



# IL8 / IL9 series

8 x 8 mm cubic  
miniaturized inductive sensors



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## features

- Complete range of cubic inductive sensors:
  - IL8 series: 8x8 mm with sensing head at the top
  - IL9 series: 8x8 mm with sensing head at the centre
- IP67 protection degree



## web contents



- Application notes
- Photos
- Catalogue / Manuals



## code description (\*)

|              | IL   | 8                                         | / | A | P | - | 3 | A |
|--------------|------|-------------------------------------------|---|---|---|---|---|---|
| series       | IL   | Cubic inductive sensor                    |   |   |   |   |   |   |
| housing      | 8    | 8 x 8 mm, sensing head at the top         |   |   |   |   |   |   |
|              | 9    | 8 x 8 mm, sensing head at the centre      |   |   |   |   |   |   |
| output state | A    | NO output state                           |   |   |   |   |   |   |
|              | C    | NC output state                           |   |   |   |   |   |   |
| output logic | N    | NPN logic output                          |   |   |   |   |   |   |
|              | P    | PNP logic output                          |   |   |   |   |   |   |
| distance     | 1    | Standard shielded model 1.5 mm            |   |   |   |   |   |   |
|              | 3    | Long distance shielded model 2 mm         |   |   |   |   |   |   |
|              | 5    | Extended distance shielded model 2.5 mm   |   |   |   |   |   |   |
| connect.     | A    | 2 m cable exit in PUR                     |   |   |   |   |   |   |
|              | F    | M8 plug cable exit                        |   |   |   |   |   |   |
|              | VF80 | Free connector M8 + cable 200 mm PUR (**) |   |   |   |   |   |   |

(\*) ATEX models available, contact our Sales Dept. for further information.  
(\*\*) Models without UL certification.

## IL8 available model

| diameter                  | installation | distance         | plug       | distance | NPN/NO        | NPN/NC        | PNP/NO        | PNP/NC        |
|---------------------------|--------------|------------------|------------|----------|---------------|---------------|---------------|---------------|
| 8 x 8<br>detection<br>top | shielded     | standard         | cable      | 1.5 mm   | IL8/AN-1A     | IL8/CN-1A     | IL8/AP-1A     | IL8/CP-1A     |
|                           |              |                  | M8         |          | IL8/AN-1F     | IL8/CN-1F     | IL8/AP-1F     | IL8/CP-1F     |
|                           |              |                  | pigtail M8 |          | IL8/AN-1AVF80 | IL8/CN-1AVF80 | IL8/AP-1AVF80 | IL8/CP-1AVF80 |
|                           |              | long distance    | cable      | 2 mm     | IL8/AN-3A     | IL8/CN-3A     | IL8/AP-3A     | IL8/AN-3A     |
|                           |              |                  | M8         |          | IL8/AN-3F     | IL8/CN-3F     | IL8/AP-3F     | IL8/CP-3F     |
|                           |              |                  | pigtail M8 |          | IL8/AN-3AVF80 | IL8/CN-3AVF80 | IL8/AP-3AVF80 | IL8/CP-3AVF80 |
|                           |              | expanse extended | cable      | 2.5 mm   | IL8/AN-5A     | IL8/CN-5A     | IL8/AP-5A     | IL8/CP-5A     |
|                           |              |                  | M8         |          | IL8/AN-5F     | IL8/CN-5F     | IL8/AP-5F     | IL8/CP-5F     |
|                           |              |                  | pigtail M8 |          | IL8/AN-5AVF80 | IL8/CN-5AVF80 | IL8/AP-5AVF80 | IL8/CP-5AVF80 |

IL8 / IL9



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## IL9 available models

| diameter<br>(mm)             | installation | distance            | plug       | distance<br>(mm) | NPN/NO       | NPN/NC       | PNP/NO       | PNP/NC       |
|------------------------------|--------------|---------------------|------------|------------------|--------------|--------------|--------------|--------------|
| 8 x 8<br>detection<br>center | shielded     | standard            | cable      | 1.5              | IL9/AN-1A    | IL9/CN-1A    | IL9/AP-1A    | IL9/CP-1A    |
|                              |              |                     | M8         |                  | IL9/AN-1F    | IL9/CN-1F    | IL9/AP-1F    | IL9/CP-1F    |
|                              |              |                     | pigtail M8 |                  | IL9/AN-1VF80 | IL9/CN-1VF80 | IL9/AP-1VF80 | IL9/CP-1VF80 |
|                              |              | long<br>distance    | cable      | 2                | IL9/AN-3A    | IL9/CN-3A    | IL9/AP-3A    | IL9/AN-3A    |
|                              |              |                     | M8         |                  | IL9/AN-3F    | IL9/CN-3F    | IL9/AP-3F    | IL9/CP-3F    |
|                              |              |                     | pigtail M8 |                  | IL9/AN-3VF80 | IL9/CN-3VF80 | IL9/AP-3VF80 | IL9/CP-3VF80 |
|                              |              | expanse<br>extended | cable      | 2.5              | IL9/AN-5A    | IL9/CN-5A    | IL9/AP-5A    | IL9/CP-5A    |
|                              |              |                     | M8         |                  | IL9/AN-5F    | IL9/CN-5F    | IL9/AP-5F    | IL9/CP-5F    |
|                              |              |                     | pigtail M8 |                  | IL9/AN-5VF80 | IL9/CN-5VF80 | IL9/AP-5VF80 | IL9/CP-5VF80 |

