



Sn = 4 mm

W I R E

- Shortest version with M12 x 1 connector
- High stability across entire temperature range



general data

| | |
|-----------------------------|------------------|
| mounting type | shielded |
| nominal sensing distance Sn | 4 mm |
| hysteresis | 3 ... 20 % of Sr |

electrical data

| | |
|-----------------------------|---------------|
| switching frequency | < 2 kHz |
| voltage supply range +Vs | 10 ... 30 VDC |
| current consumption max. | 10 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |

mechanical data

| | |
|-------------------------|----------------------|
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |

cable

| | |
|----------------|---------|
| housing length | 30,4 mm |
|----------------|---------|

connector M12

| | |
|----------------|---------|
| housing length | 40,4 mm |
|----------------|---------|

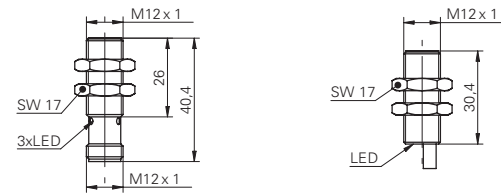
ambient conditions

| | |
|-----------------------|----------------|
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |

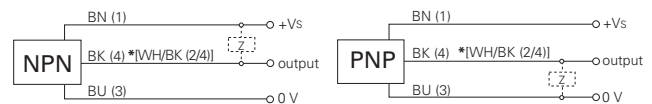
accessories

| | |
|------------|------------------|
| connectors | ESG 34S, ESW 33S |
|------------|------------------|

dimension drawings



connection diagrams



* .../S14L pin 2 & 4 electrically connected

| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N1701/L | cable | NPN make function (NO) | LED red |
| IFRM 12N1703/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N3701/L | cable | NPN break function (NC) | LED red |
| IFRM 12N3703/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12P1701/L | cable | PNP make function (NO) | LED red |
| IFRM 12P1703/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P3701/L | cable | PNP break function (NC) | LED red |
| IFRM 12P3703/S14L | connector M12 | PNP break function (NC) | 3 port LED red |

IFRM 12 Sn = 4 mm

Inductive sensors 3-wire digital output



Sn = 4 mm

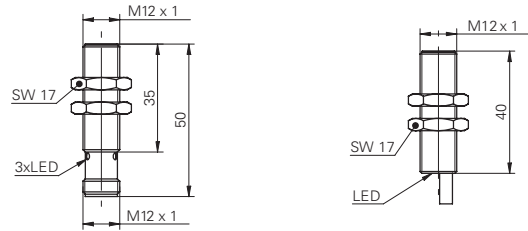
WIRE

- High stability across entire temperature range

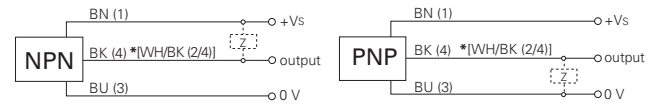


| general data | |
|-----------------------------|----------------------|
| mounting type | shielded |
| nominal sensing distance Sn | 4 mm |
| hysteresis | 3 ... 20 % of Sr |
| electrical data | |
| switching frequency | < 2 kHz |
| voltage supply range +Vs | 10 ... 30 VDC |
| current consumption max. | 10 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |
| mechanical data | |
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |
| cable | |
| housing length | 40 mm |
| connector M12 | |
| housing length | 50 mm |
| ambient conditions | |
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |
| accessories | |
| connectors | ESG 34S, ESW 33S |

dimension drawings



connection diagrams



| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N1701/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N1702/L | cable | NPN make function (NO) | LED red |
| IFRM 12N3701/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12N3702/L | cable | NPN break function (NC) | LED red |
| IFRM 12P1701/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P1702/L | cable | PNP make function (NO) | LED red |
| IFRM 12P3701/S14L | connector M12 | PNP break function (NC) | 3 port LED red |
| IFRM 12P3702/L | cable | PNP break function (NC) | LED red |

IFRM 12 Sn = 4 mm

Inductive sensors 3-wire digital output



Sn = 4 mm

W I R E

- Extra long housings
- High stability across entire temperature range



general data

| | |
|-----------------------------|------------------|
| mounting type | shielded |
| nominal sensing distance Sn | 4 mm |
| hysteresis | 3 ... 20 % of Sr |

electrical data

| | |
|-----------------------------|---------------|
| switching frequency | < 2 kHz |
| voltage supply range +Vs | 10 ... 30 VDC |
| current consumption max. | 10 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |

mechanical data

| | |
|-------------------------|----------------------|
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |

cable

| | |
|----------------|-------|
| housing length | 50 mm |
|----------------|-------|

connector M12

| | |
|----------------|-------|
| housing length | 60 mm |
|----------------|-------|

