BEDIA®

MOTORENTECHNIK

# LEVEL MONITORING SENSORS

With E1 type approval

- TYPE **CLS 40 12/24 V DC**
- TYPE **CLS 45 5/12 V DC**

THOUGHT-OUT SOLUTIONS AT THE HIGHEST LEVEL

AEO

TÜV SÜD ISO 9001
Certified Quality Management System
www.tuv-sud.com/ms-cert

TÜV SÜD ISO 14001
Certified Environmental Management System
www.tuv-sud.com/ms-cert

# CONTENT

# BEDIA

## The company

### Measuring with system and passion

As a high performance and innovative company BEDIA developes, produces and distributes well thought out solutions for level and temperature monitoring.
We have been concentrating our skills in the domain of measuring filling levels and temperatures under extreme operating conditions. We are able to offer customized solutions to the specific requirements of our clients for small to large series. In doing so we are combining tried and tested technologies with innovative product ideas. Our expertise and flexibility are well demonstrated in the developement of customer specific solutions.

One thing that all our products have in common is the nonexistence of moving or adjustable parts; our parts are not subject to mechanical interference and exhibit exceptional operational reliability.

Since 1986 BEDIA Motorentechnik is a valued partner of numerous manufacturers of agricultural and construction machinery, compressors, engines, power train control systems and utility vehicles.
The high quality requirements of our world wide operating customers are our motivation for the constant improvement of our products and processes. The stable customer relationships of many years standing express the high quality of our products and the satisfaction of our customers.

We hope you will get a comprehensive overview of our products from this catalog. Please feel free to contact us, we will be happy to assist you with our advice and experience.

## Company history at a glance

**2018** currently about 140 employees

**2016** 30th company anniversary

**2012** Foundation of BEDIA Sensors USA in Austin, Texas

**2009** Relocation of BEDIA Motorentechnik and BEDIA Kabel to the new corporate building in Altdorf in the industrial park near the A6.

**2008** Takeover of the production for sensors from the business entit E-T-A in Altdorf

**2006** Spin-off of the new BEDIA Kabel business unit from BEDIA Motorentechnik GmbH & Co. KG into BEDIA Kabel GmbH & Co. KG.

**2005** Reorganization of BEDIA Motorentechnik GmbH into BEDIA Motorentechnik GmbH & Co. KG, preparation and the transfer of business administration to Holger Schultheis.

**2000** Sale of the water treatment business unit to Aqua-Concept GmbH.

**1994** Transfer of the Sensor Systems and Water Treatment business unit from BEDIA Maschinenfabrik to BEDIA Motorentechnik.

**1986** Foundation of BEDIA Motorentechnik in Leinburg. Core focus business with vehicle wiring cables and delivery of sensor parts for the Bedia Maschinenfabrik in Bonn.

### Our products at a glance

- capacitive level sensors for a versatile range of applications:
  - CLS 20/25 for railway applications tested according to DIN EN 50155
  - CLS 40/45 for off- and onroad applications with E1-type approval of the KBA
  - CLS 50/55 for maritime applications with approvals of the classification societies
- intelligent, analog tank sensors for fuels and oils
- intelligent, analog hot wire sensors for monitoring oil sump fill levels
- temperature sensors
- mechanical temperature switches
- electronic temperature switches
- electronic temperature sensors
- DC/DC converters

**We are certified in accordance with ISO 9001:2015 and ISO 14001:2015.**

# GENERAL DESCRIPTION

## Areas of application and advantages

BEDIA level monitoring sensors are used to monitor the filling levels of liquids. The sensors react when a filling level is exceeded or falls below a limit.

Aqueous mediums like coolants, AdBlue®, fresh water, waste water, bilge water and oil-based liquids like motor oils, hydraulic oils, fuels and brake fluids can be monitored. Due to their rugged design, high IP protection classes and a working temperature range from -40°C to 125°C (-40°F to +257°F) the BEDIA monitoring sensors are primarily used in the following areas:

- **ENGINES**
- **CONSTRUCTION EQUIPMENT**
- **UTILITY VEHICLES**
- **AGRICULTURAL MACHINERY**
- **HYDRAULIC POWER-TRAIN CONTROL SYSTEMS**

**Wherever pressure switches or temperature sensors are today used as level monitoring elements, this sensor offers the advantage of indicating a critical condition far earlier:**

Temperature sensors frequently react too late, because the medium to be monitored is no longer present. The rise in temperature is not passed on to the pick-up sensor. Pressure switches do not indicate low oil until there is a total shortage of oil and thus too late to protect the engine. The level sensor issues a warning when there is still enough medium present.

Sensor for water-based liquids

Sensor for oil-based liquids

**BEDIA Level Monitoring Sensors differ from float-type switches in their compact design and their resistance to vibration:**

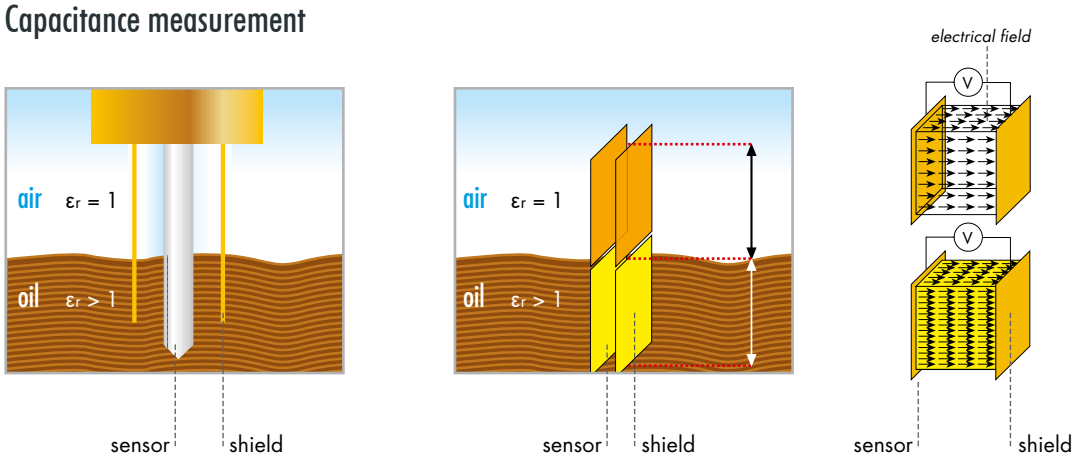
Since they contain no mechanical moving parts, their function will not be influenced by dirt particles or other influences. No electrical current is sent through the medium via an electrode with BEDIA sensors, an electrolysis of the medium is not possible.

# MEASURABLE MEDIUMS

## Operating principle

The function of the sensor is based on the capacitive principle. It detects the change in capacitance that arises when an electrode surrounded by air is immersed into a liquid medium. This change in capacitance at the electrode of the sensor excites an oscillator, causing it to oscillate (at a frequency of approx. 600 kHz). Then this signal is processed by a microprocessor-based evaluation circuit.

## Capacitance measurement



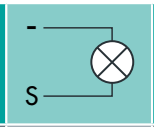
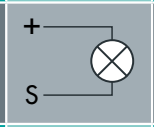
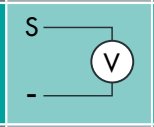
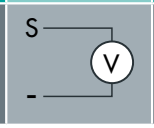

## Types of media

The level monitoring sensors are designed for two different media types:

- **For electrically conductive liquid media with relative permittivity within a range of $\varepsilon_r$ 35 ... 85 (water, coolant, water/glycol mixture)**
- **For electrically non-conductive liquid media with relative permittivity within a range of $\varepsilon_r$ 1.8 ... 6 (engine oil, fuels, hydraulic oil)**

# SWITCHING OUTPUTS

## Output variants available

| | | | Low Voltage (LV) $U_B$ = 4,5 - 18 V Type CLS-45 | High Voltage (HV) $U_B$ = 9 - 36 V Type CLS-40 |
|---|---|---|---|---|
| positive switching (HSS) |  | The output transistor switches positive potential at the outlet | ✓ 1 A short circuit and overload proof | ✓ 1 A short circuit and overload proof |
| negative switching (LSS) |  | The output transistor switches negative potential at the outlet | ✓ 0.5 A short circuit and overload proof | ✓ 1 A short circuit and overload proof |
| analog output (AOV) |  | 0.5 V* or 4.5 V* output voltage<br>*other values on request | ✓ | ✓ |
| proportional analog output 30 % / 70 % (AOP) |  | 30 %* or 70 %* respectively of the supply voltage as output voltage<br>*other values on request | ✓ | – |

## Automatic operational check time

The sensors have a two-second operational check built in as standard. When the supply voltage is applied (such as ignition being switched on), this signal appears for two seconds, thus signalling readiness to function. If this signal does not appear, the sensor should be checked. This self-monitoring makes it possible to check the level monitoring sensors from a central point for their readiness to function as well as for cable break. Especially in intricate, rambling systems, such as ships, checking conventional level switches is very difficult.

