



Hand in hand for tomorrow



## Product data sheet

Inductive proximity switches IN 60

**Reliable. Non-contact. Easy assembly.**

## Inductive proximity switches IN

Inductive proximity switches are used to scan the current status of automation components. They are offered by SCHUNK in versions IN and INK. The version IN is directly pluggable or has a molded cable with plug connector. The INK version is suitable for direct wiring. It has a molded cable with an open end.

### Field of application

Sensors are used for monitoring gripping and rotary modules as well as linear axes and robot accessories. Inductive SCHUNK sensors detect metals without contact, and are resistant to vibrations, dust, and water. The sensors are suitable for connection to a digital input module.

### Advantages – Your benefits

**Mounting with brackets** for easy and fast assembly

**Version with LED display** for control of the switching position directly at the sensor

**Version with standard plug connector** for fast and easy exchangeability of the extension cable

**Very flexible cable in PUR version** for a long service life

**Proximity switches for flush mounting** for minimal interfering contours in the application



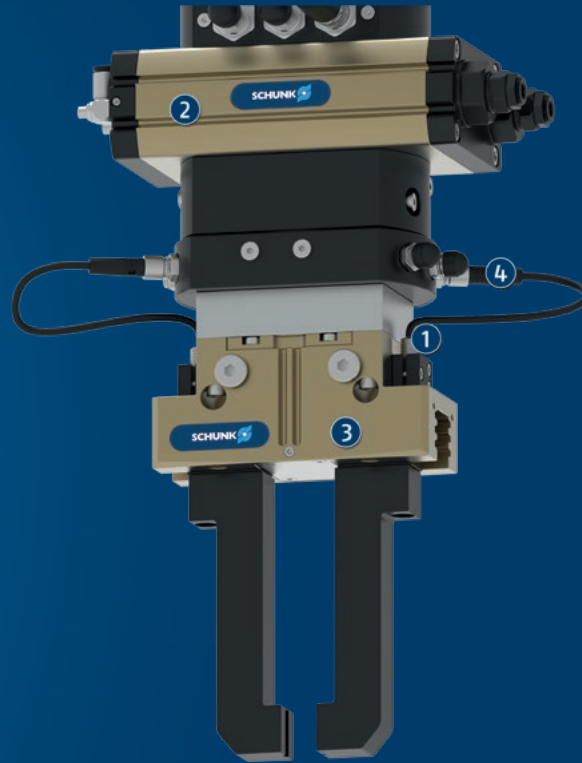
### Options and special information

**Functional description:** With their oscillator coil, inductive proximity switches produce a high-frequency, alternating magnetic field. This field occurs on the active surface of the sensor. If a metal object enters the field, it draws energy from the magnetic field, thereby reducing the oscillation amplitude. This change is detected, and the sensor switches.

**Signal output and switching type:** Depending on the size and design of the sensors, they are available with the signal outputs opener and closer, and in the switching modes PNP and NPN. Please contact us for assistance.

**High protection class:** IP67 when plugged in, for use in clean or dusty environments or in case of contact with water. Operability in case of contact with other media (coolant, acids, bases, etc.) is often given, however cannot be guaranteed by SCHUNK.

## Application example



Handling and rotary unit for components with sensor monitoring on the gripping module

① IN sensors

② Universal rotary actuator SRM

③ 2-finger parallel gripper PGN-plus-P

④ KST cable connector

## SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



2-finger parallel gripper



Rotary unit



Sensor cables



Sensor distributor

① For more information on these products can be found on the following product pages or at [schunk.com](http://schunk.com).

