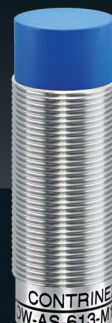


# Inductive Sensor Section



## HIGHLIGHTS:

- ✓ Smallest self-contained inductive sensors on the market
- ✓ Practically indestructible Full Metal sensors
- ✓ Weld-Immune Full Metal sensors, M8, M12, M18
- ✓ Full Metal sensors with Factor 1 on steel and aluminum
- ✓ Sensors with 4x standard operating distance
- ✓ Outstandingly durable sensors for high cyclic pressures (peak: 1000 bar / 14,510 psi)
- ✓ Highly accurate analog output sensors for distance control
- ✓ Ecolab approved sensors
  
- ✓ NEW... Full Metal Basic with IO-Link
- ✓ NEW... Full Metal C23 flat, cubic sensor in stainless steel housing with IO-Link
- ✓ NEW... High Temperature: for ambient temperatures up to 230°C (440°F)



# INTRODUCTION

## CONTRINEX USA

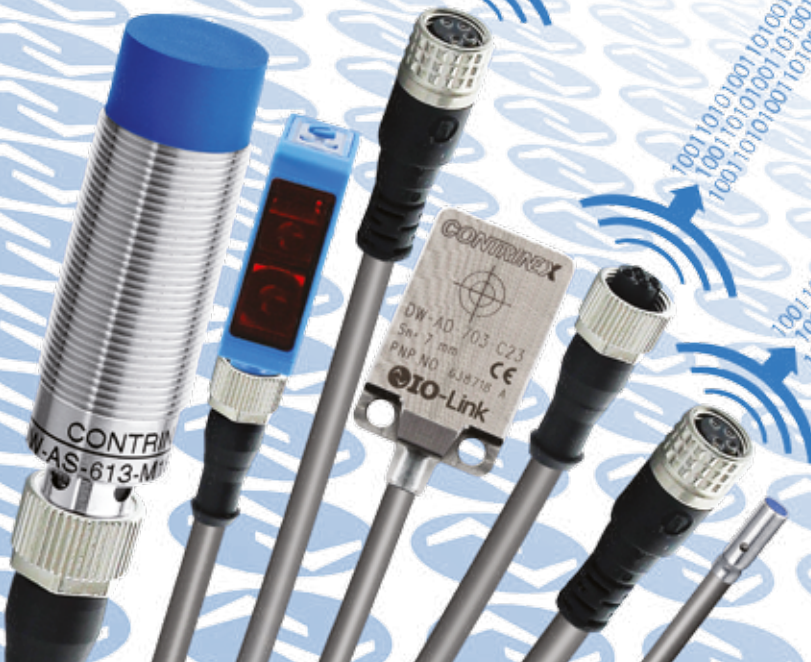
Contrinex is a leading manufacturer of sensors for factory automation. With a North American distribution center near Dallas Texas, this Swiss-founded company has a unique and innovative range of products whose features far surpass those of standard sensors.

Since its foundation in 1972 by Peter Heimlicher, Dipl Ing ETH, Contrinex has grown from a one-man operation to a multinational group with over 500 employees worldwide. More than 15 subsidiaries cover the core markets in Europe, Asia, North and South America.

### At a glance

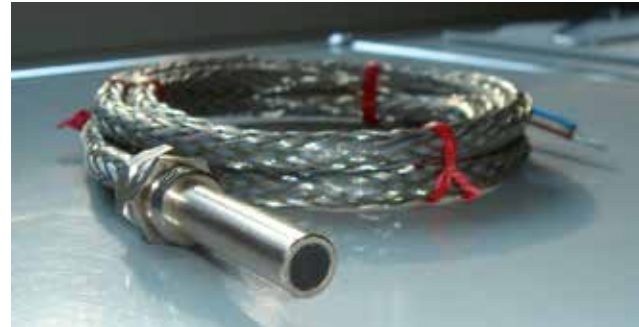
- Technology leading manufacturer of inductive and photoelectric sensors as well as safety and RFID systems
- World market leader for miniature sensors, sensors with long operating distances and devices for particularly demanding operating conditions (all-metal, high-pressure and high-temperature resistant sensors)
- Represented in over 60 countries worldwide, headquarters in Switzerland
- 8000 products
- Programmable IO-Link Sensors for the 4th Industrial Revolution utilize our intelligent ASIC.

## CONTRINEX - SENSE MORE, DO MORE



# MARKET-LEADING INNOVATION

- 1979** Sensor business starts with self-contained subminiature inductive sensors: Ø4 mm (instead of M8 before)
- 1982** Launch of inductive sensor with patented Condist® technology – market leadership with operating distances 3x standard
- 1986** Launch of Ø3 mm inductive sensors, now market leader for subminiature inductive sensors
- 1996** Market launch of Ø4 mm subminiature photoelectric sensors
- 1999** Launch of world's first inductive sensor with full-metal housing – thanks to patented Condet® technology
- 2005** Integration of Contrinex's excellent performance for inductive sensors in CMOS-ASIC (Application-Specific Integrated Circuit), a proprietary development
- 2007** Launch of RFID products for closed loop industrial applications. First RFID product range with tags and readers in full-metal housing
- 2008** Launch of Safetinex®, the industrial safety product range
- 2009** The smart sensor is born. Launch of next generation ASIC, a "system on a chip", including IO-Link interface
- 2011** Development starts on Contrinex's first ASIC for photoelectric sensors
- 2014** Launch of photoelectric sensor with new generation Contrinex ASIC and IO-Link



*Early inductive sensor produced for own use in 1973 (special version for extreme conditions)*



*ASIC sensor technology*



*Safety product range*



*Subminiature photoelectric sensor*



## SENSORS

### INDUCTIVE

BASIC  
MINIATURE  
EXTREME  
EXTRA PRESSURE  
HIGH PRESSURE  
EXTRA TEMPERATURE  
HIGH TEMPERATURE  
WASHDOWN  
ANALOG OUTPUT  
2-WIRE  
WELD-IMMUNE  
SPECIAL

### PHOTOELECTRIC

CYLINDRICAL SUBMINIATURE  
CYLINDRICAL MINIATURE  
CYLINDRICAL SMALL  
CUBIC SUBMINIATURE  
CUBIC MINIATURE  
CUBIC SMALL  
CUBIC COMPACT  
FIBER-OPTICS

### ULTRASONIC

MINIATURE  
SMALL  
COMPACT

### CAPACITIVE

BASIC  
HIGH PERFORMANCE

## SAFETY

### LIGHT CURTAINS

FINGER PROTECTION type 4  
HAND PROTECTION type 4  
SAFETY RELAYS  
ACCESS CONTROL type 4  
PROCESS CONTROL type 2

## RFID

### LOW AND HIGH FREQUENCY

TRANSPONDERS  
CONTRINET  
USB READ/WRITE MODULES  
HANDHELD DEVICES  
ACCESSORIES  
SOFTWARE  
STARTER KITS

# PROGRAM OVERVIEW

| FAMILY   | HOUSING SIZE | OPERATING DISTANCE | BASIC           | MINIATURE | EXTREME     | EXTRA PRESSURE up to 100 bar |  |
|--|--------------|--------------------|-----------------|-----------|-------------|------------------------------|--|
| <br><b>CLASSICS</b><br>Series 600<br>1 x S <sub>n</sub> / 2 x S <sub>n</sub> | ∅ 3          | 0.6 ... 1 mm       |                 | p. 71-72  |             | p. 95                        |  |
|  | M4           | 0.6 ... 1 mm       |                 | p. 72-73  |             |                              |  |
|  | ∅ 4          | 0.8 ... 1.5 mm     |                 | p. 73-75  |             | see online                   |  |
|  | M5           | 0.8 ... 1.5 mm     |                 | p. 76-77  |             | p. 95                        |  |
|  | C5           | 0.8 ... 1.5 mm     |                 | p. 78-79  |             |                              |  |
|  | ∅ 6.5        | 1.5 ... 2 mm       | p. 31-35        |           |             |                              |  |
|  | M8           | 1.5 ... 4 mm       | p. 35-41, 43-44 |           |             |                              |  |
|  | C8           | 1.5 ... 2 mm       | p. 45-46        |           |             |                              |  |
|  | M12          | 2 ... 8 mm         | p. 47-51        |           |             |                              |  |
|  | M18          | 5 ... 8 mm         | p. 54-57        |           |             |                              |  |
|  | M30          | 10 ... 15 mm       | p. 59-61        |           |             |                              |  |
|  | M50          | 25 mm              |                 |           |             |                              |  |
|  | 40 x 40      | 15 ... 40 mm       | p. 65-66        |           |             |                              |  |
|  |              |                    |                 |           |             |                              |  |
| <b>EXTRA DISTANCE</b><br>Series 500<br>3 x S <sub>n</sub> / 4 x S <sub>n</sub>   | ∅ 4          | 2.5 mm             |                 | p. 75     |             |                              |  |
|  | M5 / P5      | 1 ... 2.5 mm       |                 | p. 77     |             |                              |  |
|  | ∅ 6.5        | 2.5 ... 3 mm       | p. 35           |           |             | p. 95                        |  |
|  | M8 / P8      | 1.5 ... 6 mm       | p. 42-45        |           |             | see online                   |  |
|  | C8           | 2 ... 4 mm         | p. 46           |           |             |                              |  |
|  | M12 / P12    | 1.5 ... 10 mm      | p. 50-54        |           |             |                              |  |
|  | M18          | 12 ... 20 mm       | p. 57-59        |           |             |                              |  |
|  | M30          | 20 ... 40 mm       | p. 61-64        |           |             |                              |  |
|  | M14 / P20    | 3 mm               |                 |           |             |                              |  |
| <b>FULL METAL</b><br>Series 700<br>full-metal housing<br>                  | ∅ 4          | 3 mm               |                 | p. 75     |             |                              |  |
|  | M5           | 3 mm               |                 | p. 78     |             |                              |  |
|  | ∅ 6.5        |                    |                 |           | coming soon |                              |  |
|  | M8           | 2 ... 6 mm         | p. 41           |           | p. 83-84    |                              |  |
|  | M12 / P12    | 1.5 ... 15 mm      | p. 47-48        |           | p. 84-86    |                              |  |
|  | M18          | 5 ... 20 mm        | p. 55           |           | p. 86-88    |                              |  |
|  | M30          | 3 ... 40 mm        | p. 60           |           | p. 88-89    |                              |  |
|  | C23          | 7 mm               |                 |           | p. 90       |                              |  |

|  | HIGH PRESSURE<br>up to 1000 bar<br>peak | EXTRA/HIGH TEMPERATURE<br>-40 to +230°C | WASHDOWN   | ANALOG OUTPUT | 2-WIRE            | WELD-IMMUNE | SPECIAL |               |
|--|---|---|------------|---------------|-------------------|-------------|---------|---------------|
|  |   |   |            |               | p. 131            |             |         | Inductive     |
|  |   |   |            |               | p. 131            |             |         | Photoelectric |
|  |   |   |            |               | p. 132            |             |         |               |
|  |   | p. 107                                  |            |               | p. 133            |             |         | Ultrasonic    |
|  |   |   |            |               | p. 133            |             |         |               |
|  |   |   |            |               | p. 134, 140       |             |         |               |
|  |   | p. 107, 111                             |            |               | p.134-135,141-143 |             |         | Capacitive    |
|  |   | p. 107, 111                             | p. 117     |               | p.135-136,144-149 | see online  |         |               |
|  |   | p. 107, 111                             |            |               | p.136-137,149-153 | see online  |         |               |
|  |   | p. 111                                  |            |               | p.137-138,154-157 | see online  |         |               |
|  |   | p. 112                                  |            |               |                   |             |         | Safety        |
|  |   |   |            |               |                   | see online  |         |               |
|  | p. 99                                   |   |            |               |                   |             |         | RFID          |
|  | p. 99                                   |   |            | p. 123-124    |                   |             |         |               |
|  |   |   |            | p. 123        |                   |             |         | Connectivity  |
|  | p. 99-101                               |   |            | p. 124-125    |                   |             |         |               |
|  |   |   |            | p. 125-126    |                   |             |         |               |
|  | p. 101-102                              |   |            | p. 126-127    |                   |             |         | Accessories   |
|  |   |   |            |               |                   |             |         |               |
|  |   |   |            |               |                   |             |         | Glossary      |
|  | p. 101                                  |   | p. 117     |               |                   | p. 161      |         |               |
|  |   |   | p. 117-118 |               |                   | p. 161      |         |               |
|  |   |   | p. 118     |               |                   |             | p. 165  | Index         |
|  |   |   |            |               |                   |             |         |               |

# PROGRAM OVERVIEW

## MINIATURE + BASIC

| HOUSING SIZE | OPERATING DISTANCE |       |       |       |       |       |       |       |       |       |       |       |       | PAGE      |
|--------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
|              | 5 mm               | 10 mm | 15 mm | 20 mm | 25 mm | 30 mm | 35 mm | 40 mm | 45 mm | 50 mm | 55 mm | 60 mm | 65 mm |           |
| ∅ 3 mm / M4  | 0.6 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 71 - 72   |
|              | 1 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 72 - 73   |
| ∅ 4 mm / M5  | 0.8 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 73-74, 76 |
|              | 1.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 74, 77    |
|              | 2.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 75, 77    |
|              | 3 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 75, 78    |
| C5           | 0.8 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 78        |
|              | 1.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 79        |
| ∅ 6.5 mm     | 1.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 31 - 33   |
|              | 2 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 33 - 35   |
|              | 3 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 35        |
| M8           | 1.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 35 - 37   |
|              | 2 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 38 - 41   |
|              | 2.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 41        |
|              | 3 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 42        |
|              | 4 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 43 - 44   |
| C8           | 1.5 mm             |       |       |       |       |       |       |       |       |       |       |       |       | 44 - 45   |
|              | 2 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 45        |
|              | 3 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 45 - 46   |
| M12          | 2 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 46        |
|              | 3 - 4 mm           |       |       |       |       |       |       |       |       |       |       |       |       | 47        |
|              | 6 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 47 - 50   |
|              | 8 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 50 - 51   |
| M18          | 10 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 51 - 53   |
|              | 5 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 53 - 54   |
|              | 8 mm               |       |       |       |       |       |       |       |       |       |       |       |       | 54 - 55   |
|              | 12 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 55 - 57   |
| M30          | 20 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 57 - 58   |
|              | 10 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 58 - 59   |
|              | 15 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 59 - 60   |
|              | 22 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 61        |
| C44          | 40 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 61 - 62   |
|              | 15 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 63 - 64   |
|              | 20 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 65        |
| C44          | 30 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 65        |
|              | 40 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 65        |
|              | 40 mm              |       |       |       |       |       |       |       |       |       |       |       |       | 66        |

## OTHER RANGES

| HOUSING SIZE            | OPERATING DISTANCE |       |       |       |       |       |       |       |       |       |       |       |                      | PAGE |
|-------------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|------|
|                         | 5 mm               | 10 mm | 15 mm | 20 mm | 25 mm | 30 mm | 35 mm | 40 mm | 45 mm | 50 mm | 55 mm | 60 mm | 65 mm                |      |
| <b>EXTREME</b>          |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| M8                      | 3 mm               |       |       |       |       |       |       |       |       |       |       |       | 83                   |      |
| M8 / M12                | 6 mm               |       |       |       |       |       |       |       |       |       |       |       | 83 - 85              |      |
| M18 / C23               | 5 ... 7 mm         |       |       |       |       |       |       |       |       |       |       |       | 86 - 87, 90          |      |
| M12 / M18               | 10 mm              |       |       |       |       |       |       |       |       |       |       |       | 85 - 87              |      |
| M12                     | 15 mm              |       |       |       |       |       |       |       |       |       |       |       | 86                   |      |
| M18 / M30               | 20 mm              |       |       |       |       |       |       |       |       |       |       |       | 88 - 89              |      |
| M30                     | 40 mm              |       |       |       |       |       |       |       |       |       |       |       | 89                   |      |
| <b>EXTRA PRESSURE</b>   |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| ∅ 3 / M5                | 0.6 ... 0.8 mm     |       |       |       |       |       |       |       |       |       |       |       | 95                   |      |
| ∅ 6.5                   | 2.5 mm             |       |       |       |       |       |       |       |       |       |       |       | 95                   |      |
| <b>HIGH PRESSURE</b>    |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| M5 / P5                 | 1 mm               |       |       |       |       |       |       |       |       |       |       |       | 99                   |      |
| M8 / P8 / M12 / P12     | 1.5 ... 2.5 mm     |       |       |       |       |       |       |       |       |       |       |       | 99 - 101             |      |
| M14 / P20               | 3.0 mm             |       |       |       |       |       |       |       |       |       |       |       | 101 - 102            |      |
| <b>EXTRA/HIGH TEMP.</b> |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| M5                      | 0.8 mm             |       |       |       |       |       |       |       |       |       |       |       | 107                  |      |
| M8                      | 2 ... 4 mm         |       |       |       |       |       |       |       |       |       |       |       | 107, 111             |      |
| M12                     | 2 ... 4 mm         |       |       |       |       |       |       |       |       |       |       |       | 107, 111             |      |
| M18                     | 5 mm               |       |       |       |       |       |       |       |       |       |       |       | 107, 111             |      |
| M30                     | 10 mm              |       |       |       |       |       |       |       |       |       |       |       | 111                  |      |
| M50                     | 25 mm              |       |       |       |       |       |       |       |       |       |       |       | 112                  |      |
| <b>WASHDOWN</b>         |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| M12                     | 2 ... 6 mm         |       |       |       |       |       |       |       |       |       |       |       | 117                  |      |
| M18                     | 10 mm              |       |       |       |       |       |       |       |       |       |       |       | 117 - 118            |      |
| M30                     | 20 mm              |       |       |       |       |       |       |       |       |       |       |       | 118                  |      |
| <b>ANALOG OUTPUT</b>    |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| C8 / M8                 | 0 ... 4 mm         |       |       |       |       |       |       |       |       |       |       |       | 123 - 124            |      |
| M12                     | 0 ... 6 mm         |       |       |       |       |       |       |       |       |       |       |       | 124 - 125            |      |
| M18                     | 0 ... 10 mm        |       |       |       |       |       |       |       |       |       |       |       | 125 - 126            |      |
| M18 / M30               | 0 ... 20 mm        |       |       |       |       |       |       |       |       |       |       |       | 126 - 127            |      |
| M30                     | 0 ... 40 mm        |       |       |       |       |       |       |       |       |       |       |       | 127                  |      |
| <b>2-WIRE</b>           |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| ∅ 3/∅ 4/M4/M5/C5        | 0.6 ... 0.8 mm     |       |       |       |       |       |       |       |       |       |       |       | 131 - 133            |      |
| ∅ 6.5                   | 1.5 mm             |       |       |       |       |       |       |       |       |       |       |       | 134, 140             |      |
| M8                      | 1.5 ... 2.5 mm     |       |       |       |       |       |       |       |       |       |       |       | 134 - 135, 141 - 143 |      |
| M12                     | 2 ... 4 mm         |       |       |       |       |       |       |       |       |       |       |       | 135 - 136, 144 - 149 |      |
| M18                     | 5 ... 8 mm         |       |       |       |       |       |       |       |       |       |       |       | 136 - 137, 149 - 153 |      |
| M30                     | 10 ... 15 mm       |       |       |       |       |       |       |       |       |       |       |       | 137 - 138, 154 - 157 |      |
| <b>WELD-IMMUNE</b>      |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| M8                      | 3 mm               |       |       |       |       |       |       |       |       |       |       |       | 161                  |      |
| M12                     | 6 mm               |       |       |       |       |       |       |       |       |       |       |       | 161                  |      |
| M18                     | 10 mm              |       |       |       |       |       |       |       |       |       |       |       | 161                  |      |
| <b>SPECIAL</b>          |                    |       |       |       |       |       |       |       |       |       |       |       |                      |      |
| M30                     | 3 ... 5 mm         |       |       |       |       |       |       |       |       |       |       |       | 165                  |      |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index



# INTRODUCTION

## TECHNOLOGY

Contrinex inductive devices work according to one of **three different technologies**. All involve the generation of an alternating magnetic field that emerges at the sensing face. The presence of a conductive, generally metallic, object influences this field in a way that can be detected and evaluated by built-in electronics. All Contrinex ASIC sensors are IO-Link enabled in PNP NO versions.

### TECHNOLOGY FAMILIES

#### CLASSICS FAMILY:

##### Conventional technology, engineered by Contrinex

The **Classics** family uses conventional inductive sensor technology, but with the benefit of a Contrinex ASIC (application specific integrated circuit). ASIC technology ensures reliability, stability and ease of commissioning, due to low variation. Sensors in this family achieve operating distances up to 2 x the industry standard. All ASIC sensors in the **Classics** family are IO-Link enabled in PNP NO versions.

**Classics** sensors have a conventional oscillator and coil generating a high-frequency magnetic field that emerges at the sensing face. Any metallic object found in this field absorbs some of the energy, which is in turn detected and evaluated by built-in electronics (Fig. 1).

Ferromagnetic metals (steel, nickel, cobalt) absorb the most energy. The achievable operating distances are therefore greatest with these metals. Non-ferromagnetic metals, such as aluminum, absorb less energy. As a result, operating distances are lower (approx. 25 ... 45% of those on steel).

The **Classics** technology family (series 600) includes devices from the ranges **Basic, Miniature Extra pressure, Extra temperature, High temperature, Wash-down, Weld-immune** and **2-Wire**.

#### EXTRA DISTANCE FAMILY:

##### Increased stability for exceptionally long operating distance

The **Extra Distance** family is based on the patented Condist® oscillator developed by Contrinex. Sensors benefit from **up to 4x the standard** operating distance, keeping them out of harm's way in rugged, industrial environments. Sensor lifetime is therefore increased.

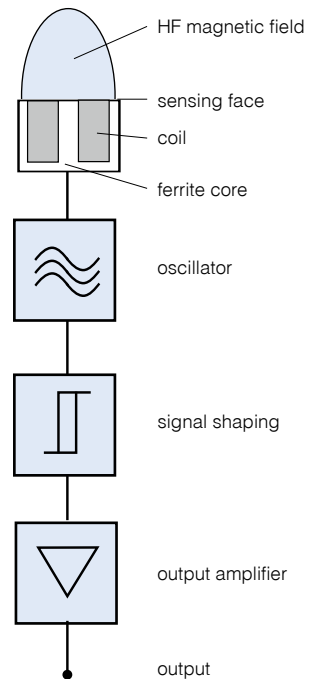


Fig. 1: Conventional inductive sensor technology, as used in the **Classics** family

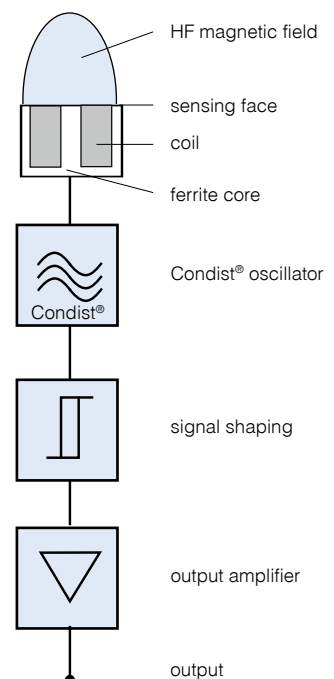


Fig. 2: Contrinex's patented Condist® inductive sensor technology, as used in the **Extra Distance** family

Like **Classics** family sensors, these also generate a high-frequency magnetic field that emerges at the sensing face (Fig. 2). Again, the resulting effect is that any metallic object entering the field absorbs energy from it.

However, the oscillator and the subsequent signal evaluation circuit are completely different, with the objective of achieving a significantly **better stability** with respect to environmental influences, in particular temperature. The most important contribution to this comes from the Contrinex patented **Condist®** oscillator.

Improved stability permits the switch point to be further away, leading to **long operating distances** on ferromagnetic metals (Fig. 3). Sensors with this technology also react particularly well to **narrow targets**, e.g. small screws, wires and foils.

Apart from the **Condist®** oscillator, all other assemblies are equivalent to the **Classics** family. Material dependencies and other properties are also the same as for **Classics** family sensors.

Special attention has been paid to **meets the relevant standards as much as possible**, so that easy **interchangeability** with conventional devices is guaranteed. Great emphasis has been placed on very good EMC resistance and on perfect sealing against liquid penetration.

The **Extra Distance** technology family includes devices from the **Basic, Miniature, Extra pressure, High pressure** and **Analog output** ranges. This technology is used in series 500 devices.

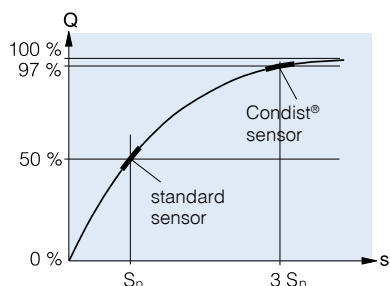


Fig. 3: **Extra Distance** family sensors have a longer operating distance, due to **Condist®** oscillator technology

### FULL METAL FAMILY: All-round stainless steel protection - practically indestructible

The **Full Inox** family is based on Contrinex's patented **Condet®** technology. These one-piece stainless steel sensors are not only the most durable on the market, they also offer long operating distances on any conductive metal.

**Full Inox** sensors also function according to inductive technology. However, the coil which generates the magnetic field is not part of the oscillator (Fig. 4). Instead, the field is generated by periodic, short **transmitter current pulses**, which flow through the coil (Fig. 5). This field induces a voltage in the target which, in turn, generates a current flow in it. When the transmitter current pulse is switched off, the current in the object dies away, causing a **voltage to be induced** in the transmitting coil (Fig. 6).

This voltage generates the signal required, and is in principle **independent of the field's energy loss**. Therein lies the fundamental advantage of this technology, since the field energy losses, which are evaluated in conventional sensors, are subject to a number of undesirable environmental and material influences.

**Condet®** technology allows the sensor, including its face, to be fully encapsulated in a protective, stainless steel housing, with the added security of long operating distances.

The coupling between the target and the coil is rather **like a transformer**, and is hence **temperature independent** and only **slightly influenced by the target's material**. Operating distances are therefore identical on steel and aluminum. Only metals which are non-ferromagnetic and also have poor electrical conductivity give a reduced usable signal.

The **Full Inox** technology family includes devices from the **Basic, Miniature, Extreme, High pressure, Washdown, Weld-immune** and **Special** ranges. This technology is used in series 700 devices.

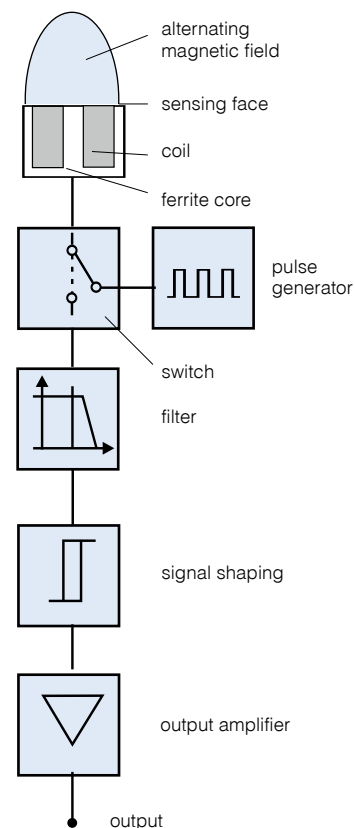


Fig. 4: **Full Metal** family sensors use **Condet®** pulse generator technology instead of an oscillator

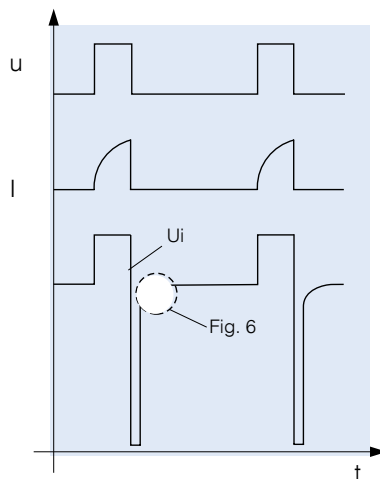


Fig. 5: Evolution of main signals

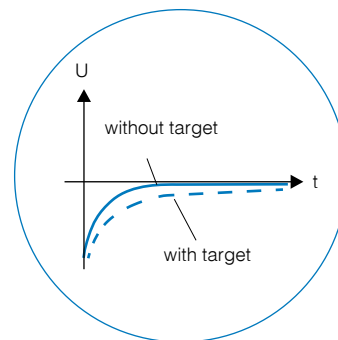


Fig. 6 (detail fig. 5): Effect of a target on the measured signal

# INTRODUCTION

## PRODUCT RANGES

### BASIC

#### First choice in all environments

Contrinex **Basic** range inductive sensors have a worldwide and well-deserved reputation for uncompromising accuracy and exceptional reliability. With best-in-class sensing distances between **1.5 mm** and **40 mm**, the **Basic** range offers fit-and-forget operation, delivering world-class performance and a highly attractive total cost of ownership.

Available in sizes from M8 to M30 and C44, with optional  $\varnothing$  6.5 plain and 8 mm square-section models, **Basic** range inductive sensors are ideal for general position-sensing and presence-sensing applications in almost any industry. Embeddable or non-embeddable variants are available, with either hard-wired, hermetically sealed connecting cables or integral metal connectors. **Basic** range devices, whether from the **Classics** (Fig. 1), **Extra Distance** (Fig. 2) or **Full Metal** (Fig. 4) technology families, all utilize Contrinex application-specific integrated circuits (ASICs) that ensure highly repeatable results at operating temperatures between  $-25^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$ .



### MINIATURE

#### Full functionality, smallest size

Size is often a critical constraint when selecting sensors for position- or presence-sensing. The Contrinex **Miniature** range, which includes the smallest self-contained inductive sensors on the market, meets this constraint without compromising on functionality.

Sensors from this range use either **Classics** (Fig. 1), **Extra Distance** (Fig. 2) or **Full Metal** (Fig. 4) technology. **Classics** and **Full Metal Miniature** sensors are IO-Link enabled in PNP NO versions. Available in plain and threaded sizes from  $\varnothing$  3 to M5 and as a 5 mm square-section type,



**Miniature** range inductive sensors are ideal for applications where space is limited, including tool-selection, robotic position-sensing and control of micro-mechanisms.

Extremely robust, thanks to chip-scale package (CSP) technology, a glass-fiber reinforced substrate and vacuum encapsulation, the Contrinex **Miniature** range delivers long-term reliability and maximum uptime, even in the most demanding environments. The low mass and **high switching frequency** of these sensors makes them particularly suitable for high-dynamic applications where inertia is a major consideration.

These embeddable devices are available in 3-wire DC, NPN and PNP versions with a choice of N.O. or N.C. configurations. An LED output state indicator is standard. All the important protection functions are included, such as short-circuit and overload protection, full polarity reversal protection, induction protection, EMC protection, power-on reset, etc.

With a sensing range up to **3 mm**, Contrinex miniature inductive sensors combine world-class quality with a highly attractive total cost of ownership.

### EXTREME

#### Extreme durability in harsh environments

Only the toughest sensors survive the most extreme environments, and **Extreme** range inductive sensors from the **Full Metal** family are ideally equipped for the job. Thanks to one-piece stainless-steel (V2A/AISI 303) construction and a hermetically sealed cable entry, **Extreme** sensors are corrosion-resistant, impervious to oil, and pressure-resistant to **80 bar**. Rugged, reliable and highly accurate, the **Extreme** range is at home in the most challenging circumstances.



Developed to withstand the harshest industrial operating conditions, **Extreme** sensors are rated to **IP 68** and **IP 69K**, delivering fit-and-forget performance with minimal downtime. With operating distances up to **40 mm**, the **Extreme** range senses both ferrous and non-ferrous materials with **Factor 1** performance, and is available in sizes from M8 to M30 and C23.

## EXTRA PRESSURE

### Pressure resistant up to 100 bar

Dependable, accurate presence- and position-sensing at pressures up to **100 bar** requires world-class performance and build quality. The **Extra pressure** range of pressure-resistant inductive sensors delivers exactly that, operating continuously in permanently pressurized conditions. This makes the range especially suitable for offshore installations, the chemical industry, motor lubrication systems and atomic fuel element monitoring. A stainless-steel housing with bonded ceramic or brazed sapphire sensing face and protection class **IP 68** guarantees robustness and exceptional reliability in miniature packages sized from **Ø 3** to **M8**.



The **Extra pressure** range is also ideal for high-vacuum environments and satellite applications, offering fit-and-forget capability and a sealed cable-entry that ensures no loss of service or interruptions to production.

Sensors from this range use either **Classics** (Fig. 1), **Extra Distance** (Fig. 2) or **Full Metal** (Fig. 4) technology and have equivalent electrical properties. For optimum impermeability, LED and connector versions are not available in this range.

Sensors from the **Extra pressure** range detect parts at sensing distances up to **2.5 mm**, and offer a highly attractive total cost of ownership.

## HIGH PRESSURE

### Resistant to pressure and dynamic stress up to 500 bar (peak 1000 bar)

For reliable, accurate sensing in the most demanding pneumatic and hydraulic applications, Contrinex offers a unique range of **High pressure** sensors with permanent operating pressures of **100 ... 500 bar** and peak pressures up to **1000 bar**.

Suitable for operating temperatures up to 100°C and resistant to more than 1 million pressure cycles, their IP 68 and IP 69K protection and oil impermeability make them the robust, reliable choice for the hydraulic industry. Fit-and-forget operation virtually eliminates sensor replacement costs. Exceptional performance and world-class quality are assured in sizes from M5 to M18.

Contrinex **High pressure** sensors are available in either **Extra Distance** (Fig. 2) or **Full Inox** (Fig 4) versions. Both of these patented technologies ensure durability without compromising on usable operating distance. Sensor construction is simple and robust, with the whole electronic unit, ferrite core and coil included, safely on the **no-pressure side**. Sealed connection is by means of either flexible PU cable or an integral connector.

Fig. 7 shows an **Extra Distance** version. The stainless steel housing is heat shrunk onto the ceramic disk, making the sensor mechanically resistant, **exceptionally impervious**, and outstanding for applications with **high dynamic pressure stress**, such as piston-control applications. With operating distances of up to 3 mm, they are gas-tight and meet protection class **IP 68**.

Versions from the **Full Metal** family have a practically indestructible pressure- and corrosion-resistant one-piece stainless steel housing (V4A / AISI 316L / DIN 1.4404). They provide excellent detection of all metals with good conductivity, both ferromagnetic and non-ferromagnetic. These corrosion resistant sensors are suitable for the harshest conditions and meet protection classes **IP 68 & IP 69K**.