**Other function control times are also available upon request.**

## Fault indication delay time

To avoid indication errors when the swashing surface produces short fluctuations of the liquid level, the output signal is delayed with the standard fault indication delay time time of seven seconds.

**Other indication delay times are available upon request.**

# INSTALLATION INSTRUCTION

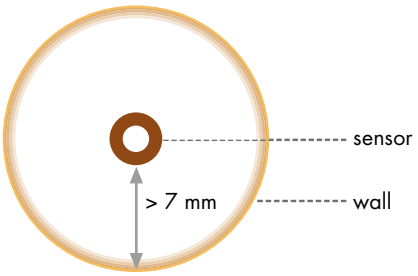
## Mounting position

**BEDIA Level Monitoring Sensors may be installed in any position.**

The level sensors must be installed in a damped zone so that the medium does not constantly moisten the level sensor by sloshing and splashing, which would cause error messages.

This point is usually applicable for installation in gearboxes or for direct installation in engine oil pans during operation. In such cases, the measurement is only possible at engine shutdown.

It is mandatory to mount the sensor with a minimum distance of 7 mm to the wall.




## Mounting position for water-sensors

If the sensor is installed from above in a non-conductive, e.g plastic container, erroneus messages might occur due to a missing reference potential.
In all other mounting positions, the housing will come in contact with the medium.
This ensures that a reference potential will be present.

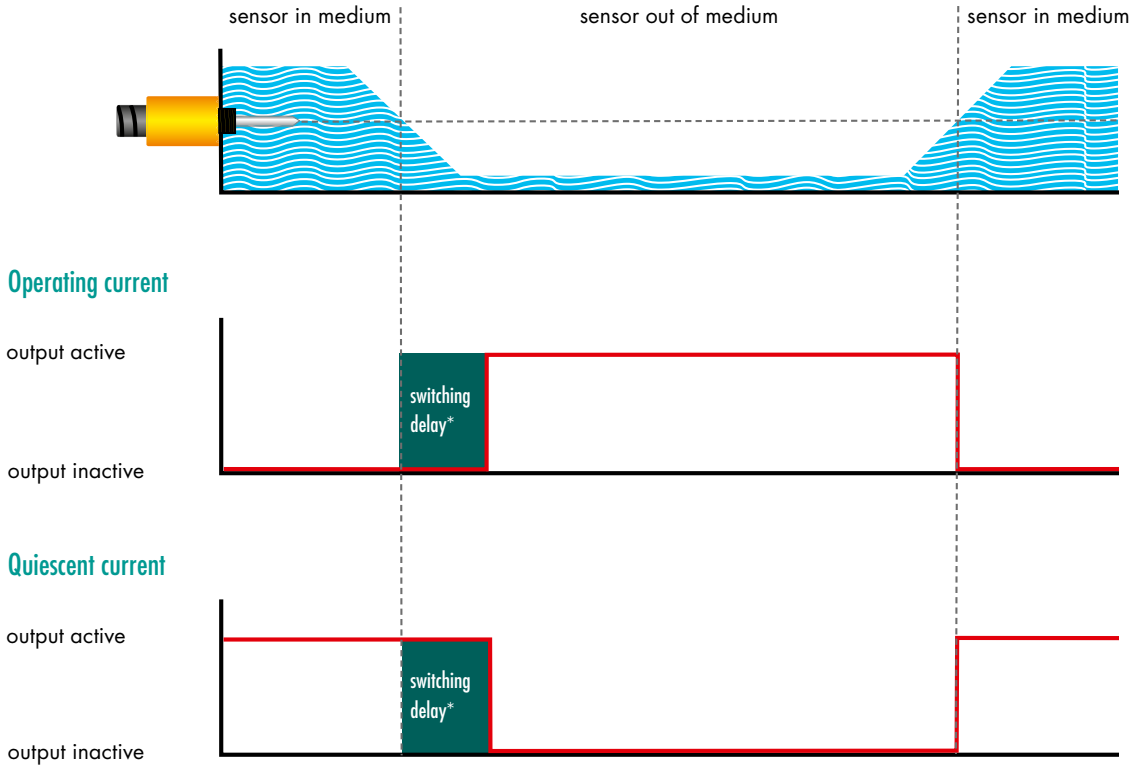
# FUNCTIONALITY OVERVIEW

## Level sensors minimum

### Minimum-Sensors

If a minimum sensor is removed from the medium, its output becomes active after the report delay. If it is a working current sensor, its output becomes low-impedance after the report delay and a signal is available at the output. If it is a quiescent current sensor, its output becomes high-impedance after the report delay and there is no longer a signal available at the output.

If a minimum sensor is immersed in the medium, its output immediately becomes passive. If it is a working current sensor, its output becomes high-impedance after immersion and a signal is no longer available at the output. If it is a quiescent current sensor, its output becomes low-impedance after immersion and there is a signal available at
the output.



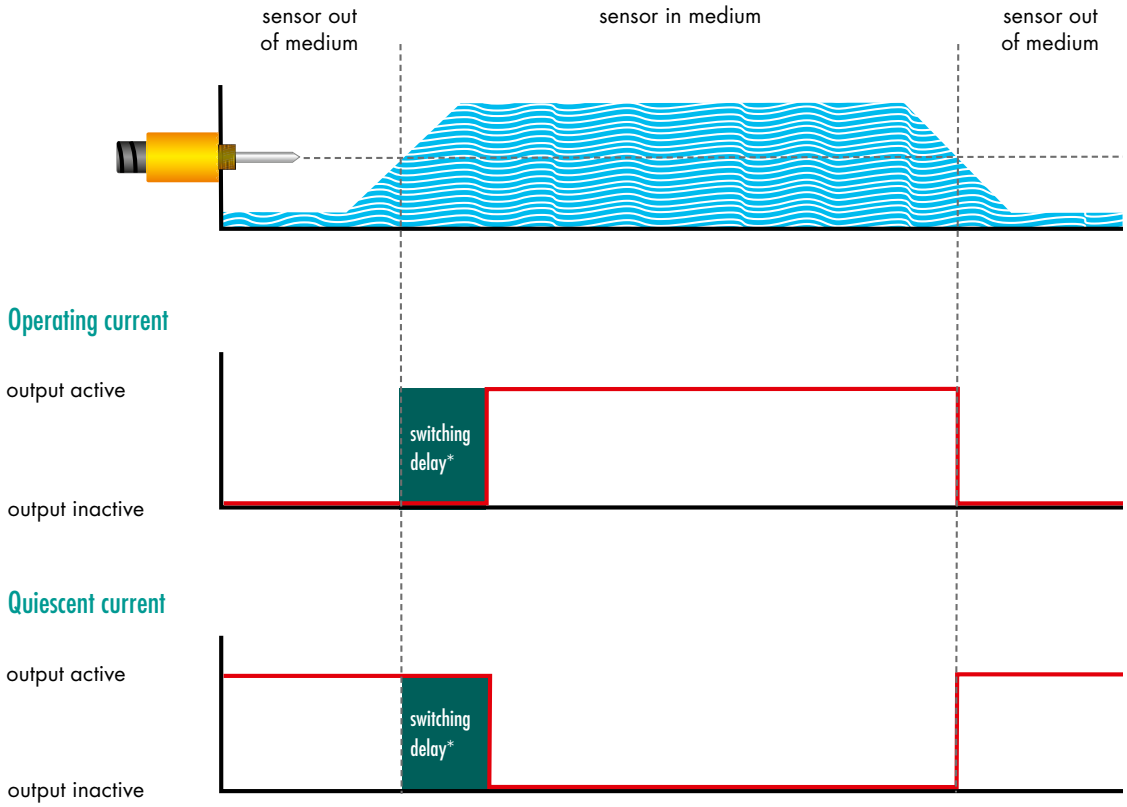

*** It is possible to select a switching delay of 0 sec for immediate switching.**

# Level sensors maximum

## Maximum-Sensors

If a maximum sensor is immersed in the medium, its output becomes active after the report delay. If it is a working current sensor, its output becomes low-impedance after the report delay and a signal is available at the output.
If it is a quiescent current sensor, its output becomes high-impedance after the report delay and there is no longer a signal available at the output.