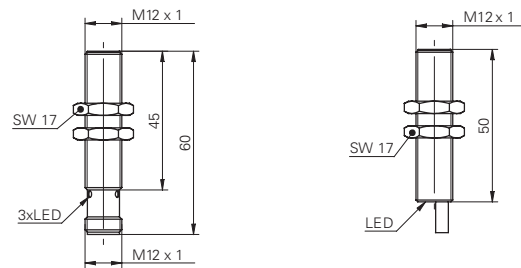
ambient conditions

| | |
|-----------------------|----------------|
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |

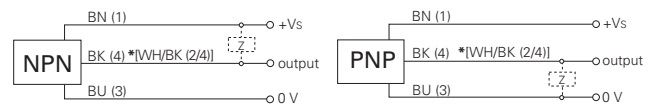
accessories

| | |
|------------|------------------|
| connectors | ESG 34S, ESW 33S |
|------------|------------------|

dimension drawings



connection diagrams



* .../S14L pin 2 & 4 electrically connected

| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N1704/L | cable | NPN make function (NO) | LED red |
| IFRM 12N1704/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N3704/L | cable | NPN break function (NC) | LED red |
| IFRM 12N3704/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12P1704/L | cable | PNP make function (NO) | LED red |
| IFRM 12P1704/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P3704/L | cable | PNP break function (NC) | LED red |
| IFRM 12P3704/S14L | connector M12 | PNP break function (NC) | 3 port LED red |



Sn = 6 mm

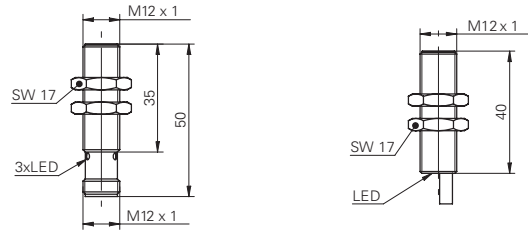
WIRE

- Version with extended Sn *GammaProx*
- Quasi shielded mounting

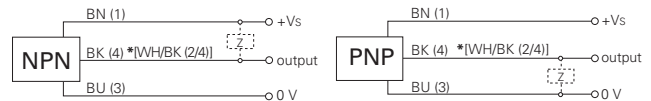


| general data | |
|---|--|
| mounting type | quasi shielded |
| special type | enhanced distance (<i>GammaProx</i>) |
| nominal sensing distance Sn | 6 mm |
| hysteresis | 2 ... 25 % of Sr |
| electrical data | |
| switching frequency | < 400 Hz |
| voltage supply range +Vs | 12 ... 30 VDC |
| current consumption max. | 18 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |
| mechanical data | |
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |
| cable | |
| housing length | 40 mm |
| connector M12 | |
| housing length | 50 mm |
| ambient conditions | |
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |
| accessories | |
| connectors | ESG 34S, ESW 33S |
| remarks | |
| For correct installation refer to chapter 1 "mounting instructions" | |

dimension drawings



connection diagrams



* .../S14L pin 2 & 4 electrically connected

| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N17G3/L | cable | NPN make function (NO) | LED red |
| IFRM 12N17G3/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N37G3/L | cable | NPN break function (NC) | LED red |
| IFRM 12N37G3/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12P17G3/L | cable | PNP make function (NO) | LED red |
| IFRM 12P17G3/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P37G3/L | cable | PNP break function (NC) | LED red |
| IFRM 12P37G3/S14L | connector M12 | PNP break function (NC) | 3 port LED red |



Sn = 6 mm

W I R E

- Version with extended Sn *GammaProx*
- Quasi shielded mounting



general data

| | |
|-----------------------------|--|
| mounting type | quasi shielded |
| special type | enhanced distance (<i>GammaProx</i>) |
| nominal sensing distance Sn | 6 mm |
| hysteresis | 2 ... 25 % of Sr |

electrical data

| | |
|-----------------------------|---------------|
| switching frequency | < 400 Hz |
| voltage supply range +Vs | 12 ... 30 VDC |
| current consumption max. | 18 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |

mechanical data

| | |
|-------------------------|----------------------|
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |

cable

| | |
|----------------|-------|
| housing length | 50 mm |
|----------------|-------|

connector M12

| | |
|----------------|-------|
| housing length | 60 mm |
|----------------|-------|

ambient conditions

| | |
|-----------------------|----------------|
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |

