

Detailed technical data

Features

| | |
|---------------------|---------------------|
| Medium | Fluids |
| Measurement | Switch |
| Light source | LED |
| Type of light | Visible red light |
| Wave length | 650 nm |
| Process pressure | -0.5 bar ... 16 bar |
| Process temperature | -25 °C ... +55 °C |
| UL approval | ✓ |
| RoHS certificate | ✓ |

Performance

| | |
|---------------|-------|
| Response time | 10 ms |
|---------------|-------|

Mechanics

| | |
|--------------------|---------------------------------------|
| Wetted parts | Stainless steel 316L, polysulfon, FPM |
| Process connection | G 1/2 |
| Housing material | Stainless steel 1.4404 |

Electronics

| | |
|---------------------|---|
| Supply voltage | 10 V DC ... 30 V DC ¹⁾ |
| Residual ripple | ≤ 5 V _{pp} ²⁾ |
| Power consumption | ≤ 30 mA at 24 V DC without output load |
| Protection class | III |
| Connection type | M12 round connector x 1, 4-pin |
| Output signal | 1 x NPN ³⁾ 1 x PNP ³⁾ (depending on type) |
| Switching mode | Normally open / Normally closed (depending on type) |
| Signal voltage HIGH | V _s - 3 V |
| Signal voltage LOW | Approx. 0 V (PNP) ≤ 3 V (NPN) |
| Output current | ≤ 100 mA ³⁾ |
| Switching frequency | 250 Hz ⁴⁾ |
| Enclosure rating | IP67 / IP69 |

¹⁾ U_V connections, reverse polarity protected.

²⁾ May not exceed or fall below U_V tolerances.

³⁾ Output overcurrent and short-circuit protected.

⁴⁾ With light/dark ratio 1:1.

Ambient data

| | |
|-------------------------------|-------------------|
| Ambient operating temperature | -25 °C ... +55 °C |
| Ambient storage temperature | -25 °C ... +70 °C |

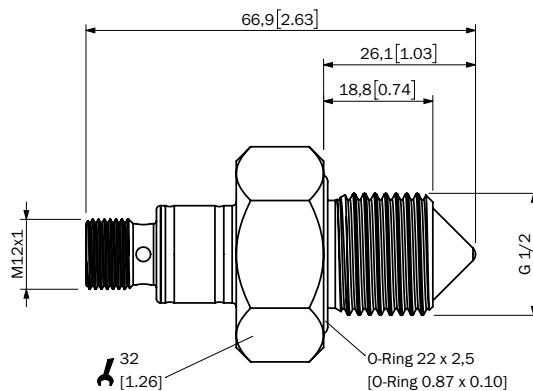
Ordering information

- **Enclosure rating:** IP67 / IP69
- **Process connection:** G 1/2
- **Process temperature:** -25 °C ... +55 °C
- **Process pressure:** -0.5 bar ... 16 bar
- **Housing material:** Stainless steel 1.4404
- **Electrical connection:** M12 round connector x 1, 4-pin

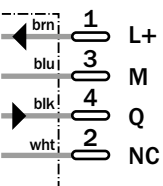
| Output signal | Switching mode | Type | Part no. |
|---------------|-----------------|---------------|----------|
| 1 x NPN | Normally open | GRF18S-E234LV | 1092960 |
| 1 x PNP | Normally open | GRF18S-F234LV | 1092958 |
| 1 x NPN | Normally closed | GRF18S-N234LV | 1092959 |
| 1 x PNP | Normally closed | GRF18S-P234LV | 1092957 |

Dimensional drawing (Dimensions in mm [inch])