If a maximum sensor is removed from the medium, its output immediately becomes passive. If it is a working current sensor, its output becomes high-impedance after the removal and there is no longer a signal available at the output. If it is a quiescent current sensor, its output becomes low-impedance after removal and a signal is available at the output.




*** It is possible to select a switching delay of 0 sec for immediate switching.**

# OVERVIEW OF THE CONNECTIONS

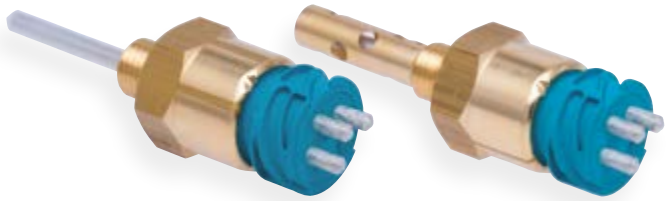
## Level sensors Type CLS 40/45

### Connector bayonet ISO 15170
### Protection class IP 69K DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

UL approval refer to order number overview

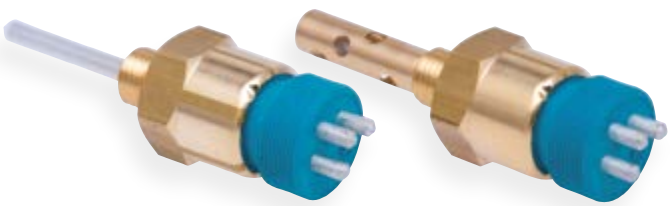
» Order number overview starting at page 24



### Connector bayonet 16 S
### Protection class IP 67 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

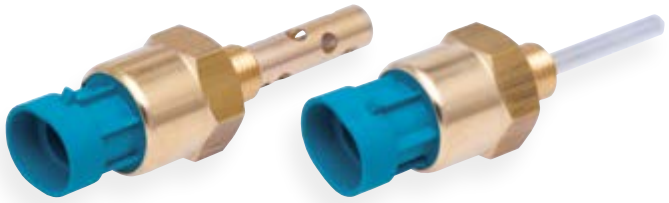
» Order number overview starting at page 26



### Connector fine thread M 27 x 1
### Protection class IP 67 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

» Order number overview starting at page 28



## Connector Packard 4-pin Metri Pack
## Protection class IP 67 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

» Order number overview starting at page 29

## Connector DEUTSCH
## Protection class IP 67 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

» Order number overview starting at page 30

## Connector bayonet 10 SL VG 95234
## Protection class IP 67 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

ATEX approval refer to order number overview

» Order number overview starting at page 31

# OVERVIEW OF THE CONNECTIONS

## Level sensors Type CLS 40/45

### Connector fine thread 5/8-24 UNEF-2A VG 95342 Protection class IP 67 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

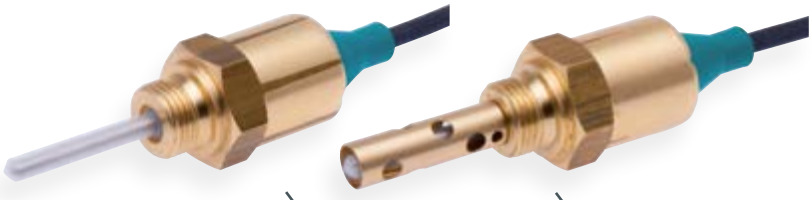
ATEX approval on request possible

» Order number overview starting at page 32

### Connector DIN EN 175 301-803-A Protection class IP 65 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

» Order number overview starting at page 33



### With Cable Protection class IP 69K DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

ATEX approval refer to order number overview

» Order number overview starting at page 34

■ With EMC cable connection and shielded line
Protection class IP 68 DIN 40050

E1-type approval in accordance with ECE regulation No. 10,
CE marking in accordance with the EU directive 2004/108/EG

# Special versions

■ Level monitoring sensor with sensing pin 80 mm long

■ Level monitoring sensors for high-viscous oils

# ACCESSORIES

## For level monitoring sensors

4-pin bayonet ISO 15170
straight connector for corrugated tubing NW10

» Order number overview on page 25

4-pin bayonet ISO 15170
90° angle for corrugated tubing NW10

» Order number overview on page 25

4-pin bayonet ISO 15170
straight connector for cable

» Order number overview on page 25

4-pin bayonet ISO 15170
90° angle for cable

» Order number overview on page 25

Ready-made cable Type FL33X33X 3 x 0,75 mm²
with 4-pin bayonet ISO 15170 straight connector

» Order number overview on page 25

Ready-made cable Type FL33X33X 3 x 0,75 mm²
with 4-pin bayonet ISO 15170 90° angle

» Order number overview on page 25

3-pin bayonet 16 S
straight connector for cable

» Order number overview on page 27

3-pin bayonet connector 16 S
90° angle for corrugated tubing NW10

» Order number overview on page 27

3-pin bayonet 16 S straight connector
for corrugated tubing NW10

» Order number overview on page 27

3-pin bayonet 16 S
90° angle for cable

» Order number overview on page 27

Ready-made cable Type FL33X33X 3 x 0,75 mm²
with 3-pin bayonet connector 16 S straight

» Order number overview on page 27

or with 3-pin connector M 27 x 1 straight

» Order number overview on page 32

Ready-made cable Type FL33X33X 3 x 0,75 mm²
with 3-pin bayonet connector 16 S 90° angle