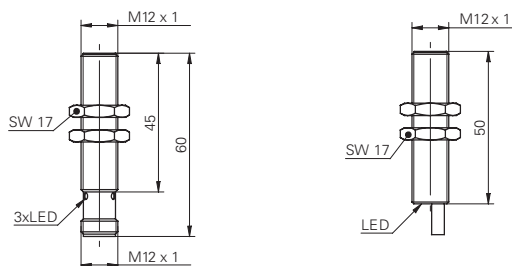
accessories

| | |
|------------|------------------|
| connectors | ESG 34S, ESW 33S |
|------------|------------------|

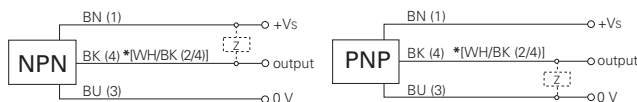
remarks

For correct installation refer to chapter 1 "mounting instructions"

dimension drawings



connection diagrams



* .../S14L pin 2 & 4 electrically connected

| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N17G1/L | cable | NPN make function (NO) | LED red |
| IFRM 12N17G1/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N37G1/L | cable | NPN break function (NC) | LED red |
| IFRM 12N37G1/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12P17G1/L | cable | PNP make function (NO) | LED red |
| IFRM 12P17G1/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P37G1/L | cable | PNP break function (NC) | LED red |
| IFRM 12P37G1/S14L | connector M12 | PNP break function (NC) | 3 port LED red |



Sn = 10 mm

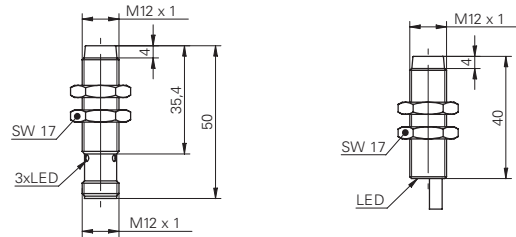
WIRE

- Version with extended Sn *GammaProx*
- Non shielded mounting

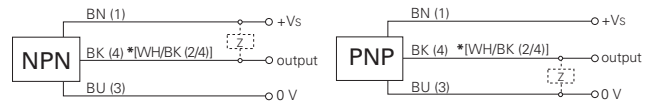


| general data | |
|-----------------------------|--|
| mounting type | unshielded |
| special type | enhanced distance (<i>GammaProx</i>) |
| nominal sensing distance Sn | 10 mm |
| hysteresis | 2 ... 25 % of Sr |
| electrical data | |
| switching frequency | < 400 Hz |
| voltage supply range +Vs | 12 ... 30 VDC |
| current consumption max. | 18 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |
| mechanical data | |
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |
| cable | |
| housing length | 40 mm |
| connector M12 | |
| housing length | 50 mm |
| ambient conditions | |
| operating temperature | 0 ... +60 °C |
| protection class | IP 67 |
| accessories | |
| connectors | ESG 34S, ESW 33S |

dimension drawings



connection diagrams



* .../S14L pin 2 & 4 electrically connected

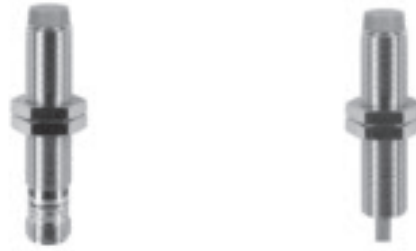
| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N13G3/L | cable | NPN make function (NO) | LED red |
| IFRM 12N13G3/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N33G3/L | cable | NPN break function (NC) | LED red |
| IFRM 12N33G3/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12P13G3/L | cable | PNP make function (NO) | LED red |
| IFRM 12P13G3/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P33G3/L | cable | PNP break function (NC) | LED red |
| IFRM 12P33G3/S14L | connector M12 | PNP break function (NC) | 3 port LED red |