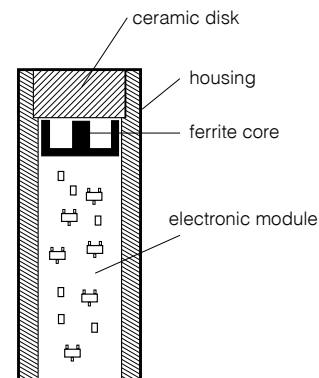


Fig. 7

| Conversion of temperature |            |
|---------------------------|------------|
| Celsius                   | Fahrenheit |
| -40                       | -40        |
| -25                       | -13        |
| 0                         | +32        |
| +70                       | +158       |
| +100                      | +212       |
| +120                      | +248       |
| +180                      | +356       |
| +230                      | +446       |

| Conversion of pressure |       |
|------------------------|-------|
| Bar                    | PSI   |
| 1                      | 14.5  |
| 80                     | 1160  |
| 100                    | 1451  |
| 500                    | 7255  |
| 1000                   | 14510 |

# INTRODUCTION

## EXTRA TEMPERATURE

### Temperature resistant up to 120°C

Inductive sensors from the **Extra temperature** range offer the ideal solution for position- and presence-sensing applications at temperatures from as low as minus 40°C up to 120°C. Industrial processes often generate heat, resulting in temperatures that would damage a standard sensor, but the stainless-steel construction and robust electronics of Contrinex **Extra temperature** sensors ensure reliable, accurate operation and minimal downtime, even in the most demanding environments.

Sensors from this range use either conventional **Classics** (Fig. 1) or all-metal **Full Metal** (Fig. 4) technology. Individually compensated for repeatable, highly accurate operation across the full operating temperature range, **Extra temperature** inductive sensors accommodate sensing distances up to 25 mm, minimizing the risk of collision damage.

Available in sizes from M5 to M18, the **Extra temperature** range delivers best-in-class performance at elevated temperatures in the harsh environments of the automotive, molding and metal-processing industries.



## HIGH TEMPERATURE

### Temperature resistant up to 180°C (230°C with external amplifier)

Contrinex **High temperature** inductive sensors are designed for continuous operation at temperatures from 0°C up to 180°C (up to 230°C with remote electronics). The range is ideal for the harshest environments, including automotive paint shops, metal-treatment plants and glass manufacturing.

**High temperature** sensors use conventional **Classics** (Fig. 1) technology. Embeddable, non-embeddable and quasi-embeddable versions are available. For temperatures up to 180°C, sensors feature built-in amplifiers and connection by means of a 2 m silicone or Teflon cable is standard. For 230°C types, the amplifiers are built into an M12 stainless-steel housing, which is connected by means of a standard 3 m Teflon cable, and thus removed from the hot area. Stainless steel construction and sensing distances up to 25 mm minimize the risk of mechanical damage during operation, ensuring maximum plant availability and a highly attractive total cost of ownership. Contrinex high-temperature sensors are available in sizes from M8 to M50.



## WASHDOWN

### Ecolab approved for strictest production hygiene

**Washdown** inductive sensors are certified to operate continuously and reliably in the harsh conditions of the food, beverage and pharmaceutical industries, ensuring uninterrupted production. With **Ecolab** approval and rated to **IP 68** and **IP 69K**, they are pressure resistant up to **80 bar**, **food safe** and **corrosion resistant**.



**Washdown** sensors are available in conventional **Classics** (Fig. 1) technology, size M12, or **Full Metal** (Fig. 4) technology, sizes M12, M18 and M30. **Full Metal** types have a totally impervious one-piece housing in stainless-steel (V4A / AISI 316L), including the sensing face. They are therefore highly resistant to the corrosive chemicals used for clean-in-place or wash-down processes. With Factor 1 on steel and aluminum and extended sensing ranges up to 40 mm, **Full Metal** technology minimizes the possibility of impact damage - a common hazard in confined operating spaces.

**Washdown** sensors meet the increasingly demanding sensing needs of the food, beverage and pharmaceutical industries, delivering best-in-class performance with an attractive total cost of ownership.

## ANALOG OUTPUT

### Continuous analog output for precision control

Engineers needing a reliable, repeatable, highly accurate means of measuring the position of a target object should look no further than Contrinex **Analog output** inductive sensors. This range of sensors has been developed on the platform of **Extra Distance** (Fig. 2) technology for excellent temperature stability, repeat accuracy, and the best long-range sensing capability on the market. With a measurement range of **zero to 40 mm** and detection accuracy on the micron scale, the **Analog output** sensor range is ideally suited for measuring linear, angular and rotational position (Fig. 8). They offer world-class performance and an attractive total cost of ownership in applications from vibration monitoring and end-position approach regulation, to position monitoring, metal sorting and sheet-metal forming.

**Analog output** inductive sensors are available in sizes from M8 to M30, with the option of an 8 mm square-section model. Voltage outputs are included for all sizes, while sizes M12 and above feature both voltage and current outputs.

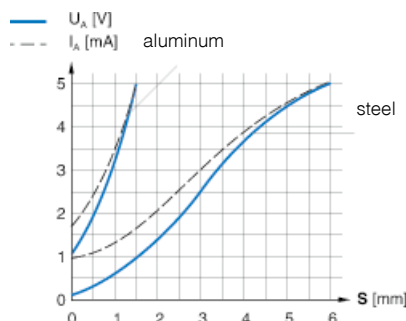


Fig. 8

## WELD-IMMUNE

### Immune to magnetic fields and resistant to weld spatter

Contrinex **Weld-immune** inductive sensors are ideal for the hostile working environments found in automotive factories and other industrial welding plants. The range includes sensors from two technology platforms: **Classics** (Fig. 1) and **Full Metal** (Fig. 4).

**Classics** devices, with protection class IP 67, are available either in PTFE-coated cylindrical brass housings or a PBTP 40 x 40 mm cubic form. They resist solder and the strong magnetic fields present during industrial welding processes. They have identical operating distances on steel and non-ferrous metals.

**Weld-immune** sensors built on the **Full Metal** platform have a long operating distance and Factor 1 on steel and aluminum. One-piece, stainless-steel (V2A / AISI 303) construction makes these sensors the most durable on the market, ensuring minimal down-time. These practically indestructible sensors withstand the welding environment for years, resisting electromagnetic fields, welding spatter, cleaning and impacts.

All **Weld-immune** sensors are embeddable and have an integral S12 connector. Best-in-class sensing ranges of up to **15 mm** eliminate the risk of collision - a frequent hazard when operating in close proximity to moving machine parts.

Developed for extreme accuracy throughout the welding cycle, **Weld-immune** sensors continuously detect part presence and machine position to ensure optimal equipment utilization and prevent errors in production. These sensors provide excellent repeat-ability at temperatures between -25°C and +70°C.



## 2-WIRE

### Easy installation and high switching frequency

The **2-Wire** range of DC, AC/DC and NAMUR sensors is constructed on the Classics (Fig. 1) technology platform and includes sizes from Ø 3 to M30, plus a 5 x 5 mm square-section type. Devices are available for embeddable or non-embeddable mounting and connection is by means of cable or connector. With a sensing range up to 15 mm, Contrinex **2-Wire** sensors ensure optimal equipment utilization.

## SPECIAL RANGE

### Designed to meet special technical requirements

For **double-sheet** detection, sensors from the **Full Metal** (Fig. 4) family are used. Its patented inductive technology enables discrimination between one and two conductive metal sheets of a defined thickness, achieving sensitivity of 0.8 - 1.2 mm per sheet. This discrimination aids in the prevention of double feeds into blanking and forming processes which ultimately saves damage to tooling. The one-piece, stainless-steel construction of these sensors makes them the most durable on the market. They withstand the impacts that are a common hazard in double-sheet detection applications close to moving sheet metal, ensuring minimal down-time.

## IO-LINK FUNCTIONALITY\* WITH INDUCTIVE SENSORS

### Data monitoring:

- 1 Switching state is monitored continuously. This not only monitors the signal itself, but also the state at 80% of the switching distance. One can therefore ensure that the sensor is not working at the limit of its specifications.

### Diagnosis:

- 2 The operating state of the sensor is checked. In case of wire break, under-voltage, LC oscillator break or installation of the wrong sensor, information is provided directly through IO-Link to enable fast repair, maintenance and replacement.

### NO/NC selection:

- 3 The output switching mode can be selected as NO or NC. A single sensor type is configurable for the various needs of an application. This helps reduce the number of different sensor types required in stock.

### Switching timer:

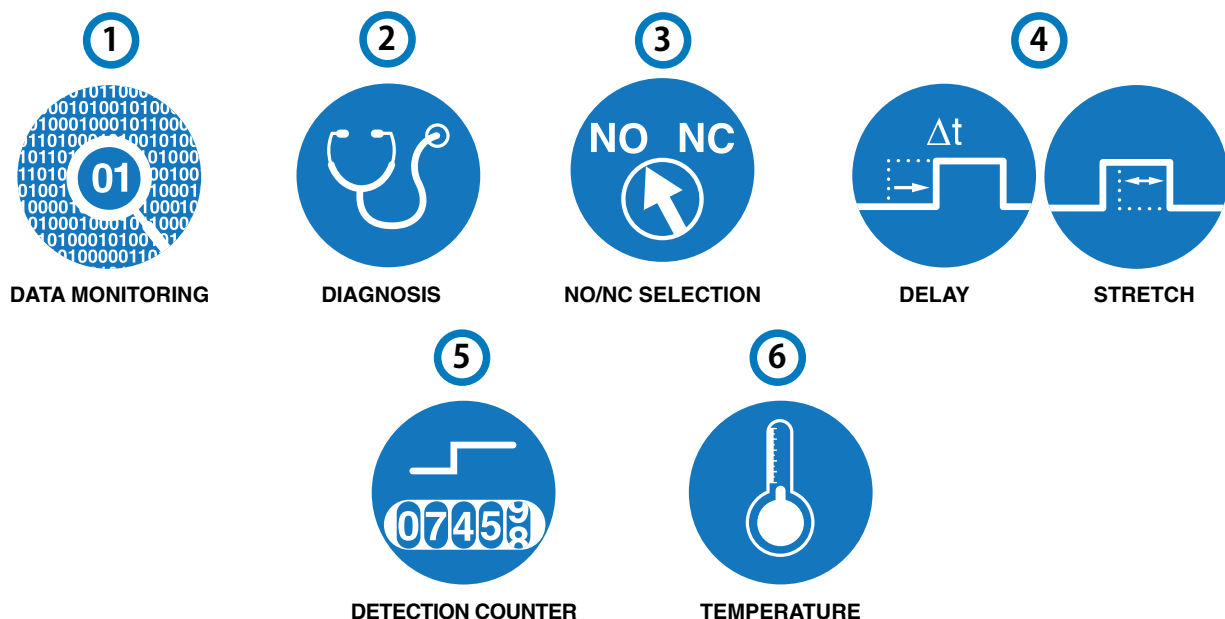
- 4 The timing of output switching can be configured. Depending on the needs of an application, output switching can be delayed or the duration stretched through programming.

### Detection counter:

- 5 Detection events are counted. By registering the number of detections, it is possible to calculate the speed or number of parts. The counter can be reset by means of a unique IO-Link message.

### Temperature:

- 6 The internal temperature of the sensor is measured continuously, which provides an indication about the ambient temperature in the application. Moreover, the maximum temperature measured is saved for diagnosis and preventive maintenance purposes.



\* Functionalities may vary depending on series and sensor type

FIRST CHOICE IN ALL ENVIRONMENTS

# BASIC

## INDUCTIVE SENSORS

### KEY ADVANTAGES

#### Classics, Extra Distance and Full Metal

- ✓ High quality ASIC sensors
- ✓ IO-Link (Classics and Full Metal)
- ✓ Exceptional price-performance ratio
- ✓ Excellent accuracy
- ✓ Outstanding temperature compensation
- ✓ Vibration and shock resistant
- ✓ Long operating distance

#### Full Metal

- ✓ Extremely robust one-piece stainless-steel housing
- ✓ Corrosion resistant
- ✓ IP 68 and IP 69K, sea water resistant
- ✓ Pressure resistant up to 80 bar

| RANGE OVERVIEW | Housing size | Classics        | Extra Distance | Full Inox |
|----------------|--------------|-----------------|----------------|-----------|
| BASIC          | Ø 6.5 mm     | p. 31-35        | p. 35          |           |
|                | M8           | p. 35-41, 43-44 | p. 42-45       | p. 41     |
|                | C8           | p. 45-46        | p. 46          |           |
|                | M12          | p. 47-51        | p. 50-54       | p. 47-48  |
|                | M18          | p. 54-57        | p. 57-59       | p. 55     |
|                | M30          | p. 59-61        | p. 61-64       | p. 60     |
|                | C44          | p. 65-66        |                |           |



FAMILY

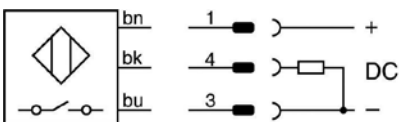
HOUSING SIZE MM

OPERATING DISTANCE MM

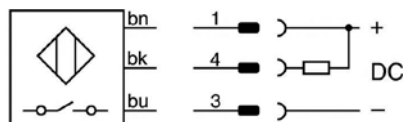
# INDUCTIVE

## WIRING DIAGRAMS

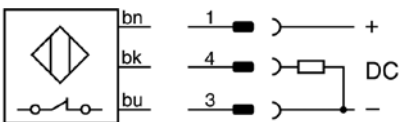
PNP NO



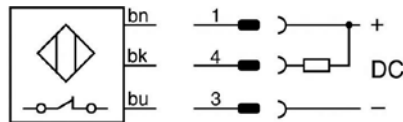
NPN NO



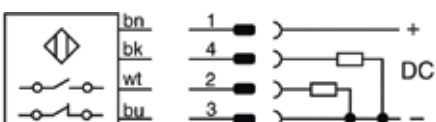
PNP NC



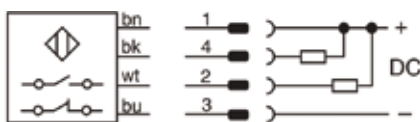
NPN NC



PNP Changeover



NPN Changeover



## DATA

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range





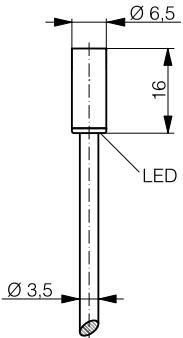
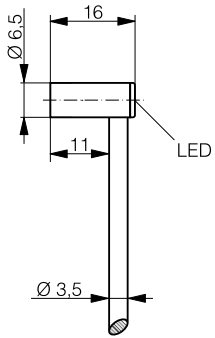
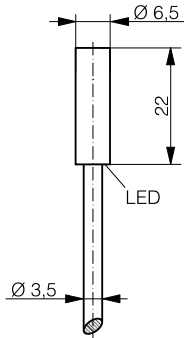
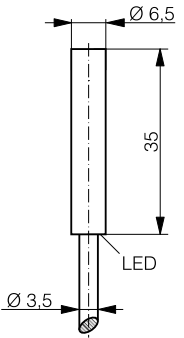
Output current

PNP NO

NPN NO

Other types available

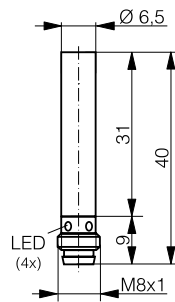
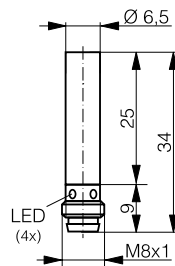
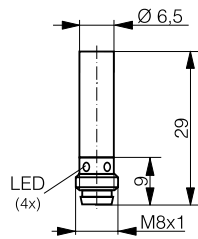
# BASIC

| CLASSICS   | CLASSICS   | CLASSICS  | CLASSICS   | Inductive     |
|--|--|---|--|---------------|
| Ø 6.5  | Ø 6.5  | Ø 6.5   | Ø 6.5  |               |
| 1.5  | 1.5  | 1.5   | 1.5  | Photoelectric |
|   |   |   |   |               |
|  |  |  |  | Capacitive    |
|  |  |   |  |               |
|  |  |   |  | RFID          |
|  |  |   |  |               |
|  |  |   |  | Accessories   |
| Stainless steel V2A  | Stainless steel V2A  | Stainless steel V2A   | Stainless steel V2A  |               |
| PVC cable  | PVC cable  | PVC cable   | PVC cable  |               |
| IP 67  | IP 67  | IP 67   | IP 67  |               |
| Embeddable   | Embeddable   | Embeddable  | Embeddable   |               |
| 5000 Hz  | 5000 Hz  | 5000 Hz   | 5000 Hz  |               |
| 10 ... 30 VDC  | 10 ... 30 VDC  | 10 ... 30 VDC   | 10 ... 30 VDC  |               |
| -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F   |               |
| ≤ 200 mA   | ≤ 200 mA   | ≤ 200 mA  | ≤ 200 mA   | Index         |
| <b>DW-AD-603-065-120</b>   | <b>DW-AD-603-065-400</b>   | <b>DW-AD-603-065-121</b>  | <b>DW-AD-603-065</b>   |               |
| <b>DW-AD-601-065-120</b>   | <b>DW-AD-601-065-400</b>   | <b>DW-AD-601-065-121</b>  | <b>DW-AD-601-065</b>   |               |
| PNP NC, NPN NC   | PNP NC, NPN NC   | PNP NC, NPN NC  | PNP NC, NPN NC, length 30 mm   |               |

# BASIC





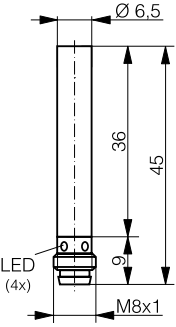
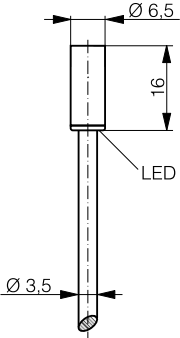
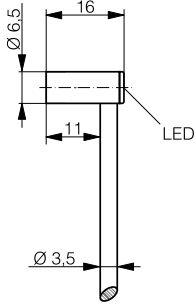
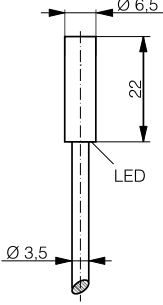
## INDUCTIVE

| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | Ø 6.5    | Ø 6.5    | Ø 6.5    |
| OPERATING DISTANCE MM | 1.5      | 1.5      | 1.5      |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | Connector S8                   | Connector S8                   | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-603-065-129</b>       | <b>DW-AS-603-065-123</b>       | <b>DW-AS-603-065-124</b>       |
| NPN NO                    | <b>DW-AS-601-065-129</b>       | <b>DW-AS-601-065-123</b>       | <b>DW-AS-601-065-124</b>       |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

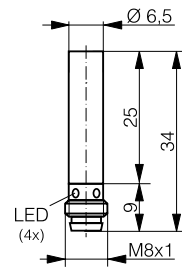
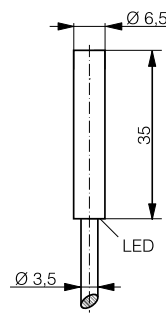
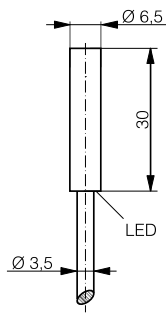
# BASIC

| CLASSICS  | CLASSICS  | CLASSICS   | CLASSICS  | Inductive     |
|---|---|--|---|---------------|
| Ø 6.5   | Ø 6.5   | Ø 6.5  | Ø 6.5   |               |
| 1.5   | 2   | 2  | 2   | Photoelectric |
|    |    |    |    |               |
|  |  |  |  | Capacitive    |
|   |   |  |   | Safety        |
|   |   |  |   | RFID          |
|   |   |  |   | Connectivity  |
|   |   |  |   | Accessories   |
| Stainless steel V2A   | Stainless steel V2A   | Stainless steel V2A  | Stainless steel V2A   | Glossary      |
| Connector S8  | PVC cable   | PVC cable  | PVC cable   |               |
| IP 67   | IP 67   | IP 67  | IP 67   | Index         |
| Embeddable  | Embeddable  | Embeddable   | Embeddable  |               |
| 5000 Hz   | 5000 Hz   | 5000 Hz  | 5000 Hz   |               |
| 10 ... 30 VDC   | 10 ... 30 VDC   | 10 ... 30 VDC  | 10 ... 30 VDC   |               |
| -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F  |               |
| ≤ 200 mA  | ≤ 200 mA  | ≤ 200 mA   | ≤ 200 mA  |               |
| <b>DW-AS-603-065-001</b>  | <b>DW-AD-623-065-120</b>  | <b>DW-AD-623-065-400</b>   | <b>DW-AD-623-065-121</b>  |               |
| <b>DW-AS-601-065-001</b>  | <b>DW-AD-621-065-120</b>  | <b>DW-AD-621-065-400</b>   | <b>DW-AD-621-065-121</b>  |               |
| PNP NC, NPN NC, S12   | PNP NC, NPN NC  | PNP NC, NPN NC   | PNP NC, NPN NC  |               |

# BASIC

## INDUCTIVE

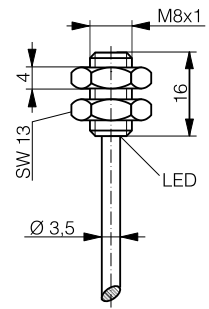
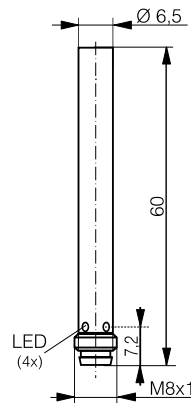
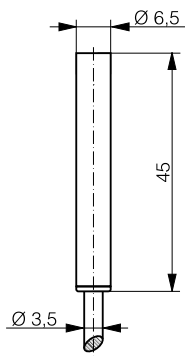
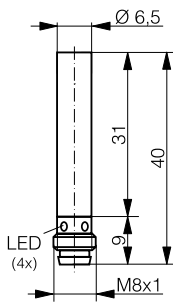
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | Ø 6.5    | Ø 6.5    | Ø 6.5    |
| OPERATING DISTANCE MM | 2        | 2        | 2        |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PVC cable                      | PVC cable                      | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-623-065-122</b>       | <b>DW-AD-623-065</b>           | <b>DW-AS-623-065-123</b>       |
| NPN NO                    | <b>DW-AD-621-065-122</b>       | <b>DW-AD-621-065</b>           | <b>DW-AS-621-065-123</b>       |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC<br>length 29 mm |

# BASIC

| CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE | CLASSICS | Inductive |
|----------|----------------|----------------|----------|-----------|
| Ø 6.5    | Ø 6.5          | Ø 6.5          | M8       |           |
| 2        | 3              | 3              | 1.5      |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

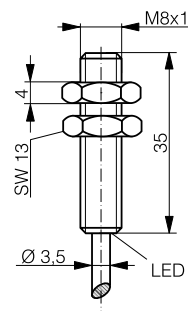
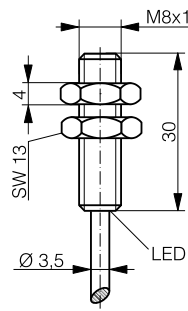
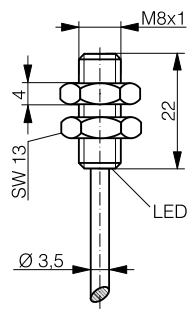
Index

|                                     |                                |                                |                                |
|-------------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A                 | Chrome-plated brass            | Chrome-plated brass            | Stainless steel V2A            |
| Connector S8                        | PVC cable                      | Connector S8                   | PVC cable                      |
| IP 67                               | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                          | Quasi-embeddable               | Quasi-embeddable               | Embeddable                     |
| 5000 Hz                             | 1000 Hz                        | 1000 Hz                        | 5000 Hz                        |
| 10 ... 30 VDC                       | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F      | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-623-065-124</b>            | <b>DW-AD-503-065</b>           | <b>DW-AS-503-065-001</b>       | <b>DW-AD-603-M8-120</b>        |
| <b>DW-AS-621-065-124</b>            | <b>DW-AD-501-065</b>           | <b>DW-AS-501-065-001</b>       | <b>DW-AD-601-M8-120</b>        |
| PNP NC, NPN NC<br>length 45 mm, S12 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

## INDUCTIVE

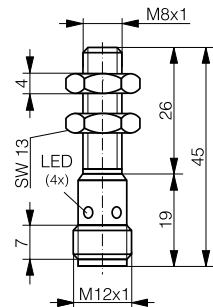
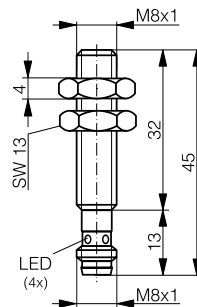
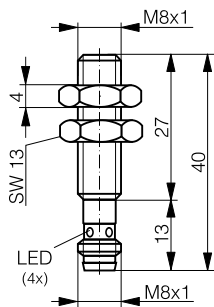
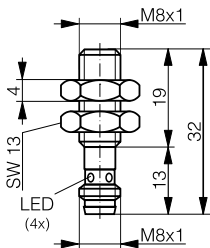
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE          | M8       | M8       | M8       |
| OPERATING DISTANCE MM | 1.5      | 1.5      | 1.5      |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PVC cable                      | PVC cable                      | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-603-M8-121</b>        | <b>DW-AD-603-M8-122</b>        | <b>DW-AD-603-M8</b>            |
| NPN NO                    | <b>DW-AD-601-M8-121</b>        | <b>DW-AD-601-M8-122</b>        | <b>DW-AD-601-M8</b>            |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

|          |          |          |          |           |
|----------|----------|----------|----------|-----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS | Inductive |
| M8       | M8       | M8       | M8       |           |
| 1.5      | 1.5      | 1.5      | 1.5      |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connector S8                   | Connector S8                   | Connector S8                   | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 5000 Hz                        | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-603-M8-123</b>        | <b>DW-AS-603-M8-124</b>        | <b>DW-AS-603-M8-001</b>        | <b>DW-AS-603-M8</b>            |
| <b>DW-AS-601-M8-123</b>        | <b>DW-AS-601-M8-124</b>        | <b>DW-AS-601-M8-001</b>        | <b>DW-AS-601-M8</b>            |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC, length 39 mm   |



# BASIC

FAMILY

CLASSICS

CLASSICS

CLASSICS

HOUSING SIZE

M8

M8

M8

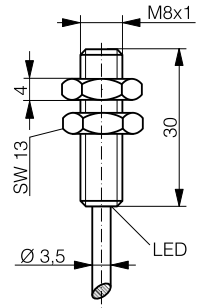
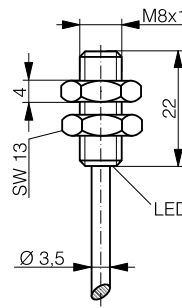
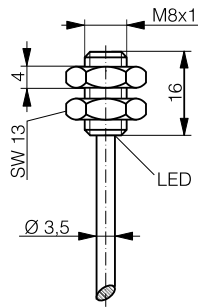
OPERATING DISTANCE MM

2

2

2

INDUCTIVE

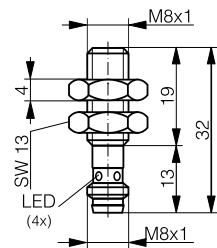
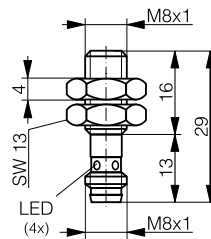
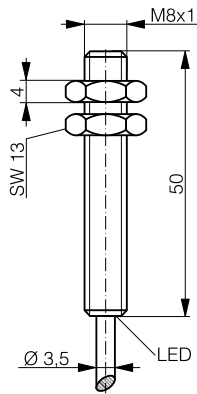
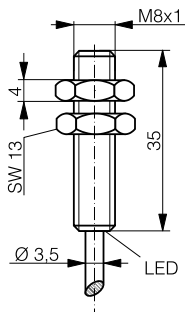


DATA

| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PVC cable                      | PVC cable                      | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-623-M8-120</b>        | <b>DW-AD-623-M8-121</b>        | <b>DW-AD-623-M8-122</b>        |
| NPN NO                    | <b>DW-AD-621-M8-120</b>        | <b>DW-AD-621-M8-121</b>        | <b>DW-AD-621-M8-122</b>        |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

|          |          |          |          |           |
|----------|----------|----------|----------|-----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS | Inductive |
| M8       | M8       | M8       | M8       |           |
| 2        | 2        | 2        | 2        |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

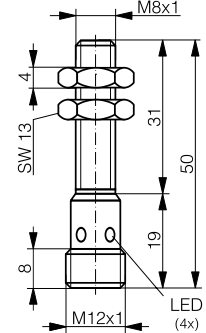
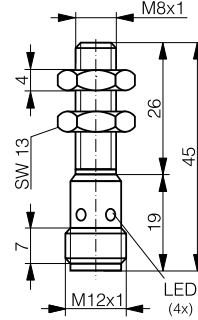
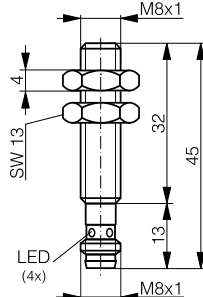
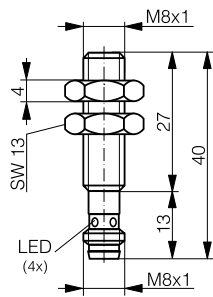
Index

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| PVC cable                      | PVC cable                      | Connector S8                   | Connector S8                   |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 5000 Hz                        | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AD-623-M8</b>            | <b>DW-AD-623-M8-177</b>        | <b>DW-AS-623-M8-129</b>        | <b>DW-AS-623-M8-123</b>        |
| <b>DW-AD-621-M8</b>            | <b>DW-AD-621-M8-177</b>        | <b>DW-AS-621-M8-129</b>        | <b>DW-AS-621-M8-123</b>        |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

## INDUCTIVE

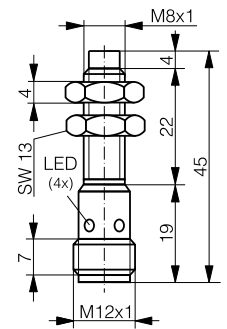
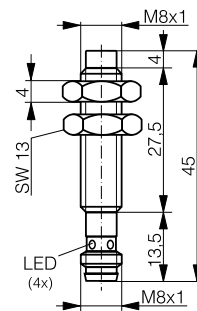
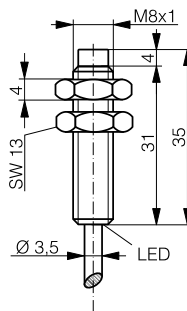
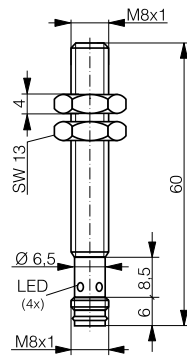
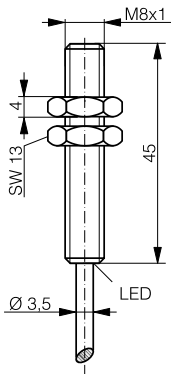
| FAMILY                | CLASSICS | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|----------|
| HOUSING SIZE          | M8       | M8       | M8       | M8       |
| OPERATING DISTANCE MM | 2        | 2        | 2        | 2        |



| DATA                      |                          |                          |                          |                          |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Housing material          | Stainless steel V2A      | Stainless steel V2A      | Stainless steel V2A      | Stainless steel V2A      |
| Connection                | Connector S8             | Connector S8             | Connector S12            | Connector S12            |
| Degree of protection      | IP 67                    | IP 67                    | IP 67                    | IP 67                    |
| Mounting                  | Embeddable               | Embeddable               | Embeddable               | Embeddable               |
| Max. switching frequency  | 5000 Hz                  | 5000 Hz                  | 5000 Hz                  | 5000 Hz                  |
| Supply voltage range      | 10 ... 30 VDC            | 10 ... 30 VDC            | 10 ... 30 VDC            | 10 ... 30 VDC            |
| Ambient temperature range | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F |
| Output current            | ≤ 200 mA                 | ≤ 200 mA                 | ≤ 200 mA                 | ≤ 200 mA                 |
| PNP NO                    | <b>DW-AS-623-M8-124</b>  | <b>DW-AS-623-M8-001</b>  | <b>DW-AS-623-M8</b>      | <b>DW-AS-623-M8-193</b>  |
| NPN NO                    | <b>DW-AS-621-M8-124</b>  | <b>DW-AS-621-M8-001</b>  | <b>DW-AS-621-M8</b>      | <b>DW-AS-621-M8-193</b>  |
| Other types available     | PNP NC, NPN NC           | PNP NC, NPN NC           | PNP NC, NPN NC           | PNP NC, NPN NC           |

# BASIC

| FULL INOX | FULL INOX | CLASSICS | CLASSICS | CLASSICS |
|-----------|-----------|----------|----------|----------|
| M8        | M8        | M8       | M8       | M8       |
| 2         | 2         | 2.5      | 2.5      | 2.5      |



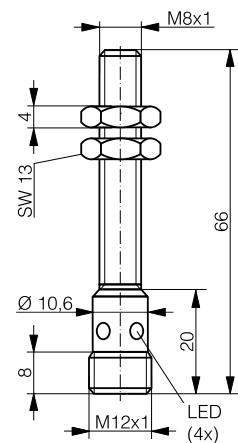
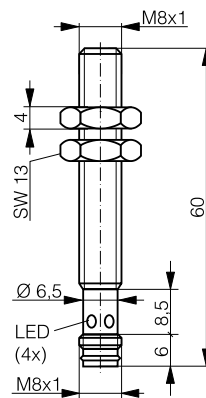
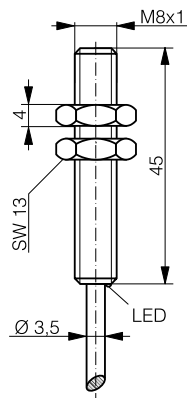
|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

| Stainless steel V2A          | Stainless steel V2A          | Stainless steel V2A                   | Stainless steel V2A                   | Stainless steel V2A          |
|------------------------------|------------------------------|---------------------------------------|---------------------------------------|------------------------------|
| PUR cable                    | Connector S8                 | PVC cable                             | Connector S8                          | Connector S12                |
| IP 68                        | IP 68 / IP 69K               | IP 67                                 | IP 67                                 | IP 67                        |
| Embeddable                   | Embeddable                   | Non-embeddable                        | Non-embeddable                        | Non-embeddable               |
| 100 Hz                       | 100 Hz                       | 4500 Hz                               | 4500 Hz                               | 4500 Hz                      |
| 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                         | 10 ... 30 VDC                         | 10 ... 30 VDC                |
| -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F          | -25 ... +70°C/-13 ... +158°F          | -25 ... +70°C/-13 ... +158°F |
| ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                              | ≤ 200 mA                              | ≤ 200 mA                     |
| <b>DW-AD-703-M8-BAS</b>      | <b>DW-AS-703-M8-001-BAS</b>  | <b>DW-AD-613-M8</b>                   | <b>DW-AS-613-M8-001</b>               | <b>DW-AS-613-M8</b>          |
| <b>DW-AD-701-M8-BAS</b>      | <b>DW-AS-701-M8-001-BAS</b>  | <b>DW-AD-611-M8</b>                   | <b>DW-AS-611-M8-001</b>               | <b>DW-AS-611-M8</b>          |
|                              |                              | PNP NC, NPN NC,<br>lengths 22 & 30 mm | PNP NC, NPN NC,<br>lengths 32 & 40 mm | PNP NC, NPN NC               |