» Order number overview on page 27

or with 3-pin connector M 27 x 1 90° angle

» Order number overview on page 32

# ACCESSORIES

## For level monitoring sensors

3-pin connector M 27 x 1
straight for corrugated tubing NW10

» Order number overview on page 28

3-pin connector M 27 x 1
90° angle for corrugated tubing NW10

» Order number overview on page 28

3-pin connector M 27 x 1
straight for cable

» Order number overview on page 28

3-pin connector M 27 x 1
90° angle for cable

» Order number overview on page 28

4-pin Packard connector Metri Pack

» Order number overview on page 29

3-pin plug with centralized screw
M 3 x 35 DIN EN 175 301-803-A

» Order number overview on page 33

Plug-in connector bayonet 10 SL straight with mounting flange VG 95234

» Order number overview on page 31

or connector fine thread 5/8-24 UNEF-2A straight VG 95342

» Order number overview on page 32

Plug-in connector bayonet 10 SL 90° angle with mounting flange VG 95234

» Order number overview on page 31

or connector fine thread 5/8-24 UNEF-2A 90° angle VG 95342

» Order number overview on page 32

Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 straight

» Order number overview on page 31

Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 90° angle

» Order number overview on page 31

Screw-in adapter

» Order number overview from page 25-31

Braze-on adapter

» Order number overview from page 25-31

# ACCESSORIES

## for level monitoring sensors in the oil sump

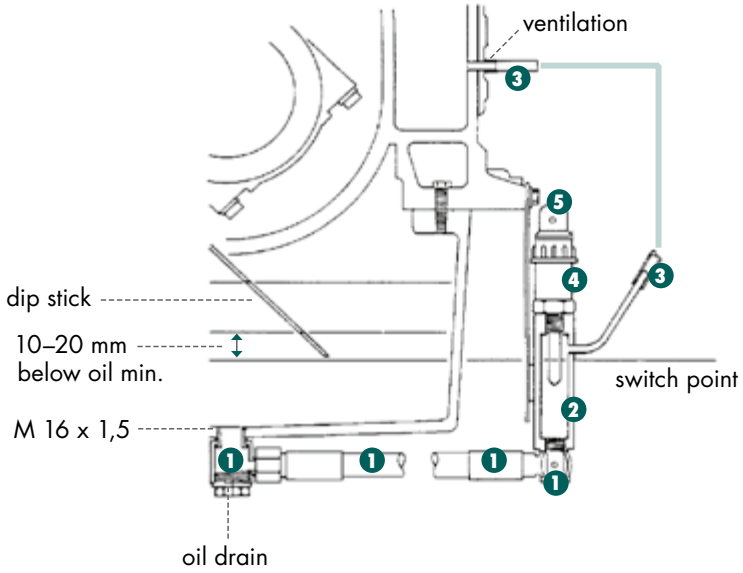
### Proposal for level monitoring in the oil sump

**Which are the benefits of a level monitoring system in the oil sump over conventional pressure and temperature sensors?**

Temperature sensors react very slowly. When engine oil is lost, e. g. by tubing breakage, the engine temperature is no longer conducted to the sensor.

The lower limit value of oil pressure switches or sensors is set low (low oil pressure, with the motor running at no load). At rated motor speed and with too little oil in the oil circuit an oil-air mixture may be formed and no alarm signal is given. The engine is no longer sufficiently cooled and lubricated.

**In the two events described above, the alarm signal is available either too late or even not at all so that the engine will be damaged. The level monitoring sensor gives the alarm before a serious oil deficiency occurs. The oil deficiency is indicated as soon as the oil level has fallen 10 to 20 mm below the minimum marking on the dipstick.**




| Special accessoires for level sensors type CLS 40 and type CLS 45 | | | | |
|---|---|---|---|---|
| **Order No.** | **Description** | **Length** | | **Picture-Nr. (see illustration)** |
| 421 660 | Tubing complete with 350 mm pipe coupling | 350 mm | | 1 |
| 421 661 | Tubing complete with 450 mm pipe coupling | 450 mm | | 1 |
| 421 659 | Tubing complete with 550 mm pipe coupling | 550 mm | | 1 |
| 454 134 | Sensor support | | | 2 |
| 421 662 | PA pipe, available in meters | | | 3 |
| 320 431 | Level monitoring sensor | OIL MIN 9–36 V | | 4 |
| 320 454 | Level monitoring sensor | OIL MAX 9–36 V | | 4 |
| 420 703 | Connector ISO 15170 | straight | | 5 |
| 420 702 | Connector ISO 15170 | 90° angle | | 5 |
| 420 707 | Connector ISO 15170 | straight with cable 1000 mm | | 5 |
| 420 706 | Connector ISO 15170 | 90° angle with cable 1000 mm | | 5 |

## Installation instructions

1. Drain the engine oil.
2. Fasten adjustable corner swivelling screw-fitting to the engine with hose line and sensor bracket.
   The sensor holder has to be adjustable by the slots to determine the minimum point.
3. Install the ventilation to the crankcase (such as inspection hole cover)
4. Install and connect the sensor.
5. Check for correct electrical function. The minimum sensor must indicate now.
6. Refill the oil up to the minimum marking on the dip stick.
7. Move the sensor and support slowly down until the signal is no longer available.
   The switch point of the sensor is now exactly at the minimum oil level of the motor.
8. Move the sensor down by another 10 to 20 mm and fix it. The signal „oil level too low“ will now be put out when the level is approx. 10 to 20 mm below the minimum marking on the dipstick.

# TECHNICAL DATA

## For level monitoring sensors CLS 40

| | |
|---|---|
| Medium | water / oil |
| Function | minimum / maximum |
| Operating voltage | 12 / 24 V (-25% / +50%) (9 - 36 V DC) |
| Current consumpltion | typ. < 8mA |
| Output | low-side switch / high-side switch / analog voltage |
| | ≤ 1 A over the whole temperature range. Short-circuit and overload protected over the ambient temperature range. For inductive loads freewheeling diode e.g. 1N4007, has to be mounted at the load. |
| Mounting thread | see order number overview |
| Function control time | see order number overview |
| Fault indication delay time | see order number overview |
| Connection | see overview of the connections |
| Housing material | standard brass, CuZn38Pb2, EN12146; CW608N |
| | optional stainless steel X5Cr Ni 1810, EN10088-3, 1.4301 housing capacitive connected to ground |
| Sensor coating | Tefzel® ETFE |
| Sensor protection | IP 65 - 69K to DIN40050 (depending on connector type) |
| Switch point hysteresis | typ. < 3 mm |
| Medium temperature | -40°C to +125°C water / +150°C oil (-40°F to +257°F/302°F) |
| Ambient temperature | -40°C to +125°C (-40°F to +257°F) |
| Storage temperature | -50°C to +125°C (-58°F to +257°F) |
| Mounting position | any |
| Reverse polarity protection | built-in, between positive and negative terminal |

**Caution!**

With low-side switching sensors do not connect **minus potential** to the signal terminal and plus potential to the minus terminal. With high-side switching sensors do not connect **plus potential** to the signal terminal and minus potential to the plus terminal.

| | |
|---|---|
| Approval | E1 10R – 03 5459 |
| Customs tariff number | 90261029 |

| **Environmental simulations** | |
|---|---|
| Vibration | ISO 16750-3:2007 10 Hz - 2000 Hz 20 g |
| Free Fall | IEC 16750 |
| Machanical Shock | DIN EN 60068-2-27:1995; 100 g / 11 ms |
| Dry Cold | DIN EN 60068-2-1:2006; -40°C / 24 h (-40°F / 24 h) |
| Dry Heat | DIN EN 60068-2-1:2008; -125°C / 96 h (+257°F / 96 h) |
| Temperature cycling | DIN EN 60068-2-14:2000 |
| Damp Heat | DIN EN 60068-7-78:2002 |
| Damp Heat, steady state | DIN EN 60068-2-30:2006 |
| Salt spray | DIN EN 60068-2-52:1996 |
| Pressure resistance | 2,5 Mpa (25 bar / 362,6 psi) (25°C / 77°F / 1 h) |

| **EMC** | |
|---|---|
| Radiated emission | 2004/104/EG 30 MHz - 1 GHz; 1 m |
| Conducted transient emission | ISO 7637-2:2004 |
| Immunity to RF electromagnetic fields | ISO 11452-1/-2/-5 20 MHz - 2000 MHz; 150 V / m (rms) |
| Transient immunity test on power lines | ISO 7637-2/2004 pulses 1, 2a, 2b, 3a, 3b, 4 |

# TECHNICAL DATA

## For level monitoring sensors CLS 45

| | |
|---|---|
| Medium | water / oil |
| Function | minimum / maximum |
| Operating voltage | 5 / 12 V (-10% / +50%) (4,5 - 18 VDC) |
| Current consumpltion | typ. < 8mA |
| Output | low-side switch / high-side switch / analog voltage |
| | ≤ 0,5 A over the whole temperature range.<br>(1 A at high-side switch)<br>Short-circuit and overload protected over the ambient temperature range. For inductive loads freewheeling diode e.g. 1N4007, has to be mounted at the load. |
| Mounting thread | see order number overview |
| Function control time | see order number overview |
| Fault indication delay time | see order number overview |
| Connection | see connector type |
| Housing material | standard brass, CuZn38Pb2, EN12146; CW608N |
| | optional stainless steel X5Cr Ni 1810, EN10088-3, 1.4301<br>housing capacitive connected to ground |
| Sensor coating | Tefzel® ETFE |
| Sensor protection | IP 65 - 69K to DIN40050 (depending on connector type) |
| Switch point hysteresis | typ. < 3mm |
| Medium temperature | -40°C to +125°C water / +150°C oil (-40°F to +257°F/302°F) |
| Ambient temperature | -40°C to +125°C (-40°F to +257°F) |
| Storage temperature | -50°C to +125°C (-58°F to +257°F) |
| Mounting position | any |
| Reverse polarity protection | built-in, between positive and negative terminal |