Sn = 10 mm

W I R E

- Version with extended Sn *GammaProx*
- Non shielded mounting



general data

| | |
|-----------------------------|--|
| mounting type | unshielded |
| special type | enhanced distance (<i>GammaProx</i>) |
| nominal sensing distance Sn | 10 mm |
| hysteresis | 2 ... 25 % of Sr |

electrical data

| | |
|-----------------------------|---------------|
| switching frequency | < 400 Hz |
| voltage supply range +Vs | 12 ... 30 VDC |
| current consumption max. | 18 mA |
| voltage drop Vd | < 2 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |

mechanical data

| | |
|-------------------------|----------------------|
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |

cable

| | |
|----------------|-------|
| housing length | 50 mm |
|----------------|-------|

connector M12

| | |
|----------------|-------|
| housing length | 60 mm |
|----------------|-------|

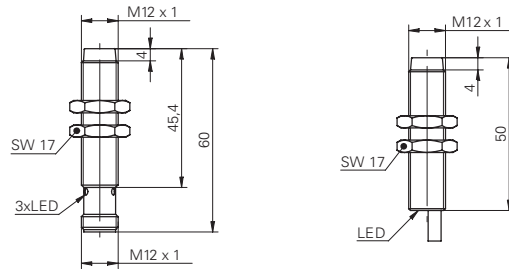
ambient conditions

| | |
|-----------------------|--------------|
| operating temperature | 0 ... +60 °C |
| protection class | IP 67 |

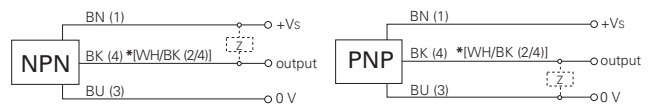
accessories

| | |
|------------|------------------|
| connectors | ESG 34S, ESW 33S |
|------------|------------------|

dimension drawings



connection diagrams



* .../S14L pin 2 & 4 electrically connected

| order reference | connection types | output circuit | output indicator |
|-------------------|------------------|-------------------------|------------------|
| IFRM 12N13G1/L | cable | NPN make function (NO) | LED red |
| IFRM 12N13G1/S14L | connector M12 | NPN make function (NO) | 3 port LED red |
| IFRM 12N33G1/L | cable | NPN break function (NC) | LED red |
| IFRM 12N33G1/S14L | connector M12 | NPN break function (NC) | 3 port LED red |
| IFRM 12P13G1/L | cable | PNP make function (NO) | LED red |
| IFRM 12P13G1/S14L | connector M12 | PNP make function (NO) | 3 port LED red |
| IFRM 12P33G1/L | cable | PNP break function (NC) | LED red |
| IFRM 12P33G1/S14L | connector M12 | PNP break function (NC) | 3 port LED red |



Sn = 4 mm

W I R E

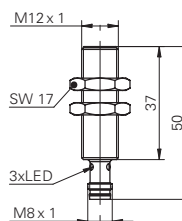
- M8 x 1 quick disconnect
- High stability across entire temperature range



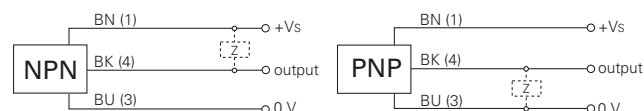
| general data | |
|-----------------------------|----------------------|
| mounting type | shielded |
| nominal sensing distance Sn | 4 mm |
| hysteresis | 3 ... 25 % of Sr |
| output indicator | 4 port LED red |
| electrical data | |
| switching frequency | < 2 kHz |
| voltage supply range +Vs | 12 ... 30 VDC |
| current consumption max. | 18 mA |
| voltage drop Vd | < 3 VDC |
| output current | < 200 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |
| mechanical data | |
| type | cylindrical threaded |
| material (sensing face) | PBT |
| housing material | brass nickel plated |
| dimension | 12 mm |
| housing length | 50 mm |
| connection types | connector M8 |
| ambient conditions | |
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |
| accessories | |
| connectors | ESG 32S, ESW 31S |

| order reference | output circuit |
|--------------------------|-------------------------|
| IFRM 12N1701/S35L | NPN make function (NO) |
| IFRM 12N3701/S35L | NPN break function (NC) |
| IFRM 12P1701/S35L | PNP make function (NO) |
| IFRM 12P3701/S35L | PNP break function (NC) |