# BASIC

## INDUCTIVE

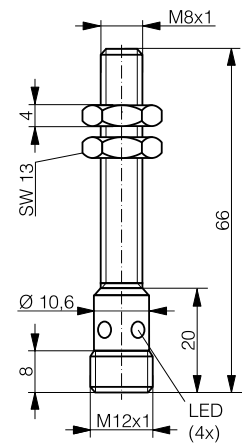
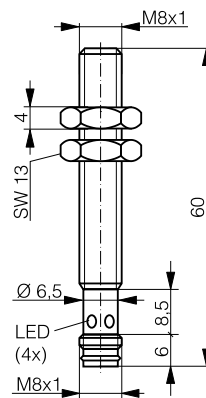
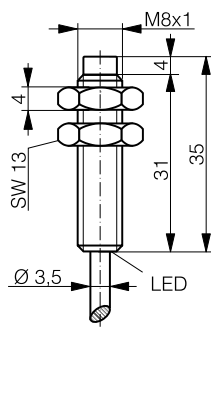
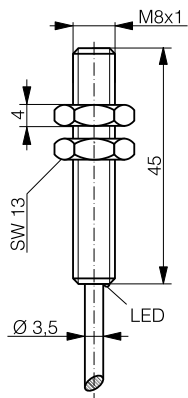
| FAMILY                | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------------|----------------|----------------|
| HOUSING SIZE          | M8             | M8             | M8             |
| OPERATING DISTANCE MM | 3              | 3              | 3              |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated nickel silver    | Chrome-plated nickel silver    | Chrome-plated nickel silver    |
| Connection                | PVC cable                      | Connector S8                   | Connector S12                  |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 1000 Hz                        | 1000 Hz                        | 1000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-503-M8</b>            | <b>DW-AS-503-M8-001</b>        | <b>DW-AS-503-M8</b>            |
| NPN NO                    | <b>DW-AD-501-M8</b>            | <b>DW-AS-501-M8-001</b>        | <b>DW-AS-501-M8</b>            |
| Other types available     | PNP NC, NPN NC, length 35 mm   | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

| EXTRA DISTANCE | CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE | Inductive |
|----------------|----------|----------------|----------------|-----------|
| M8             | M8       | M8             | M8             |           |
| 4              | 4        | 4              | 4              |           |

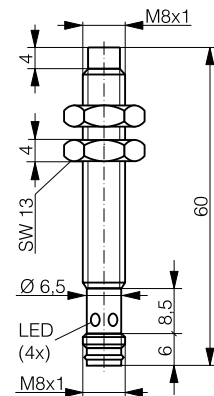
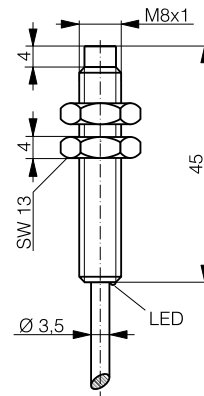
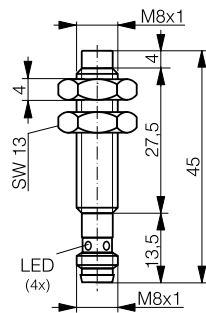


|                                |                                |                                |                                | Accessories |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------|
| Chrome-plated nickel silver    | Stainless steel V2A            | Chrome-plated nickel silver    | Chrome-plated nickel silver    |             |
| PVC cable                      | PVC cable                      | Connector S8                   | Connector S12                  |             |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          | Glossary    |
| Embeddable                     | Non-embeddable                 | Embeddable                     | Embeddable                     |             |
| 500 Hz                         | 3500 Hz                        | 500 Hz                         | 500 Hz                         |             |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | Index       |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |             |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |             |
| <b>DW-AD-523-M8</b>            | <b>DW-AD-633-M8</b>            | <b>DW-AS-523-M8-001</b>        | <b>DW-AS-523-M8</b>            |             |
| <b>DW-AD-521-M8</b>            | <b>DW-AD-631-M8</b>            | <b>DW-AS-521-M8-001</b>        | <b>DW-AS-521-M8</b>            |             |
| PNP NC, NPN NC, length 35 mm   | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |             |

# BASIC

## INDUCTIVE

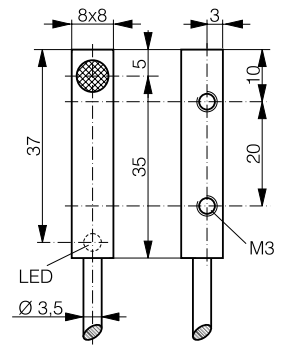
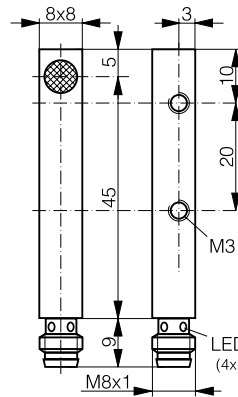
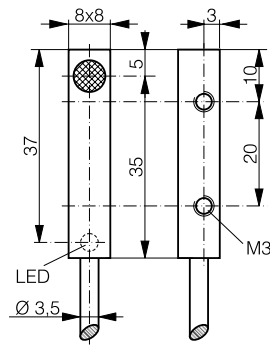
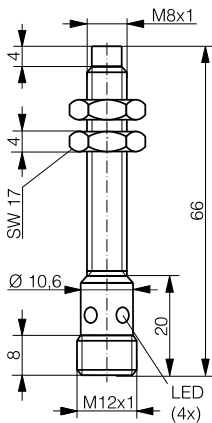
| FAMILY                | CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------|----------------|----------------|
| HOUSING SIZE          | M8       | M8             | M8             |
| OPERATING DISTANCE MM | 4        | 6              | 6              |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | Connector S8                   | PVC cable                      | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Non-embeddable                 | Non-embeddable                 | Non-embeddable                 |
| Max. switching frequency  | 3500 Hz                        | 500 Hz                         | 500 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-633-M8-001</b>        | <b>DW-AD-513-M8</b>            | <b>DW-AS-513-M8-001</b>        |
| NPN NO                    | <b>DW-AS-631-M8-001</b>        | <b>DW-AD-511-M8</b>            | <b>DW-AS-511-M8-001</b>        |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC, length 35 mm   | PNP NC, NPN NC                 |

# BASIC

| EXTRA DISTANCE | CLASSICS | CLASSICS | CLASSICS |
|----------------|----------|----------|----------|
| M8             | □ 8 x 8  | □ 8 x 8  | □ 8 x 8  |
| 6              | 1.5      | 1.5      | 2        |



| EXTRA DISTANCE                 | CLASSICS                       | CLASSICS                       | CLASSICS                       |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Chrome-plated brass            | Zamak                          | Zamak                          | Zamak                          |
| Connector S12                  | PVC cable                      | Connector S8                   | PVC cable                      |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Non-embeddable                 | Embeddable                     | Embeddable                     | Embeddable                     |
| 500 Hz                         | 3500 Hz                        | 3500 Hz                        | 5000 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-513-M8</b>            | <b>DW-AD-603-C8</b>            | <b>DW-AS-603-C8-001</b>        | <b>DW-AD-623-C8</b>            |
| <b>DW-AS-511-M8</b>            | <b>DW-AD-601-C8</b>            | <b>DW-AS-601-C8-001</b>        | <b>DW-AD-621-C8</b>            |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

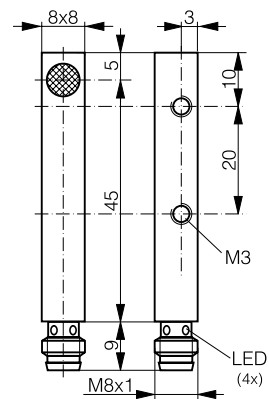
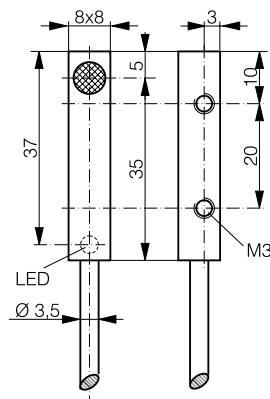
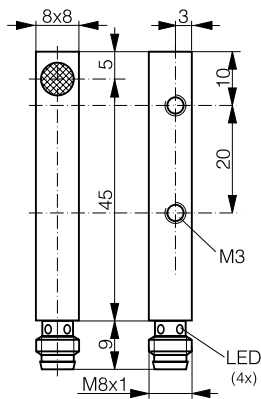
|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |



# BASIC

## INDUCTIVE

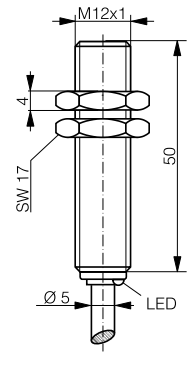
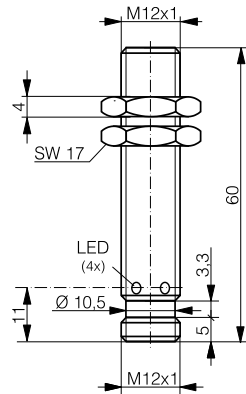
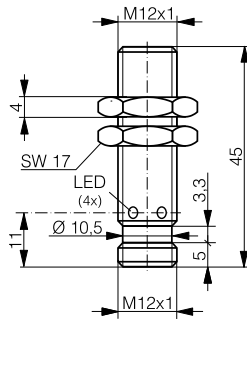
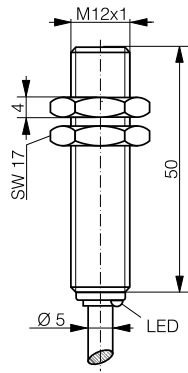
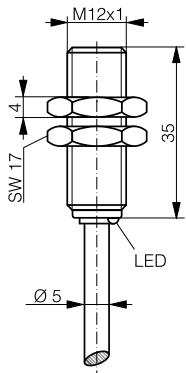
| FAMILY                | CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------|----------------|----------------|
| HOUSING SIZE          | □ 8 x 8  | □ 8 x 8        | □ 8 x 8        |
| OPERATING DISTANCE MM | 2        | 3              | 3              |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Zamak                          | Zamak                          | Zamak                          |
| Connection                | Connector S8                   | PVC cable                      | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Quasi-embeddable               | Quasi-embeddable               |
| Max. switching frequency  | 5000 Hz                        | 1000 Hz                        | 1000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-623-C8-001</b>        | <b>DW-AD-503-C8</b>            | <b>DW-AS-503-C8</b>            |
| NPN NO                    | <b>DW-AS-621-C8-001</b>        | <b>DW-AD-501-C8</b>            | <b>DW-AS-501-C8</b>            |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

| CLASSICS | CLASSICS | CLASSICS | CLASSICS | FULL INOX |
|----------|----------|----------|----------|-----------|
| M12      | M12      | M12      | M12      | M12       |
| 2        | 2        | 2        | 2        | 3         |



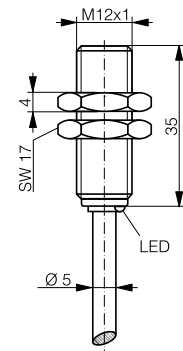
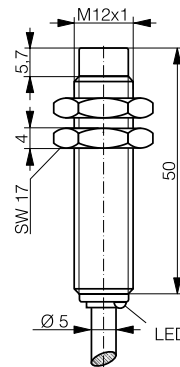
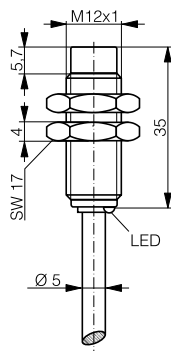
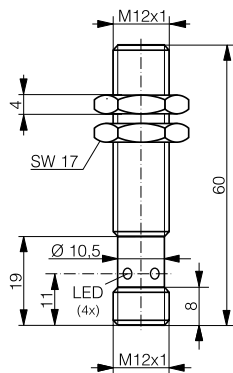
|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

| Nickel-plated brass          | Nickel-plated brass          | Nickel-plated brass          | Nickel-plated brass          | Stainless steel V2A          |
|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| PVC cable                    | PVC cable                    | Connector S12                | Connector S12                | PUR cable                    |
| IP 67                        | IP 67                        | IP 67                        | IP 67                        | IP 68                        |
| Embeddable                   | Embeddable                   | Embeddable                   | Embeddable                   | Embeddable                   |
| 3000 Hz                      | 3000 Hz                      | 3000 Hz                      | 3000 Hz                      | 100 Hz                       |
| 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                |
| -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F |
| ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                     |
| <b>DW-AD-603-M12-120</b>     | <b>DW-AD-603-M12</b>         | <b>DW-AS-603-M12-120</b>     | <b>DW-AS-603-M12</b>         | <b>DW-AD-703-M12-BAS</b>     |
| <b>DW-AD-601-M12-120</b>     | <b>DW-AD-601-M12</b>         | <b>DW-AS-601-M12-120</b>     | <b>DW-AS-601-M12</b>         | <b>DW-AD-701-M12-BAS</b>     |
| PNP NC, NPN NC               | PNP NC, NPN NC               | PNP NC, NPN NC               | PNP NC, NPN NC               |                              |

# BASIC

## INDUCTIVE

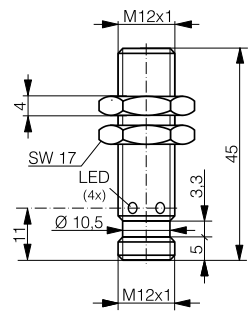
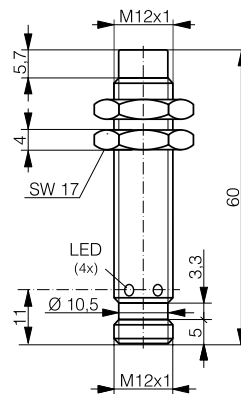
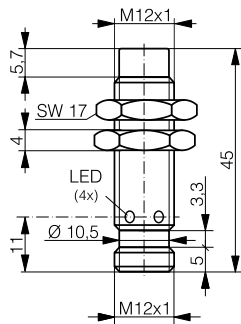
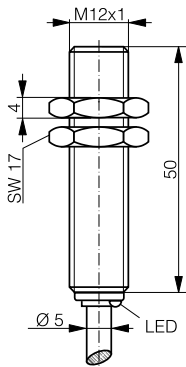
| FAMILY                | FULL INOX | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|-----------|----------|----------|----------|
| HOUSING SIZE          | M12       | M12      | M12      | M12      |
| OPERATING DISTANCE MM | 3         | 4        | 4        | 4        |



| DATA                      | FULL INOX                | CLASSICS                 | CLASSICS                 | CLASSICS                 |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Housing material          | Stainless steel V2A      | Nickel-plated brass      | Nickel-plated brass      | Nickel-plated brass      |
| Connection                | Connector S12            | PVC cable                | PVC cable                | PVC cable                |
| Degree of protection      | IP 68 & IP 69K           | IP 67                    | IP 67                    | IP 67                    |
| Mounting                  | Embeddable               | Non-embeddable           | Non-embeddable           | Embeddable               |
| Max. switching frequency  | 100 Hz                   | 2000 Hz                  | 2000 Hz                  | 2500 Hz                  |
| Supply voltage range      | 10 ... 30 VDC            | 10 ... 30 VDC            | 10 ... 30 VDC            | 10 ... 30 VDC            |
| Ambient temperature range | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F |
| Output current            | ≤ 200 mA                 | ≤ 200 mA                 | ≤ 200 mA                 | ≤ 200 mA                 |
| PNP NO                    | <b>DW-AS-703-M12-BAS</b> | <b>DW-AD-613-M12-120</b> | <b>DW-AD-613-M12</b>     | <b>DW-AD-623-M12-120</b> |
| NPN NO                    | <b>DW-AS-701-M12-BAS</b> | <b>DW-AD-611-M12-120</b> | <b>DW-AD-611-M12</b>     | <b>DW-AD-621-M12-120</b> |
| Other types available     |                          | PNP NC, NPN NC           | PNP NC, NPN NC           | PNP NC, NPN NC           |

# BASIC

|          |          |          |          |
|----------|----------|----------|----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
| M12      | M12      | M12      | M12      |
| 4        | 4        | 4        | 4        |



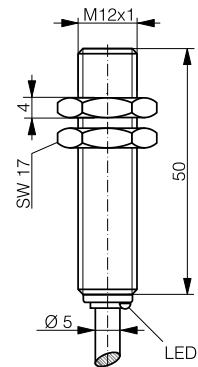
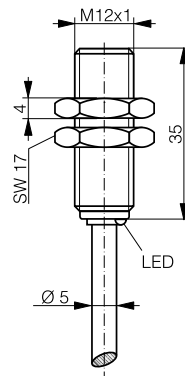
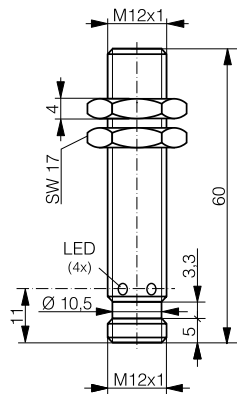
|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                                |                                |                                |                                |
| Nickel-plated brass            | Nickel-plated brass            | Nickel-plated brass            | Nickel-plated brass            |
| PVC cable                      | Connector S12                  | Connector S12                  | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Non-embeddable                 | Non-embeddable                 | Embeddable                     |
| 2500 Hz                        | 2000 Hz                        | 2000 Hz                        | 2500 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AD-623-M12</b>           | <b>DW-AS-613-M12-120</b>       | <b>DW-AS-613-M12</b>           | <b>DW-AS-623-M12-120</b>       |
| <b>DW-AD-621-M12</b>           | <b>DW-AS-611-M12-120</b>       | <b>DW-AS-611-M12</b>           | <b>DW-AS-621-M12-120</b>       |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

# BASIC

## INDUCTIVE

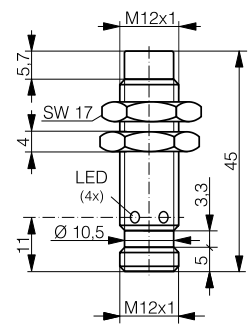
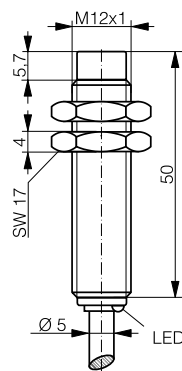
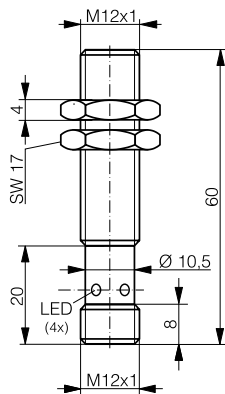
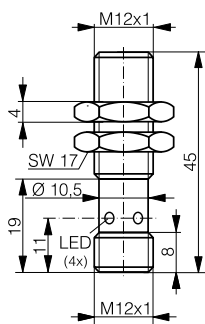
| FAMILY                | CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------|----------------|----------------|
| HOUSING SIZE          | M12      | M12            | M12            |
| OPERATING DISTANCE MM | 4        | 6              | 6              |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Nickel-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | Connector S12                  | PVC cable                      | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Quasi-embeddable               | Quasi-embeddable               |
| Max. switching frequency  | 2500 Hz                        | 800 Hz                         | 800 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-623-M12</b>           | <b>DW-AD-503-M12-120</b>       | <b>DW-AD-503-M12</b>           |
| NPN NO                    | <b>DW-AS-621-M12</b>           | <b>DW-AD-501-M12-120</b>       | <b>DW-AD-501-M12</b>           |
| PNP NC                    | DW-AS-624-M12                  |                                |                                |
| Other types available     | NPN NC                         | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

| EXTRA DISTANCE | EXTRA DISTANCE | CLASSICS | CLASSICS |
|----------------|----------------|----------|----------|
| M12            | M12            | M12      | M12      |
| 6              | 6              | 8        | 8        |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

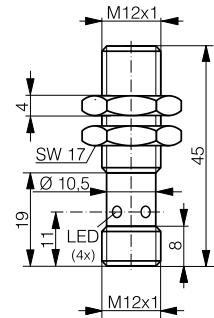
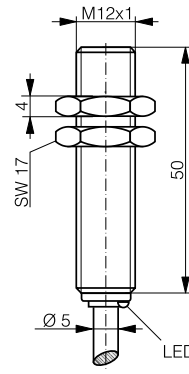
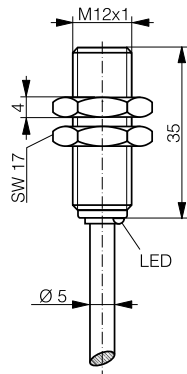
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|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Chrome-plated brass            | Chrome-plated brass            | Nickel-plated brass            | Nickel-plated brass            |
| Connector S12                  | Connector S12                  | PVC cable                      | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Quasi-embeddable               | Quasi-embeddable               | Non-embeddable                 | Non-embeddable                 |
| 800 Hz                         | 800 Hz                         | 1400 Hz                        | 1400 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-503-M12-120</b>       | <b>DW-AS-503-M12</b>           | <b>DW-AD-633-M12</b>           | <b>DW-AS-633-M12-120</b>       |
| <b>DW-AS-501-M12-120</b>       | <b>DW-AS-501-M12</b>           | <b>DW-AD-631-M12</b>           | <b>DW-AS-631-M12-120</b>       |
|                                | DW-AS-504-M12                  | DW-AD-634-M12                  | DW-AS-634-M12-120              |
| PNP NC, NPN NC                 | NPN NC                         | NPN NC, length 35 mm           | NPN NC, length 60 mm           |

# BASIC

## INDUCTIVE

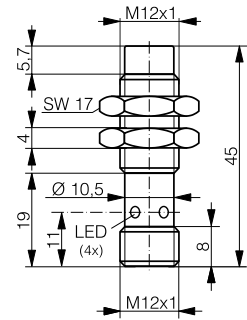
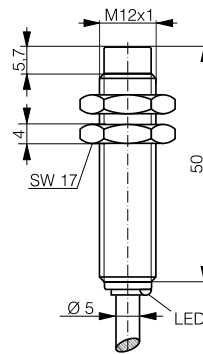
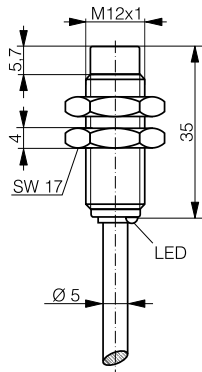
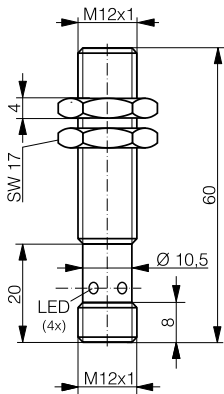
| FAMILY                | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------------|----------------|----------------|
| HOUSING SIZE          | M12            | M12            | M12            |
| OPERATING DISTANCE MM | 8              | 8              | 8              |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | PVC cable                      | PVC cable                      | Connector S12                  |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Quasi-embeddable               | Quasi-embeddable               | Quasi-embeddable               |
| Max. switching frequency  | 400 Hz                         | 400 Hz                         | 400 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-523-M12-120</b>       | <b>DW-AD-523-M12</b>           | <b>DW-AS-523-M12-120</b>       |
| NPN NO                    | <b>DW-AD-521-M12-120</b>       | <b>DW-AD-521-M12</b>           | <b>DW-AS-521-M12-120</b>       |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

| EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|----------------|----------------|----------------|----------------|
| M12            | M12            | M12            | M12            |
| 8              | 10             | 10             | 10             |



| Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Connector S12                  | PVC cable                      | PVC cable                      | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Quasi-embeddable               | Non-embeddable                 | Non-embeddable                 | Non-embeddable                 |
| 400 Hz                         | 400 Hz                         | 400 Hz                         | 400 Hz                         |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-523-M12</b>           | <b>DW-AD-513-M12-120</b>       | <b>DW-AD-513-M12</b>           | <b>DW-AS-513-M12-120</b>       |
| <b>DW-AS-521-M12</b>           | <b>DW-AD-511-M12-120</b>       | <b>DW-AD-511-M12</b>           | <b>DW-AS-511-M12-120</b>       |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

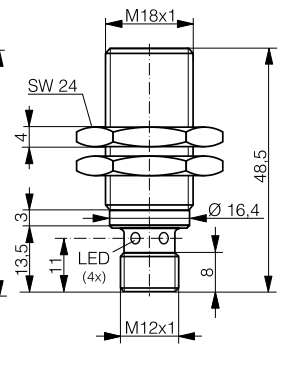
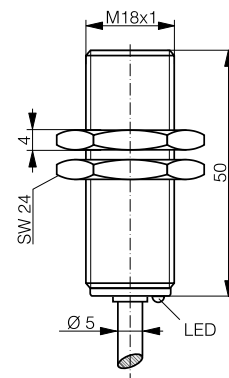
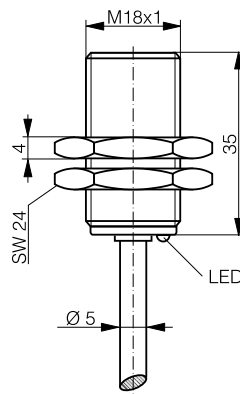
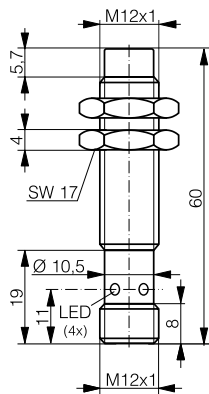
- Inductive
- Photoelectric
- Ultrasonic
- Capacitive
- Safety
- RFID
- Connectivity
- Accessories
- Glossary
- Index



# BASIC

## INDUCTIVE

| FAMILY                | EXTRA DISTANCE | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------------|----------|----------|----------|
| HOUSING SIZE          | M12            | M18      | M18      | M18      |
| OPERATING DISTANCE MM | 10             | 5        | 5        | 5        |



| DATA                      |                          |                          |                          |                          |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Housing material          | Chrome-plated brass      | Nickel-plated brass      | Nickel-plated brass      | Nickel-plated brass      |
| Connection                | Connector S12            | PVC cable                | PVC cable                | Connector S12            |
| Degree of protection      | IP 67                    | IP 67                    | IP 67                    | IP 67                    |
| Mounting                  | Non-embeddable           | Embeddable               | Embeddable               | Embeddable               |
| Max. switching frequency  | 400 Hz                   | 2000 Hz                  | 2000 Hz                  | 2000 Hz                  |
| Supply voltage range      | 10 ... 30 VDC            | 10 ... 30 VDC            | 10 ... 30 VDC            | 10 ... 30 VDC            |
| Ambient temperature range | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F | -25...+70°C/-13...+158°F |
| Output current            | ≤ 200 mA                 | ≤ 200 mA                 | ≤ 200 mA                 | ≤ 200 mA                 |
| PNP NO                    | <b>DW-AS-513-M12</b>     | <b>DW-AD-603-M18-120</b> | <b>DW-AD-603-M18</b>     | <b>DW-AS-603-M18-120</b> |
| NPN NO                    | <b>DW-AS-511-M12</b>     | <b>DW-AD-601-M18-120</b> | <b>DW-AD-601-M18</b>     | <b>DW-AS-601-M18-120</b> |
| PNP NC                    | DW-AS-514-M12            |                          | DW-AD-604-M18            |                          |
| Other types available     | NPN NC                   | PNP NC, NPN NC           | NPN NC                   | PNP NC, NPN NC           |

# BASIC

| CLASSICS | FULL INOX | FULL INOX | CLASSICS | CLASSICS |
|----------|-----------|-----------|----------|----------|
| M18      | M18       | M18       | M18      | M18      |
| 5        | 5         | 5         | 8        | 8        |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

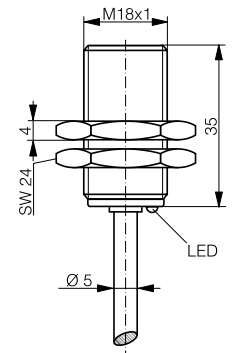
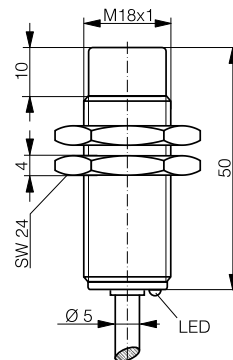
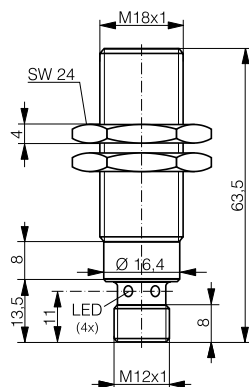
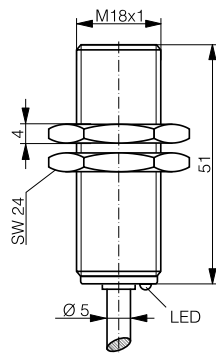
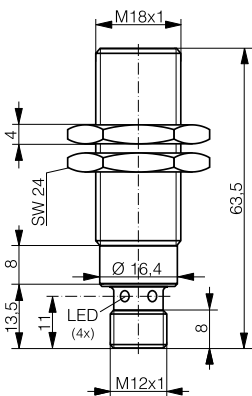
RFID

Connectivity

Accessories

Glossary

Index



| CLASSICS                     | FULL INOX                    | FULL INOX                    | CLASSICS                     | CLASSICS                     |
|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Nickel-plated brass          | Stainless steel V2A          | Stainless steel V2A          | Nickel-plated brass          | Nickel-plated brass          |
| Connector S12                | PUR cable                    | Connector S12                | PVC cable                    | PVC cable                    |
| IP 67                        | IP 68                        | IP 68 & IP 69K               | IP 67                        | IP 67                        |
| Embeddable                   | Embeddable                   | Embeddable                   | Non-embeddable               | Quasi-embeddable             |
| 2000 Hz                      | 100 Hz                       | 100 Hz                       | 2000 Hz                      | 1500 Hz                      |
| 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                | 10 ... 30 VDC                |
| -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F | -25 ... +70°C/-13 ... +158°F |
| ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                     | ≤ 200 mA                     |
| <b>DW-AS-603-M18-002</b>     | <b>DW-AD-703-M18-BAS</b>     | <b>DW-AS-703-M18-BAS</b>     | <b>DW-AD-613-M18</b>         | <b>DW-AD-623-M18-120</b>     |
| <b>DW-AS-601-M18-002</b>     | <b>DW-AD-701-M18-BAS</b>     | <b>DW-AS-701-M18-BAS</b>     | <b>DW-AD-611-M18</b>         | <b>DW-AD-621-M18-120</b>     |
| DW-AS-604-M18-002            |                              |                              |                              |                              |
| NPN NC                       |                              |                              | PNP NC, NPN NC               | PNP NC, NPN NC               |

# BASIC

FAMILY

CLASSICS

CLASSICS

CLASSICS

HOUSING SIZE

M18

M18

M18

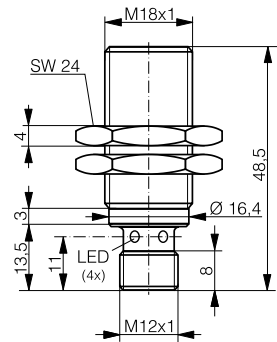
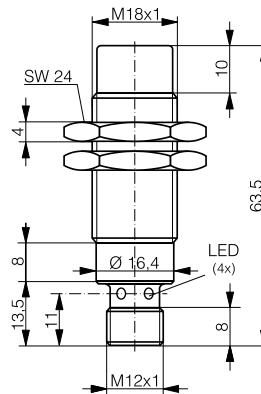
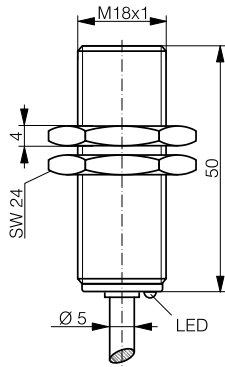
OPERATING DISTANCE MM

8

8

8

INDUCTIVE

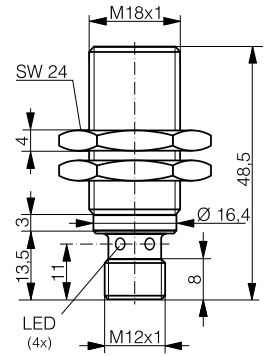
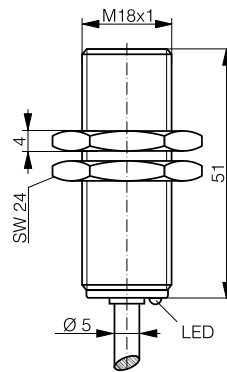
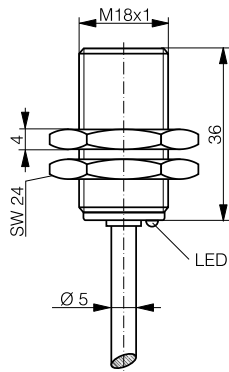
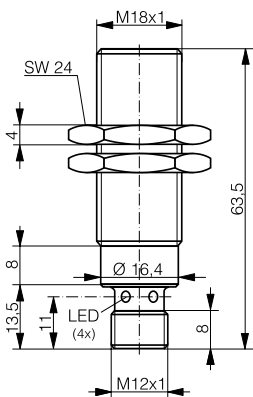


## DATA

| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Nickel-plated brass            | Nickel-plated brass            | Nickel-plated brass            |
| Connection                | PVC cable                      | Connector S12                  | Connector S12                  |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Quasi-embeddable               | Non-embeddable                 | Embeddable                     |
| Max. switching frequency  | 1500 Hz                        | 2000 Hz                        | 1500 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-623-M18</b>           | <b>DW-AS-613-M18-002</b>       | <b>DW-AS-623-M18-120</b>       |
| NPN NO                    | <b>DW-AD-621-M18</b>           | <b>DW-AS-611-M18-002</b>       | <b>DW-AS-621-M18-120</b>       |
| PNP NC                    |                                | DW-AS-614-M18-002              |                                |
| Other types available     | PNP NC, NPN NC                 | NPN NC                         | PNP NC, NPN NC                 |

# BASIC

| CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|----------|----------------|----------------|----------------|
| M18      | M18            | M18            | M18            |
| 8        | 12             | 12             | 12             |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

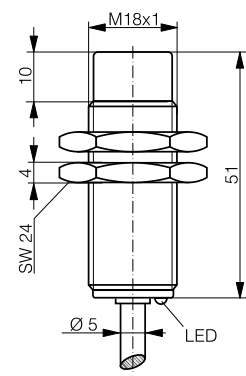
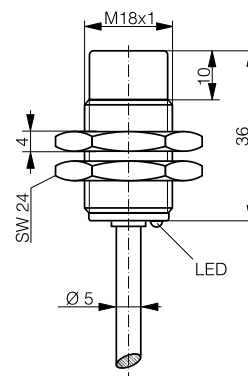
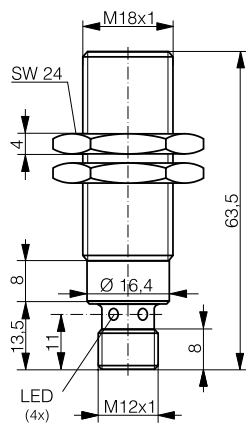
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|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Nickel-plated brass            | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| Connector S12                  | PVC cable                      | PVC cable                      | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Quasi-embeddable               | Quasi-embeddable               | Quasi-embeddable               |
| 1500 Hz                        | 500 Hz                         | 500 Hz                         | 500 Hz                         |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-623-M18-002</b>       | <b>DW-AD-503-M18-120</b>       | <b>DW-AD-503-M18</b>           | <b>DW-AS-503-M18-120</b>       |
| <b>DW-AS-621-M18-002</b>       | <b>DW-AD-501-M18-120</b>       | <b>DW-AD-501-M18</b>           | <b>DW-AS-501-M18-120</b>       |
| DW-AS-624-M18-002              |                                |                                |                                |
| NPN NC                         | PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