**Caution!**

With low-side switching sensors do not connect **minus potential** to the signal terminal and plus potential to the minus terminal.

| | |
|---|---|
| Approval | E1 10R – 03 5459 |
| Customs tariff number | 90261029 |

| **Environmental simulations** | |
|---|---|
| Vibration | ISO 16750-3:2007 10 Hz - 2000 Hz 20g |
| Free Fall | IEC 16750 |
| Machanical Shock | DIN EN 60068-2-27:1995; 100 g / 11ms |
| Dry Cold | DIN EN 60068-2-1:2006; -40°C / 24 h (-40°F / 24 h) |
| Dry Heat | DIN EN 60068-2-1:2008; -125°C / 96 h (+257°F / 96 h) |
| Temperature cycling | DIN EN 60068-2-14:2000 |
| Damp Heat | DIN EN 60068-2-78:2002 |
| Damp Heat, steady state | DIN EN 60068-2-30:2006 |
| Salt spray | DIN EN 60068-2-52:1996 |
| Pressure resistance | 2,5 Mpa (25 bar / 362,6 psi) (25°C / 77°F / 1 h) |

| **EMC** | |
|---|---|
| Radiated emission | 2004/104/EG 30 MHz - 1 GHz; 1 m |
| Conducted transient emission | ISO 7637-2:2004 |
| Immunity to RF electromagnetic fields | ISO 11452-1/-2/-5 20 MHz - 2000 MHz; 150 V / m (rms) |
| Transient immunity test on power lines | ISO 7637-2/2004 pulses 1, 2a, 3a, 3b, 4 |

# ORDER NUMBER OVERVIEW

## Connector bayonet ISO 15170

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 320 400 | - | 320 431 | - | 320 401 | - | 320 432 | 350 371 |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 0 | - | - | 320 476 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 2 | - | - | - | - | - | - | - | 350 278 |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 7 | 320 459 | 320 402 | 320 446 | 320 433 | 350 448 | 320 403 | - | 320 428 |
| M 14 x 1,5 | 4,5-18 V DC | MIN | 0 | 7 | - | 350 199 | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 0 | 320 487 | 320 467 | 350 434 | 320 571 | 320 477 | - | 350 245 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 0 | - | - | 320 454 | 320 495 | 320 413 | - | 320 414 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 2 | - | - | - | - | - | - | 350 217 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 7 | - | - | - | 350 261 | 322 535 | 320 425 | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 2 | 320 419 | 350 132 | 320 447 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 1 | 17 | 320 451 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 60 | - | - | 320 449 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 3600 | - | - | 320 444 | - | - | - | - | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 320 404 | - | 320 435 | - | 320 405 | - | 320 436 | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 0 | 7 | 320 417 | 320 406 | - | 320 437 | - | 320 407 | - | 320 438 |
| M 18 x 1,5 | 4,5-18 V DC | MIN | 0 | 7 | - | 350 306 | - | - | - | - | - | - |
| M 18 x 1,5 | 4,5-18 V DC | MAX | 0 | 0 | 350 117 | - | 350 118 | - | - | - | - | - |
| M 18 x 1,5 | 9-36 V DC | MAX | 0 | 0 | 320 422 | - | 320 430 | 350 316 | 350 115 | - | 350 116 | - |
| M 18 x 1,5 | 9-36 V DC | MAX | 0 | 7 | 350 142 | - | 322 538 | - | - | - | - | - |
| M 18 x 1,5 | 9-36 V DC | MAX | 2 | 7 | 350 435 | - | 320 464 | 320 465 | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 320 408 | - | 320 439 | | 320 409 | | 320 440 | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 7 | 320 418 | 320 410 | - | 320 441 | - | 320 411 | 320 443 | 320 442 |
| 1/4" NPTF | 9-36 V DC | MIN | 1 | 17 | 320 415 | - | - | - | 320 486 | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 0 | - | - | 320 463 | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MAX | 0 | 0 | 320 429 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MAX | 2 | 7 | - | - | 320 456 | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MAX | 2 | 0 | - | - | 320 470 | - | - | - | - | - |
| 1/2" NPTF | 9-36 V DC | MIN | 2 | 2 | - | - | - | - | 350 134 | - | 350 133 | - |
| 1/2" NPTF | 9-36 V DC | MIN | 2 | 2 | - | - | - | - | - | - | 350 280 ** | - |
| 1/2" NPTF | 9-36 V DC | MIN | 0 | 7 | - | - | - | 350 460 | - | - | - | - |
| 1/2" NPTF | 9-36 V DC | MAX | 2 | 2 | - | - | - | - | 350 135 | - | 350 198 | - |
| 1/2" NPTF | 9-36 V DC | MAX | 2 | 2 | - | - | - | - | - | - | 350 281 ** | - |
| 1/2" NPT | 9-36 V DC | MIN | 2 | 7 | 322 541 | - | - | - | - | | - | - |
| G 1/4" | 9-36 V DC | MAX | 0 | 7 | - | - | - | - | - | 320 473 | - | - |
| G 1/4" | 9-36 V DC | MAX | 0 | 0 | - | - | - | - | 320 482 | 350 363 | - | - |
| G 3/8" | 9-36 V DC | MIN | 0 | 0 | 320 466 | - | - | 320 481 | - | - | - | - |
| G 3/8" | 9-36 V DC | MIN | 0 | 7 | - | - | 350 433 | - | - | - | - | - |
| G 3/8" | 9-36 V DC | MIN | 2 | 7 | 322 640 | - | - | - | - | - | - | - |
| G 3/8" | 9-36 V DC | MAX | 0 | 7 | 320 420 | - | - | - | - | - | - | - |
| G 3/8" | 9-36 V DC | MAX | 0 | 0 | 320 416 | - | - | - | - | - | 320 448 | - |
| 3/8" NPTF | 9-36 V DC | MIN | 0 | 0 | - | - | - | 320 458 | - | - | - | - |
| 3/8" NPTF | 9-36 V DC | MIN | 0 | 7 | - | 320 613 | - | - | - | - | - | - |
| 3/8" NPTF | 9-36 V DC | MIN | 2 | 7 | - | - | 320 478 | - | - | - | - | - |
| R 1/2" | 9-36 V DC | MIN | 0 | 7 | - | 320 426 | - | - | - | - | - | - |
| R 1/2" | 9-36 V DC | MAX | 2 | 7 | - | - | - | - | - | - | 350 248 | - |

** with UL approval

## ACCESSORIES

| Connector | |
|---|---|
| Order-Nr. | Description |
| 420 700 | 4-pin bayonet ISO 15170 straight connector for corrugated tubing NW10 |
| 420 701 | 4-pin bayonet ISO 15170 90° angle for corrugated tubing NW10 |
| 420703 | 4-pin bayonet ISO 15170 straight connector for cable |
| 420702 | 4-pin bayonet ISO 15170 90° angle for cable |

| Cable with connector | | | |
|---|---|---|---|
| Order-Nr. | Description | Length | Connection |
| 420 694 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 150 mm | 1* |
| 420 705 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 300 mm | 2* |
| 420 792 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 300 mm | 4* |
| 420 707 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 1000 mm | 1* |
| 420 709 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 2000 mm | 1* |
| 420 717 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 3000 mm | 1* |
| 420 714 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 5000 mm | 1* |
| 619 091 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 5000 mm | 4* |
| 420 719 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 6000 mm | 1* |
| 420 755 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 7000 mm | 1* |
| 421 730 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 straight connector | 10000 mm | 1* |
| 420 694 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 150 mm | 1* |
| 420 704 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 300 mm | 2* |
| 420 706 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 1000 mm | 1* |
| 420 764 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 2000 mm | 1* |
| 420 708 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 3000 mm | 1* |
| 420 756 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 4000 mm | 1* |
| 420 718 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 5000 mm | 1* |
| 420 716 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 6000 mm | 1* |
| 420 715 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 10000 mm | 1* |
| 420 795 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 12000 mm | 1* |
| 423 158 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 4-pin bayonet ISO 15170 90° angle | 15000 mm | 1* |

