 69 °C (156.2 °F) T5 : 84 °C (183.2 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW , T6 : 51 °C (123.8 °F) T5 : 66 °C (150.8 °F) T4 : 80 °C (176 °F) T3 : 80 °C (176 °F) T2 : 80 °C (176 °F) T1 : 80 °C (176 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW , T6 : 39 °C (102.2 °F) T5 : 54 °C (129.2 °F) T4 : 61 °C (141.8 °F) T3 : 61 °C (141.8 °F) T2 : 61 °C (141.8 °F) T1 : 61 °C (141.8 °F)
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**Equipment protection level Gc (ic)**

Type of protection	intrinsic safety	
CE marking	CE	
<b>Certificates</b>		
ATEX certificate	PF13CERT2895 X	
ATEX marking	II 3G Ex ic IIC T6...T1 Gc	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
Effective internal capacitance	$C_i$	$\leq 120$ nF The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 200$ $\mu$ H The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 20$ V , $I_i = 25$ mA , $P_i = 34$ mW , T6 : 55 °C (131 °F) T5 : 55 °C (131 °F) T4 : 55 °C (131 °F) T3 : 55 °C (131 °F) T2 : 55 °C (131 °F) T1 : 55 °C (131 °F) at $U_i = 20$ V , $I_i = 25$ mA , $P_i = 64$ mW , T6 : 55 °C (131 °F) T5 : 55 °C (131 °F) T4 : 55 °C (131 °F) T3 : 55 °C (131 °F) T2 : 55 °C (131 °F) T1 : 55 °C (131 °F) at $U_i = 20$ V , $I_i = 52$ mA , $P_i = 169$ mW , T6 : 41 °C (105.8 °F) T5 : 41 °C (105.8 °F) T4 : 41 °C (105.8 °F) T3 : 41 °C (105.8 °F) T2 : 41 °C (105.8 °F) T1 : 41 °C (105.8 °F) at $U_i = 20$ V , $I_i = 76$ mA , $P_i = 242$ mW , T6 : 29 °C (84.2 °F) T5 : 29 °C (84.2 °F) T4 : 29 °C (84.2 °F) T3 : 29 °C (84.2 °F) T2 : 29 °C (84.2 °F) T1 : 29 °C (84.2 °F)	

**Equipment protection level Da**

Type of protection	intrinsic safety	
CE marking	CE 0102	
<b>Certificates</b>		
Appropriate type	NJ 8-18GK-SN...	
ATEX certificate	PTB 00 ATEX 2049 X	
ATEX marking	II 1D Ex ia IIIC T135°C Da	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEx certificate	IECEx PTB 11.0092X	
IECEx marking	Ex ia IIIC T135°C Da	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	$C_i$	$\leq 120$ nF A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 200$ $\mu$ H A cable length of 10 m is considered.
Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW : 80 °C (176 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW : 61 °C (141.8 °F)	

**Equipment protection level Mb**

Type of protection	intrinsic safety	
<b>Certificates</b>		
Appropriate type	NJ 8-18GK-SN...	
IECEx certificate	IECEx PTB 11.0092X	
IECEx marking	Ex ia I Mb	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	$C_i$	$\leq 120$ nF A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 200$ $\mu$ H A cable length of 10 m is considered.
Maximum permissible ambient temperature $T_{amb}$	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW : 80 °C (176 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW : 61 °C (141.8 °F)	