# IN 60

## Inductive proximity switches

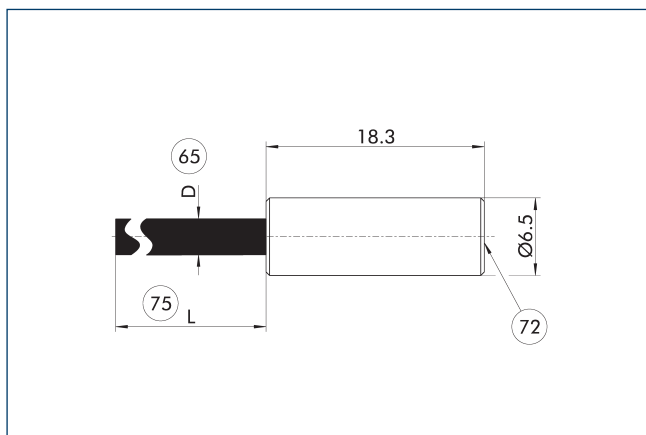


### Technical data

| Description                                              |      | IN 60-S-M8      | IN 60-S-M12     | INK 60-S          |
|----------------------------------------------------------|------|-----------------|-----------------|-------------------|
| ID                                                       |      | 0301485         | 0301585         | 0301553           |
| <b>Operating principle</b>                               |      |                 |                 |                   |
| Measuring principle                                      |      | inductive       | inductive       | inductive         |
| Switching function                                       |      | Closer          | Closer          | Closer            |
| Type of switching                                        |      | PNP             | PNP             | PNP               |
| Number of switching points                               |      | 1               | 1               | 1                 |
| Teach function                                           |      | no              | no              | no                |
| <b>General data</b>                                      |      |                 |                 |                   |
| Switching distance                                       | [mm] | 1.5             | 1.5             | 1.5               |
| Switching hysteresis from the nominal switching distance |      | < 10%           | < 10%           | < 10%             |
| Max. switching frequency                                 | [Hz] | 1000            | 1000            | 1000              |
| Min./max. ambient temperature                            | [°C] | -25/70          | -25/70          | -25/70            |
| LED display in sensor                                    |      | no              | no              | no                |
| <b>Electrical operating data</b>                         |      |                 |                 |                   |
| Type of voltage                                          |      | DC              | DC              | DC                |
| Nominal voltage                                          | [V]  | 24              | 24              | 24                |
| Min./max. operating voltage                              | [V]  | 10/30           | 10/30           | 10/30             |
| Voltage drop                                             | [V]  | 1.5             | 1.5             | 1.5               |
| Max. switching current                                   | [A]  | 0.2             | 0.2             | 0.2               |
| Short circuit protection                                 |      | yes             | yes             | yes               |
| Protected against polarity reversal                      |      | yes             | yes             | yes               |
| <b>Mechanical operating data</b>                         |      |                 |                 |                   |
| Housing material                                         |      | stainless steel | stainless steel | stainless steel   |
| Cable connector/cable end                                |      | M8              | M12             | open wire strands |
| Cable length L                                           | [cm] | 30              | 30              | 200               |
| Cable diameter D                                         | [mm] | 3.5             | 3.5             | 3.5               |
| Cable sheath material                                    |      | PUR             | PUR             | PUR               |
| Min. bending radius (dynamic)                            | [mm] | 35              | 35              | 35                |
| Min. bending radius (static)                             | [mm] | 17.5            | 17.5            | 17.5              |
| Weight                                                   | [kg] | 0.008           | 0.019           | 0.056             |
| Protection class IP (sensor, plugged)                    |      | 67              | 67              | 67                |
| Protection class                                         |      | II              | II              | II                |
| Drilling emulsion resistance *                           |      | no              | no              | no                |

\* \*Tested cutting emulsions: r.rhenus TU 43P, Motorex Swisscool Magnum UX 550 and Oemeta 760 (1008339).