1* Cable with flying leads 2* Cable with 3 pole blade terminals 6.3 in housing 3* Cable end with 3-pin DEUTSCH connector 4* Cable with 3-pin M 12 x 1 connector

| Screw-in adapter | | |
|---|---|---|
| Order-Nr. | Thread outside | Thread inside |
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

| Braze-on adapter | |
|---|---|
| Order-Nr. | Thread inside |
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Connector bayonet 16 S

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 12 x 1 | 9-36 V DC | MIN | 2 | 7 | 321 404 | 321 400 | 321 593 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 321 575 | 321 411 | 321 595 | - | 325 002 | - | 325 003 | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 7 | 321 564 | 321 579 | 321 590 | 321 599 | - | 350 207 | 325 034 | 325 005 |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 0 | 322 528 | - | 322 529 | - | 350 404 | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 0 | - | - | 321 562 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 2 | 322 502 | - | 322 508 | - | - | - | 322 510 | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 15 | 321 637 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 0 | - | - | 322 511 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 2 | 2 | - | - | 322 509 | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 2 | - | - | - | - | 325 004 | - | - | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 321 570 | - | 321 572 | - | 325 006 | - | 325 007 | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 0 | 7 | - | 321 571 | 322 031 | 321 573 | - | 325 008 | - | 325 009 |
| M 18 x 1,5 | 9-36 V DC | MAX | 0 | 7 | - | - | - | - | - | - | - | 325 033 |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 321 577 | - | 321 597 | - | 325 010 | - | 325 011 | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 7 | 321 581 | 320 993 | - | 324 999 | 325 000 | 325 013 | - | 325 012 |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 15 | 321 401 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 20 | 321 636 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MAX | 2 | 7 | 350 430 | - | - | - | - | - | - | - |
| 3/8" NPTF | 9-36 V DC | MIN | 2 | 7 | 320 992 | - | 320 994 | - | 325 014 | - | 325 015 | - |
| 3/8" NPTF | 9-36 V DC | MIN | 0 | 7 | - | - | - | - | - | - | 325 001 | 325 029 |

## ACCESSORIES

| Connector | |
|---|---|
| Order-Nr. | Description |
| 421 672 | 3-pin bayonet 16 S straight connector for corrugated tubing NW10 |
| 421 673 | 3-pin bayonet connector 16 S 90° angle for corrugated tubing NW10 |
| 421 772 | 3-pin bayonet 16 S straight connector for cable |
| 421 773 | 3-pin bayonet 16 S 90° angle for cable |

| Cable with connector | | | |
|---|---|---|---|
| Order-Nr. | Description | Length | Connection |
| 421 670 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 300 mm | 2* |
| 421 871 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 500 mm | 13* |
| 421 891 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 800 mm | 2* |
| 421 018 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 1015 mm | 2* |
| 421 586 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 1300 mm | 2* |
| 421 668 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 3000 mm | 2* |
| 421 775 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 5000 mm | 2* |
| 421 774 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S straight | 15000 mm | 2* |
| 421 671 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle | 300 mm | 2* |
| 421 017 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle for corrugated tubing NW10 | 300 mm | 12* |
| 421 709 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle | 770 mm | 13* |
| 421 585 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle | 1300 mm | 2* |
| 421 669 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle | 5000 mm | 1* |
| 420 809 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle | 10000 mm | 1* |
| 421 587 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin bayonet connector 16 S 90° angle | 10000 mm | 12* |

1* Cable with flying leads 2* Cable with 3 pole blade terminals 6.3 in housing 12* Cable end without housing with flat quick-connect terminations 6.3 x 0.8
13* Cable end with DEUTSCH connector DT04-3P

| Screw-in adapter | | |
|---|---|---|
| Order-Nr. | Thread outside | Thread inside |
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1“ | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

| Braze-on adapter | |
|---|---|
| Order-Nr. | Thread inside |
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Connector fine thread M 27 x 1

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 321 603 | - | 321 623 | 321 533 | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 2 | 0 | 320 484 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 7 | - | 321 611 | 321 634 | 321 631 | - | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 20 | 321 617 | - | - | - | - | - | - | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 321 200 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 321 607 | - | 321 627 | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 7 | - | 325 316 | - | - | - | - | - | - |
| 1/2" NPTF | 9-36 V DC | MIN | 0 | 7 | - | 350 209 | - | - | - | - | - | - |

## ACCESSORIES

**Connector**

| Order-Nr. | Description |
|---|---|
| 421 642 | 3-pin connector M 27 x 1 straight for corrugated tubing NW10 |
| 421 643 | 3-pin connector M 27 x 1 90° angle for corrugated tubing NW10 |
| 421 742 | 3-pin connector M 27 x 1 straight for cable |
| 421 743 | 3-pin connector M 27 x 1 90° angle for cable |

**Cable with connector**

| Order-Nr. | Description | Length | Connection |
|---|---|---|---|
| 421 988 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin connector M 27 x 1 straight | 300 mm | 2* |
| 421 038 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin connector M 27 x 1 90° angle | 300 mm | 2* |
| 421 588 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin connector M 27 x 1 straight | 10000 mm | 1* |

1* Cable with flying leads 2* Cable end with blade terminals 6.3

**Screw-in adapter**

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

**Braze-on adapter**

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Connector Packard 4-pin Metri Pack

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 320 551 | - | 320 552 | - | 320 553 | - | 320 554 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 0 | 320 555 | - | 320 556 | - | 320 557 | - | 320 558 | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 320 563 | - | 320 564 | - | 320 565 | - | 320 566 | - |
| M 18 x 1,5 | 9-36 V DC | MAX | 0 | 0 | 320 567 | - | 320 568 | - | 320 569 | - | 320 570 | - |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 320 576 | - | 320 577 | - | 320 578 | - | 320 579 | - |
| 1/4" NPTF | 9-36 V DC | MAX | 0 | 0 | 320 580 | - | 320 581 | - | 320 582 | - | 320 583 | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 10 | 350 212 | 350 410 | - | - | - | - | - | - |
| 3/8" NPTF | 9-36 V DC | MIN | 2 | 7 | 320 590 | - | 320 591 | - | 320 592 | - | 320 593 | - |
| 3/8" NPTF | 9-36 V DC | MAX | 0 | 0 | 320 594 | - | 320 595 | - | 320 596 | - | 320 597 | - |
| 7/8" UNF | 9-36 V DC | MIN | 2 | 7 | 320 542 | - | 320 544 | - | 320 545 | - | 320 546 | - |
| 7/8" UNF | 9-36 V DC | MAX | 0 | 0 | 320 547 | - | 320 548 | - | 320 549 | - | 320 550 | - |
| 1/2" NPT | 9-36 V DC | MIN | 2 | 7 | 350 208 | - | 350 365 | - | - | - | - | - |
| 1/2" NPTF | 9-36 V DC | MIN | 0 | 2 | 350 299 | - | - | - | - | - | - | - |
| 1/2" NPTF | 4,5-18 V DC | MIN | 2 | 7 | 350 416 | - | - | - | - | - | - | - |