GRF18S

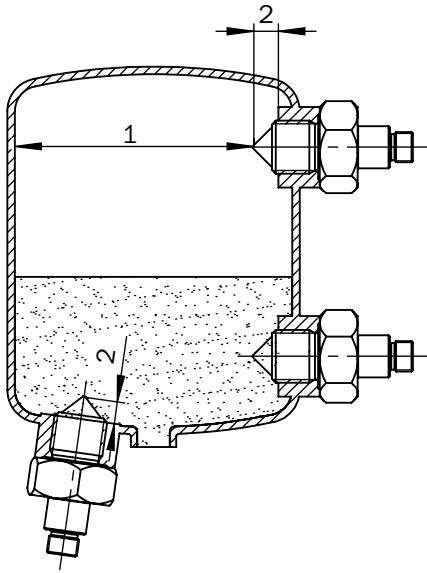


Connection type and diagram



Instruction for installation

Installation in containers

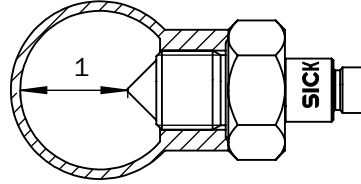


The apex should protrude into the container

① Distance ≥ 40 mm

② Filler tip = 8 mm

Installation in pipelines for pump dry-run protection



① Distance ≥ 40 mm

Note:

Fluids which leave heavy coatings can cause sensor deposits and disrupt the function.

Applications with foam:

- Foam with low foam density is not detected by the GRF18S.
- Foam with high foam density can be detected by the GRF18S and cause switching errors.

Accessories

Mounting systems

Flanges



Weld-in flange

| | Brief description | Type | Part no. |
|--|---|--------------------|----------|
|  Illustration may differ | Welded flange G ½, Stainless steel V4A (1.4404, 316L) | BEF-FL-316G12-LMH1 | 4065669 |

Connection systems

Plug connectors and cables

Connecting cables

| | Brief description | Length of cable | Type | Part no. |
|---|---|-----------------|-----------------|----------|
|  | Head A: female connector, M12, 4-pin, straight Head B: Flying leads Cable: PVC, unshielded, 5 mm ^{1) 2)} | 2 m | DOL-1204-G02MNI | 6052613 |
|  | Head A: female connector, M12, 4-pin, straight Head B: Flying leads Cable: PP, unshielded, 4.6 mm ³⁾ | 2 m | DOL-1204-G02MRN | 6058291 |
| | | 5 m | DOL-1204-G05MRN | 6058476 |
| | | 10 m | DOL-1204-G10MRN | 6058478 |
| | | 15 m | DOL-1204-G15MRN | 2092884 |
| | | 25 m | DOL-1204-G25MRN | 6058480 |

¹⁾ Tested detergent: P3-topactive DES, P3-topax 19, P3-topax 56, P3-topax 66 and P3-topax 99; Insulating material group: Cat I.

²⁾ Insulating material group: Cat I.

³⁾ Tested detergent: P3-topactive DES, P3-topactive 200, P3-topax 52, P3-topax 66 und P3-topax 91.