dimension drawing



connection diagrams





Sn = 2 mm / 4 mm

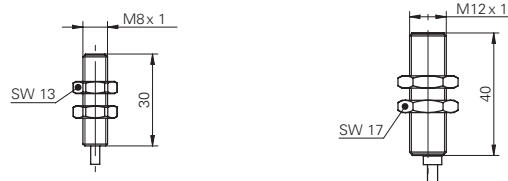
W I R E

- With integral electronics up to 100°C
- Teflon cable

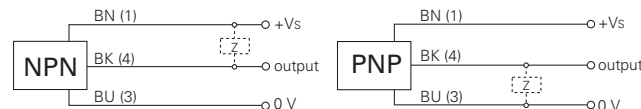


| general data | |
|-----------------------------|----------------------|
| mounting type | shielded |
| special type | high temperature |
| hysteresis | 3 ... 20 % of Sr |
| electrical data | |
| voltage supply range +Vs | 12 ... 30 VDC |
| current consumption max. | 12 mA |
| voltage drop Vd | < 3 VDC |
| output current | < 50 mA |
| short circuit protection | yes |
| reverse polarity protection | yes |
| mechanical data | |
| type | cylindrical threaded |
| connection types | cable |
| ambient conditions | |
| operating temperature | -25 ... +100 °C |
| protection class | IP 67 |

dimension drawings



connection diagrams



| order reference | nominal sensing distance Sn | switching frequency | output circuit | dimension | housing material | housing length |
|-----------------|-----------------------------|---------------------|------------------------|-----------|---------------------|----------------|
| IFRM 08N1707 | 2 mm | < 5 kHz | NPN make function (NO) | 8 mm | stainless steel | 30 mm |
| IFRM 08P1707 | 2 mm | < 5 kHz | PNP make function (NO) | 8 mm | stainless steel | 30 mm |
| IFRM 12N1707 | 4 mm | < 2 kHz | NPN make function (NO) | 12 mm | brass nickel plated | 40 mm |
| IFRM 12P1707 | 4 mm | < 2 kHz | PNP make function (NO) | 12 mm | brass nickel plated | 40 mm |

IFRM 08 / IFRM 12 Sn = 2 mm / 4 mm

High temperature sensors up to +100 °C



Sn = 2 mm / 4 mm

- Shielded and unshielded versions



electrical data

| | |
|------------------------------|--------------|
| switching frequency | < 2 kHz |
| normal operating voltage | 8,2 VDC |
| voltage supply range +Vs | 5 ... 30 VDC |
| current consumption undamped | > 4 mA |
| current consumption damped | < 1 mA |
| current consumption max. | 10 mA |
| residual ripple | < 10% Vs |

mechanical data

| | |
|------------------|----------------------|
| type | cylindrical threaded |
| housing material | brass nickel plated |
| dimension | 12 mm |
| connection types | cable |

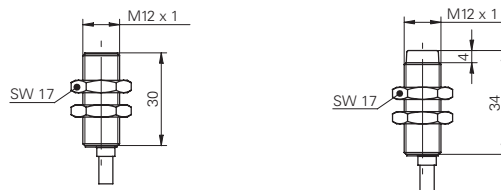
ambient conditions

| | |
|-----------------------|----------------|
| operating temperature | -25 ... +75 °C |
| protection class | IP 67 |

safe maximum values

| | |
|---|-----------------------|
| EC-type-examination Certificate | PTB 03 ATEX 2146 |
| marking | II 1G EEx ia IIC T5/6 |
| current Ii | < 37 mA |
| voltage Ui | < 13,5 VDC |
| power Pi | < 0,125 W |
| internal capacitance Ci | < 50 nF |
| internal inductance Li | < 0,2 mH |
| operating temperature Ta (temp. class T5) | -20 ... +60 °C |
| operating temperature Ta (temp. class T6) | -20 ... +40 °C |

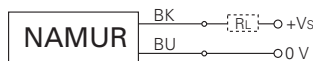
dimension drawings



shielded

unshielded

connection diagram



operating data according to EN 50227

+Vs = 8,2 V
 RL = 1 kΩ
 T = 20 °C
 Sn at 1,8 mA

for applications in hazardous areas

| order reference | nominal sensing distance Sn | mounting type | housing length |
|-----------------|-----------------------------|---------------|----------------|
| IFRM 12X9103 | 4 mm | unshielded | 34 mm |
| IFRM 12X9503 | 2 mm | shielded | 30 mm |

Inductive NAMUR sensors IFRM 12X Sn = 2 mm / 4 mm