## ACCESSORIES

**Connector**

| Order-Nr. | Description |
|---|---|
| 421 763 | 4-pin Packard connector |

**Screw-in adapter**

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

**Braze-on adapter**

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Connector DEUTSCH

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 350 143 | - | 350 144 | - | 350 145 | - | 350 146 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 0 | 350 147 | - | 350 148 | - | 350 149 | - | 350 150 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 2 | - | - | - | - | 350 436 | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 0 | 7 | - | - | - | - | 350 247 | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 0 | - | - | - | - | - | 350 383 | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 7 | - | - | - | - | 350 384 | - | - | - |
| M18 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 350 151 | - | 350 152 | - | 350 153 | - | 350 154 | - |
| M18 x 1,5 | 9-36 V DC | MAX | 0 | 0 | 350 155 | - | 350 156 | - | 350 157 | - | 350 158 | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 7 | 350 225 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 350 159 | - | 350 160 | - | 350 161 | - | 350 162 | - |
| 1/4" NPTF | 9-36 V DC | MAX | 0 | 0 | 350 163 | - | 350 164 | - | 350 165 | - | 350 166 | - |
| 3/8" NPTF | 9-36 V DC | MIN | 2 | 7 | 350 167 | - | 350 168 | - | 350 169 | - | 350 170 | - |
| 3/8" NPTF | 9-36 V DC | MAX | 0 | 0 | 350 171 | - | 350 172 | - | 350 173 | - | 350 174 | - |
| 7/8" UNF | 9-36 V DC | MIN | 2 | 7 | 350 175 | - | 350 176 | - | 350 177 | - | 350 178 | - |
| 7/8" UNF | 9-36 V DC | MAX | 0 | 0 | 350 179 | - | 350 180 | - | 350 181 | - | 350 182 | - |

## ACCESSORIES

**Connector**

| Order-Nr. | Description |
|---|---|
| 420 733 | 3-pin connector DT06-3S |

**Screw-in adapter**

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

**Braze-on adapter**

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Connector bayonet 10 SL VG 95234

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 321 403 | - | 321 504 | - | 321 505 | - | 321 506 | - |
| M 14 x 1,5 | 9-36 V DC | MAX | 2 | 7 | 350 224 | - | - | - | 350 394 | - | - | - |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 7 | - | - | - | - | - | - | - | 321 516 |
| M 14 x 1,5 | 9-36 V DC | MIN | 0 | 0 | - | - | - | 350 264 | - | 321 508 | - | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 2 | 7 | 322 512 | - | 322 513 | - | 321 500 | - | 321 501 | - |
| M 18 x 1,5 | 9-36 V DC | MIN | 0 | 7 | - | 321 989 | - | 321 990 | - | 321 502 | 321 985 | 321 503 |
| M 18 x 1,5 | 9-36 V DC | MIN | 0 | 0 | - | - | - | - | - | - | 321 514 | - |
| M 18 x 1,5 | 9-36 V DC | MAX | 0 | 0 | - | - | - | - | - | - | 321 509 | - |
| M 18 x 1,5 | 9-36 V DC | MAX | 2 | 7 | - | - | 322 514 | - | 350 301 | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 0 | 7 | - | - | - | 321 909 | - | - | - | - |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 321 907 | - | 321 908 | - | 321 498 | - | 321 499 | - |
| 1/4" NPTF | 9-36 V DC | MIN | 2 | 7 | 350 357 * | - | - | - | - | - | - | - |
| 1/2" UNF | 9-36 V DC | MIN | 2 | 7 | - | - | 321 584 | - | - | - | - | - |

## ACCESSORIES

* with ATEX approval

### Connector

| Order-Nr. | Description |
|---|---|
| 421 652 | Plug-in connector bayonet 10 SL straight with mounting flange VG 95234 |
| 421 885 | Plug-in connector bayonet 10 SL 90° angle with mounting flange VG 95234 |

### Cable with connector

| Order-Nr. | Description | Length | Connection |
|---|---|---|---|
| 421 653 | Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 straight | 2000 mm | 1* |
| 421 657 | Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 straight | 5000 mm | 1* |
| 421 658 | Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 90° angle | 2000 mm | 1* |
| 421 841 | Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 90° angle | 3000 mm | 1* |
| 421 697 | Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 90° angle | 5000 mm | 1* |
| 420 805 | Ready-made cable Type CL105 3 x 0,75 mm² with 3-pin bayonet connector 10 SL VG 95234 90° angle | 5000 mm | 1* |

1* Cable with flying leads

### Screw-in adapter

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

### Braze-on adapter

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Connector fine thread 5/8-24 UNEF-2A VG 95342

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 350 183 | - | 350 184 | - | 350 185 | - | 350 186 | - |
| M 14 x 1,5 | 9-36V DC | MAX | 0 | 0 | 350 187 | - | 350 188 | - | 350 189 | - | 350 190 | - |
| M 18 x 1,5 | 9-36V DC | MIN | 2 | 7 | 322 544 | - | 320 461 | - | 350 191 | - | 350 192 | - |
| M 18 x 1,5 | 9-36V DC | MAX | 0 | 7 | 322 555 | - | 350 193 | - | 350 194 | - | 350 195 | - |
| M 18 x 1,5 | 9-36V DC | MAX | 2 | 7 | 350 447 | - | - | - | - | - | - | - |

## ACCESSORIES

**Connector**

| Order-Nr. | Description |
|---|---|
| 421 645 | Plug-in connector fine thread straight VG 95342 |
| 421 649 | Plug-in connector fine thread 90° angle VG 95342 |

**Screw-in adapter**

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

**Braze-on adapter**

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |

# ORDER NUMBER OVERVIEW

## Connector DIN EN 175 301-803-A

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 320 600 | - | 320 620 | - | 320 601 | - | 320 621 | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 7 | - | 320 602 | - | 320 622 | - | 320 603 | - | 320 623 |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 0 | - | - | - | - | - | 350 235 | - | 350 236 |
| M 14 x 1,5 | 9-36V DC | MAX | 2 | 7 | 320 612 | - | - | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MIN | 2 | 7 | 320 604 | - | 320 624 | - | 320 605 | - | 320 625 | - |
| M 18 x 1,5 | 9-36V DC | MIN | 0 | 7 | - | 320 606 | - | 320 626 | - | 320 607 | - | 320 627 |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 7 | 320 608 | - | 320 628 | - | 320 609 | - | 320 629 | - |
| 1/4" NPTF | 9-36V DC | MIN | 0 | 7 | - | 320 610 | - | 320 630 | - | 320 611 | - | 320 631 |
| R 3/8" | 9-36V DC | MAX | 0 | 0 | 320 633 | - | 320 632 | - | - | - | - | - |
| G 3/8" | 9-36V DC | MAX | 0 | 0 | 350 402 | - | - | - | 350 242 | - | 320 650 | - |

## ACCESSORIES

**Connector**

| Order-Nr. | Description |
|---|---|
| 421 880 | 3-pin plug with centralized screw M 3 x 35 DIN EN 175 301-803-A |

**Cable with connector**

| Order-Nr. | Description | Length | Connection |
|---|---|---|---|
| 421 965 | Ready-made cable Type FLR33X33X 3 x 0,75 mm² with 3-pin plug with centralized screw M 3 x 35 DIN EN 175 301-803-A | 5000 mm | 1* |