## INDUCTIVE

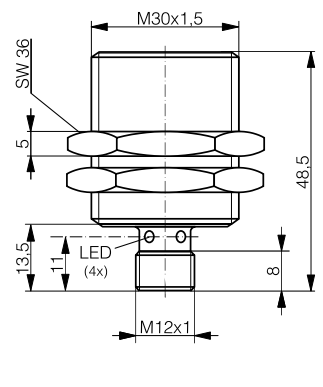
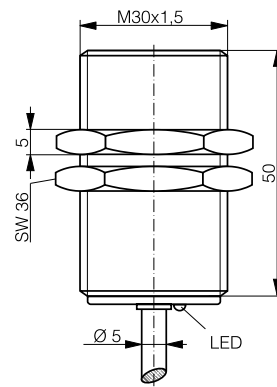
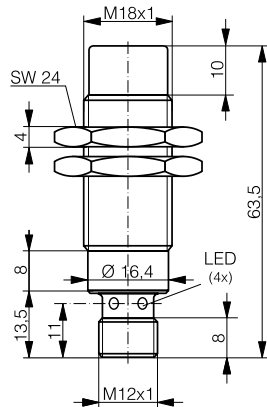
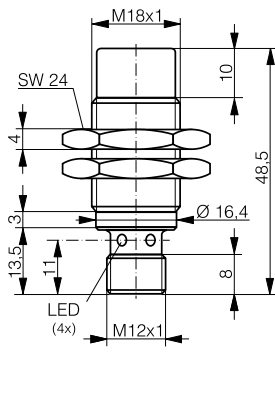
| FAMILY                | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------------|----------------|----------------|
| HOUSING SIZE          | M18            | M18            | M18            |
| OPERATING DISTANCE MM | 12             | 20             | 20             |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | Connector S12                  | PVC cable                      | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Quasi-embeddable               | Non-embeddable                 | Non-embeddable                 |
| Max. switching frequency  | 500 Hz                         | 200 Hz                         | 200 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-503-M18-002</b>       | <b>DW-AD-513-M18-120</b>       | <b>DW-AD-513-M18</b>           |
| NPN NO                    | <b>DW-AS-501-M18-002</b>       | <b>DW-AD-511-M18-120</b>       | <b>DW-AD-511-M18</b>           |
| PNP NC                    | DW-AS-504-M18-002              |                                | DW-AD-514-M18                  |
| Other types available     | NPN NC                         | PNP NC, NPN NC                 | NPN NC                         |

# BASIC

| EXTRA DISTANCE | EXTRA DISTANCE | CLASSICS | CLASSICS | Inductive |
|----------------|----------------|----------|----------|-----------|
| M18            | M18            | M30      | M30      |           |
| 20             | 20             | 10       | 10       |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

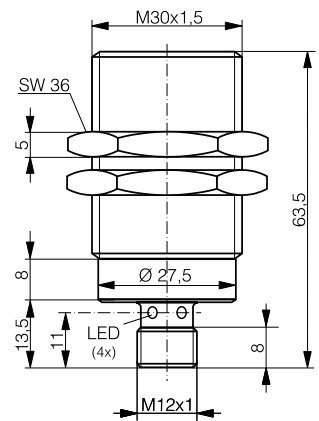
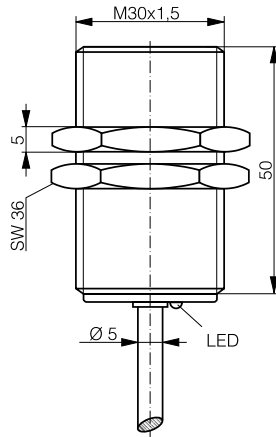
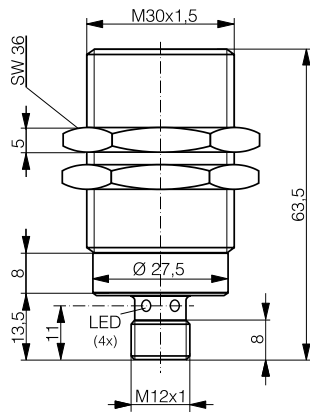
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|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Chrome-plated brass            | Chrome-plated brass            | Nickel-plated brass            | Nickel-plated brass            |
| Connector S12                  | Connector S12                  | PVC cable                      | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Non-embeddable                 | Non-embeddable                 | Embeddable                     | Embeddable                     |
| 200 Hz                         | 200 Hz                         | 1200 Hz                        | 1200 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-513-M18-120</b>       | <b>DW-AS-513-M18-002</b>       | <b>DW-AD-603-M30</b>           | <b>DW-AS-603-M30-120</b>       |
| <b>DW-AS-511-M18-120</b>       | <b>DW-AS-511-M18-002</b>       | <b>DW-AD-601-M30</b>           | <b>DW-AS-601-M30-120</b>       |
|                                | DW-AS-514-M18-002              |                                |                                |
| PNP NC, NPN NC                 | NPN NC                         | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# BASIC

## INDUCTIVE

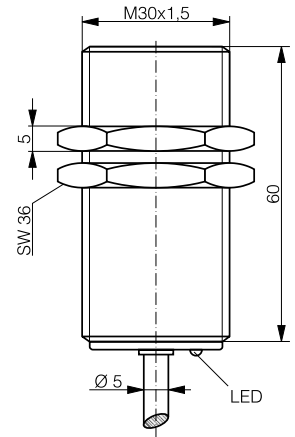
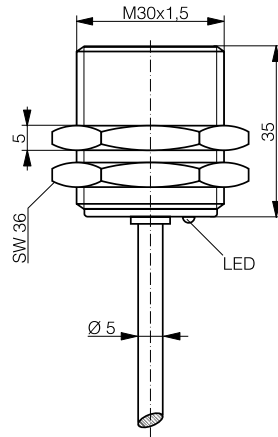
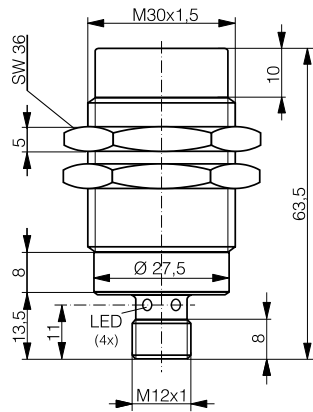
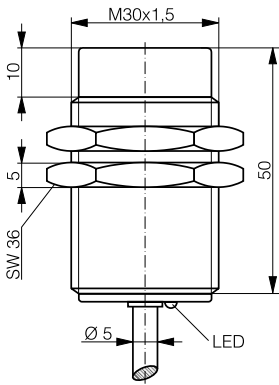
| FAMILY                | CLASSICS | FULL INOX | FULL INOX |
|-----------------------|----------|-----------|-----------|
| HOUSING SIZE          | M30      | M30       | M30       |
| OPERATING DISTANCE MM | 10       | 10        | 10        |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Nickel-plated brass            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | Connector S12                  | PUR cable                      | Connector S12                  |
| Degree of protection      | IP 67                          | IP 68                          | IP 68 & IP 69K                 |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 1200 Hz                        | 50 Hz                          | 50 Hz                          |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-603-M30-002</b>       | <b>DW-AS-703-M30-BAS</b>       | <b>DW-AD-703-M30-BAS</b>       |
| NPN NO                    | <b>DW-AS-601-M30-002</b>       | <b>DW-AS-701-M30-BAS</b>       | <b>DW-AD-701-M30-BAS</b>       |
| PNP NC                    |                                |                                |                                |
| Other types available     | PNP NC, NPN NC                 |                                |                                |

# BASIC

| CLASSICS | CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE | Inductive |
|----------|----------|----------------|----------------|-----------|
| M30      | M30      | M30            | M30            |           |
| 15       | 15       | 22             | 22             |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

| Nickel-plated brass            | Nickel-plated brass            | Chrome-plated brass            | Chrome-plated brass            |  |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|
| PVC cable                      | Connector S12                  | PVC cable                      | PVC cable                      |  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |  |
| Non-embeddable                 | Non-embeddable                 | Quasi-embeddable               | Quasi-embeddable               |  |
| 700 Hz                         | 700 Hz                         | 200 Hz                         | 200 Hz                         |  |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |  |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |  |
| <b>DW-AD-613-M30</b>           | <b>DW-AS-613-M30-002</b>       | <b>DW-AD-503-M30-120</b>       | <b>DW-AD-503-M30</b>           |  |
| <b>DW-AD-611-M30</b>           | <b>DW-AS-611-M30-002</b>       | <b>DW-AD-501-M30-120</b>       | <b>DW-AD-501-M30</b>           |  |
|                                |                                |                                | DW-AD-504-M30                  |  |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         |  |



# BASIC

FAMILY

EXTRA DISTANCE

EXTRA DISTANCE

HOUSING SIZE

M30

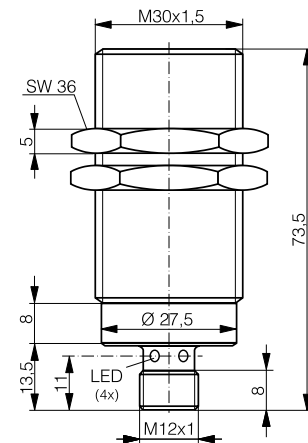
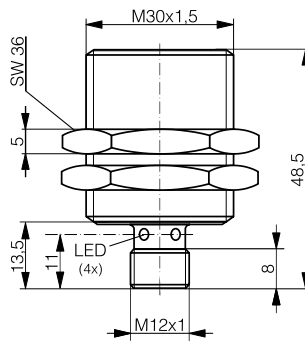
M30

OPERATING DISTANCE MM

22

22

INDUCTIVE



## DATA

Housing material

Chrome-plated brass

Chrome-plated brass

Connection

Connector S12

Connector S12

Degree of protection

IP 67

IP 67

Mounting

Quasi-embeddable

Quasi-embeddable

Max. switching frequency

200 Hz

200 Hz

Supply voltage range

10 ... 30 VDC

10 ... 30 VDC

Ambient temperature range

-25 ... +70°C / -13 ... +158°F

-25 ... +70°C / -13 ... +158°F

Output current

≤ 200 mA

≤ 200 mA

PNP NO

**DW-AS-503-M30-120**

**DW-AS-503-M30-002**

NPN NO

**DW-AS-501-M30-120**

**DW-AS-501-M30-002**

PNP NC

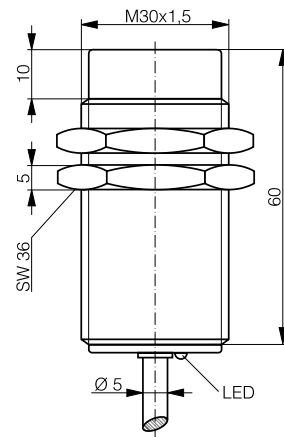
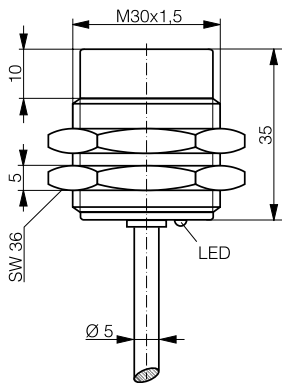
DW-AS-504-M30-002

Other types available

PNP NC, NPN NC

NPN NC

| EXTRA DISTANCE | EXTRA DISTANCE |
|----------------|----------------|
| M30            | M30            |
| 40             | 40             |



|                                |                                |
|--------------------------------|--------------------------------|
| Chrome-plated brass            | Chrome-plated brass            |
| PVC cable                      | PVC cable                      |
| IP 67                          | IP 67                          |
| Non-embeddable                 | Non-embeddable                 |
| 100 Hz                         | 100 Hz                         |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AD-513-M30-120</b>       | <b>DW-AD-513-M30</b>           |
| <b>DW-AD-511-M30-120</b>       | <b>DW-AD-511-M30</b>           |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 |

|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

# BASIC

FAMILY

EXTRA DISTANCE

EXTRA DISTANCE

HOUSING SIZE MM

M30

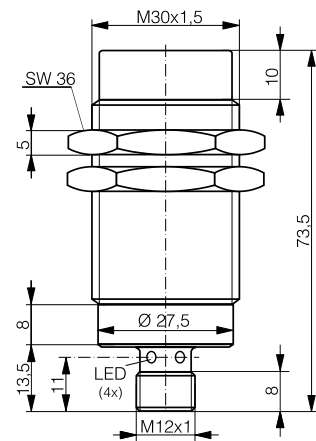
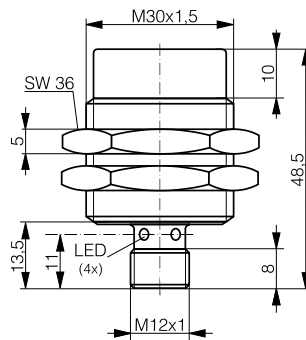
M30

OPERATING DISTANCE MM

40

40

INDUCTIVE



## DATA

Housing material

Chrome-plated brass

Chrome-plated brass

Connection

Connector S12

Connector S12

Degree of protection

IP 67

IP 67

Mounting

Non-embeddable

Non-embeddable

Max. switching frequency

100 Hz

100 Hz

Supply voltage range

10 ... 30 VDC

10 ... 30 VDC

Ambient temperature range

-25 ... +70°C / -13 ... +158°F

-25 ... +70°C / -13 ... +158°F

Output current

≤ 200 mA

≤ 200 mA

PNP NO

**DW-AS-513-M30-120**

**DW-AS-513-M30-002**

NPN NO

**DW-AS-511-M30-120**

**DW-AS-511-M30-002**

PNP NC

DW-AS-514-M30-002

PNP NO + NC

NPN NO + NC

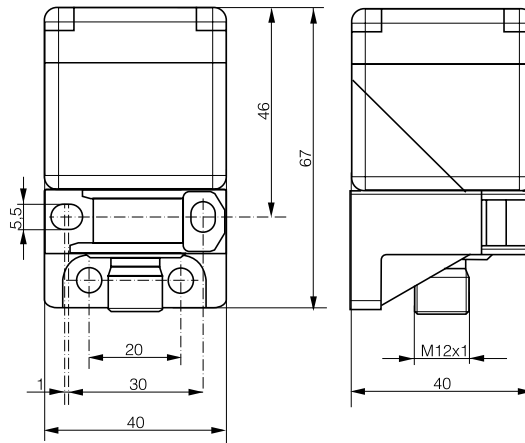
Other types available

PNP NC, NPN NC

NPN NC

# BASIC

| CLASSICS  | CLASSICS  | CLASSICS  |
|-----------|-----------|-----------|
| □ 40 x 40 | □ 40 x 40 | □ 40 x 40 |
| 15        | 20        | 30        |



| PA GF                          | PA GF                          | PA GF                          |
|--------------------------------|--------------------------------|--------------------------------|
| Connector S12                  | Connector S12                  | Connector S12                  |
| IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |
| Embeddable                     | Embeddable                     | Non-embeddable                 |
| 100 Hz                         | 100 Hz                         | 100 Hz                         |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +85°C / -13 ... +185°F | -25 ... +85°C / -13 ... +185°F | -25 ... +85°C / -13 ... +185°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
|                                |                                |                                |
|                                |                                |                                |
| <b>DW-AS-60A-C44</b>           | <b>DW-AS-62A-C44</b>           | <b>DW-AS-61A-C44</b>           |
| <b>DW-AS-60B-C44</b>           | <b>DW-AS-62B-C44</b>           | <b>DW-AS-61B-C44</b>           |

- Inductive
- Photoelectric
- Ultrasonic
- Capacitive
- Safety
- RFID
- Connectivity
- Accessories
- Glossary
- Index

# BASIC

FAMILY

CLASSICS

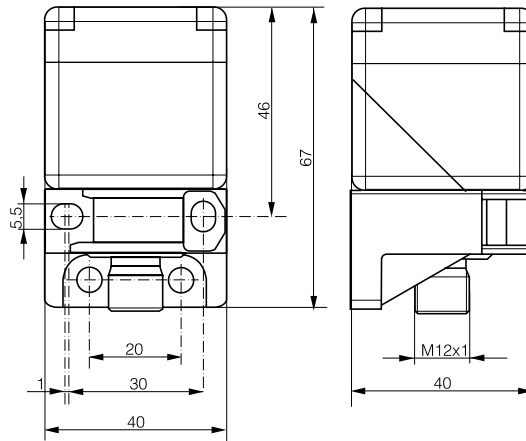
HOUSING SIZE MM

□ 40 x 40

OPERATING DISTANCE MM

40

INDUCTIVE



## DATA

|                           |                                |
|---------------------------|--------------------------------|
| Housing material          | PA GF                          |
| Connection                | Connector S12                  |
| Degree of protection      | IP 68 / IP 69K                 |
| Mounting                  | Non-embeddable                 |
| Max. switching frequency  | 100 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +85°C / -13 ... +185°F |
| Output current            | ≤ 200 mA                       |
| PNP NO + NC               | <b>DW-AS-63A-C44</b>           |
| NPN NO + NC               | <b>DW-AS-63B-C44</b>           |
| Other types available     |                                |



FULL FUNCTIONALITY, SMALLEST SIZE

# MINIATURE INDUCTIVE SENSORS

## KEY ADVANTAGES

### Classics, Extra Distance and Full Metal

- ✓ High quality ASIC sensors with IO-Link interface
- ✓ Smallest self-contained inductive sensors on the market
- ✓ Outstanding temperature stability from -25°C (-13°F) to +70°C (+158°F)
- ✓ High switching frequency up to 5000 Hz
- ✓ Electronics vacuum potted for optimum long-term reliability under high stress

### Full Metal

- ✓ Extremely robust one-piece stainless-steel housing
- ✓ Corrosion resistant
- ✓ IP 68 and IP 69K, sea water resistant
- ✓ Pressure resistant up to 80 bar

| RANGE OVERVIEW | Housing size | Classics | Extra Distance | Full Inox |
|----------------|--------------|----------|----------------|-----------|
| MINIATURE      | ∅ 3 mm       | p. 71-72 |                |           |
|                | M4           | p. 72-73 |                |           |
|                | ∅ 4 mm       | p. 73-75 | p. 75          | p. 75     |
|                | M5           | p. 76-77 | p. 77          | p. 78     |
|                | C5           | p. 78-79 |                |           |

FAMILY

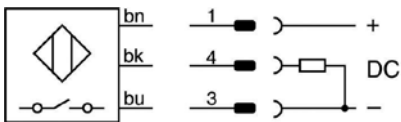
HOUSING SIZE MM

OPERATING DISTANCE MM

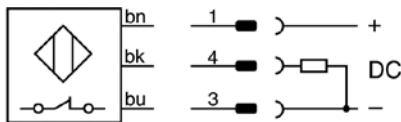
# INDUCTIVE

## WIRING DIAGRAMS

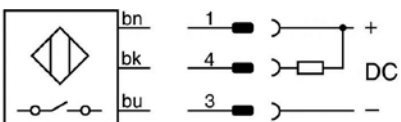
PNP NO



PNP NC



NPN NO



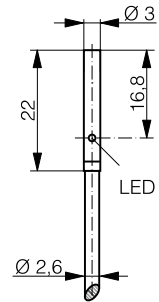
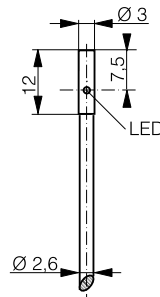
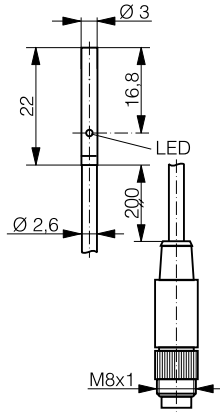
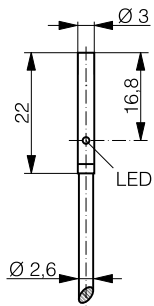
## DATA

|                           |
|---------------------------|
| Housing material          |
| Connection                |
| Degree of protection      |
| Mounting                  |
| Max. switching frequency  |
| Supply voltage range      |
| Ambient temperature range |
| Output current            |
| PNP NO                    |
| NPN NO                    |
| PNP NC                    |
| Other types available     |



# MINIATURE

|          |          |          |          |
|----------|----------|----------|----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
| Ø 3      | Ø 3      | Ø 3      | Ø 3      |
| 0.6      | 0.6      | 1        | 1        |



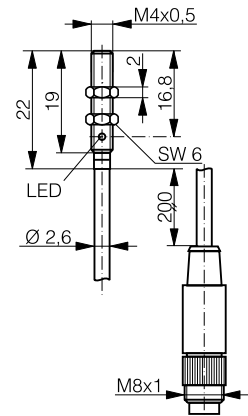
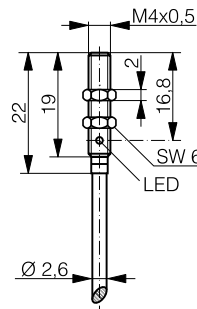
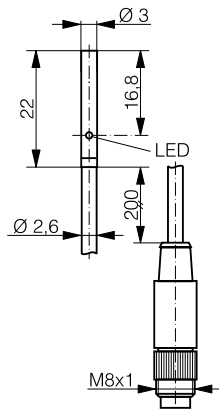
|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| PUR cable                      | PUR cable / Connector S8       | PUR cable                      | PUR cable                      |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 5000 Hz                        | 5000 Hz                        | 8000 Hz                        | 3000 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       |
| <b>DW-AD-603-03</b>            | <b>DW-AV-603-03-276</b>        | <b>DW-AD-623-03-960</b>        | <b>DW-AD-623-03</b>            |
| <b>DW-AD-601-03</b>            | <b>DW-AV-601-03-276</b>        | <b>DW-AD-621-03-960</b>        | <b>DW-AD-621-03</b>            |
| DW-AD-604-03                   |                                |                                |                                |
| NPN NC                         | PNP NC, NPN NC                 |                                | PNP NC, NPN NC                 |

# MINIATURE

## INDUCTIVE

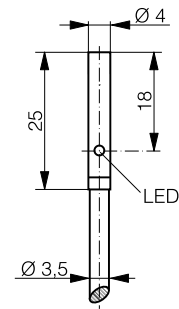
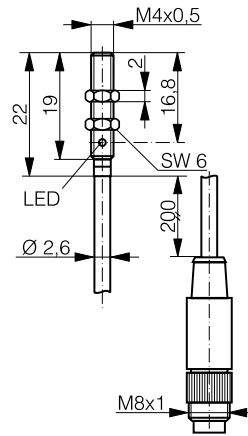
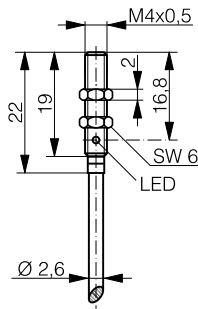
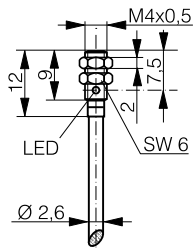
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | Ø 3      | M4       | M4       |
| OPERATING DISTANCE MM | 1        | 0.6      | 0.6      |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PUR cable / Connector S8       | PUR cable                      | PUR cable / Connector S8       |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 3000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       |
| PNP NO                    | <b>DW-AV-623-03-276</b>        | <b>DW-AD-603-M4</b>            | <b>DW-AV-603-M4-276</b>        |
| NPN NO                    | <b>DW-AV-621-03-276</b>        | <b>DW-AD-601-M4</b>            | <b>DW-AV-601-M4-276</b>        |
| PNP NC                    |                                | DW-AD-604-M4                   |                                |
| Other types available     | PNP NC, NPN NC                 | NPN NC                         | PNP NC, NPN NC                 |

# MINIATURE

| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
|----------|----------|----------|----------|
| M4       | M4       | M4       | Ø 4      |
| 1        | 1        | 1        | 0.8      |



|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| PUR cable                      | PUR cable                      | PUR cable / Connector S8       | PVC cable                      |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 8000 Hz                        | 3000 Hz                        | 3000 Hz                        | 5000 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                       |
| <b>DW-AD-623-M4-960</b>        | <b>DW-AD-623-M4</b>            | <b>DW-AV-623-M4-276</b>        | <b>DW-AD-603-04</b>            |
| <b>DW-AD-621-M4-960</b>        | <b>DW-AD-621-M4</b>            | <b>DW-AV-621-M4-276</b>        | <b>DW-AD-601-04</b>            |
|                                |                                |                                | DW-AD-604-04                   |
|                                | PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         |

# MINIATURE

FAMILY

CLASSICS

CLASSICS

CLASSICS

HOUSING SIZE MM

Ø 4

Ø 4

Ø 4

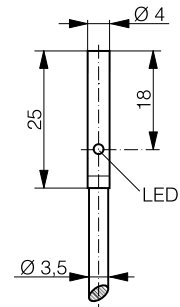
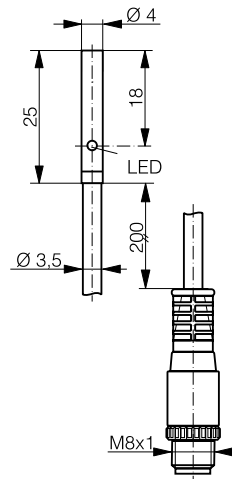
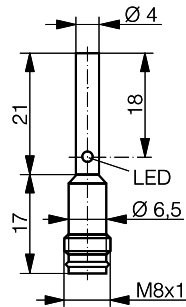
OPERATING DISTANCE MM

0.8

0.8

1.5

INDUCTIVE

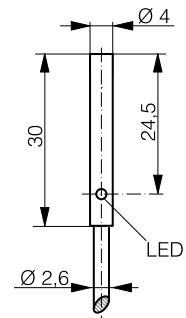
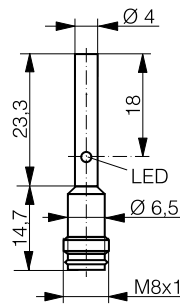
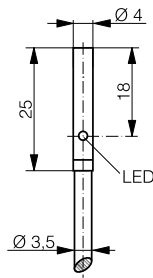
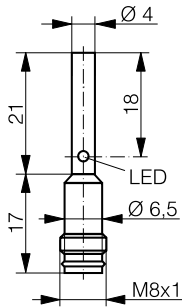


## DATA

| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | Connector S8                   | PVC cable / Connector S8       | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 3000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-603-04</b>            | <b>DW-AV-603-04-236</b>        | <b>DW-AD-623-04</b>            |
| NPN NO                    | <b>DW-AS-601-04</b>            | <b>DW-AV-601-04-236</b>        | <b>DW-AD-621-04</b>            |
| PNP NC                    |                                |                                | DW-AD-624-04                   |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         |

# MINIATURE

| CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE | FULL INOX | Inductive |
|----------|----------------|----------------|-----------|-----------|
| Ø 4      | Ø 4            | Ø 4            | Ø 4       |           |
| 1.5      | 2.5            | 2.5            | 3         |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

| CLASSICS                       | EXTRA DISTANCE                 | EXTRA DISTANCE                 | FULL INOX                      |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A            | Nickel silver                  | Nickel silver                  | Stainless steel V2A            |
| Connector S8                   | PVC cable                      | Connector S8                   | PVC cable                      |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Non-embeddable                 |
| 3000 Hz                        | 800 Hz                         | 800 Hz                         | 1200 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-623-04</b>            | <b>DW-AD-503-04</b>            | <b>DW-AS-503-04</b>            | <b>DW-AD-713-04</b>            |
| <b>DW-AS-621-04</b>            | <b>DW-AD-501-04</b>            | <b>DW-AS-501-04</b>            | <b>DW-AD-711-04</b>            |
|                                |                                | DW-AS-504-04                   |                                |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         |                                |

# MINIATURE

FAMILY

CLASSICS

CLASSICS

CLASSICS

HOUSING SIZE MM

M5

M5

M5

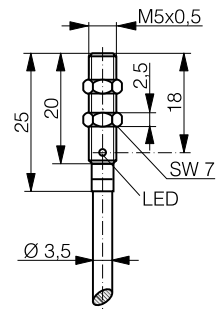
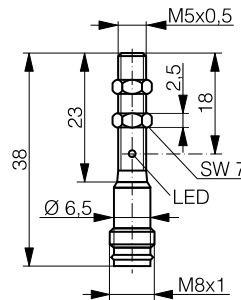
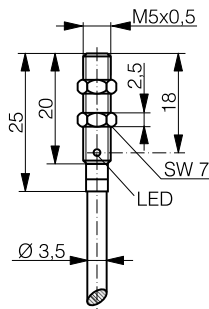
OPERATING DISTANCE MM

0.8

0.8

1.5

INDUCTIVE



DATA

|                           |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PVC cable                      | Connector S8                   | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 3000 Hz                        |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-603-M5</b>            | <b>DW-AS-603-M5</b>            | <b>DW-AD-623-M5</b>            |
| NPN NO                    | <b>DW-AD-601-M5</b>            | <b>DW-AS-601-M5</b>            | <b>DW-AD-621-M5</b>            |
| PNP NC                    | DW-AD-604-M5                   | DW-AS-604-M5                   | DW-AD-624-M5                   |
| Other types available     | NPN NC                         | NPN NC                         | NPN NC                         |

| CLASSICS | EXTRA DISTANCE | EXTRA DISTANCE | Inductive |
|----------|----------------|----------------|-----------|
| M5       | M5             | M5             |           |
| 1.5      | 2.5            | 2.5            |           |



Photoelectric

Ultrasonic

Capacitive

Safety

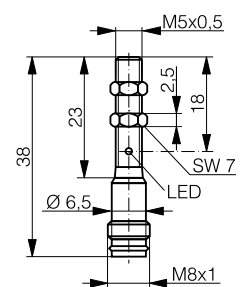
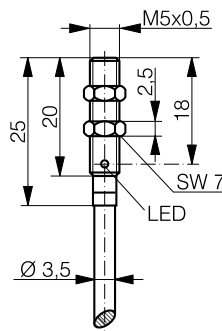
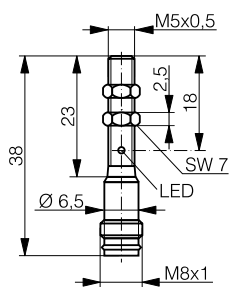
RFID

Connectivity

Accessories

Glossary

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| CLASSICS                       | EXTRA DISTANCE                 | EXTRA DISTANCE                 | Inductive |
|--------------------------------|--------------------------------|--------------------------------|-----------|
| Stainless steel V2A            | Nickel silver                  | Nickel silver                  |           |
| Connector S8                   | PVC cable                      | Connector S8                   |           |
| IP 67                          | IP 67                          | IP 67                          |           |
| Embeddable                     | Embeddable                     | Embeddable                     |           |
| 3000 Hz                        | 800 Hz                         | 800 Hz                         |           |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |           |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |           |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |           |
| <b>DW-AS-623-M5</b>            | <b>DW-AD-503-M5</b>            | <b>DW-AS-503-M5</b>            |           |
| <b>DW-AS-621-M5</b>            | <b>DW-AD-501-M5</b>            | <b>DW-AS-501-M5</b>            |           |
| DW-AS-624-M5                   | DW-AD-504-M5                   | DW-AS-504-M5                   |           |
| NPN NC                         | NPN NC                         | NPN NC                         |           |

# MINIATURE

FAMILY

FULL INOX

CLASSICS

HOUSING SIZE MM

M5

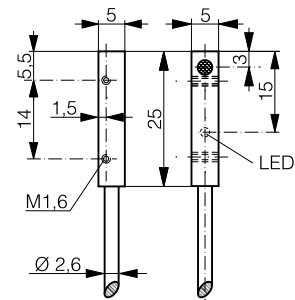
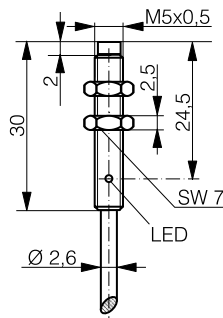
□ 5 x 5

OPERATING DISTANCE MM

3

0.8

INDUCTIVE



## DATA

Housing material

Stainless steel V2A

Chrome-plated brass

Connection

PVC cable

PUR cable

Degree of protection

IP 67

IP 67

Mounting

Non-embeddable

Embeddable

Max. switching frequency

1200 Hz

5000 Hz

Supply voltage range

10 ... 30 VDC

10 ... 30 VDC

Ambient temperature range

-25 ... +70°C / -13 ... +158°F

-25 ... +70°C / -13 ... +158°F

Output current

≤ 200 mA

≤ 200 mA

PNP NO

**DW-AD-713-M5**

**DW-AD-603-C5**

NPN NO

**DW-AD-711-M5**

**DW-AD-601-C5**

PNP NC

DW-AD-604-C5

Other types available

NPN NC

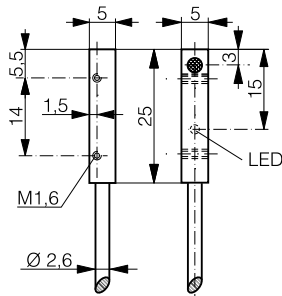


# MINIATURE

CLASSICS

□ 5 x 5

1.5



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

Chrome-plated brass

PUR cable

IP 67

Embeddable

3000 Hz

10 ... 30 VDC

-25 ... +70°C / -13 ... +158°F

≤ 200 mA

**DW-AD-623-C5**

**DW-AD-621-C5**

DW-AD-624-C5

NPN NC



# EXTREME DURABILITY IN HARSH ENVIRONMENTS

# EXTREME

# INDUCTIVE SENSORS

## KEY ADVANTAGES

- ✓ Mechanically and chemically extremely robust
- ✓ Corrosion resistant
- ✓ IP 68 and IP 69K, sea water resistant
- ✓ Pressure resistant up to 80 bar (1160 psi)