## IN 60 main view

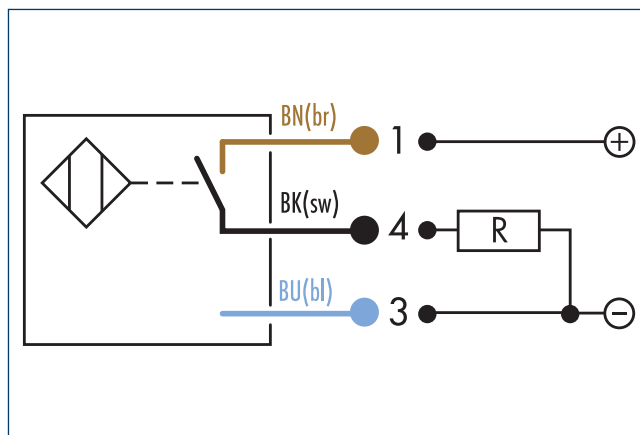


65 Cable diameter

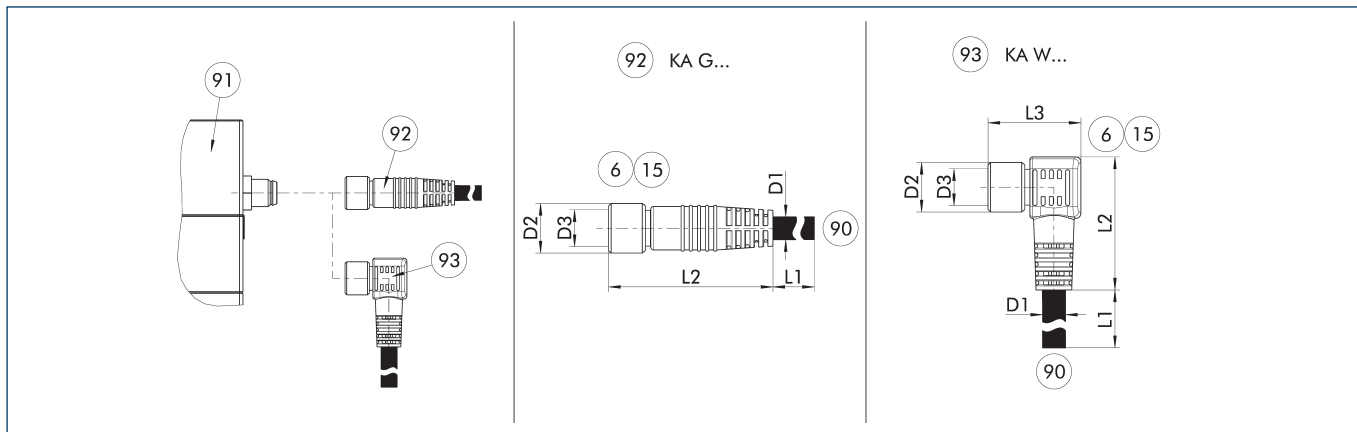
75 Cable length

72 Active sensor surface

## Wiring diagram closer PNP



## Voltage supply/signals connection cable



KA G...

Connection cable with straight socket

KA W...

Connection cable with angular socket

6 Connection module side

15 Socket

90 SAC connection cable with open wire strands

91 Connection plug component

92 Cable with straight female connector

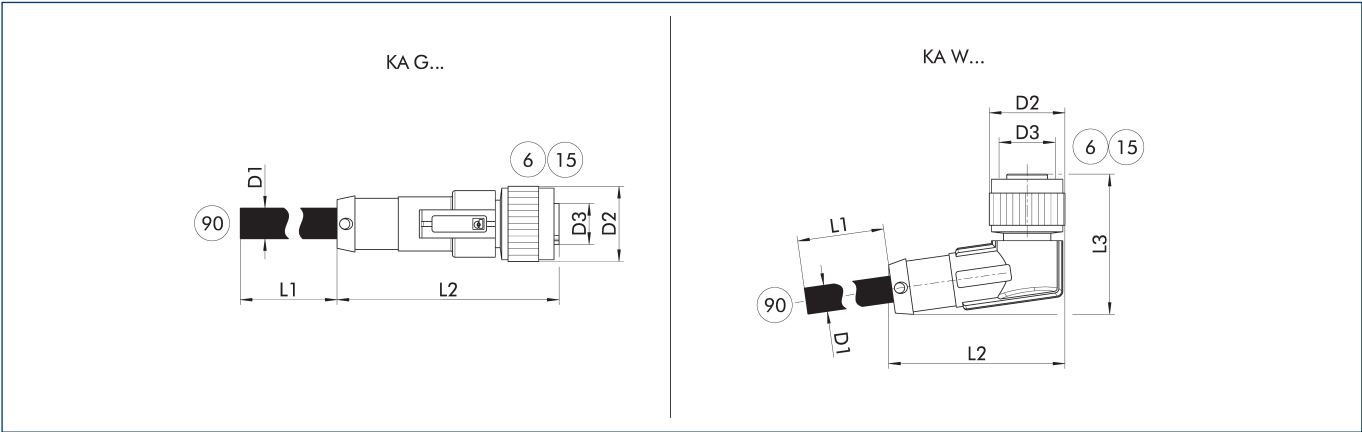
93 Cable with angled female connector

The connection cable is ideal for connecting the corresponding components to the controller or the power supply unit. The connection cable has an M8 socket on one side and an open wire strand on the other side for individual connections. The connection cables are suitable for use both in the cable track as well as in torsion applications.

| Description           | ID      | L1  | D1   | D3 | Often combined |
|-----------------------|---------|-----|------|----|----------------|
|                       |         | [m] | [mm] |    |                |
| Connection cables     |         |     |      |    |                |
| KA BG08-L 3P-0300-PNP | 0301622 | 3   | 4.5  |    | •              |
| KA BG08-L 3P-0500-PNP | 0301623 | 5   | 4.5  | M8 |                |
| KA BW08-L 3P-0300-PNP | 0301594 | 3   | 4.5  |    |                |
| KA BW08-L 3P-0500-PNP | 0301502 | 5   | 4.5  | M8 |                |

① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

## Connection cable for control



KA G... Connection cable with straight plug connector  
KA W... Connection cable with angled plug connector