| | Brief description | Length of cable | Type | Part no. |
|---|---|-----------------|---------------------|----------|
|  | Head A: female connector, M12, 4-pin, angled with LED Head B: Flying leads Cable: PP, unshielded, 4.6 mm ³⁾ | 2 m | DOL-1204-L02MRN | 6058482 |
| | | 5 m | DOL-1204-L05MRN | 6058483 |
| | | 10 m | DOL-1204-L10MRN | 6058484 |
| | | 25 m | DOL-1204-L25MRN | 6058485 |
|  | Head A: female connector, M12, 4-pin, angled Head B: Flying leads Cable: PP, unshielded, 4.6 mm ³⁾ | 2 m | DOL-1204-W02MRN | 6058474 |
| | | 5 m | DOL-1204-W05MRN | 6058477 |
| | | 10 m | DOL-1204-W10MRN | 6058479 |
| | | 25 m | DOL-1204-W25MRN | 6058481 |
|  | Head A: female connector, M12, 4-pin, straight Head B: Flying leads Cable: PUR, halogen-free, unshielded, 5.9 mm | 2 m | DOL-1204G02MC75KM0 | 2079290 |
| | | 5 m | DOL-1204G05MC75KM0 | 2079291 |
| | | 10 m | DOL-1204G10MC75KM0 | 2079292 |
| | | 20 m | DOL-1204G20MC75KM0 | 2089703 |
|  | Head A: female connector, M12, 4-pin, angled Head B: Flying leads Cable: PUR, halogen-free, unshielded, 5.9 mm | 2 m | DOL-1204W02MC75KM0 | 2079293 |
| | | 5 m | DOL-1204W05MC75KM0 | 2079294 |
| | | 10 m | DOL-1204W10MC75KM0 | 2079295 |
| | | 20 m | DOL-1204W20MC75KM0 | 2089704 |
|  | Head A: female connector, M12, 5-pin, straight Head B: Flying leads Cable: PP, unshielded, 5 mm ³⁾ | 2 m | DOL-1205-G02MRN | 6058494 |
| | | 5 m | DOL-1205-G05MRN | 6058495 |
| | | 10 m | DOL-1205-G10MRN | 6058496 |
| | | 25 m | DOL-1205-G25MRN | 6058497 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 0.34 mm ² , 4.5 mm | 2 m | YF2A14-020UB3X-LEAX | 2095607 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 0.34 mm ² , 5 mm | 2 m | YF2A14-020VB3X-LEAX | 2096234 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 0.34 mm ² , 4.5 mm | 5 m | YF2A14-050UB3X-LEAX | 2095608 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 0.34 mm ² , 5 mm | 5 m | YF2A14-050VB3X-LEAX | 2096235 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 0.34 mm ² , 4.5 mm | 10 m | YF2A14-100UB3X-LEAX | 2095609 |

¹⁾ Tested detergent: P3-topactive DES, P3-topax 19, P3-topax 56, P3-topax 66 and P3-topax 99; Insulating material group: Cat I.

²⁾ Insulating material group: Cat I.

³⁾ Tested detergent: P3-topactive DES, P3-topactive 200, P3-topax 52, P3-topax 66 und P3-topax 91.

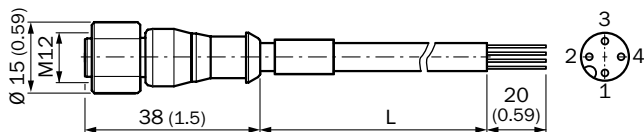
| | Brief description | Length of cable | Type | Part no. |
|---|--|-----------------|---------------------|----------|
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 0.34 mm², 5 mm | 10 m | YF2A14-100VB3X-LEAX | 2096236 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 0.34 mm², 4.5 mm | 2 m | YG2A14-020UB3X-LEAX | 2095766 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 0.34 mm², 5 mm | 2 m | YG2A14-020VB3X-LEAX | 2095895 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 0.34 mm², 4.5 mm | 5 m | YG2A14-050UB3X-LEAX | 2095767 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 0.34 mm², 5 mm | 5 m | YG2A14-050VB3X-LEAX | 2095897 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 0.34 mm², 4.5 mm | 10 m | YG2A14-100UB3X-LEAX | 2095768 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 0.34 mm², 5 mm | 10 m | YG2A14-100VB3X-LEAX | 2095898 |
| | | 15 m | YG2A14-150VB3X-LEAX | 2096213 |
| | | 20 m | YG2A14-200VB3X-LEAX | 2096214 |

¹⁾ Tested detergent: P3-topactive DES, P3-topax 19, P3-topax 56, P3-topax 66 and P3-topax 99; Insulating material group: Cat I.

²⁾ Insulating material group: Cat I.

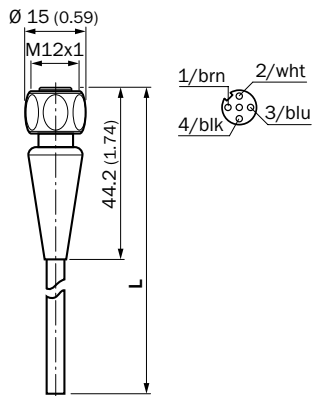
³⁾ Tested detergent: P3-topactive DES, P3-topactive 200, P3-topax 52, P3-topax 66 und P3-topax 91.