### RANGE OVERVIEW

### Housing size

### Full Metal

## EXTREME

M8

p. 83-84

M12

p. 84-86

M18

p. 86-88

M30

p. 88-89

C23

p. 90

FAMILY

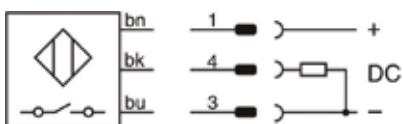
HOUSING SIZE

OPERATING DISTANCE MM

# INDUCTIVE

## WIRING DIAGRAMS

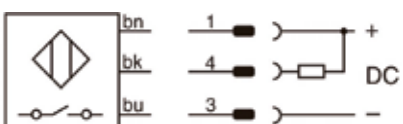
PNP NO



PNP NC



NPN NO



## DATA

Sensing face material

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

PNP NO

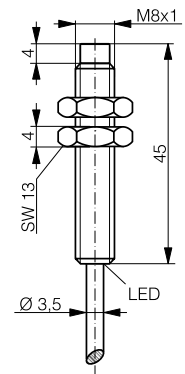
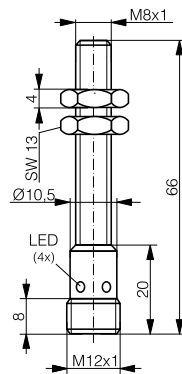
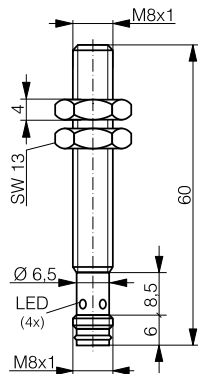
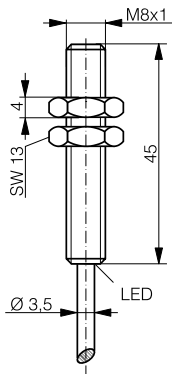
NPN NO

PNP NC

Other types available

# EXTREME

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| FULL INOX | FULL INOX | FULL INOX | FULL INOX | Inductive |
| M8        | M8        | M8        | M8        |           |
| 3         | 3         | 3         | 6         |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

|                                |                                |                                |                                |  |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--|
|                                |                                |                                |                                |  |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |  |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |  |
| PUR cable                      | Connector S8                   | Connector S12                  | PUR cable                      |  |
| IP 68                          | IP 67                          | IP 67                          | IP 68                          |  |
| Embeddable                     | Embeddable                     | Embeddable                     | Non-embeddable                 |  |
| 1000 Hz                        | 1000 Hz                        | 1000 Hz                        | 700 Hz                         |  |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |  |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |  |
| <b>DW-AD-703-M8</b>            | <b>DW-AS-703-M8-001</b>        | <b>DW-AS-703-M8</b>            | <b>DW-AD-713-M8</b>            |  |
| <b>DW-AD-701-M8</b>            | <b>DW-AS-701-M8-001</b>        | <b>DW-AS-701-M8</b>            | <b>DW-AD-711-M8</b>            |  |
| DW-AD-704-M8                   |                                |                                | DW-AD-714-M8                   |  |
| NPN NC                         | PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         |  |

# EXTREME

FAMILY

FULL INOX

FULL INOX

FULL INOX

HOUSING SIZE

M8

M8

M12

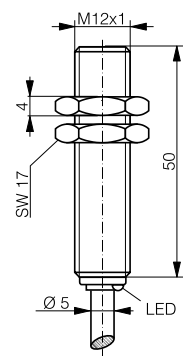
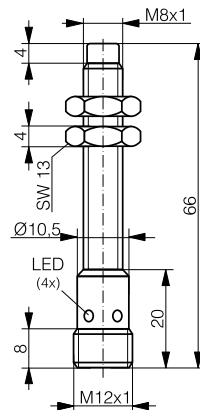
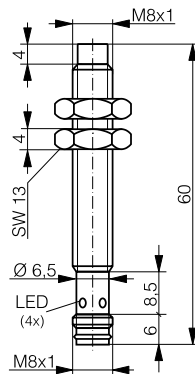
OPERATING DISTANCE MM

6

6

2

INDUCTIVE



DATA

Sensing face material

Stainless steel V2A

Stainless steel V2A

Stainless steel V2A

Housing material

Stainless steel V2A

Stainless steel V2A

Stainless steel V2A

Connection

Connector S8

Connector S12

PUR cable

Degree of protection

IP 67

IP 67

IP 68 / IP 69K

Mounting

Non-embeddable

Non-embeddable

Embeddable

Max. switching frequency

700 Hz

700 Hz

850 Hz

Supply voltage range

10 ... 30 VDC

10 ... 30 VDC

10 ... 30 VDC

Ambient temperature range

-25 ... +70°C / -13 ... +158°F

-25 ... +70°C / -13 ... +158°F

-25 ... +70°C / -13 ... +158°F

Output current

≤ 200 mA

≤ 200 mA

≤ 200 mA

PNP NO

**DW-AS-713-M8-001**

**DW-AS-713-M8**

**DW-AD-703-M12-303**

NPN NO

**DW-AS-711-M8-001**

**DW-AS-711-M8**

**DW-AD-701-M12-303**

PNP NC

Other types available

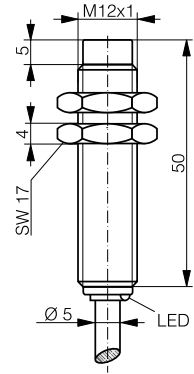
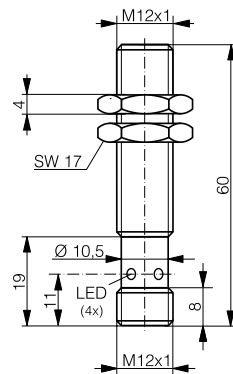
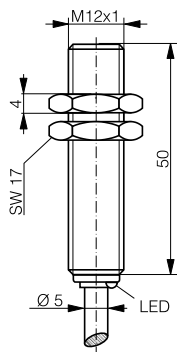
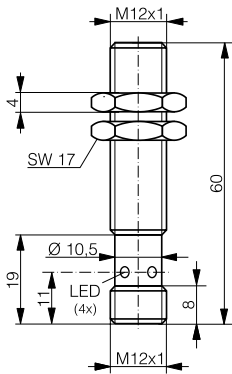
PNP NC, NPN NC

PNP NC, NPN NC

PNP NC, NPN NC

# EXTREME

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| FULL INOX | FULL INOX | FULL INOX | FULL INOX | Inductive |
| M12       | M12       | M12       | M12       |           |
| 2         | 6         | 6         | 10        |           |



|               |
|---------------|
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |

|                                |                                |                                |                                |              |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------|
|                                |                                |                                |                                | Connectivity |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Accessories  |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |              |
| Connector S12                  | PUR cable                      | Connector S12                  | PUR cable                      | Glossary     |
| IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |              |
| Embeddable                     | Embeddable                     | Embeddable                     | Non-embeddable                 | Index        |
| 850 Hz                         | 600 Hz                         | 600 Hz                         | 400 Hz                         |              |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |              |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |              |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |              |
| <b>DW-AS-703-M12-303</b>       | <b>DW-AD-703-M12</b>           | <b>DW-AS-703-M12</b>           | <b>DW-AD-713-M12</b>           |              |
| <b>DW-AS-701-M12-303</b>       | <b>DW-AD-701-M12</b>           | <b>DW-AS-701-M12</b>           | <b>DW-AD-711-M12</b>           |              |
|                                |                                | DW-AS-704-M12                  |                                |              |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         | PNP NC, NPN NC                 |              |

# EXTREME

FAMILY

FULL INOX

FULL INOX

FULL INOX

HOUSING SIZE

M12

M12

M18

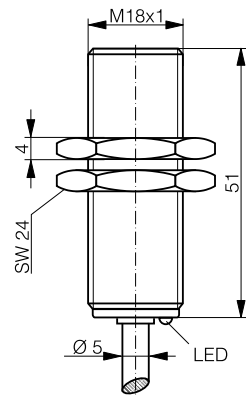
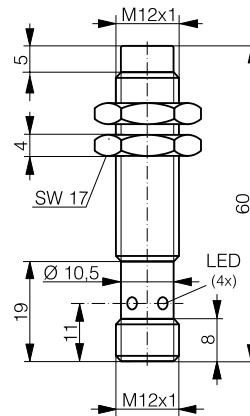
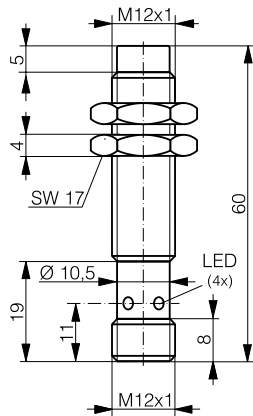
OPERATING DISTANCE MM

10

15

5

INDUCTIVE



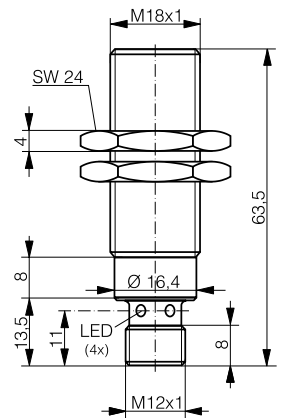
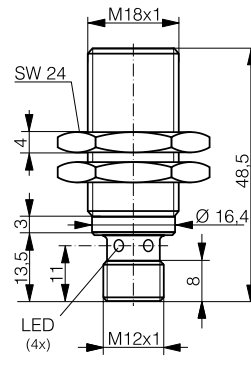
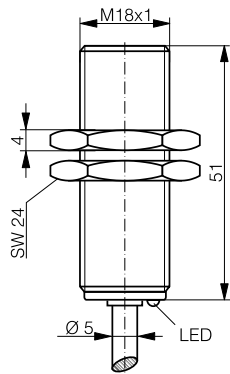
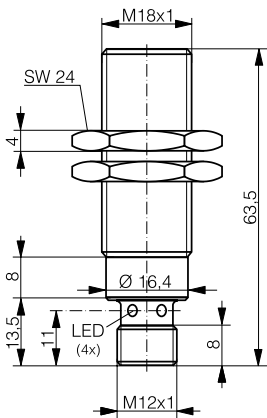
DATA

|                           |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Sensing face material     | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | Connector S12                  | Connector S12                  | PUR cable                      |
| Degree of protection      | IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |
| Mounting                  | Non-embeddable                 | Non-embeddable                 | Embeddable                     |
| Max. switching frequency  | 400 Hz                         | 220 Hz                         | 500 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AS-713-M12</b>           | <b>DW-AS-733-M12</b>           | <b>DW-AD-703-M18-303</b>       |
| NPN NO                    | <b>DW-AS-711-M12</b>           | <b>DW-AS-731-M12</b>           | <b>DW-AD-701-M18-303</b>       |
| PNP NC                    |                                |                                |                                |
| Other types available     | PNP NC, NPN NC                 |                                | PNP NC, NPN NC                 |



# EXTREME

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| FULL INOX | FULL INOX | FULL INOX | FULL INOX |
| M18       | M18       | M18       | M18       |
| 5         | 10        | 10        | 10        |



|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                                |                                |                                |                                |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connector S12                  | PUR cable                      | Connector S12                  | Connector S12                  |
| IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 500 Hz                         | 200 Hz                         | 200 Hz                         | 200 Hz                         |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-703-M18-303</b>       | <b>DW-AD-703-M18</b>           | <b>DW-AS-703-M18-120</b>       | <b>DW-AS-703-M18-002</b>       |
| <b>DW-AS-701-M18-303</b>       | <b>DW-AD-701-M18</b>           | <b>DW-AS-701-M18-120</b>       | <b>DW-AS-701-M18-002</b>       |
|                                | DW-AD-704-M18                  |                                | DW-AS-704-M18-002              |
| PNP NC, NPN NC                 | NPN NC                         | PNP NC, NPN NC                 | NPN NC                         |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

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# EXTREME

FAMILY

FULL INOX

FULL INOX

FULL INOX

HOUSING SIZE

M18

M18

M30

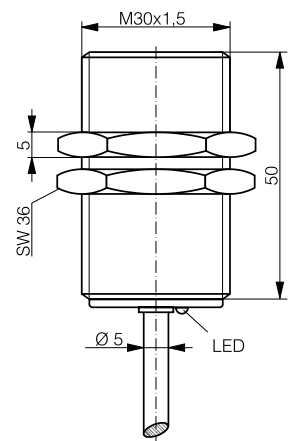
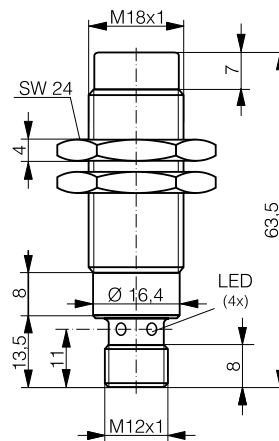
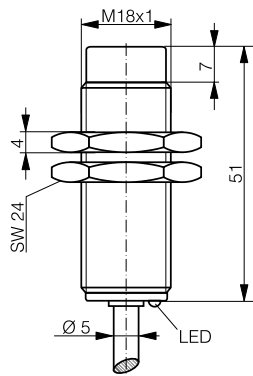
OPERATING DISTANCE MM

20

20

20

INDUCTIVE

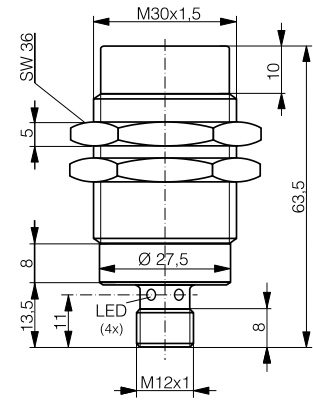
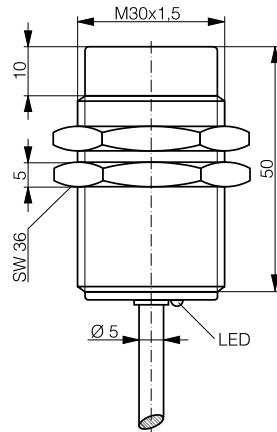
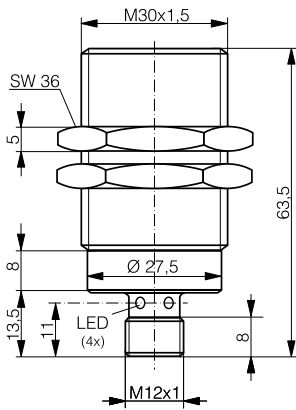


DATA

|                           |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Sensing face material     | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PUR cable                      | Connector S12                  | PUR cable                      |
| Degree of protection      | IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |
| Mounting                  | Non-embeddable                 | Non-embeddable                 | Embeddable                     |
| Max. switching frequency  | 200 Hz                         | 200 Hz                         | 100 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-713-M18</b>           | <b>DW-AS-713-M18-002</b>       | <b>DW-AD-703-M30</b>           |
| NPN NO                    | <b>DW-AD-711-M18</b>           | <b>DW-AS-711-M18-002</b>       | <b>DW-AD-701-M30</b>           |
| PNP NC                    |                                |                                | DW-AD-704-M30                  |
| Other types available     | PNP NC, NPN NC                 | PNP NC, NPN NC                 | NPN NC                         |

# EXTREME

|           |           |           |
|-----------|-----------|-----------|
| FULL INOX | FULL INOX | FULL INOX |
| M30       | M30       | M30       |
| 20        | 40        | 40        |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

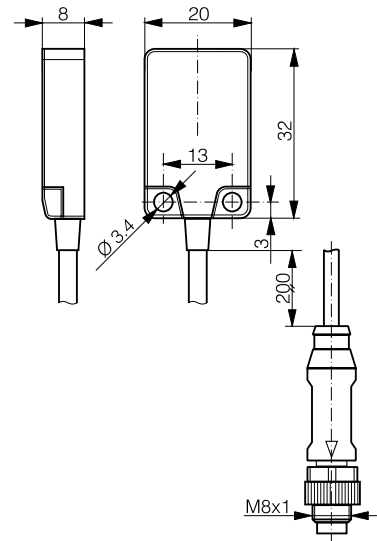
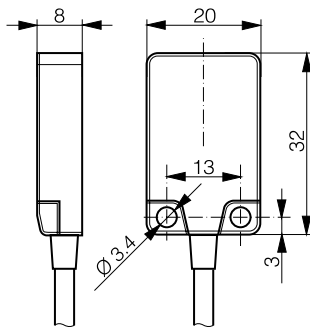
Index

|                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connector S12                  | PUR cable                      | Connector S12                  |
| IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |
| Embeddable                     | Non-embeddable                 | Non-embeddable                 |
| 100 Hz                         | 90 Hz                          | 90 Hz                          |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-703-M30-002</b>       | <b>DW-AD-713-M30</b>           | <b>DW-AS-713-M30-002</b>       |
| <b>DW-AS-701-M30-002</b>       | <b>DW-AD-711-M30</b>           | <b>DW-AS-711-M30-002</b>       |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

# EXTREME

## INDUCTIVE

| FAMILY                | FULL INOX | FULL INOX |
|-----------------------|-----------|-----------|
| HOUSING SIZE          | C23       | C23       |
| OPERATING DISTANCE MM | 7         | 7         |



| DATA                      |                                |                                |
|---------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PUR cable                      | Pigtail                        |
| Degree of protection      | IP 68 & IP 69K                 | IP 68 & IP 69K                 |
| Mounting                  | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 180 Hz                         | 180 Hz                         |
| Supply voltage range      | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| Ambient temperature range | -25 ... +85°C / -13 ... +185°F | -25 ... +85°C / -13 ... +185°F |
| Output current            | ≤ 200 mA                       | ≤ 200 mA                       |
| PNP NO                    | <b>DW-AD-703-C23</b>           | <b>DW-AV-703-C23-276</b>       |
| NPN NO                    | <b>DW-AD-701-C23</b>           | <b>DW-AV-701-C23-276</b>       |
| Other types available     |                                |                                |

PRESSURE



**PRESSURE RESISTANT UP TO 100 BAR (1451 PSI)**

# EXTRA PRESSURE

## INDUCTIVE SENSORS

### KEY ADVANTAGES

- ✓ Pressure resistant up to 100 bar (1451 psi)
- ✓ Mechanically and chemically rugged
- ✓ Impervious: IP 68
- ✓ Gas-tight sensing face
- ✓ Miniature devices

| RANGE OVERVIEW    | Housing size | Classics | Extra Distance |
|-------------------|--------------|----------|----------------|
| EXTRA<br>PRESSURE | ∅ 3 mm       | p. 95    |                |
|                   | M5           | p. 95    |                |
|                   | ∅ 6.5 mm     |          | p. 95          |

FAMILY

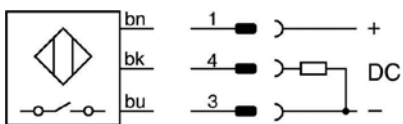
HOUSING SIZE MM

OPERATING DISTANCE MM

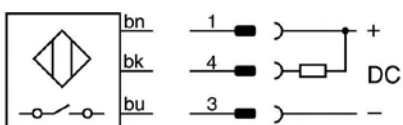
# INDUCTIVE

## WIRING DIAGRAMS

PNP NO



NPN NO



## DATA

Sensing face material

Operating pressure

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

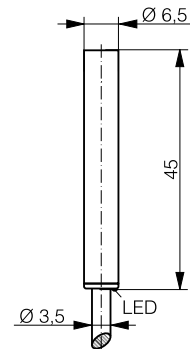
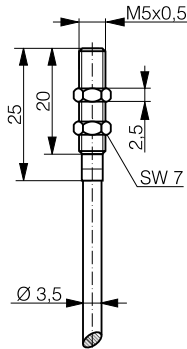
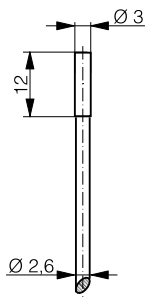
PNP NO

NPN NO

Other types available

# EXTRA PRESSURE

| CLASSICS | CLASSICS | EXTRA DISTANCE |
|----------|----------|----------------|
| Ø 3      | M5       | Ø 6.5          |
| 0.8      | 0.6      | 2.5            |



| Ceramic ZrO <sub>2</sub>       | Sapphire                       | Ceramic ZrO <sub>2</sub>       |
|--------------------------------|--------------------------------|--------------------------------|
| 200 bar                        | 20 bar                         | 20 bar                         |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| PUR cable                      | PUR cable                      | PUR cable                      |
| IP 68                          | IP 68                          | IP 68                          |
| Embeddable                     | Embeddable                     | Embeddable                     |
| 8000 Hz                        | 5000 Hz                        | 1000 Hz                        |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AD-623-03E-961</b>       | <b>DW-AD-603-M5E</b>           | <b>DW-AD-503-065E</b>          |
| <b>DW-AD-621-03E-961</b>       | <b>DW-AD-601-M5E</b>           | <b>DW-AD-501-065E</b>          |
| PNP NC, NPN NC                 | PNP NC, NPN NC                 | PNP NC, NPN NC                 |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index





PRESSURE RESISTANT UP TO 500 BAR (7255 PSI)

# HIGH PRESSURE INDUCTIVE SENSORS

## KEY ADVANTAGES

- ✓ Highest operating (500 bar / 7255 psi) and peak pressure (1000 bar / 14510 psi) on the market
- ✓ Resistant to pressure cycles - 50 times longer lifetime under pressure than the market standard
- ✓ Gas-tight sensing face
- ✓ Large temperature range -25°C (-13°F) ... +100°C (+212°F)

| RANGE OVERVIEW           | Housing size | Extra Distance | Full Metal |
|--------------------------|--------------|----------------|------------|
| <b>HIGH<br/>PRESSURE</b> | M5 / P5      | p. 99          |            |
|                          | M8 / P8      | p. 99          |            |
|                          | M12 / P12    | p. 99-101      | p. 101     |
|                          | M14 / P20    | p. 101-102     |            |

FAMILY

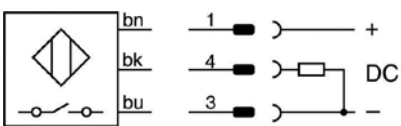
HOUSING SIZE

OPERATING DISTANCE MM

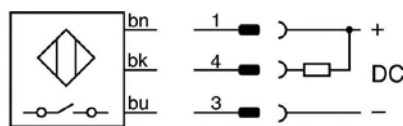
# INDUCTIVE

## WIRING DIAGRAMS

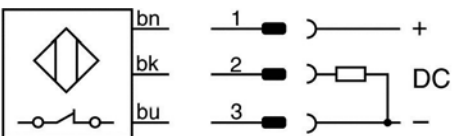
PNP NO



NPN NO



PNP NC



## DATA

Sensing face material

Operating pressure

Peak pressure

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

PNP NO

NPN NO

PNP NO ( $S_n = 1.5 \text{ mm}$ )

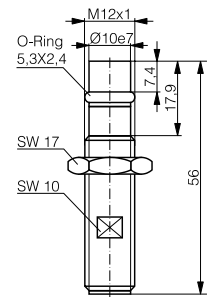
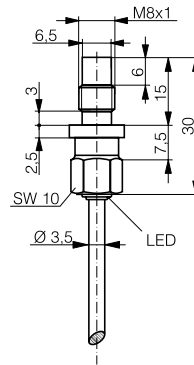
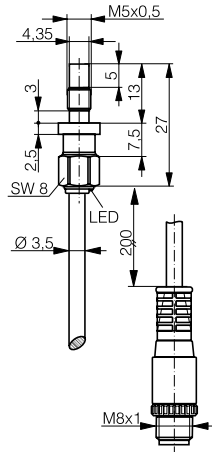
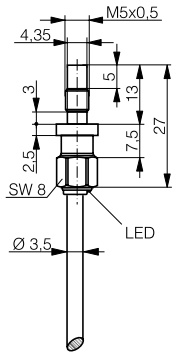
PNP NC ( $S_n = 1.5 \text{ mm}$ )

PNP NO ( $S_n = 2.5 \text{ mm}$ )

Other types available

# HIGH PRESSURE

| EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|----------------|----------------|----------------|----------------|
| M5 (P5)        | M5 (P5)        | M8 (P8)        | M12 (P12)      |
| 1              | 1              | 1.5            | 1.5 / 2.5      |



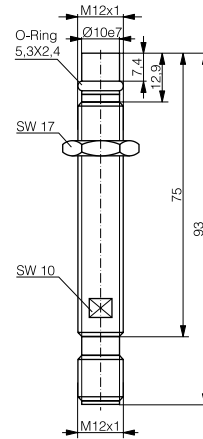
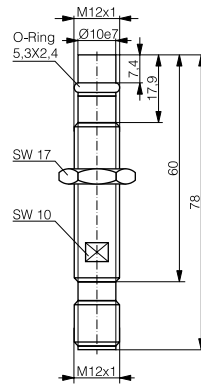
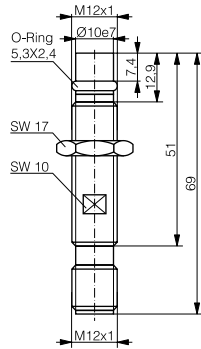
|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

|                                 |                                 |                                 |                                |
|---------------------------------|---------------------------------|---------------------------------|--------------------------------|
|                                 |                                 |                                 |                                |
| Ceramic ZrO <sub>2</sub>        | Ceramic ZrO <sub>2</sub>        | Ceramic ZrO <sub>2</sub>        | Ceramic ZrO <sub>2</sub>       |
| 500 bar                         | 500 bar                         | 500 bar                         | 500 bar                        |
| 1000 bar                        | 1000 bar                        | 1000 bar                        | 1000 bar                       |
| Stainless steel V4A / AISI 316L | Stainless steel V4A / AISI 316L | Stainless steel V4A / AISI 316L | Stainless steel V2A            |
| PUR cable                       | PUR cable / Connector S8        | PUR cable                       | Connector S12                  |
| IP 68                           | IP 68                           | IP 68                           | IP 68                          |
| Embeddable                      | Embeddable                      | Embeddable                      | Embeddable                     |
| 1000 Hz                         | 1000 Hz                         | 800 Hz                          | 600 Hz                         |
| 10 ... 30 VDC                   | 10 ... 30 VDC                   | 10 ... 30 VDC                   | 10 ... 30 VDC                  |
| -25 ... +100°C / -13 ... +212°F | -25 ... +100°C / -13 ... +212°F | -25 ... +100°C / -13 ... +212°F | -25 ... +80°C / -13 ... +176°F |
| ≤ 200 mA                        | ≤ 200 mA                        | ≤ 200 mA                        | ≤ 200 mA                       |
| <b>DW-AD-503-P5</b>             | <b>DW-AV-503-P5-276</b>         | <b>DW-AD-503-P8</b>             |                                |
| <b>DW-AD-501-P5</b>             | <b>DW-AV-501-P5-276</b>         | <b>DW-AD-501-P8</b>             |                                |
|                                 |                                 |                                 | <b>DW-AS-503-P12-630</b>       |
|                                 |                                 |                                 | DW-AS-504-P12-630              |
|                                 |                                 |                                 | <b>DW-AS-523-P12-630</b>       |
| PNP NC, NPN NC                  | PNP NC, NPN NC                  | PNP NC, NPN NC                  | NPN NO, NPN NC                 |

# HIGH PRESSURE

INDUCTIVE

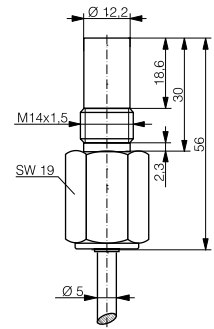
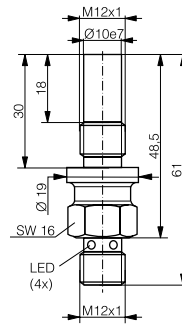
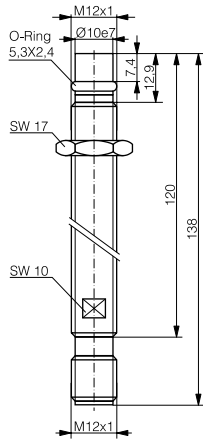
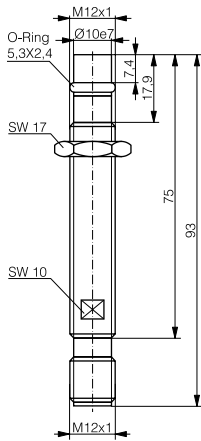
| FAMILY                | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|-----------------------|----------------|----------------|----------------|
| HOUSING SIZE          | M12 (P12)      | M12 (P12)      | M12 (P12)      |
| OPERATING DISTANCE MM | 1.5            | 1.5            | 1.5            |



| DATA                      |  |  |  |
|---------------------------|--|--|--|
| Sensing face material     | Ceramic ZrO <sub>2</sub>                     | Ceramic ZrO <sub>2</sub>                     | Ceramic ZrO <sub>2</sub>                     |
| Operating pressure        | 500 bar                                      | 500 bar                                      | 500 bar                                      |
| Peak pressure             | 1000 bar                                     | 1000 bar                                     | 1000 bar                                     |
| Housing material          | Stainless steel V2A                          | Stainless steel V2A                          | Stainless steel V2A                          |
| Connection                | Connector S12                                | Connector S12                                | Connector S12                                |
| Degree of protection      | IP 68  | IP 68  | IP 68  |
| Mounting                  | Embeddable                                   | Embeddable                                   | Embeddable                                   |
| Max. switching frequency  | 600 Hz                                       | 600 Hz                                       | 600 Hz                                       |
| Supply voltage range      | 10 ... 30 VDC                                | 10 ... 30 VDC                                | 10 ... 30 VDC                                |
| Ambient temperature range | -25 ... +80°C / -13 ... +176°F               | -25 ... +80°C / -13 ... +176°F               | -25 ... +80°C / -13 ... +176°F               |
| Output current            | ≤ 200 mA                                     | ≤ 200 mA                                     | ≤ 200 mA                                     |
| PNP NO                    | <b>DW-AS-503-P12</b>                         | <b>DW-AS-503-P12-627</b>                     | <b>DW-AS-503-P12-621</b>                     |
| NPN NO                    | <b>DW-AS-501-P12</b>                         | <b>DW-AS-501-P12-627</b>                     | <b>DW-AS-501-P12-621</b>                     |
| Other types available     | PNP NC, NPN NC,<br>2.5 mm operating distance | PNP NC, NPN NC,<br>2.5 mm operating distance | PNP NC, NPN NC,<br>2.5 mm operating distance |

# HIGH PRESSURE

| EXTRA DISTANCE | EXTRA DISTANCE | FULL INOX | EXTRA DISTANCE |
|----------------|----------------|-----------|----------------|
| M12 (P12)      | M12 (P12)      | M12 (P12) | M14 (P20)      |
| 1.5            | 1.5            | 1.5       | 3              |



| Ceramic ZrO <sub>2</sub>                     | Ceramic ZrO <sub>2</sub>                     | Stainless steel V4A / AISI 316L | Ceramic ZrO <sub>2</sub>        |
|--|--|---------------------------------|---------------------------------|
| 500 bar                                      | 500 bar                                      | 500 bar                         | 500 bar                         |
| 1000 bar                                     | 1000 bar                                     | 800 bar                         | 1000 bar                        |
| Stainless steel V2A                          | Stainless steel V2A                          | Stainless steel V4A / AISI 316L | Stainless steel V4A / AISI 316L |
| Connector S12                                | Connector S12                                | Connector S12                   | PUR cable                       |
| IP 68  | IP 68  | IP 68 / IP 69K                  | IP 68                           |
| Embeddable                                   | Embeddable                                   | Embeddable                      | Embeddable                      |
| 600 Hz                                       | 600 Hz                                       | 850 Hz                          | 500 Hz                          |
| 10 ... 30 VDC                                | 10 ... 30 VDC                                | 10 ... 30 VDC                   | 10 ... 30 VDC                   |
| -25 ... +80°C / -13 ... +176°F               | -25 ... +80°C / -13 ... +176°F               | -25 ... +85°C / -13 ... +185°F  | -25 ... +80°C / -13 ... +176°F  |
| ≤ 200 mA                                     | ≤ 200 mA                                     | ≤ 200 mA                        | ≤ 200 mA                        |
| <b>DW-AS-503-P12-635</b>                     | <b>DW-AS-503-P12-622</b>                     | <b>DW-LS-703-P12G</b>           | <b>DW-AD-503-P20</b>            |
| <b>DW-AS-501-P12-635</b>                     | <b>DW-AS-501-P12-622</b>                     | <b>DW-LS-701-P12G</b>           | <b>DW-AD-501-P20</b>            |
| PNP NC, NPN NC,<br>2.5 mm operating distance | PNP NC, NPN NC,<br>2.5 mm operating distance | PNP NC, NPN NC                  | PNP NC, NPN NC                  |

|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
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# HIGH PRESSURE

FAMILY

EXTRA DISTANCE

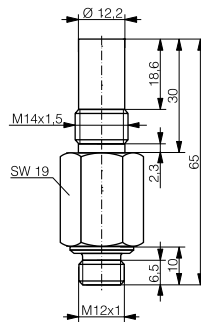
HOUSING SIZE

M14 (P20)

OPERATING DISTANCE MM

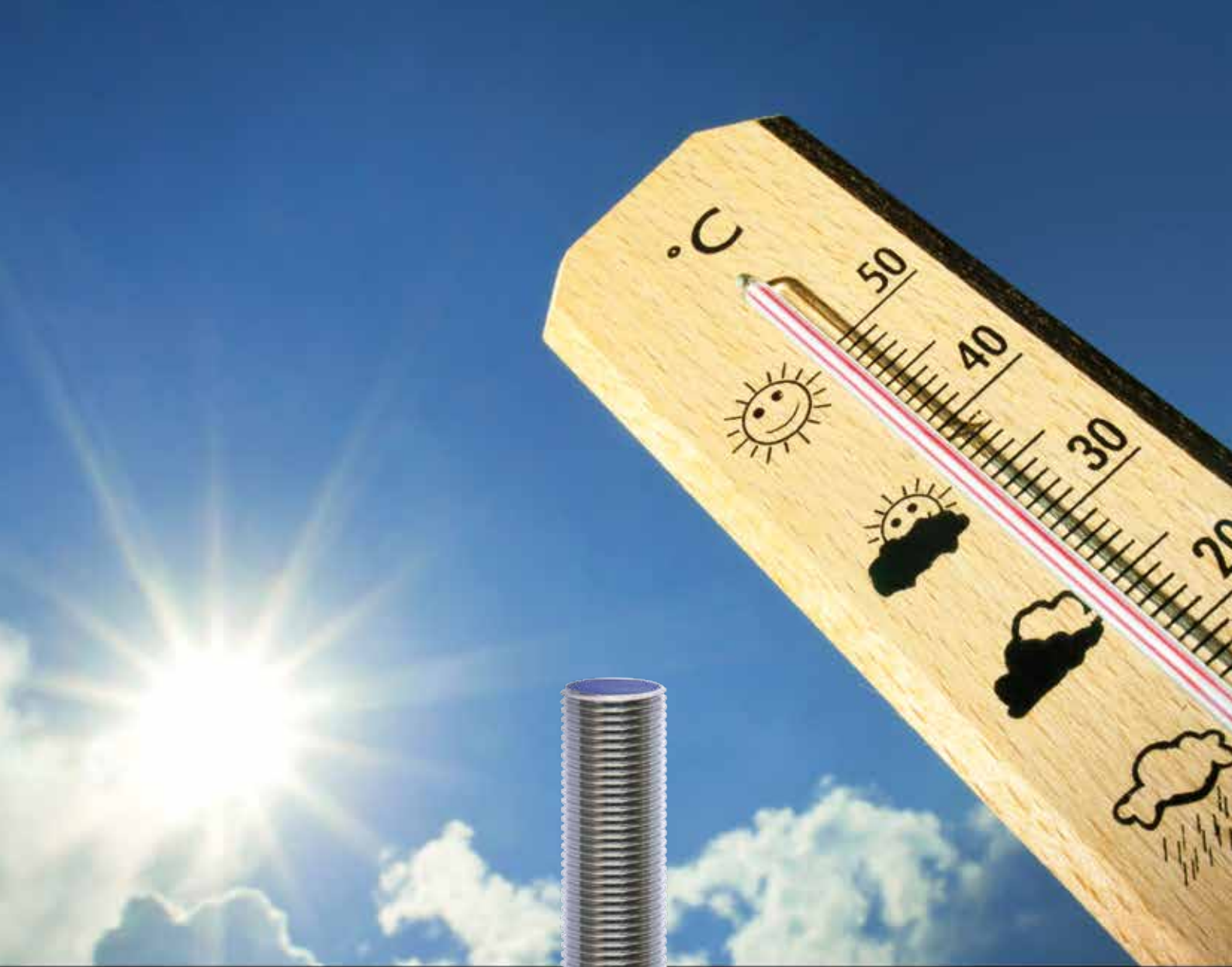
3

INDUCTIVE



## DATA

|                           |                                 |
|---------------------------|---------------------------------|
| Sensing face material     | Ceramic ZrO <sub>2</sub>        |
| Operating pressure        | 500 bar                         |
| Peak pressure             | 1000 bar                        |
| Housing material          | Stainless steel V4A / AISI 316L |
| Connection                | Connector S12                   |
| Degree of protection      | IP 68                           |
| Mounting                  | Embeddable                      |
| Max. switching frequency  | 500 Hz                          |
| Supply voltage range      | 10 ... 30 VDC                   |
| Ambient temperature range | -25 ... +80°C / -13 ... +176°F  |
| Output current            | ≤ 200 mA                        |
| PNP NO                    | <b>DW-AS-503-P20</b>            |
| NPN NO                    | <b>DW-AS-501-P20</b>            |
| Other types available     | PNP NC, NPN NC                  |