## technical specifications

according to IEC EN 60947-5-2

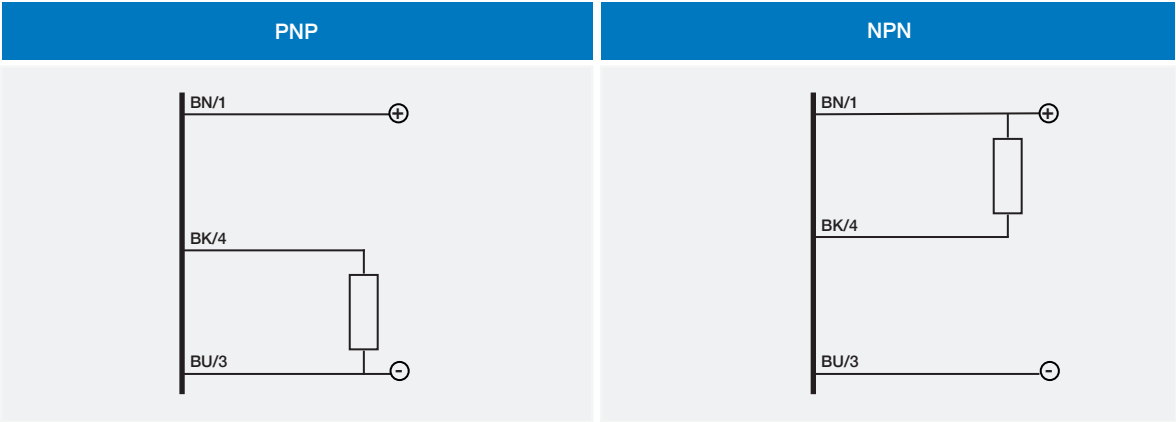
|                             | IL8/**-1*<br>IL9/**-1*                                                        | IL8/**-3*<br>IL9/**-3* | IL8/**-5*<br>IL9/**-5* |
|-----------------------------|-------------------------------------------------------------------------------|------------------------|------------------------|
|                             |                                                                               |                        |                        |
| nominal sensing distance    | 1.5 mm                                                                        | 2 mm                   | 2.5 mm                 |
| operating distance          | 0...1.21 mm                                                                   | 0...1.62 mm            | 0...2.02 mm            |
| hysteresis                  | 1...20%                                                                       |                        |                        |
| standard target             | 8x8 mm FE360                                                                  |                        |                        |
| repeatability               | 5% @UB=20...30 V; Ta = 23°C ±5°C                                              |                        |                        |
| operating voltage           | 10...30 Vcc                                                                   |                        |                        |
| max. ripple content         | ≤ 10%                                                                         |                        |                        |
| output current              | ≤ 200 mA                                                                      |                        |                        |
| output voltage drop         | ≤ 1.5 V @ 200 mA                                                              |                        |                        |
| no-load supply current      | ≤ 10 mA                                                                       |                        |                        |
| logic output                | PNP or NPN                                                                    |                        |                        |
| output state                | NO or NC                                                                      |                        |                        |
| leakage current             | ≤ 10 µA                                                                       |                        |                        |
| switching frequency         | ≤ 5 kHz                                                                       |                        |                        |
| power on delay              | ≤ 50 ms                                                                       |                        |                        |
| ambient temperature range   | -25°C...+70°C                                                                 |                        |                        |
| temperature drift of Sr     | ≤ 10%                                                                         |                        |                        |
| short circuit protection    | ●                                                                             |                        |                        |
| induction protection        | ●                                                                             |                        |                        |
| voltage reversal protection | ●                                                                             |                        |                        |
| shocks and vibrations       | IEC 60947-5-2                                                                 |                        |                        |
| LEDs                        | yellow (output state)                                                         |                        |                        |
| protection degree           | IP67                                                                          |                        |                        |
| EMC                         | in conformity with the EMC Directive<br>according to IEC 60947-5-2            |                        |                        |
| housing material            | AISI303 stainless steel housing                                               |                        |                        |
| active head material        | PBT                                                                           |                        |                        |
| connection                  | M8 plug cable exit / 2m PUR cable exit // M8 plug + 200 mm pigtail cable exit |                        |                        |