DOL-1204-G02MNI

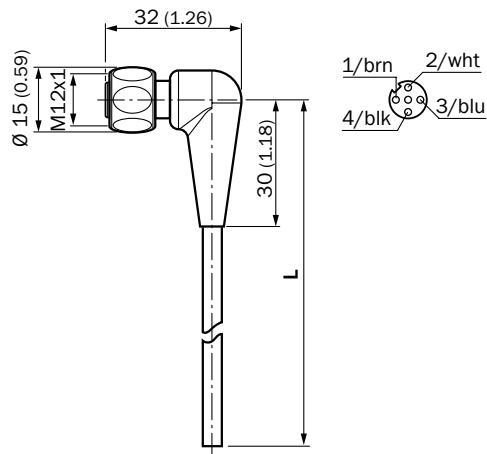


- ① brn
- ② wht
- ③ blu
- ④ blk

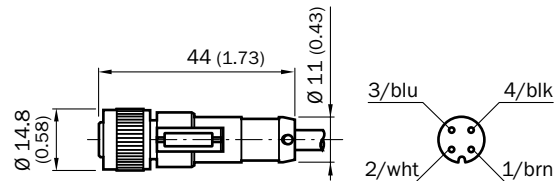
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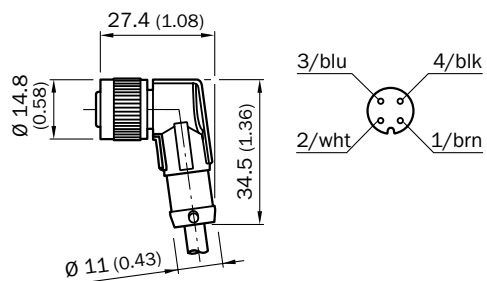
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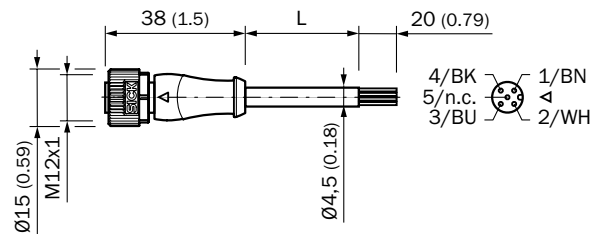
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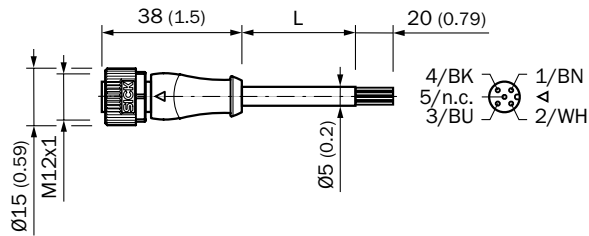
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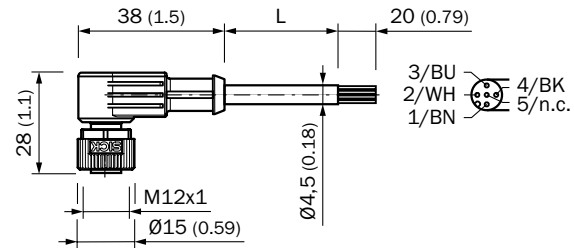
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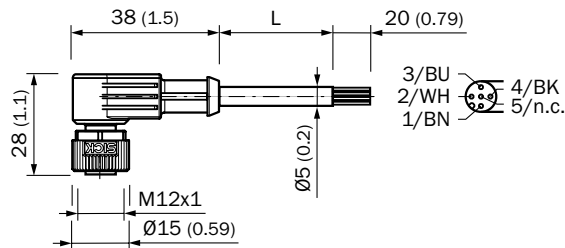
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YG2A14-020VB3XLEAX, YG2A14-050VB3XLEAX,
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YG2A14-200VB3XLEAX



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