TEMPERATURE RESISTANT UP TO +120°C (+248°F)

# EXTRA TEMPERATURE INDUCTIVE SENSORS

## KEY ADVANTAGES

- ✓ Temperature resistant up to +120°C (+248°F)
- ✓ Excellent long term reliability
- ✓ Outstanding accuracy

| RANGE OVERVIEW       | Housing size | Classics |
|----------------------|--------------|----------|
| EXTRA<br>TEMPERATURE | M5           | p. 107   |
|                      | M8           | p. 107   |
|                      | M12          | p. 107   |
|                      | M18          | p. 107   |

FAMILY

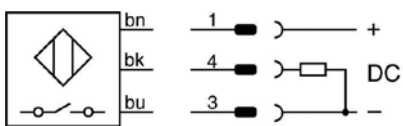
HOUSING SIZE

OPERATING DISTANCE MM

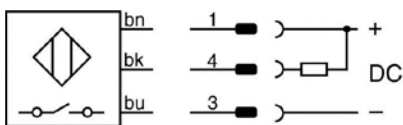
# INDUCTIVE

## WIRING DIAGRAMS

PNP NO



NPN NO



DATA

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

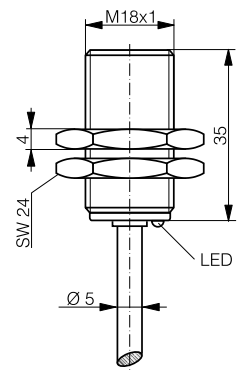
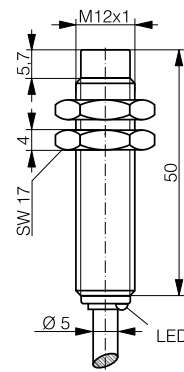
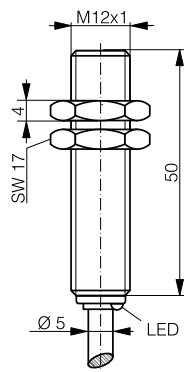
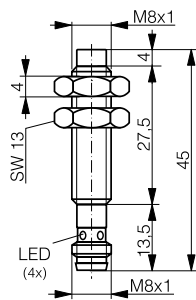
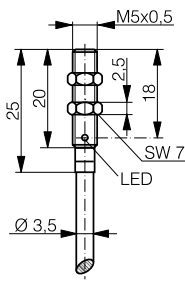
PNP NO

NPN NO

Other types available

# EXTRA TEMPERATURE

| CLASSICS | CLASSICS | CLASSICS | CLASSICS | CLASSICS |
|----------|----------|----------|----------|----------|
| M5       | M8       | M12      | M12      | M18      |
| 0.8      | 4        | 2        | 4        | 5        |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

|                             |                           |                             |                             |                             |
|-----------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|
| Stainless steel V2A         | Stainless steel V2A       | Nickel-plated brass         | Nickel-plated brass         | Nickel-plated brass         |
| Silicone cable 2 m          | Connector S8              | PVC cable 6 m               | PVC cable 5 m               | PUR cable 2 m               |
| IP 67                       | IP 67                     | IP 67                       | IP 67                       | IP 67                       |
| Embeddable                  | Non-embeddable            | Embeddable                  | Non-embeddable              | Embeddable                  |
| 5000 Hz                     | 3500 Hz                   | 3000 Hz                     | 2000 Hz                     | 2000 Hz                     |
| 10 ... 30 VDC               | 10 ... 30 VDC             | 10 ... 30 VDC               | 10 ... 30 VDC               | 10 ... 30 VDC               |
| -25...+120°C / -13...+248°F | 0...+85°C / +32 ...+185°F | -25...+100°C / -13...+212°F | -25...+100°C / -13...+212°F | -40...+100°C / -40...+212°F |
| ≤ 200 mA                    | ≤ 200 mA                  | ≤ 200 mA                    | ≤ 200 mA                    | ≤ 200 mA                    |
| <b>DW-AD-603-M5-735</b>     | <b>DW-AS-633-M8-732</b>   | <b>DW-AD-603-M12-734</b>    | <b>DW-AD-613-M12-733</b>    | <b>DW-AD-603-M18-718</b>    |
| <b>DW-AD-601-M5-735</b>     |                           |                             |                             |                             |



TEMPERATURE RESISTANT UP TO +230°C (+446°F)



# HIGH TEMPERATURE INDUCTIVE SENSORS

## KEY ADVANTAGES

- ✓ Models with external electronics for temperatures of up to +230°C (+446°F)
- ✓ Models with integrated electronics for temperatures of up to +180°C (+356°F)
- ✓ Excellent long term reliability

### RANGE OVERVIEW

### Housing size

### Classics

## HIGH TEMPERATURE

|     |        |
|-----|--------|
| M8  | p. 111 |
| M12 | p. 111 |
| M18 | p. 111 |
| M30 | p. 111 |
| M50 | p. 112 |

FAMILY

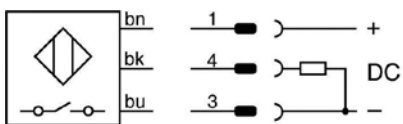
HOUSING SIZE

OPERATING DISTANCE MM

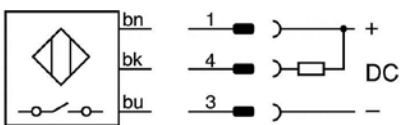
# INDUCTIVE

## WIRING DIAGRAMS

PNP NO



NPN NO



## DATA

Amplifier

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

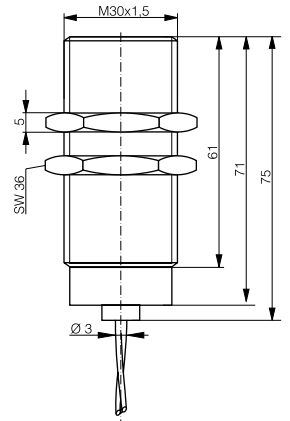
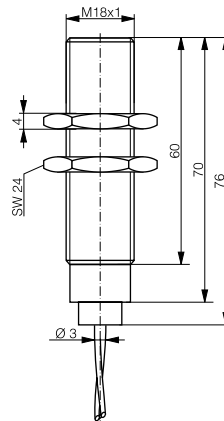
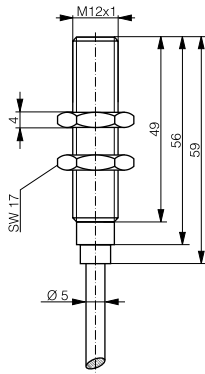
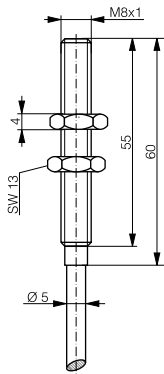
PNP NO

NPN NO

Other types available

# HIGH TEMPERATURE

| CLASSICS | CLASSICS | CLASSICS | CLASSICS | Inductive |
|----------|----------|----------|----------|-----------|
| M8       | M12      | M18      | M30      |           |
| 2        | 3        | 5        | 10       |           |



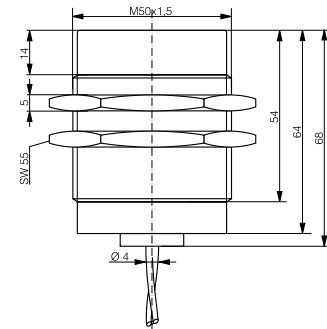
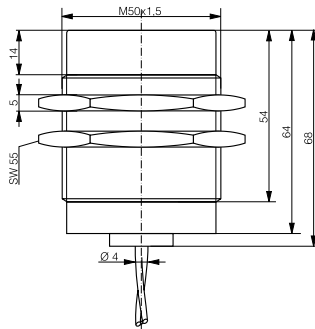
|               |
|---------------|
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |

|                                    |                                    |                               |                               | Accessories |
|------------------------------------|------------------------------------|-------------------------------|-------------------------------|-------------|
| Built-in                           | Built-in                           | Built-in                      | Built-in                      |             |
| Stainless steel V2A                | Stainless steel V2A                | Stainless steel V2A           | Stainless steel V2A           |             |
| Silicone cable 2 m                 | Silicone cable 2 m                 | Teflon cable 2 m              | Teflon cable 2 m              |             |
| IP 67                              | IP 67                              | IP 67                         | IP 67                         | Glossary    |
| Embeddable                         | Embeddable                         | Embeddable                    | Embeddable                    |             |
| 600 Hz                             | 500 Hz                             | 400 Hz                        | 200 Hz                        |             |
| 10 ... 30 VDC                      | 10 ... 30 VDC                      | 10 ... 30 VDC                 | 10 ... 30 VDC                 |             |
| 0 ... +140°C / +32 ... +280°F      | 0 ... +150°C / +32 ... +300°F      | 0 ... +180°C / +32 ... +350°F | 0 ... +180°C / +32 ... +350°F |             |
| 120 mA (≤ 100°C) / 80 mA (> 100°C) | 120 mA (≤ 100°C) / 70 mA (> 100°C) | ≤ 150 mA                      | ≤ 150 mA                      |             |
| <b>DW-HD-623-M8-100</b>            | <b>DW-HD-603-M12-200</b>           | <b>DW-HD-603-M18-310</b>      | <b>DW-HD-603-M30-310</b>      | Index       |
| <b>DW-HD-621-M8-100</b>            | <b>DW-HD-601-M12-200</b>           | <b>DW-HD-601-M18-310</b>      | <b>DW-HD-601-M30-310</b>      |             |
| PNP NC, NPN NC                     | PNP NC, NPN NC                     | PNP NC, NPN NC                | PNP NC, NPN NC                |             |

# HIGH TEMPERATURE

## INDUCTIVE

|                       |          |          |
|-----------------------|----------|----------|
| FAMILY                | CLASSICS | CLASSICS |
| HOUSING SIZE          | M50      | M50      |
| OPERATING DISTANCE MM | 25       | 25       |



| DATA                      |                                    |                                    |
|---------------------------|------------------------------------|------------------------------------|
| Amplifier                 | External                           | External                           |
| Housing material          | Stainless steel V2A                | Stainless steel V2A                |
| Connection                | Teflon cable 5 m                   | Teflon cable 20 m                  |
| Degree of protection      | IP 67                              | IP 67                              |
| Mounting                  | Non-embeddable                     | Non-embeddable                     |
| Max. switching frequency  | 150 Hz                             | 150 Hz                             |
| Supply voltage range      | 10 ... 30 VDC (amplifier)          | 10 ... 30 VDC (amplifier)          |
| Ambient temperature range | -40 ... +230°C / -40 ... +440°F    | 0 ... +230°C / + 32 ... +440°F     |
| Output current            | ≤ 200 mA (amplifier)               | ≤ 200 mA (amplifier)               |
| PNP NO                    | <b>DW-HD-613-M50-511</b>           | <b>DW-HD-613-M50-503</b>           |
| Other types available     | For other cable lengths please ask | For other cable lengths please ask |





# ECOLAB APPROVED FOR HARSHTEST CLEANING PROCESSES

# WASHDOWN

# INDUCTIVE SENSORS

## KEY ADVANTAGES

- ✓ Corrosion resistant
- ✓ Food safe
- ✓ IP 68 / IP 69K protection
- ✓ IO-Link interface
- ✓ Extremely rugged Full metal types:  
one-piece stainless-steel housing, factor 1 on steel and  
aluminum, Ecolab approved

| RANGE OVERVIEW | Housing size | Classics | Full Inox  |
|----------------|--------------|----------|------------|
| WASHDOWN       | M12          | p. 117   | p. 117     |
|                | M18          |          | p. 117-118 |
|                | M30          |          | p. 118     |

FAMILY

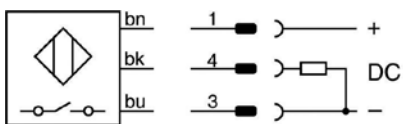
HOUSING SIZE

OPERATING DISTANCE MM

# INDUCTIVE

## WIRING DIAGRAM

PNP NO



DATA

Operating pressure

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

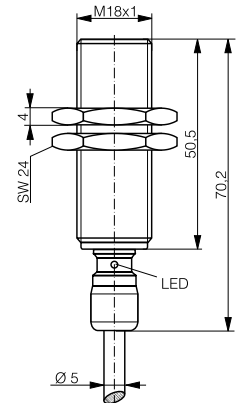
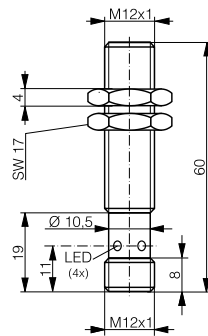
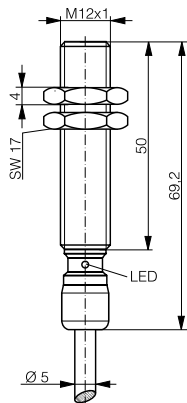
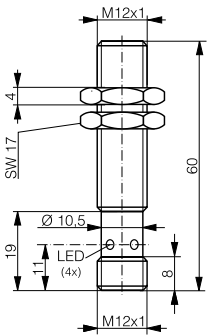
Output current

PNP NO

Other types available

# WASHDOWN

| CLASSICS | FULL INOX | FULL INOX | FULL INOX |
|----------|-----------|-----------|-----------|
| M12      | M12       | M12       | M18       |
| 2        | 6         | 6         | 10        |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

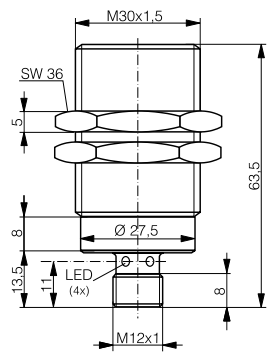
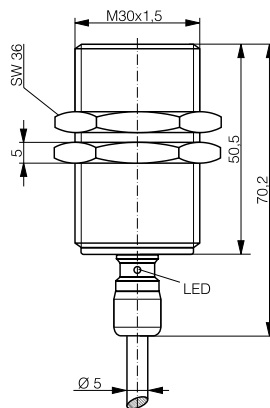
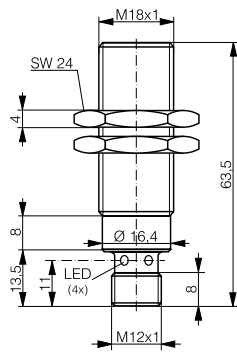
Index

|                                 |   |   |   |
|---------------------------------|---|---|---|
| -                               | 80 bar                                    | 80 bar                                    | 60 bar                                    |
| PPS/Stainless steel V4A         | Stainless steel V4A/AISI 316L             | Stainless steel V4A/AISI 316L             | Stainless steel V4A/AISI 316L             |
| Connector S12                   | TPE-S cable                               | Connector S12                             | TPE-S cable                               |
| IP 68 / IP 69K                  | IP 68 / IP 69K                            | IP 68 / IP 69K                            | IP 68 / IP 69K                            |
| Embeddable                      | Embeddable                                | Embeddable                                | Embeddable                                |
| 1700 Hz                         | 600 Hz                                    | 600 Hz                                    | 300 Hz                                    |
| 10 ... 30 VDC                   | 10 ... 30 VDC                             | 10 ... 30 VDC                             | 10 ... 30 VDC                             |
| -40 ... +120°C / -40 ... +248°F | -25 ... +85°C / -13 ... +185°F            | -25 ... +85°C / -13 ... +185°F            | -25 ... +85°C / -13 ... +185°F            |
| ≤ 200 mA                        | ≤ 200 mA                                  | ≤ 200 mA                                  | ≤ 200 mA                                  |
| <b>DW-LS-603-M12</b>            | <b>DW-LD-703-M12</b>                      | <b>DW-LS-703-M12</b>                      | <b>DW-LD-703-M18</b>                      |
|                                 | NPN NO, PNP NC, NPN NC,<br>non-embeddable | NPN NO, PNP NC, NPN NC,<br>non-embeddable | NPN NO, PNP NC, NPN NC,<br>non-embeddable |

# WASHDOWN

## INDUCTIVE

| FAMILY                | FULL INOX | FULL INOX | FULL INOX |
|-----------------------|-----------|-----------|-----------|
| HOUSING SIZE          | M18       | M30       | M30       |
| OPERATING DISTANCE MM | 10        | 20        | 20        |



| DATA                      |   |   |   |
|---------------------------|---|---|---|
| Operating pressure        | 60 bar                                    | 40 bar                                    | 40 bar                                    |
| Housing material          | Stainless steel V4A/AISI 316L             | Stainless steel V4A/AISI 316L             | Stainless steel V4A/AISI 316L             |
| Connection                | Connector S12                             | TPE-S cable                               | Connector S12                             |
| Degree of protection      | IP 68 / IP 69K                            | IP 68 / IP 69K                            | IP 68 / IP 69K                            |
| Mounting                  | Embeddable                                | Embeddable                                | Embeddable                                |
| Max. switching frequency  | 300 Hz                                    | 100 Hz                                    | 100 Hz                                    |
| Supply voltage range      | 10 ... 30 VDC                             | 10 ... 30 VDC                             | 10 ... 30 VDC                             |
| Ambient temperature range | -25 ... +85°C / -13 ... +185°F            | -25 ... +85°C / -13 ... +185°F            | -25 ... +85°C / -13 ... +185°F            |
| Output current            | ≤ 200 mA                                  | ≤ 200 mA                                  | ≤ 200 mA                                  |
| PNP NO                    | <b>DW-LS-703-M18-002</b>                  | <b>DW-LD-703-M30</b>                      | <b>DW-LS-703-M30-002</b>                  |
| Other types available     | NPN NO, PNP NC, NPN NC,<br>non-embeddable | NPN NO, PNP NC, NPN NC,<br>non-embeddable | NPN NO, PNP NC, NPN NC,<br>non-embeddable |



# ANALOG OUTPUT FOR DISTANCE CONTROL



## ANALOG OUTPUT

## INDUCTIVE SENSORS

### KEY ADVANTAGES

- ✓ Longest sensing ranges
- ✓ Best temperature stability
- ✓ Excellent repeat accuracy
- ✓ Resolution in  $\mu\text{m}$  range

#### RANGE OVERVIEW

#### Housing size

#### Extra Distance

### ANALOG

C8

p. 123

M8

p. 123-124

M12

p. 124-125

M18

p. 125-126

M30

p. 126-127

FAMILY

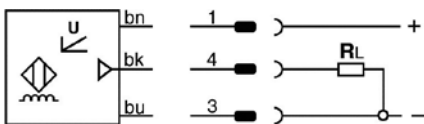
HOUSING SIZE MM

SENSING RANGE MM

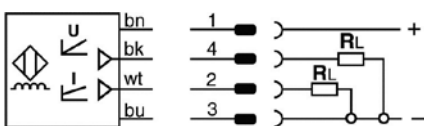
# INDUCTIVE

## WIRING DIAGRAMS

Analog C8/M8



Analog M12/M18/M30



## DATA

Bandwidth (-3 dB)

Output voltage

Housing material

Connection

Degree of protection

Mounting

Supply voltage range

Ambient temperature range

Output current

Output 0...10 V

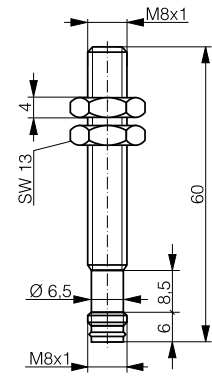
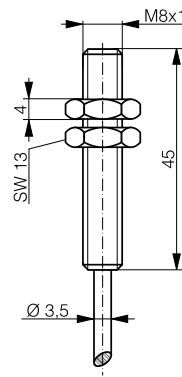
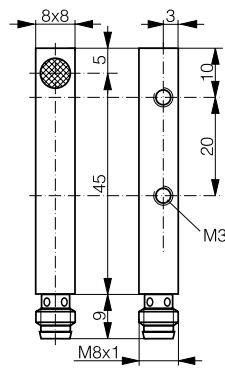
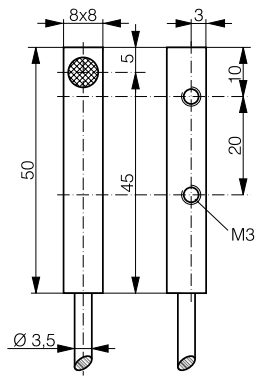
Output 0...5 V

Other types available



# ANALOG OUTPUT

| EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|----------------|----------------|----------------|----------------|
| □ 8 x 8        | □ 8 x 8        | M8             | M8             |
| 0 ... 4        | 0 ... 4        | 0 ... 4        | 0 ... 4        |



| 1,600 Hz (at s = 2 mm)         | 1,600 Hz (at s = 2 mm)         | 1,600 Hz (at s = 2 mm)               | 1,600 Hz (at s = 2 mm)         |
|--------------------------------|--------------------------------|--------------------------------------|--------------------------------|
| 0 ... 10 V                     | 0 ... 10 V                     | 0 ... 5 V / 0 ... 10 V (-390)        | 0 ... 10 V                     |
| Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass                  | Chrome-plated brass            |
| PUR cable                      | Connector S8                   | PUR cable                            | Connector S8                   |
| IP 67                          | IP 67                          | IP 67                                | IP 67                          |
| Quasi-embeddable               | Quasi-embeddable               | Quasi-embeddable                     | Quasi-embeddable               |
| 15 ... 30 VDC                  | 15 ... 30 VDC                  | 10 ... 30 VDC / 15 ... 30 VDC (-390) | 15 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F       | -25 ... +70°C / -13 ... +158°F |
| -                              | -                              | -                                    | -                              |
| <b>DW-AD-509-C8-390</b>        | <b>DW-AS-509-C8-390</b>        | <b>DW-AD-509-M8-390</b>              | <b>DW-AS-509-M8-390</b>        |
|                                |                                | <b>DW-AD-509-M8</b>                  |                                |
|                                |                                |                                      | On request                     |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

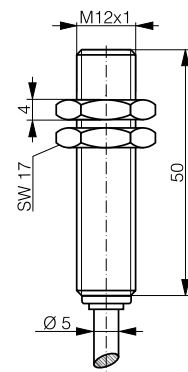
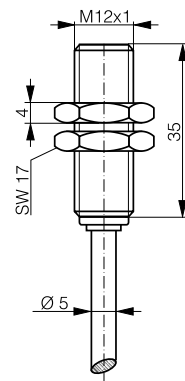
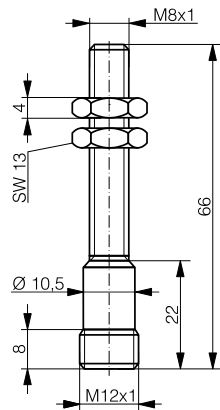
Glossary

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# ANALOG OUTPUT

INDUCTIVE

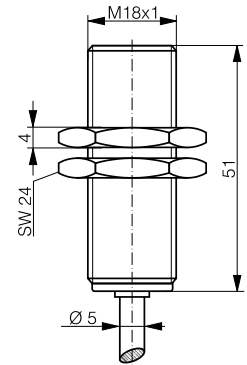
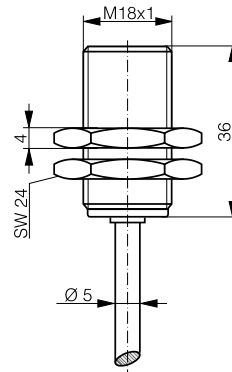
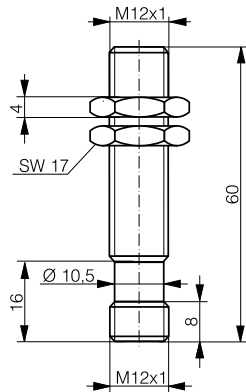
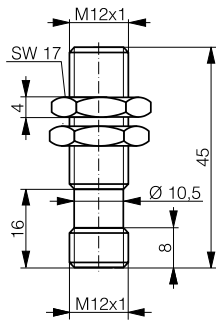
| FAMILY           | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|------------------|----------------|----------------|----------------|
| HOUSING SIZE     | M8             | M12            | M12            |
| SENSING RANGE MM | 0 ... 4        | 0 ... 6        | 0 ... 6        |



| DATA                         |                                |                                  |                                  |
|------------------------------|--------------------------------|----------------------------------|----------------------------------|
| Bandwidth (-3 dB)            | 1,600 Hz (at s = 2 mm)         | 1,000 Hz (at s = 3 mm)           | 1,000 Hz (at s = 3 mm)           |
| Output voltage               | 0 ... 10 V                     | 0 ... 5 V / 0 ... 10 V (-390)    | 0 ... 5 V / 0 ... 10 V (-390)    |
| Housing material             | Chrome-plated brass            | Chrome-plated brass              | Chrome-plated brass              |
| Connection                   | Connector S12                  | PUR cable                        | PUR cable                        |
| Degree of protection         | IP 67                          | IP 67                            | IP 67                            |
| Mounting                     | Quasi-embeddable               | Quasi-embeddable                 | Quasi-embeddable                 |
| Supply voltage range         | 15 ... 30 VDC                  | 10 ... 30 / 15 ... 30 VDC (-320) | 10 ... 30 / 15 ... 30 VDC (-390) |
| Ambient temperature range    | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   |
| Output current               | -                              | 1 ... 5 mA (-120 only)           | 1 ... 5 mA / 4 ... 20 mA (-390)  |
| Outputs 0...5 V / 1...5 mA   |                                | <b>DW-AD-509-M12-120</b>         | <b>DW-AD-509-M12</b>             |
| Output 0...10 V              | <b>DW-AS-509-M8-393</b>        | <b>DW-AD-509-M12-320</b>         |                                  |
| Outputs 0...10 V / 4...20 mA |                                |                                  | <b>DW-AD-509-M12-390</b>         |
| Other types available        | On request                     |                                  |                                  |

# ANALOG OUTPUT

| EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE | Inductive |
|----------------|----------------|----------------|----------------|-----------|
| M12            | M12            | M18            | M18            |           |
| 0 ... 6        | 0 ... 6        | 0 ... 10       | 0 ... 10       |           |



Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

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|                                  |                                  |                                  |                                  |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 1,000 Hz (at s = 3 mm)           | 1,000 Hz (at s = 3 mm)           | 500 Hz (at s = 5 mm)             | 500 Hz (at s = 5 mm)             |
| 0 ... 5 V / 0 ... 10 V (-320)    | 0 ... 5 V / 0 ... 10 V (-390)    | 0 ... 5 V / 0 ... 10 V (-320)    | 0 ... 5 V / 0 ... 10 V (-390)    |
| Chrome-plated brass              | Chrome-plated brass              | Chrome-plated brass              | Chrome-plated brass              |
| Connector S12                    | Connector S12                    | PUR cable                        | PUR cable                        |
| IP 67                            | IP 67                            | IP 67                            | IP 67                            |
| Quasi-embeddable                 | Quasi-embeddable                 | Quasi-embeddable                 | Quasi-embeddable                 |
| 10 ... 30 / 15 ... 30 VDC (-320) | 10 ... 30 / 15 ... 30 VDC (-390) | 10 ... 30 / 15 ... 30 VDC (-320) | 10 ... 30 / 15 ... 30 VDC (-390) |
| -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   |
| 1 ... 5 mA (-120 only)           | 1 ... 5 mA / 4 ... 20 mA (-390)  | 1 ... 5 mA / 4 ... 20 mA (-320)  | 1 ... 5 mA / 4 ... 20 mA (-390)  |
| <b>DW-AS-509-M12-120</b>         | <b>DW-AS-509-M12</b>             | <b>DW-AD-509-M18-120</b>         | <b>DW-AD-509-M18</b>             |
| <b>DW-AS-509-M12-320</b>         |                                  |                                  |                                  |
|                                  | <b>DW-AS-509-M12-390</b>         | <b>DW-AD-509-M18-320</b>         | <b>DW-AD-509-M18-390</b>         |
|                                  |                                  |                                  | On request                       |

# ANALOG OUTPUT

FAMILY

EXTRA DISTANCE

EXTRA DISTANCE

EXTRA DISTANCE

HOUSING SIZE

M18

M18

M30

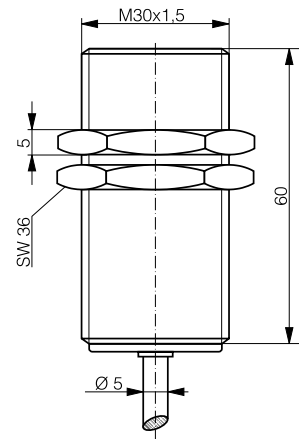
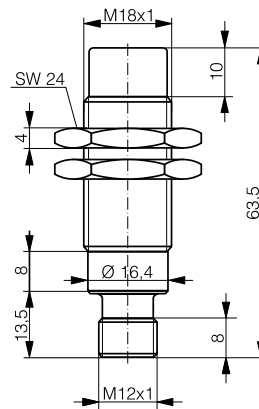
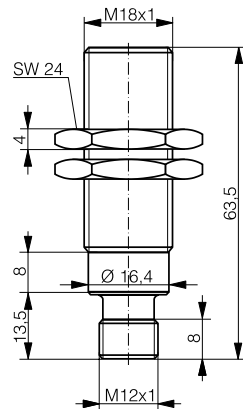
SENSING RANGE MM

0 ... 10

0 ... 20

0 ... 20

INDUCTIVE

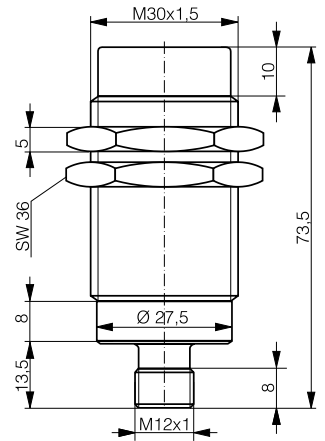
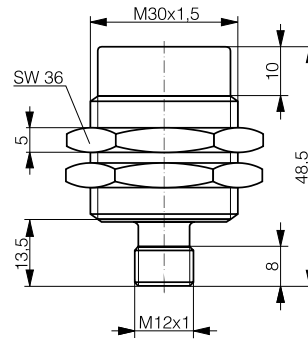
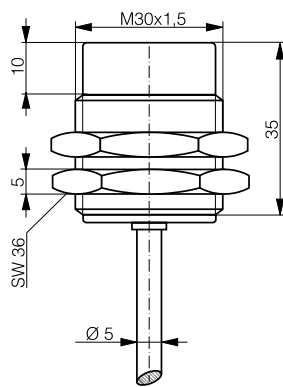
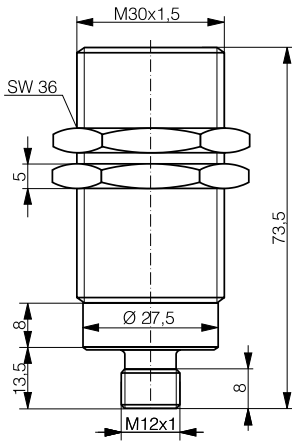


## DATA

|                              |                                  |                                  |                                  |
|------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Bandwidth (-3 dB)            | 500 Hz (at s = 5 mm)             | 250 Hz (at s = 10 mm)            | 200 Hz (at s = 10 mm)            |
| Output voltage               | 0 ... 5 V / 0 ... 10 V (-390)    | 0 ... 5 V / 0 ... 10 V (-390)    | 0 ... 5 V / 0 ... 10 V (-390)    |
| Housing material             | Chrome-plated brass              | Chrome-plated brass              | Chrome-plated brass              |
| Connection                   | Connector S12                    | Connector S12                    | PUR cable                        |
| Degree of protection         | IP 67                            | IP 67                            | IP 67                            |
| Mounting                     | Quasi-embeddable                 | Non-embeddable                   | Quasi-embeddable                 |
| Supply voltage range         | 10 ... 30 / 15 ... 30 VDC (-390) | 10 ... 30 / 15 ... 30 VDC (-390) | 10 ... 30 / 15 ... 30 VDC (-390) |
| Ambient temperature range    | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   |
| Output current               | 1 ... 5 mA / 4 ... 20 mA (-390)  | 1 ... 5 mA / 4 ... 20 mA (-390)  | 1 ... 5 mA / 4 ... 20 mA (-390)  |
| Outputs 0...5 V / 1...5 mA   | <b>DW-AS-509-M18-002</b>         | <b>DW-AS-519-M18-002</b>         | <b>DW-AD-509-M30</b>             |
| Outputs 0...10 V / 4...20 mA | <b>DW-AS-509-M18-390</b>         | <b>DW-AS-519-M18-390</b>         | <b>DW-AD-509-M30-390</b>         |
| Other types available        | On request                       | On request                       | On request                       |