1* Cable with flying leads

**Screw-in adapter**

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

**Braze-on adapter**

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

# ORDER NUMBER OVERVIEW

## Sensors with cable
## Protection class IP 69K DIN 40050

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Cable length mm | Cable connection type | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| M 12 x 1 | 9-36V DC | MIN | 0 | 7 | 1000 | 1* | 321 580 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MAX | 0 | 0 | 1000 | 1* | - | - | - | - | 325 300 | - | 325 301 | - |
| M 14 x 1,5 | 9-36V DC | MAX | 0 | 0 | 15000 | 1* | - | - | - | - | 350 449 | - | - | - |
| M 14 x 1,5 | 9-36V DC | MAX | 0 | 7 | 1000 | 1* | - | - | - | - | 350 244 | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 0 | 250 | 1* | - | 322 558 | - | 322 557 | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MAX | 0 | 0 | 1000 | 9* | - | - | - | - | - | - | 321 530 | - |
| M 1 4x 1,5 | 9-36V DC | MAX | 0 | 0 | 1000 | 8* | - | - | - | - | - | - | 321 529 | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 2 | 500 | 1* | - | - | 321 507 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 2 | 220 | 6* | - | 321 569 | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 7 | 250 | 1* | - | 321 582 | - | 321 993 | - | 325 018 | - | 325 019 |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 7 | 2500 | 1* | - | - | 322 298 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 7 | 300 | 2* | 321 519 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 0 | 7 | 500 | 4* | - | - | 322 507 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MAX | 0 | 7 | 250 | 6* | - | - | 321 568 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 3 | 250 | 3* | - | - | 322 527 | - | - | - | 322 547 | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 2000 | 1* | - | - | 321 929 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 2500 | 1* | 322 297 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 250 | 1* | 322 537 | - | 321 991 | - | 325 016 | - | 325 017 | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 300 | 2* | 321 601 | - | 321 518 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 270 | 4* | - | - | 322 525 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 300 | 4* | 321 531 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 250 | 6* | - | - | 321 072 | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 265 | 7* | 318 154 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 250 | 3* | 321 070 | - | - | - | - | - | - | - |
| M 14 x 1,5 | 9-36V DC | MIN | 2 | 7 | 15000 | 1* | - | - | 350 372 * | - | - | - | - | 350 296 * |
| M 18 x 1,5 | 9-36V DC | MIN | 0 | 0 | 360 | 4* | 325 035 | - | - | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MAX | 0 | 0 | 360 | 4* | 325 036 | - | - | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MAX | 0 | 0 | 350 | 5* | 350 125 | - | 350 126 | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MAX | 0 | 0 | 1000 | 1* | 325 305 | - | 325 304 | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MAX | 0 | 0 | 2000 | 1* | - | - | 325 312 | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MIN | 0 | 7 | 2000 | 1* | - | - | - | 325 309 | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MIN | 0 | 7 | 1000 | 1* | - | - | - | 325 308 | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MIN | 0 | 7 | 250 | 1* | - | - | - | - | - | 325 022 | - | 325 023 |
| M 18 x 1,5 | 9-36V DC | MIN | 2 | 7 | 1000 | 1* | - | - | 321 591 | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MIN | 2 | 7 | 270 | 2* | 322 503 | - | 322 504 | - | 325 020 | - | 325 021 | - |
| M 18 x 1,5 | 9-36V DC | MIN | 2 | 7 | 360 | 4* | 322 515 | - | - | - | - | - | - | - |
| M 18 x 1,5 | 9-36V DC | MAX | 2 | 7 | 360 | 4* | 322 516 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MAX | 0 | 0 | 170 | 1* | 350 239 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 0 | 0 | 250 | 1* | 321 566 | - | 321 567 | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 0 | 250 | 1* | 321 412 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 0 | 360 | 2* | - | - | 321 524 | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 0 | 7 | 250 | 1* | - | 321 999 | 321 561 | 321 997 | - | 325 026 | - | 325 027 |
| 1/4" NPTF | 9-36V DC | MAX | 0 | 7 | 250 | 1* | 321 532 | - | - | 350 228 | - | - | - | 350 227 |
| 1/4" NPTF | 9-36V DC | MAX | 0 | 7 | 500 | 1* | 350 364 | - | - | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 0 | 7 | 500 | 4* | - | 322 521 | - | 322 522 | - | - | 325 303 | - |
| 1/4" NPTF | 9-36V DC | MIN | 0 | 7 | 270 | 4* | - | - | - | - | - | - | - | 322 550 |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 7 | 120 | 1* | - | - | 318 159 | - | - | - | 350 271 | - |



* with ATEX approval

| Thread | Operating voltage | Function | Function control time sec | Fault indication delay time sec | Cable length mm | Cable connection type | Order number for **low-side switch** | | | | Order number for **high-side switch** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Water-based liquids | | Oil-based liquids | | Water-based liquids | | Oil-based liquids | |
| | | | | | | | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current | Operating current | Quiescent current |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 7 | 250 | 1* | 321 402 | - | 321 992 | 322 559 | 325 024 | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 7 | 300 | 2* | 321 605 | - | 321 625 | - | - | - | - | - |
| 1/4" NPTF | 9-36V DC | MIN | 2 | 7 | 500 | 4* | 322 225 | - | 322 226 | - | - | - | - | 322 345 |
| 3/8" NPTF | 9-36V DC | MAX | 0 | 0 | 170 | 1* | - | - | 350 238 | - | - | - | - | - |
| 3/8" NPTF | 9-36V DC | MIN | 0 | 0 | 180 | 11* | - | - | - | 300 001 | - | - | - | - |
| 3/8" NPTF | 9-36V DC | MIN | 0 | 1 | 350 | 4* | - | - | - | 350 105 | - | - | - | - |
| 3/8" NPTF | 9-36V DC | MIN | 0 | 7 | 250 | 1* | - | - | - | - | - | - | - | 325 031 |
| 1/2" NPT | 9-36V DC | MIN | 0 | 0 | 300 | 10* | - | - | - | - | - | - | 322 531 | - |
| 1/2" NPT | 9-36V DC | MIN | 2 | 4 | 300 | 10* | - | - | - | - | 322 532 | - | - | - |
| 1/2" NPT | 9-36V DC | MIN | 2 | 7 | 170 | 1* | 322 540 | - | - | - | - | - | - | - |
| 1/2" NPT | 9-36V DC | MAX | 2 | 7 | 170 | 1* | 322 539 | - | - | - | - | - | - | - |
| G 3/8" | 9-36V DC | MAX | 0 | 0 | 360 | 4* | - | - | 321 510 | - | - | - | - | - |
| G 3/8" | 9-36V DC | MIN | 0 | 0 | 2000 | 1* | - | 322 534 | - | 322 533 | - | - | - | - |
| G 3/8" | 9-36V DC | MIN | 0 | 7 | 250 | 1* | 350 243 | - | - | - | - | - | - | - |
| G 3/8" | 9-36V DC | MAX | 2 | 20 | 3000 | 1* | - | - | - | - | 350 275 * | - | - | - |
| G 1/2" | 9-36V DC | MIN | 2 | 7 | 270 | 2* | 321 515 | - | - | - | - | - | - | - |
| G 1/2" | 9-36V DC | MAX | 0 | 0 | 2000 | 1* | 318 155 | - | - | - | - | - | - | - |

* with ATEX approval

## ACCESSORIES

**Screw-in adapter**

| Order-Nr. | Thread outside | Thread inside |
|---|---|---|
| 421 696 | M 16 x 1,5 | M 14 x 1,5 |
| 421 640 | M 22 x 1,5 | M 14 x 1,5 |
| 421 884 | M 22 x 1,5 | 1/4" NPTF |
| 421 695 | G 1/2" | M 14 x 1,5 |
| 421 694 | R 1/2" | M 14 x 1,5 |
| 421 967 | R 1" | M 14 x 1,5 |
| 421 639 | R 1" | M 18 x 1,5 |

**Braze-on adapter**

| Order-Nr. | Thread inside |
|---|---|
| 421 644 | M 14 x 1,5 |
| 421 648 | M 18 x 1,5 |
| 421 641 | 1/4" NPTF |

1* Cable with flying leads
2* Cable with 3 pole blade terminals 6.3 in housing
3* Cable end with blade terminals 6.3
4* Cable with 3 pin DEUTSCH connector
5* Cable with 3 pin DEUTSCH connector overmoulded
6* Cable with 3 pin Delphi Metri-Pack connector
7* Cable with 3 pin AMP Mate-N-Lock connector
8* Cable with 3 pin AMP Superseal connector
9* Cable with 3 pin AMP JPT connector
10* Cable with 3 pin Sure Seal connector
11* Cable with 3 pin Delphi Weather Pack Tower Connector, sealed

Rev. 9/2019 - EN
454 011

**BEDIA Motorentechnik GmbH & Co. KG**
Im Erlet 1
D-90518 Altdorf bei Nürnberg

Phone +49 (0) 9187 9509 632
Fax +49 (0) 9187 9509 1632

bedia-sales@bedia.com
www.bedia.com