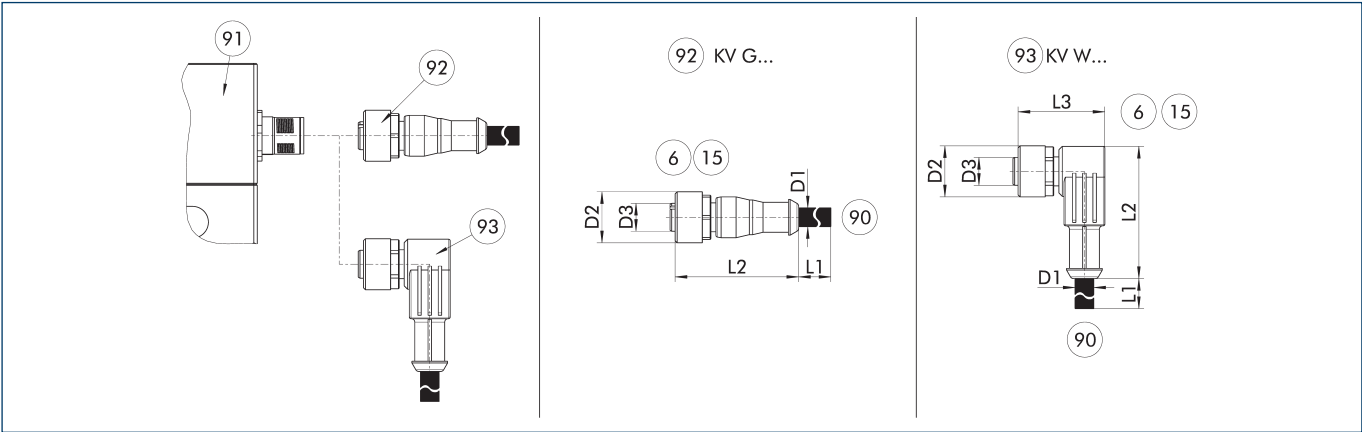
6 Connection module side  
15 Socket  
90 Cable end with open wire strands

The connection cables are used to control the SCHUNK product.

| Description           | ID       | L1<br>[m] | D1<br>[mm] |
|-----------------------|----------|-----------|------------|
| Connection cables     |          |           |            |
| KA BG12-L 3P-0500-PNP | 30016369 | 5         | 1.5        |
| KA BW12-L 3P-0300-PNP | 0301503  | 3         | 1.5        |
| KA BW12-L 3P-0500-PNP | 0301507  | 5         | 1.5        |

1 Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m. Please refer to the product documentation for information about max. cable length and min. wire cross section.

## I0-Link cable extension



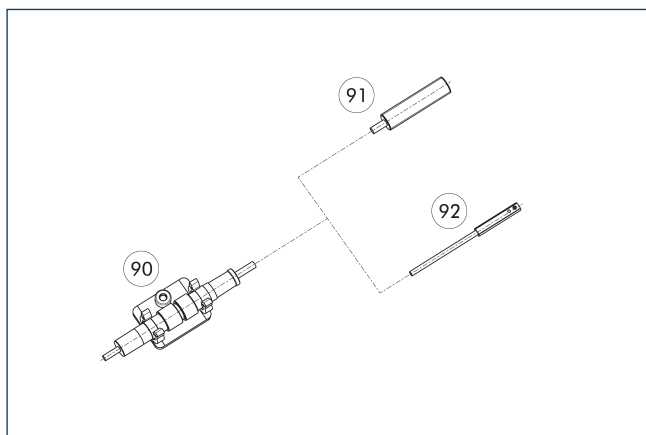
The cable extensions are ideal for connecting the relevant components to the control system, or for use as extension cables. The cable extensions have a 4-pin M8 socket with a straight or angled design on the module side and a 4-pin M8 connector with a straight design on the other side. The cable extensions are suitable for use in the cable track and in torsion applications.

6 Connection module side  
15 Socket  
90 Cable end with straight connector  
91 Connection plug component  
92 Cable with straight female connector  
93 Cable with angled female connector

| Description              | ID      | L1<br>[m] | D1<br>[mm] | Often combined |
|--------------------------|---------|-----------|------------|----------------|
| Cable extension          |         |           |            |                |
| KV BW08-SG08 3P-0030-PNP | 0301495 | 0.3       | 1.25       |                |
| KV BW08-SG08 3P-0100-PNP | 0301496 | 1         | 1.25       |                |
| KV BW08-SG08 3P-0200-PNP | 0301497 | 2         | 1.25       | ●              |

1 Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

### Clip for connector/socket



90 CLI plug bracket

92 Magnetic switch MMS

91 IN proximity switch

The CLI clip is used for fastening and strain relief for the plug connectors. For example for the sensor and cable extension connection.

| Description               | ID      |  |
|---------------------------|---------|--|
| Clip for connector/socket |         |  |
| CLI-M12                   | 0301464 |  |
| CLI-M8                    | 0301463 |  |



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