# ANALOG OUTPUT

| EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE | EXTRA DISTANCE |
|----------------|----------------|----------------|----------------|
| M30            | M30            | M30            | M30            |
| 0 ... 20       | 0 ... 40       | 0 ... 40       | 0 ... 40       |



|                                  |                                  |                                  |                                  |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 200 Hz (at s = 10 mm)            | 100 Hz (at s = 20 mm)            | 100 Hz (at s = 20 mm)            | 100 Hz (at s = 20 mm)            |
| 0 ... 5 V / 0 ... 10 V (-390)    | 0 ... 5 V / 0 ... 10 V (-320)    | 0 ... 5 V / 0 ... 10 V (-320)    | 0 ... 5 V / 0 ... 10 V (-390)    |
| Chrome-plated brass              | Chrome-plated brass              | Chrome-plated brass              | Chrome-plated brass              |
| Connector S12                    | PUR cable                        | Connector S12                    | Connector S12                    |
| IP 67                            | IP 67                            | IP 67                            | IP 67                            |
| Quasi-embeddable                 | Non-embeddable                   | Non-embeddable                   | Non-embeddable                   |
| 10 ... 30 / 15 ... 30 VDC (-390) | 10 ... 30 / 15 ... 30 VDC (-320) | 10 ... 30 / 15 ... 30 VDC (-320) | 10 ... 30 / 15 ... 30 VDC (-390) |
| -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   |
| 1 ... 5 mA / 4 ... 20 mA (-390)  | 1 ... 5 mA / 4 ... 20 mA (-320)  | 1 ... 5 mA / 4 ... 20 mA (-320)  | 1 ... 5 mA / 4 ... 20 mA (-390)  |
| <b>DW-AS-509-M30-002</b>         | <b>DW-AD-519-M30-120</b>         | <b>DW-AS-519-M30-120</b>         | <b>DW-AS-519-M30-002</b>         |
| <b>DW-AS-509-M30-390</b>         | <b>DW-AD-519-M30-320</b>         | <b>DW-AS-519-M30-320</b>         | <b>DW-AS-519-M30-390</b>         |
| On request                       | On request                       | On request                       | On request                       |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

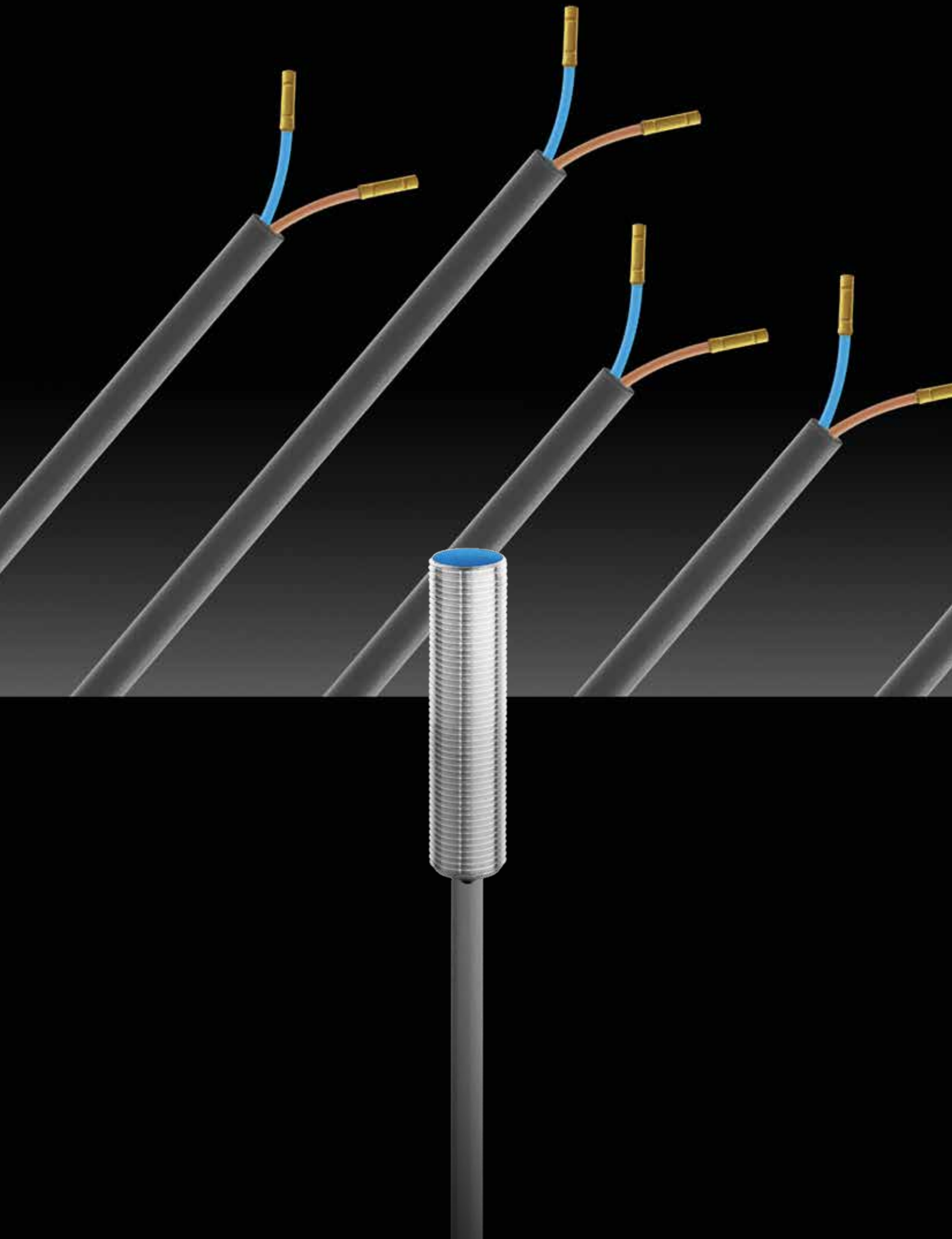
RFID

Connectivity

Accessories

Glossary

Index



EASY INSTALLATION AND HIGH  
SWITCHING FREQUENCY

# 2-WIRE

## INDUCTIVE SENSORS



### KEY ADVANTAGES

- ✓ Two-wire sensors for series connection
- ✓ DC and AC/DC types
- ✓ NAMUR types with switching frequencies up to 10,000 Hz
- ✓ Sizes from Ø 3 mm to M18 and 5 x 5 mm

| RANGE OVERVIEW | Housing size | Classics            |
|----------------|--------------|---------------------|
| 2-WIRE         | Ø 3 mm       | p. 131              |
|                | M4           | p. 131              |
|                | Ø 4 mm       | p. 132              |
|                | M5           | p. 133              |
|                | C5           | p. 133              |
|                | Ø 6.5 mm     | p. 134, 140         |
|                | M8           | p. 134-135, 141-143 |
|                | M12          | p. 135-136, 144-149 |
|                | M18          | p. 136-137, 149-153 |
|                | M30          | p. 137-138, 154-157 |

FAMILY

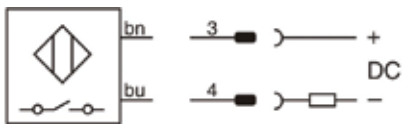
HOUSING SIZE

OPERATING DISTANCE MM

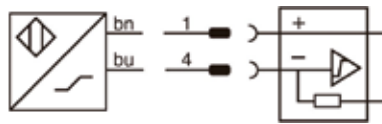
INDUCTIVE

## WIRING DIAGRAMS

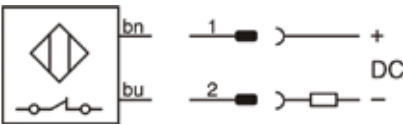
2-wire DC NO



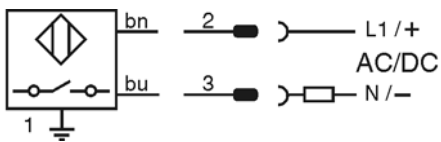
NAMUR



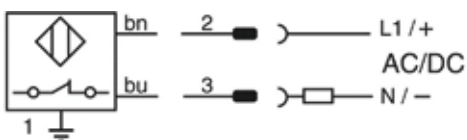
2-wire DC NC



2-wire AC/DC NO



2-wire AC/DC NC



## DATA

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current





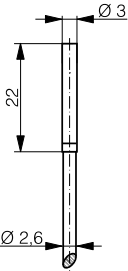
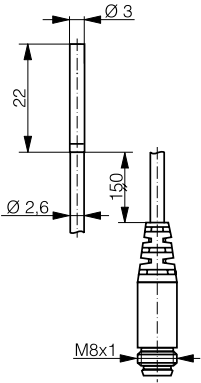
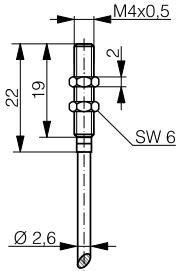
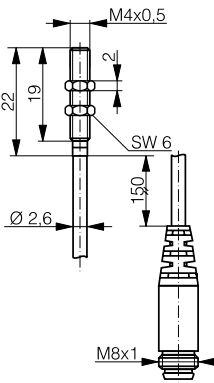
NAMUR

Other types available

\* damped / non-damped



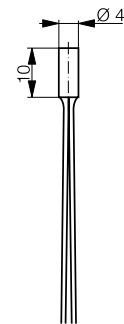
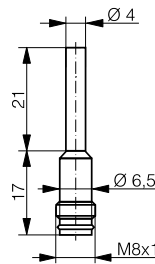
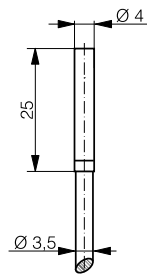
# 2-WIRE

| CLASSICS  | CLASSICS  | CLASSICS   | CLASSICS  | Inductive     |
|---|---|--|---|---------------|
| Ø 3   | Ø 3   | M4   | M4  |               |
| 0.6   | 0.6   | 0.6  | 0.6   | Photoelectric |
|    |    |     |    | Ultrasonic    |
|  |  |  |  | Capacitive    |
| <b>NAMUR</b>  | <b>NAMUR</b>  | <b>NAMUR</b>   | <b>NAMUR</b>  | Safety        |
|   |   |  |   | RFID          |
|   |   |  |   | Connectivity  |
|   |   |  |   | Accessories   |
| Stainless steel V2A   | Stainless steel V2A   | Stainless steel V2A  | Stainless steel V2A   | Glossary      |
| PUR cable   | PUR cable / Connector S8  | PUR cable  | PUR cable / Connector S8  |               |
| IP 67   | IP 67   | IP 67  | IP 67   | Index         |
| Embeddable  | Embeddable  | Embeddable   | Embeddable  |               |
| 10,000 Hz   | 10,000 Hz   | 10,000 Hz  | 10,000 Hz   |               |
| 7.7 ... 9 VDC   | 7.7 ... 9 VDC   | 7.7 ... 9 VDC  | 7.7 ... 9 VDC   |               |
| -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F  |               |
| ≤ 1 / ≥ 2.2 mA*   | ≤ 1 / ≥ 2.2 mA*   | ≤ 1 / ≥ 2.2 mA*  | ≤ 1 / ≥ 2.2 mA*   |               |
| <b>DW-AD-605-03</b>   | <b>DW-AS-605-03</b>   | <b>DW-AD-605-M4</b>  | <b>DW-AS-605-M4</b>   |               |

# 2-WIRE

## INDUCTIVE

| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | Ø 4      | Ø 4      | Ø 4      |
| OPERATING DISTANCE MM | 0.8      | 0.8      | 0.8      |



**NAMUR**

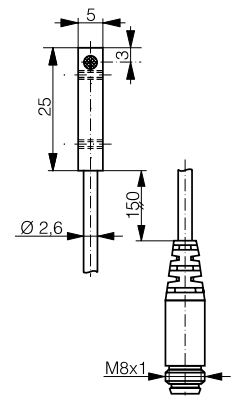
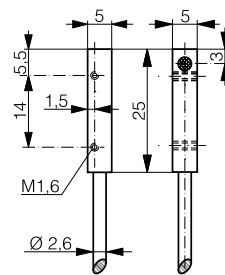
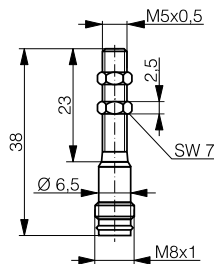
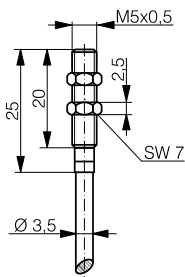
**NAMUR**

**NAMUR**

| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PVC cable                      | Connector S8                   | Single wires                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 10,000 Hz                      | 10,000 Hz                      | 10,000 Hz                      |
| Supply voltage range      | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA*                |
| NAMUR                     | <b>DW-AD-605-04</b>            | <b>DW-AS-605-04</b>            | <b>DW-AD-605-04K</b>           |
| Other types available     |                                |                                |                                |
| * damped / non-damped     |                                |                                |                                |

# 2-WIRE

|          |          |          |          |
|----------|----------|----------|----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
| M5       | M5       | 5 x 5    | 5 x 5    |
| 0.8      | 0.8      | 0.8      | 0.8      |



**NAMUR**

**NAMUR**

**NAMUR**

**NAMUR**

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                                |                                |                                |                                |
| Stainless steel V2A            | Stainless steel V2A            | Chrome-plated brass            | Chrome-plated brass            |
| PVC cable                      | Connector S8                   | PUR cable                      | PUR cable / Connector S8       |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 10,000 Hz                      | 10,000 Hz                      | 10,000 Hz                      | 10,000 Hz                      |
| 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                |
| <b>DW-AD-605-M5</b>            | <b>DW-AS-605-M5</b>            | <b>DW-AD-605-C5</b>            | <b>DW-AS-605-C5</b>            |
|                                |                                |                                |                                |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

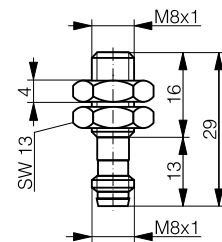
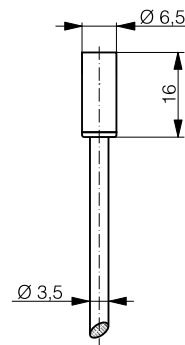
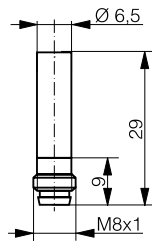
Glossary

Index

# 2-WIRE

INDUCTIVE

| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | Ø 6.5    | Ø 6.5    | M8       |
| OPERATING DISTANCE MM | 1.5      | 1.5      | 1.5      |



**NAMUR**

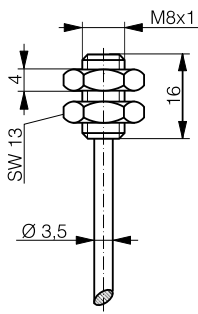
**NAMUR**

**NAMUR**

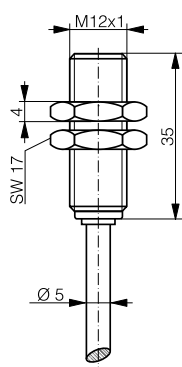
| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | Connector S8                   | PVC cable                      | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 10,000 Hz                      | 10,000 Hz                      | 10,000 Hz                      |
| Supply voltage range      | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA*                |
| NAMUR                     | <b>DW-AS-605-065-129</b>       | <b>DW-AD-605-065-120</b>       | <b>DW-AS-605-M8-129</b>        |
| Other types available     |                                |                                |                                |
| * damped / non-damped     |                                |                                |                                |

# 2-WIRE

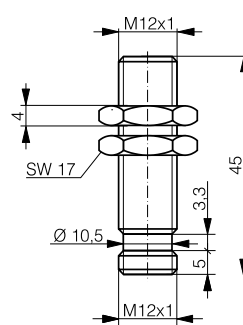
|          |          |          |          |
|----------|----------|----------|----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
| M8       | M12      | M12      | M12      |
| 1.5      | 2        | 2        | 2        |



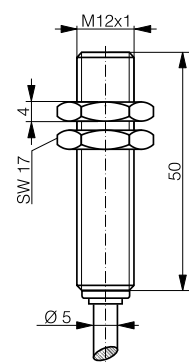
**NAMUR**



**NAMUR**



**NAMUR**



**NAMUR**

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                                |                                |                                |                                |
| Stainless steel V2A            | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| PVC cable                      | PVC cable                      | Connector S12                  | PVC cable                      |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     | Embeddable                     | Embeddable                     |
| 10,000 Hz                      | 2500 Hz                        | 2500 Hz                        | 2500 Hz                        |
| 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                |
| <b>DW-AD-605-M8-120</b>        | <b>DW-AD-605-M12-120</b>       | <b>DW-AS-605-M12-120</b>       | <b>DW-AD-605-M12</b>           |

- Inductive
- Photoelectric
- Ultrasonic
- Capacitive
- Safety
- RFID
- Connectivity
- Accessories
- Glossary
- Index

# 2-WIRE

FAMILY

CLASSICS

CLASSICS

HOUSING SIZE MM

M12

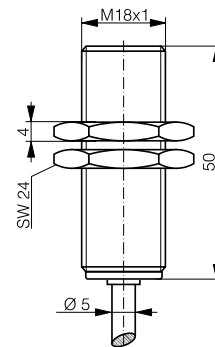
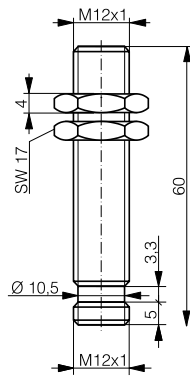
M18

OPERATING DISTANCE MM

2

5

INDUCTIVE







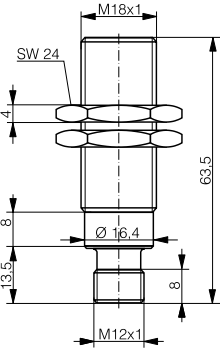
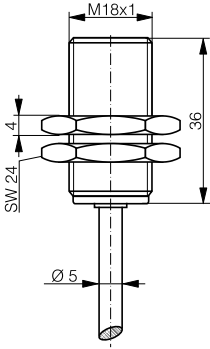
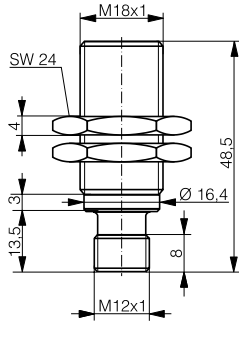
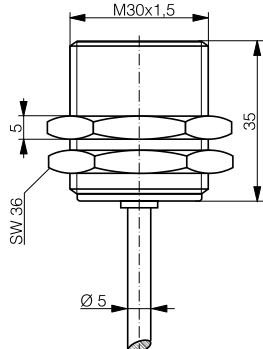
**NAMUR**

**NAMUR**

DATA

| DATA                      |                                |                                |
|---------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | Connector S12                  | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 2500 Hz                        | 10,000 Hz                      |
| Supply voltage range      | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA*                |
| NAMUR                     | <b>DW-AS-605-M12</b>           | <b>DW-AD-605-M18</b>           |
| Other types available     |                                |                                |
| * damped / non-damped     |                                |                                |

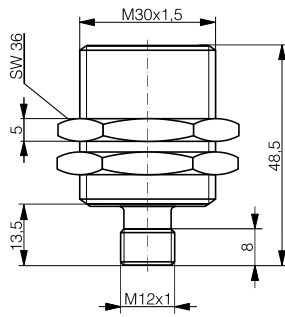
# 2-WIRE

| CLASSICS  | CLASSICS  | CLASSICS   | CLASSICS  | Inductive     |
|---|---|--|---|---------------|
| M18   | M18   | M18  | M30   |               |
| 5   | 5   | 5  | 10  | Photoelectric |
|    |    |    |    |               |
|  |  |  |  | Capacitive    |
| <b>NAMUR</b>  | <b>NAMUR</b>  | <b>NAMUR</b>   | <b>NAMUR</b>  | Safety        |
|   |   |  |   | RFID          |
|   |   |  |   | Connectivity  |
|   |   |  |   | Accessories   |
| Chrome-plated brass   | Chrome-plated brass   | Chrome-plated brass  | Chrome-plated brass   | Glossary      |
| Connector S12   | PVC cable   | Connector S12  | PVC cable   |               |
| IP 67   | IP 67   | IP 67  | IP 67   | Index         |
| Embeddable  | Embeddable  | Embeddable   | Embeddable  |               |
| 1000 Hz   | 1000 Hz   | 1000 Hz  | 400 Hz  |               |
| 7.7 ... 9 VDC   | 7.7 ... 9 VDC   | 7.7 ... 9 VDC  | 7.7 ... 9 VDC   |               |
| -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F  |               |
| ≤ 1 / ≥ 2.2 mA*   | ≤ 1 / ≥ 2.2 mA*   | ≤ 1 / ≥ 2.2 mA*  | ≤ 1 / ≥ 2.2 mA*   |               |
| <b>DW-AS-605-M18-002</b>  | <b>DW-AD-605-M18-120</b>  | <b>DW-AS-605-M18-120</b>   | <b>DW-AD-605-M30-120</b>  |               |

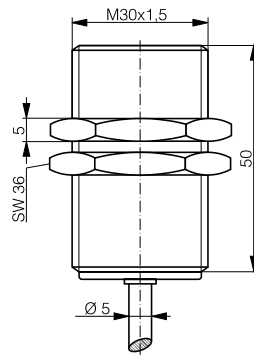
# 2-WIRE

INDUCTIVE

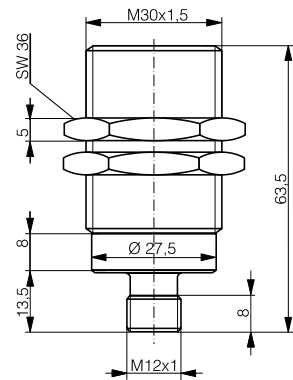
|                       |          |          |          |
|-----------------------|----------|----------|----------|
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
| HOUSING SIZE MM       | M30      | M30      | M30      |
| OPERATING DISTANCE MM | 10       | 10       | 10       |



**NAMUR**



**NAMUR**



**NAMUR**

| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | Connector S12                  | PVC cable                      | Connector S12                  |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 400 Hz                         | 400 Hz                         | 400 Hz                         |
| Supply voltage range      | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA                 | ≤ 1 / ≥ 2.2 mA*                |
| NAMUR                     | <b>DW-AS-605-M30-120</b>       | <b>DW-AD-605-M30</b>           | <b>DW-AS-605-M30-002</b>       |
| Other types available     |                                |                                |                                |
| * damped / non-damped     |                                |                                |                                |



# 2-WIRE

FAMILY

CLASSICS

CLASSICS

HOUSING SIZE MM

Ø 6.5

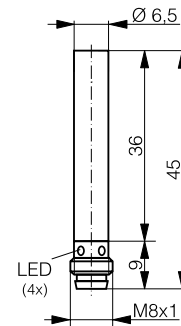
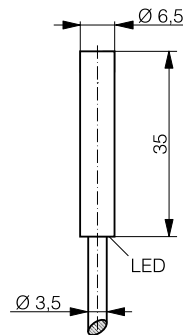
Ø 6.5

OPERATING DISTANCE MM

1.5

1.5

INDUCTIVE

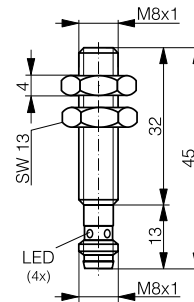
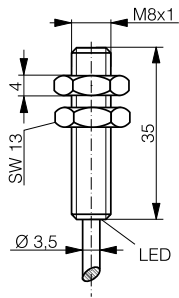


## DATA

|                           |                                |                                |
|---------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | PVC cable                      | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 7.7 ... 9 VDC                  | 7.7 ... 9 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 1 / ≥ 2.2 mA*                | ≤ 1 / ≥ 2.2 mA*                |
| DC 2-wire NO              | <b>DW-DD-605-065</b>           | <b>DW-DS-605-065</b>           |
| DC 2-wire NC              | DW-DD-606-065                  | DW-DS-606-065                  |
| Other types available     |                                |                                |

# 2-WIRE

|          |          |
|----------|----------|
| CLASSICS | CLASSICS |
| M8       | M8       |
| 1.5      | 1.5      |



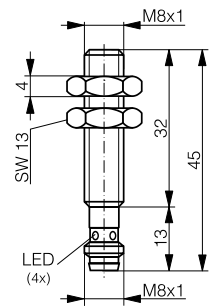
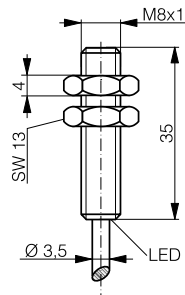
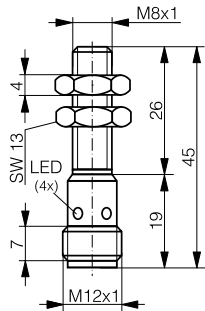
|                                |                                |
|--------------------------------|--------------------------------|
|                                |                                |
| Stainless steel V2A            | Stainless steel V2A            |
| PVC cable                      | Connector S8                   |
| IP 67                          | IP 67                          |
| Embeddable                     | Embeddable                     |
| 5000 Hz                        | 5000 Hz                        |
| 10 ... 65 VDC                  | 10 ... 65 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 100 mA                       |
| <b>DW-DD-605-M8</b>            | <b>DW-DS-605-M8-001</b>        |
| DW-DD-606-M8                   | DW-DS-606-M8-001               |

|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

# 2-WIRE

## INDUCTIVE

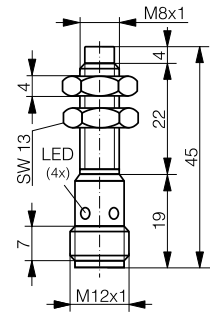
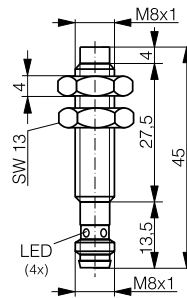
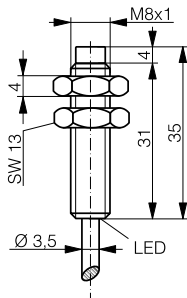
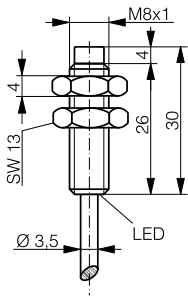
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M8       | M8       | M8       |
| OPERATING DISTANCE MM | 1.5      | 2        | 2        |



| DATA                      |                                |                                |                                |
|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| Housing material          | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connection                | Connector S12                  | PVC cable                      | Connector S8                   |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| Supply voltage range      | 10 ... 65 VDC                  | 10 ... 65 VDC                  | 10 ... 65 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       |
| DC 2-wire NO              | <b>DW-DS-605-M8</b>            | <b>DW-DD-625-M8</b>            | <b>DW-DS-625-M8-001</b>        |
| DC 2-wire NC              | DW-DS-606-M8                   | DW-DD-626-M8                   | DW-DS-626-M8-001               |
| Other types available     |                                |                                |                                |

# 2-WIRE

|          |          |          |          |
|----------|----------|----------|----------|
| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
| M8       | M8       | M8       | M8       |
| 2.5      | 2.5      | 2.5      | 2.5      |



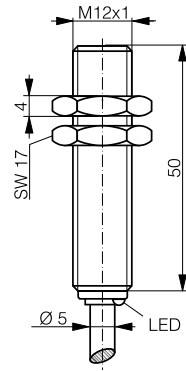
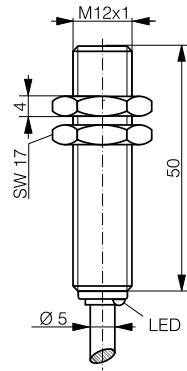
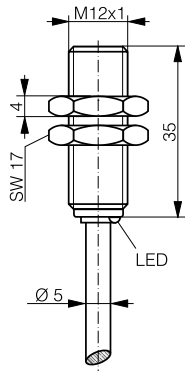
|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

|                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| PVC cable                      | PVC cable                      | Connector S8                   | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          | IP 67                          |
| Non-embeddable                 | Non-embeddable                 | Non-embeddable                 | Non-embeddable                 |
| 5000 Hz                        | 5000 Hz                        | 5000 Hz                        | 5000 Hz                        |
| 10 ... 65 VDC                  | 10 ... 65 VDC                  | 10 ... 65 VDC                  | 10 ... 65 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       |
| <b>DW-DD-615-M8-122</b>        | <b>DW-DD-615-M8</b>            | <b>DW-DS-615-M8-001</b>        | <b>DW-DS-615-M8</b>            |
| DW-DD-616-M8-122               | DW-DD-616-M8                   | DW-DS-616-M8-001               | DW-DS-616-M8                   |

# 2-WIRE

## INDUCTIVE

| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M12      | M12      | M12      |
| OPERATING DISTANCE MM | 2        | 2        | 2        |



| DATA                      |                                |                                |                                 |
|---------------------------|--------------------------------|--------------------------------|---------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             |
| Connection                | PVC cable                      | PVC cable                      | PVC cable                       |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                           |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                      |
| Max. switching frequency  | 3000 Hz                        | 3000 Hz                        | 25 Hz (AC) / 3000 Hz (DC)       |
| Supply voltage range      | 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  |
| Output current            | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        |
| DC 2-wire NO              | <b>DW-DD-605-M12-120</b>       | <b>DW-DD-605-M12</b>           |                                 |
| DC 2-wire NC              | DW-DD-606-M12-120              | DW-DD-605-M12                  |                                 |
| AC/DC 2-wire NO           |                                |                                | <b>DW-AD-607-M12</b>            |
| AC/DC 2-wire NC           |                                |                                | DW-AD-608-M12                   |
| Other types available     |                                |                                |                                 |

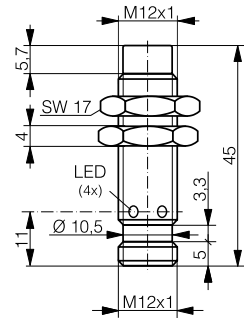
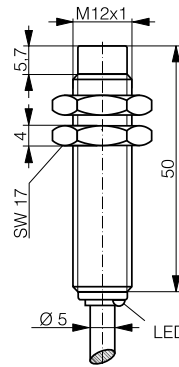
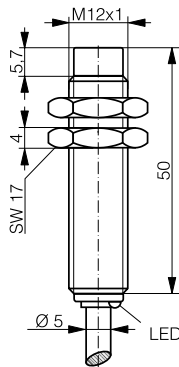
# 2-WIRE

| CLASSICS                       | CLASSICS                       | CLASSICS                        | CLASSICS                       | Inductive     |
|--------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------|
| M12                            | M12                            | M12                             | M12                            |               |
| 2                              | 2                              | 2                               | 4                              | Photoelectric |
|                                |                                |                                 |                                |               |
|                                |                                |                                 |                                | Capacitive    |
|                                |                                |                                 |                                |               |
|                                |                                |                                 |                                | RFID          |
|                                |                                |                                 |                                |               |
|                                |                                |                                 |                                | Accessories   |
| Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             | Chrome-plated brass            |               |
| Connector S12                  | Connector S12                  | Connector 1/2"                  | PVC cable                      |               |
| IP 67                          | IP 67                          | IP 67                           | IP 67                          |               |
| Embeddable                     | Embeddable                     | Embeddable                      | Non-embeddable                 |               |
| 3000 Hz                        | 3000 Hz                        | 25 Hz (AC) / 3000 Hz (DC)       | 2500 Hz                        |               |
| 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC | 10 ... 65 VDC                  |               |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F |               |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        | ≤ 100 mA                       |               |
| <b>DW-DS-605-M12-120</b>       | <b>DW-DS-605-M12</b>           | <b>DW-AS-607-M12-069</b>        | <b>DW-DD-615-M12-120</b>       | Index         |
| DW-DS-606-M12-120              | DW-DS-606-M12                  | DW-AS-608-M12-069               | DW-DD-616-M12-120              |               |

# 2-WIRE





## INDUCTIVE

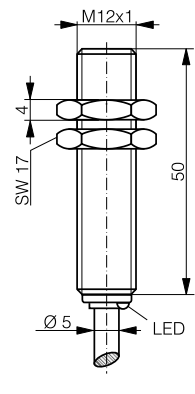
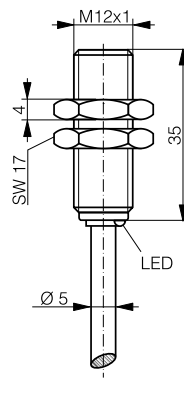
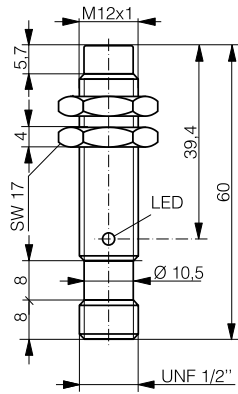
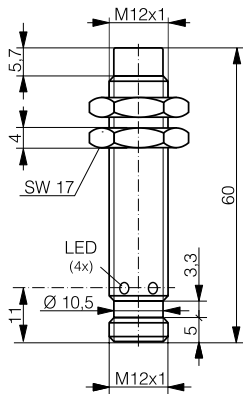
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M12      | M12      | M12      |
| OPERATING DISTANCE MM | 4        | 4        | 4        |



| DATA                      |                                |                                 |                                |
|---------------------------|--------------------------------|---------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass             | Chrome-plated brass            |
| Connection                | PVC cable                      | PVC cable                       | Connector S12                  |
| Degree of protection      | IP 67                          | IP 67                           | IP 67                          |
| Mounting                  | Non-embeddable                 | Non-embeddable                  | Non-embeddable                 |
| Max. switching frequency  | 2500 Hz                        | 25 Hz (AC) / 2000 Hz (DC)       | 2500 Hz                        |
| Supply voltage range      | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC | 10 ... 65 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 100 mA                       | ≤ 200 mA                        | ≤ 100 mA                       |
| DC 2-wire NO              | <b>DW-DD-615-M12</b>           |                                 | <b>DW-DS-615-M12-120</b>       |
| DC 2-wire NC              | DW-DD-616-M12                  |                                 | DW-DS-616-M12-120              |
| AC/DC 2-wire NO           |                                | <b>DW-AD-617-M12</b>            |                                |
| AC/DC 2-wire NC           |                                | DW-AD-618-M12                   |                                |
| Other types available     |                                |                                 |                                |

# 2-WIRE

| CLASSICS  | CLASSICS  | CLASSICS   | CLASSICS  | Inductive     |
|---|---|--|---|---------------|
| M12   | M12   | M12  | M12   |               |
| 4   | 4   | 4  | 4   | Photoelectric |
|  |  |  |  |               |
|   |   |  |   | Ultrasonic    |
|   |   |  |   | Capacitive    |
|   |   |  |   | Safety        |
|   |   |  |   | RFID          |
|   |   |  |   | Connectivity  |
|   |   |  |   | Accessories   |
|   |   |  |   | Glossary      |
|   |   |  |   | Index         |
| Chrome-plated brass   | Chrome-plated brass   | Chrome-plated brass  | Chrome-plated brass   |               |
| Connector S12   | Connector 1/2"  | PVC cable  | PVC cable   |               |
| IP 67   | IP 67   | IP 67  | IP 67   |               |
| Non-embeddable  | Non-embeddable  | Embeddable   | Embeddable  |               |
| 2000 Hz   | 25 Hz (AC) / 2000 Hz (DC)   | 2000 Hz  | 2000 Hz   |               |
| 10 ... 65 VDC   | 20 ... 265 VAC / 10 ... 320 VDC   | 10 ... 65 VDC  | 10 ... 65 VDC   |               |
| -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F  |               |
| ≤ 100 mA  | ≤ 200 mA  | ≤ 100 mA   | ≤ 100 mA  |               |
| <b>DW-DS-615-M12</b>  | <b>DW-AS-617-M12-069</b>  | <b>DW-DD-625-M12-120</b>   | <b>DW-DD-625-M12</b>  |               |
| DW-DS-616-M12   | DW-AS-618-M12-069   | DW-DD-626-M12-120  | DW-DD-626-M12   |               |

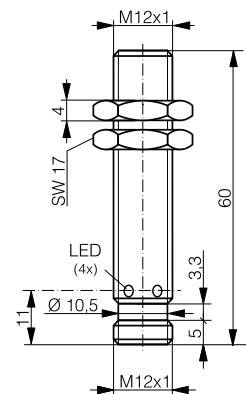
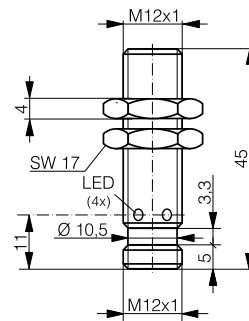
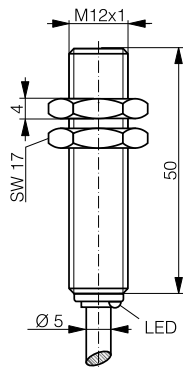




# 2-WIRE





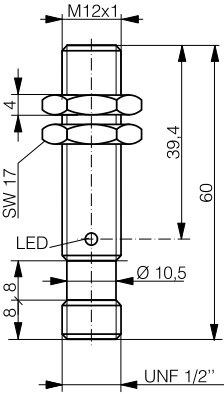
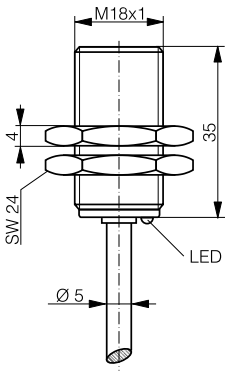
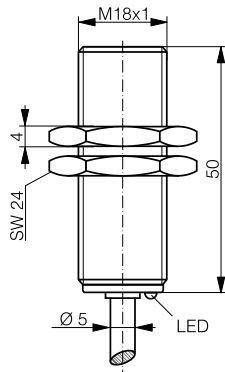
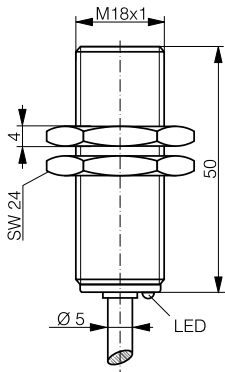
## INDUCTIVE

| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M12      | M12      | M12      |
| OPERATING DISTANCE MM | 4        | 4        | 4        |



| DATA                      |                                 |                                |                                |
|---------------------------|---------------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass             | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | PVC cable                       | Connector S12                  | Connector S12                  |
| Degree of protection      | IP 67                           | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                      | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 25 Hz (AC) / 2000 Hz (DC)       | 2000 Hz                        | 2000 Hz                        |
| Supply voltage range      | 20 ... 265 VAC / 10 ... 320 VDC | 10 ... 65 VDC                  | 10 ... 65 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 200 mA                        | ≤ 100 mA                       | ≤ 100 mA                       |
| DC 2-wire NO              |                                 | <b>DW-DS-625-M12-120</b>       | <b>DW-DS-625-M12</b>           |
| DC 2-wire NC              |                                 | DW-DS-626-M12-120              | DW-DS-626-M12                  |
| AC/DC 2-wire NO           | <b>DW-AD-627-M12</b>            |                                |                                |
| AC/DC 2-wire NC           | DW-AD-628-M12                   |                                |                                |
| Other types available     |                                 |                                |                                |

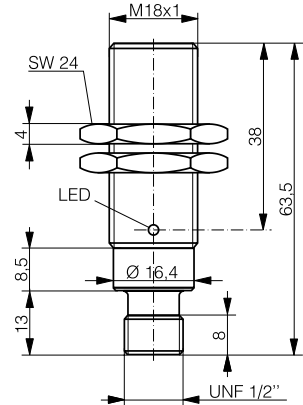
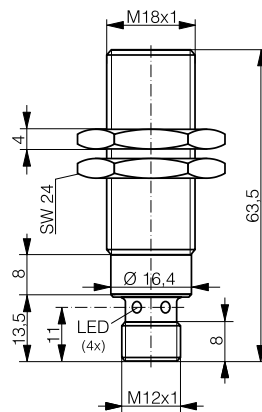
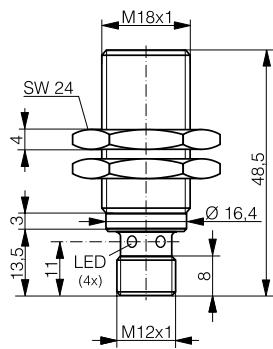
# 2-WIRE

| CLASSICS   | CLASSICS   | CLASSICS  | CLASSICS   | Inductive     |
|--|--|---|--|---------------|
| M12  | M18  | M18   | M18  |               |
| 4  | 5  | 5   | 5  | Photoelectric |
|   |   |   |   |               |
|  |  |  |  | Capacitive    |
|  |  |   |  |               |
|  |  |   |  | RFID          |
|  |  |   |  |               |
|  |  |   |  | Accessories   |
| Chrome-plated brass  | Chrome-plated brass  | Chrome-plated brass   | Chrome-plated brass  |               |
| Connector 1/2"   | PVC cable  | PVC cable   | PVC cable  |               |
| IP 67  | IP 67  | IP 67   | IP 67  |               |
| Embeddable   | Embeddable   | Embeddable  | Embeddable   |               |
| 25 Hz (AC) / 2000 Hz (DC)  | 1500 Hz  | 1500 Hz   | 25 Hz (AC) / 1500 Hz (DC)  |               |
| 20 ... 265 VAC / 10 ... 320 VDC  | 10 ... 65 VDC  | 10 ... 65 VDC   | 20 ... 265 VAC / 10 ... 320 VDC  |               |
| -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F   | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F   |               |
| ≤ 200 mA   | ≤ 100 mA   | ≤ 100 mA  | ≤ 200 mA   |               |
| <b>DW-AS-627-M12-069</b>   | <b>DW-DD-605-M18-120</b>   | <b>DW-DD-605-M18</b>  | <b>DW-AD-607-M18</b>   | Index         |
| DW-AS-628-M12-069  | DW-DD-606-M18-120  | DW-DD-606-M18   | DW-AD-608-M18  |               |

# 2-WIRE

## INDUCTIVE

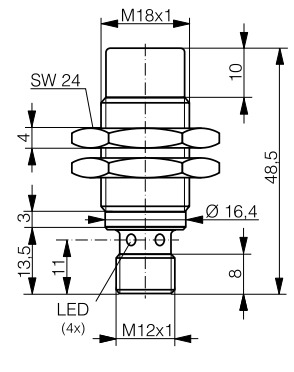
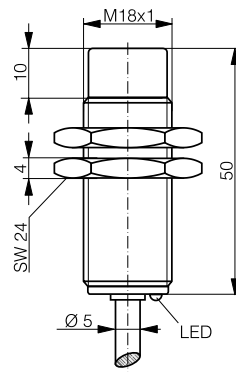
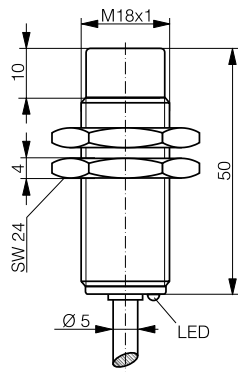
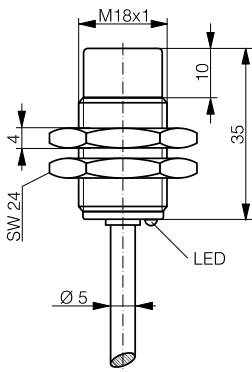
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M18      | M18      | M18      |
| OPERATING DISTANCE MM | 5        | 5        | 5        |



| DATA                      |                                |                                |                                 |
|---------------------------|--------------------------------|--------------------------------|---------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             |
| Connection                | Connector S12                  | Connector S12                  | Connector 1/2"                  |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                           |
| Mounting                  | Embeddable                     | Embeddable                     | Embeddable                      |
| Max. switching frequency  | 1500 Hz                        | 1500 Hz                        | 25 Hz (AC) / 1500 Hz (DC)       |
| Supply voltage range      | 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  |
| Output current            | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        |
| DC 2-wire NO              | <b>DW-DS-605-M18-120</b>       | <b>DW-DS-605-M18-002</b>       | <b>DW-AS-607-M18-069</b>        |
| DC 2-wire NC              | DW-DS-606-M18-120              | DW-DS-606-M18-002              |                                 |
| AC/DC 2-wire NO           |                                |                                | <b>DW-AS-607-M18-069</b>        |
| AC/DC 2-wire NC           |                                |                                | DW-AS-608-M18-069               |
| Other types available     |                                |                                |                                 |

# 2-WIRE

| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
|----------|----------|----------|----------|
| M18      | M18      | M18      | M18      |
| 8        | 8        | 8        | 8        |



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

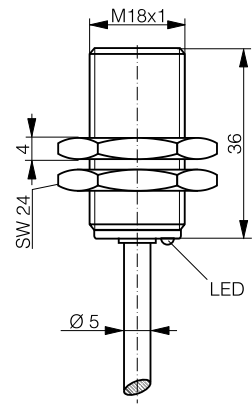
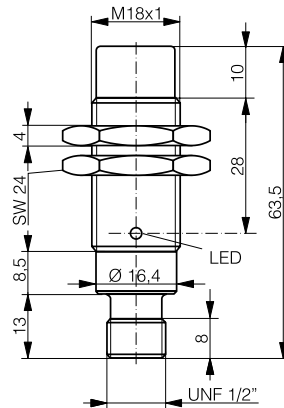
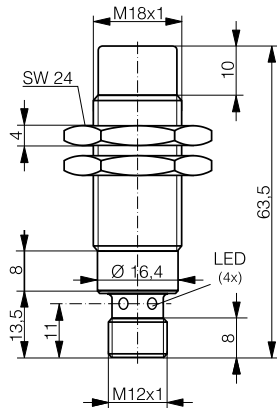
Index

|                                |                                |                                 |                                |
|--------------------------------|--------------------------------|---------------------------------|--------------------------------|
| Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             | Chrome-plated brass            |
| PVC cable                      | PVC cable                      | PVC cable                       | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                           | IP 67                          |
| Non-embeddable                 | Non-embeddable                 | Non-embeddable                  | Non-embeddable                 |
| 1200 Hz                        | 1200 Hz                        | 25 Hz (AC) / 1200 Hz (DC)       | 1200 Hz                        |
| 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC | 10 ... 65 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        | ≤ 100 mA                       |
| <b>DW-DD-615-M18-120</b>       | <b>DW-DD-615-M18</b>           | <b>DW-AD-617-M18</b>            | <b>DW-DS-615-M18-120</b>       |
| DW-DD-616-M18-120              | DW-DD-616-M18                  | DW-AD-618-M18                   | DW-DS-616-M18-120              |

# 2-WIRE

## INDUCTIVE

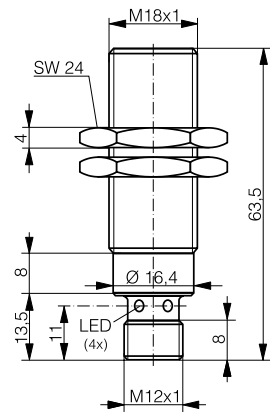
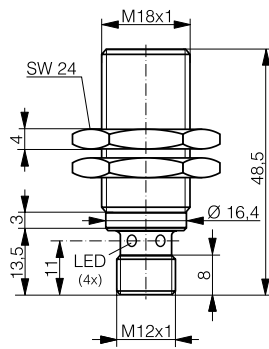
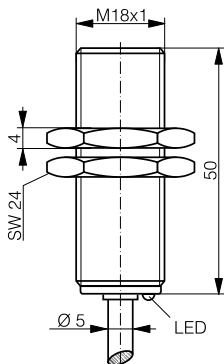
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M18      | M18      | M18      |
| OPERATING DISTANCE MM | 8        | 8        | 8        |



| DATA                      |                                |                                 |                                |
|---------------------------|--------------------------------|---------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass             | Chrome-plated brass            |
| Connection                | Connector S12                  | Connector 1/2"                  | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                           | IP 67                          |
| Mounting                  | Non-embeddable                 | Non-embeddable                  | Quasi-embeddable               |
| Max. switching frequency  | 1200 Hz                        | 25 Hz (AC) / 1200 Hz (DC)       | 1000 Hz                        |
| Supply voltage range      | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC | 10 ... 65 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 100 mA                       | ≤ 200 mA                        | ≤ 100 mA                       |
| DC 2-wire NO              | <b>DW-DS-615-M18-002</b>       |                                 | <b>DW-DD-625-M18-120</b>       |
| DC 2-wire NC              | DW-DS-616-M18-002              |                                 | DW-DD-626-M18-120              |
| AC/DC 2-wire NO           |                                | <b>DW-AS-617-M18-069</b>        |                                |
| AC/DC 2-wire NC           |                                | DW-AS-618-M18-069               |                                |
| Other types available     |                                |                                 |                                |

# 2-WIRE

| CLASSICS | CLASSICS | CLASSICS |
|----------|----------|----------|
| M18      | M18      | M18      |
| 8        | 8        | 8        |



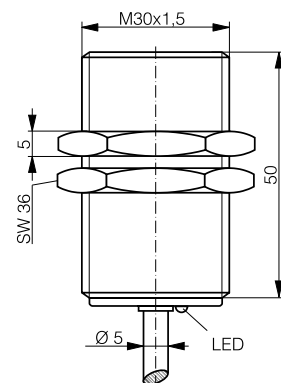
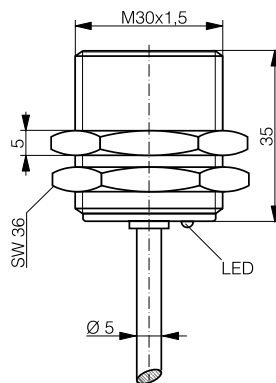
|                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|
| Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass            |
| PVC cable                      | Connector S12                  | Connector S12                  |
| IP 67                          | IP 67                          | IP 67                          |
| Quasi-embeddable               | Quasi-embeddable               | Quasi-embeddable               |
| 1000 Hz                        | 1000 Hz                        | 1000 Hz                        |
| 10 ... 65 VDC                  | 10 ... 65 VDC                  | 10 ... 65 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 100 mA                       |
| <b>DW-DD-625-M18</b>           | <b>DW-DS-625-M18-120</b>       | <b>DW-DS-625-M18-002</b>       |
| DW-DD-626-M18                  | DW-DS-626-M18-120              | DW-DS-626-M18-002              |

|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

# 2-WIRE

## INDUCTIVE

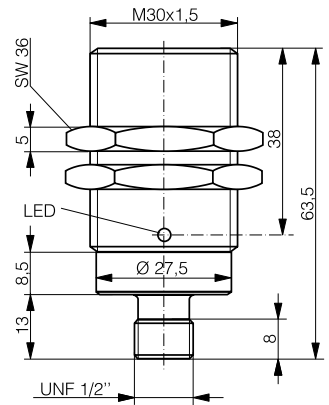
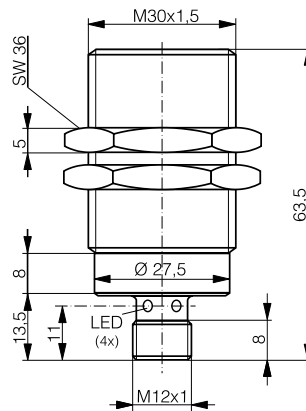
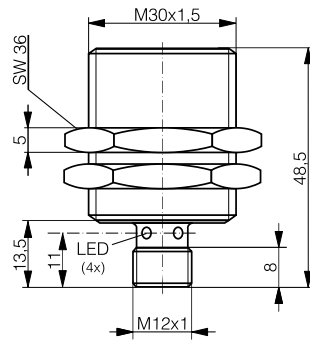
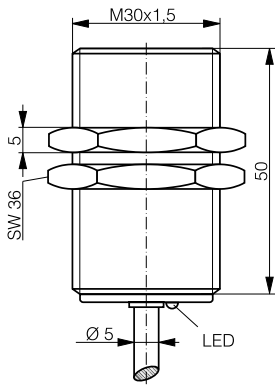
| FAMILY                | CLASSICS | CLASSICS |
|-----------------------|----------|----------|
| HOUSING SIZE MM       | M30      | M30      |
| OPERATING DISTANCE MM | 10       | 10       |



| DATA                      |                                |                                |
|---------------------------|--------------------------------|--------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            |
| Connection                | PVC cable                      | PVC cable                      |
| Degree of protection      | IP 67                          | IP 67                          |
| Mounting                  | Embeddable                     | Embeddable                     |
| Max. switching frequency  | 600 Hz                         | 600 Hz                         |
| Supply voltage range      | 10 ... 65 VDC                  | 10 ... 65 VDC                  |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| Output current            | ≤ 100 mA                       | ≤ 100 mA                       |
| DC 2-wire NO              | <b>DW-DD-605-M30-120</b>       | <b>DW-DD-605-M30</b>           |
| DC 2-wire NC              | DW-DD-606-M30-120              | DW-DD-606-M30                  |
| AC/DC 2-wire NO           |                                |                                |
| AC/DC 2-wire NC           |                                |                                |
| Other types available     |                                |                                |

# 2-WIRE

| CLASSICS | CLASSICS | CLASSICS | CLASSICS |
|----------|----------|----------|----------|
| M30      | M30      | M30      | M30      |
| 10       | 10       | 10       | 10       |



|                                 |                                |                                |                                 |
|---------------------------------|--------------------------------|--------------------------------|---------------------------------|
| Chrome-plated brass             | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             |
| PVC cable                       | Connector S12                  | Connector S12                  | Connector 1/2"                  |
| IP 67                           | IP 67                          | IP 67                          | IP 67                           |
| Embeddable                      | Embeddable                     | Embeddable                     | Embeddable                      |
| 25 Hz (AC) / 600 Hz (DC)        | 600 Hz                         | 600 Hz                         | 25 Hz (AC) / 600 Hz (DC)        |
| 20 ... 265 VAC / 10 ... 320 VDC | 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC |
| -25 ... +70°C / -13 ... +158°F  | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  |
| ≤ 200 mA                        | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        |
| <b>DW-AD-607-M30</b>            | <b>DW-DS-605-M30-120</b>       | <b>DW-DS-605-M30-002</b>       | <b>DW-AS-607-M30-069</b>        |
| DW-AD-608-M30                   | DW-DS-606-M30-120              | DW-DS-606-M30-002              | DW-AS-608-M30-069               |

Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

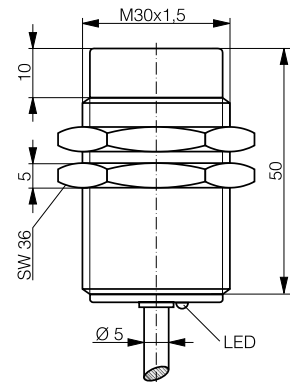
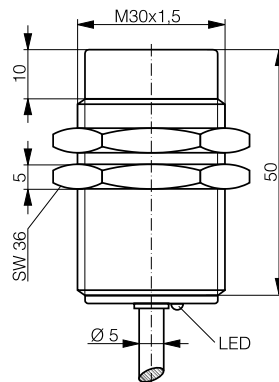
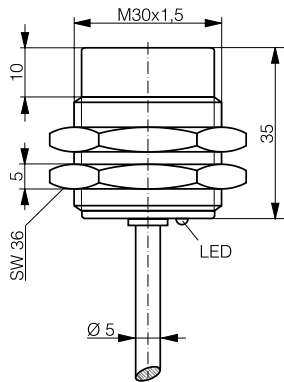
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# 2-WIRE

## INDUCTIVE

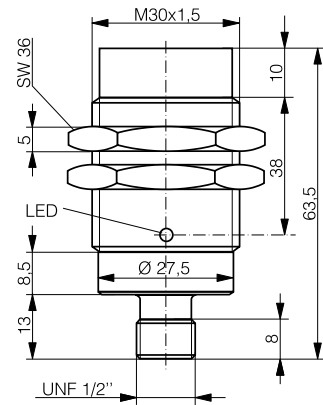
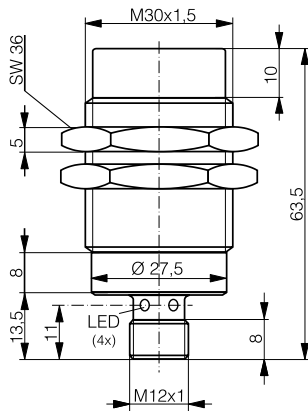
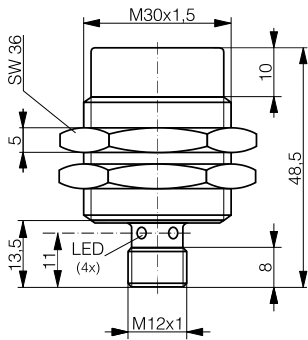
| FAMILY                | CLASSICS | CLASSICS | CLASSICS |
|-----------------------|----------|----------|----------|
| HOUSING SIZE MM       | M30      | M30      | M30      |
| OPERATING DISTANCE MM | 15       | 15       | 15       |



| DATA                      |                                |                                |                                 |
|---------------------------|--------------------------------|--------------------------------|---------------------------------|
| Housing material          | Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             |
| Connection                | PVC cable                      | PVC cable                      | PVC cable                       |
| Degree of protection      | IP 67                          | IP 67                          | IP 67                           |
| Mounting                  | Non-embeddable                 | Non-embeddable                 | Non-embeddable                  |
| Max. switching frequency  | 500 Hz                         | 500 Hz                         | 25 Hz (AC) / 500 Hz (DC)        |
| Supply voltage range      | 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC |
| Ambient temperature range | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  |
| Output current            | ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        |
| DC 2-wire NO              | <b>DW-DD-615-M30-120</b>       | <b>DW-DD-615-M30</b>           | <b>DW-AD-617-M30</b>            |
| DC 2-wire NC              | DW-DD-616-M30-120              | DW-DD-616-M30                  | DW-AD-618-M30                   |
| AC/DC 2-wire NO           |                                |                                | <b>DW-AD-617-M30</b>            |
| AC/DC 2-wire NC           |                                |                                | DW-AD-618-M30                   |
| Other types available     |                                |                                |                                 |

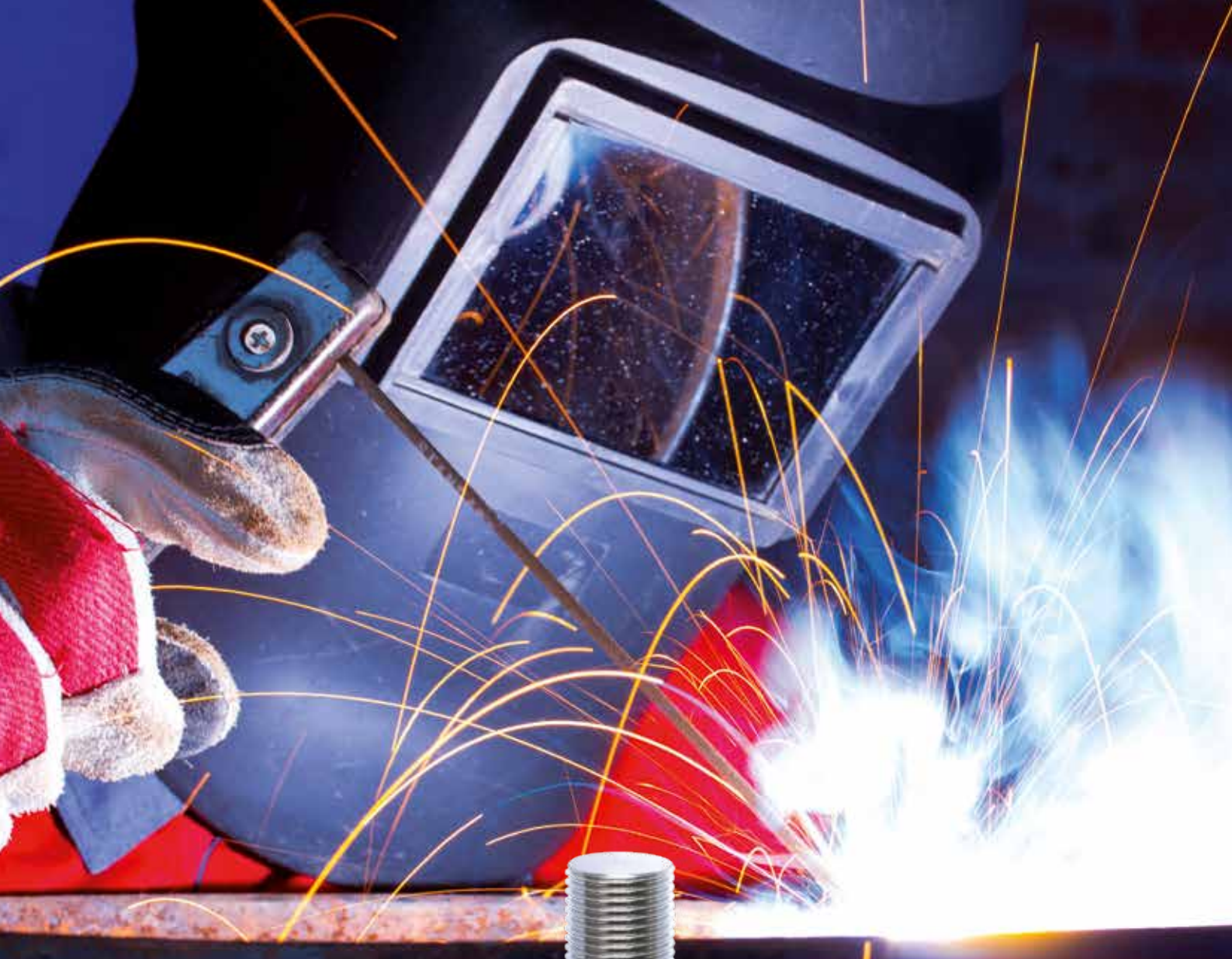
# 2-WIRE

| CLASSICS | CLASSICS | CLASSICS |
|----------|----------|----------|
| M30      | M30      | M30      |
| 15       | 15       | 15       |



|               |
|---------------|
| Inductive     |
| Photoelectric |
| Ultrasonic    |
| Capacitive    |
| Safety        |
| RFID          |
| Connectivity  |
| Accessories   |
| Glossary      |
| Index         |

|                                |                                |                                 |
|--------------------------------|--------------------------------|---------------------------------|
| Chrome-plated brass            | Chrome-plated brass            | Chrome-plated brass             |
| Connector S12                  | Connector S12                  | Connector 1/2"                  |
| IP 67                          | IP 67                          | IP 67                           |
| Non-embeddable                 | Non-embeddable                 | Non-embeddable                  |
| 500 Hz                         | 500 Hz                         | 25 Hz (AC) / 500 Hz (DC)        |
| 10 ... 65 VDC                  | 10 ... 65 VDC                  | 20 ... 265 VAC / 10 ... 320 VDC |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F  |
| ≤ 100 mA                       | ≤ 100 mA                       | ≤ 200 mA                        |
| <b>DW-DS-615-M30-120</b>       | <b>DW-DS-615-M30-002</b>       | <b>DW-AS-617-M30-069</b>        |
| DW-DS-616-M30-120              | DW-DS-616-M30-002              | DW-AS-618-M30-069               |



DURABLE AND RELIABLE IN WELDING CELLS



# WELD- IMMUNE

## INDUCTIVE SENSORS

### KEY ADVANTAGES

- ✓ Resistant to electromagnetic fields of up to 40 millitesla
- ✓ Extremely robust
- ✓ Easy to clean - even using harsh methods
- ✓ No false switching caused by metal dust or chips
- ✓ Factor 1 on steel and aluminum
- ✓ No extra protection needed
- ✓ Long operating distances

#### RANGE OVERVIEW

#### Housing size

#### Full Metal

### WELD- IMMUNE

M8

p. 161

M12

p. 161

M18

p. 161

FAMILY

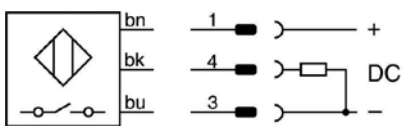
HOUSING SIZE

OPERATING DISTANCE MM

# INDUCTIVE

## WIRING DIAGRAM

PNP NO



DATA

Sensing face material

Welding systems MF

Welding systems 50 Hz

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

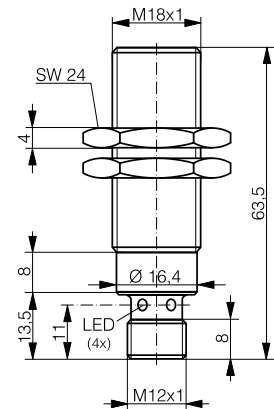
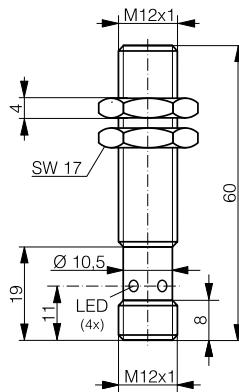
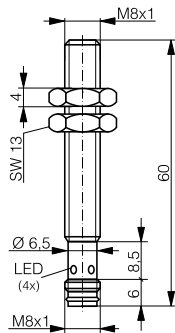
PNP NO

PNP NO

Other types available

# WELD-IMMUNE

| FULL INOX | FULL INOX | FULL INOX |
|-----------|-----------|-----------|
| M8        | M12       | M18       |
| 3         | 6         | 10        |



| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
|--------------------------------|--------------------------------|--------------------------------|
| Up to 15 kA                    | Up to 15 kA                    | Up to 15 kA                    |
| ≤ 40 mT (-673) / 500 ms (-761) | ≤ 40 mT (-673) / 500 ms (-761) | ≤ 40 mT (-673) / 500 ms (-761) |
| Stainless steel V2A            | Stainless steel V2A            | Stainless steel V2A            |
| Connector S8                   | Connector S12                  | Connector S12                  |
| IP 68 / IP 69K                 | IP 68 / IP 69K                 | IP 68 / IP 69K                 |
| Embeddable                     | Embeddable                     | Embeddable                     |
| 15 Hz (-673) / 1 Hz (-761)     | 15 Hz (-673) / 1 Hz (-761)     | 15 Hz (-673) / 1 Hz (-761)     |
| 10 ... 30 VDC                  | 10 ... 30 VDC                  | 10 ... 30 VDC                  |
| -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F | -25 ... +70°C / -13 ... +158°F |
| ≤ 200 mA                       | ≤ 200 mA                       | ≤ 200 mA                       |
| <b>DW-AS-703-M8-673</b>        | <b>DW-AS-703-M12-673</b>       | <b>DW-AS-703-M18-673</b>       |
| <b>DW-AS-703-M8-761</b>        | <b>DW-AS-703-M12-761</b>       | <b>DW-AS-703-M18-761</b>       |

- Inductive
- Photoelectric
- Ultrasonic
- Capacitive
- Safety
- RFID
- Connectivity
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DESIGNED FOR SPECIAL REQUIREMENTS

# SPECIAL

## INDUCTIVE SENSORS

### KEY ADVANTAGES

- ✓ Double sheet detection (steel and aluminum) with sensitivity of 0.8 - 1.2 mm per sheet
- ✓ Full metal : extremely robust one-piece stainless-steel housing,
- ✓ Corrosion resistant
- ✓ IP 68 and IP 69K
- ✓ Pressure resistant up to 80 bar

RANGE OVERVIEW

Housing size

Full Inox

SPECIAL

M30

p. 165



FAMILY

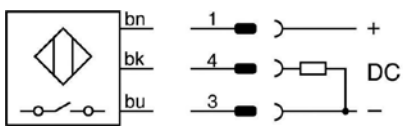
HOUSING SIZE MM

OPERATING DISTANCE MM

INDUCTIVE

## WIRING DIAGRAM

PNP NO



DATA

Housing material

Connection

Degree of protection

Mounting

Max. switching frequency

Supply voltage range

Ambient temperature range

Output current

PNP NO

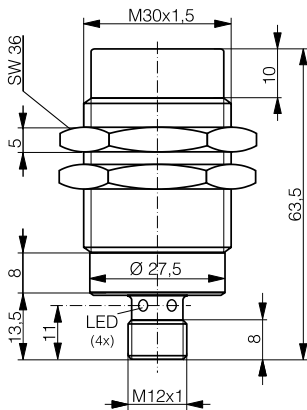
Description

# SPECIAL

FULL INOX

M30

3 ... 5



Inductive

Photoelectric

Ultrasonic

Capacitive

Safety

RFID

Connectivity

Accessories

Glossary

Index

Stainless steel V2A

Connector S12

IP 68 / IP 69K

Non-embeddable

10 Hz

10 ... 30 VDC

-25 ... +70°C / -13 ... +158°F

≤ 200 mA

**DW-AS-713-M30-618**

Double sheet

# INDUCTIVE SENSORS

## DW-AD-503-M8E (-12X/-XXX)

### INDUCTIVE SENSOR DW

#### SENSOR TYPE

|                            |   |
|----------------------------|---|
| Conventional               | A |
| 2-wire DC (NAMUR excepted) | D |
| High-temperature           | H |
| Food and sea-water         | L |

#### CONNECTION

|                             |   |
|-----------------------------|---|
| Cable                       | D |
| Connector                   | S |
| Cable with molded connector | V |

#### SERIES

|  |   |
|--|---|
| 500 / 520 (Extra Distance)                       | 5 |
| 600 / 620 (Classics)                             | 6 |
| 700 (Full Metal)                                 | 7 |
| Embeddable / quasi-embeddable                    | 0 |
| Non-embeddable                                   | 1 |
| Increased operating distance, (quasi-)embeddable | 2 |
| Increased operating distance, non-embeddable     | 3 |

#### OUTPUT

|                |   |
|----------------|---|
| NPN NO         | 1 |
| NPN NC         | 2 |
| PNP NO         | 3 |
| PNP NC         | 4 |
| PNP changeover | A |
| NPN changeover | B |

### SHORT / SPECIAL EXECUTIONS

|   |   |
|---|---|
| Series E (impervious)                             | E |
| Series 700P (all-metal & high-pressure resistant) | G |

### HOUSING SIZE

| Threaded   |    |
|------------|----|
| M4         | 4  |
| M5         | 5  |
| M8         | 8  |
| M12        | 12 |
| M18        | 18 |
| M30        | 30 |
| M50        | 50 |
| Smooth     |    |
| Ø 3 mm     | 3  |
| Ø 4 mm     | 4  |
| Ø 6.5 mm   | 65 |
| Ø 8 mm     | 80 |
| 5 x 5 mm   | 5  |
| 8 x 8 mm   | 8  |
| 20 x 32 mm | 23 |
| 40 x 40 mm | 44 |

### HOUSING

|                              |   |
|------------------------------|---|
| Threaded cylindrical housing | M |
| Rectangular housing          | C |
| Smooth cylindrical housing   | 0 |
| High-pressure resistant      | P |

### OUTPUT

| 2-wire DC    |   |
|--------------|---|
| NO / NAMUR   | 5 |
| NC           | 6 |
| 2-wire AC/DC |   |
| NO           | 7 |
| NC           | 8 |
| Analog       | 9 |

# INDUCTIVE SENSORS

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| DW-AD-501-M12-120     | 1/50                | DW-AD-523-M12-120     | 1/52                | DW-AD-605-M30         | 1/138               |
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