## correction factors

| code      | steel FE 360 | copper | alluminium | brass | stainless steel |
|-----------|--------------|--------|------------|-------|-----------------|
| IL8/AP-1F | 1            | 0.15   | 0.12       | 0.25  | 0.61            |
| IL8/AP-3F |              | 0.21   | 0.15       | 0.27  | 0.60            |
| IL8/AP-5F |              | 0.22   | 0.17       | 0.26  |                 |
| IL9/AP-1F |              | 0.16   | 0.11       | 0.22  | 0.61            |
| IL9/AP-3F |              | 0.19   | 0.15       | 0.25  |                 |
| IL9/AP-5F |              | 0.18   | 0.16       | 0.26  | 0.58            |

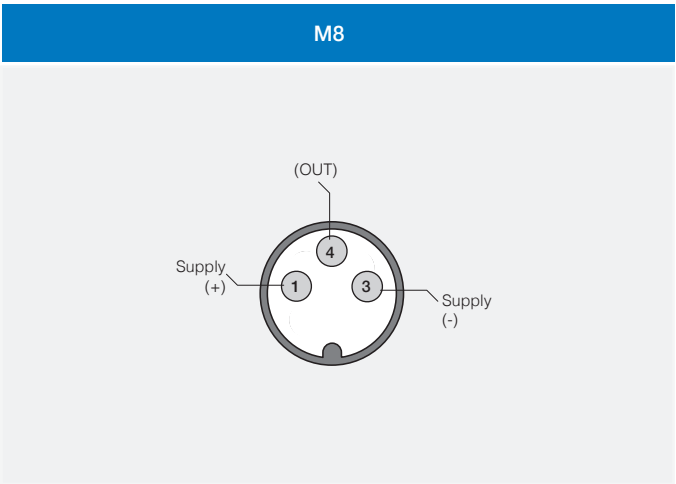
IL8 / IL9

electrical diagrams of the connections

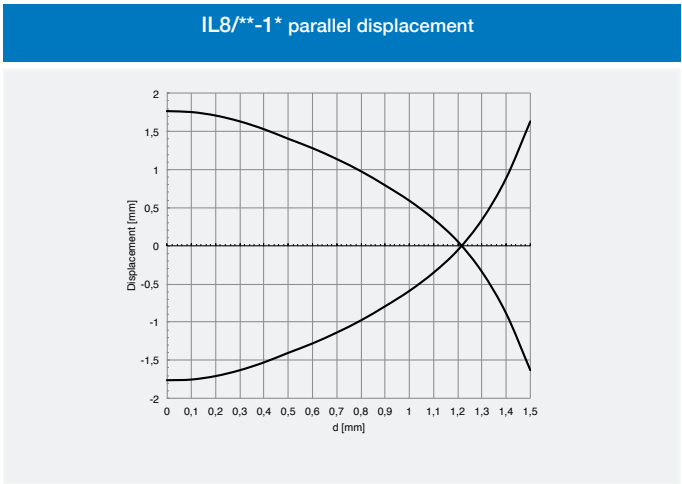


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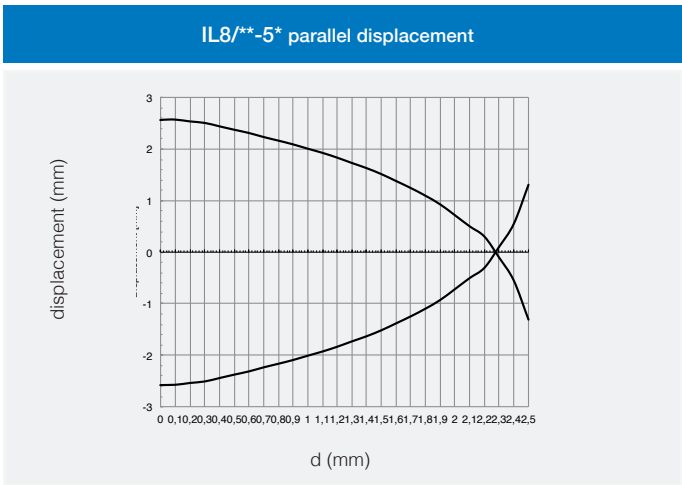
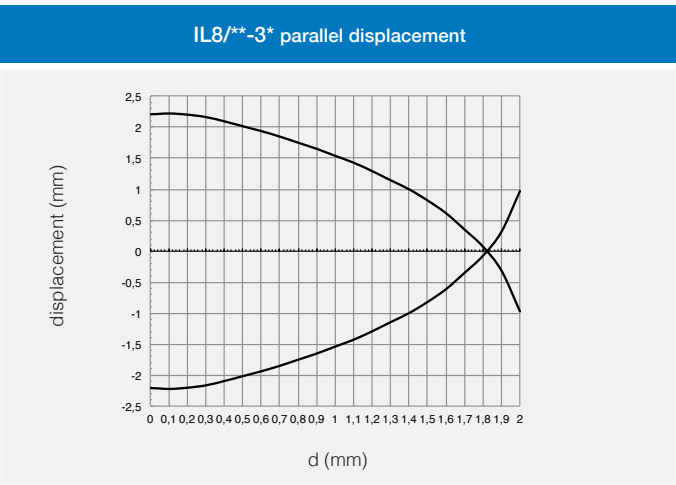
plug



response diagram

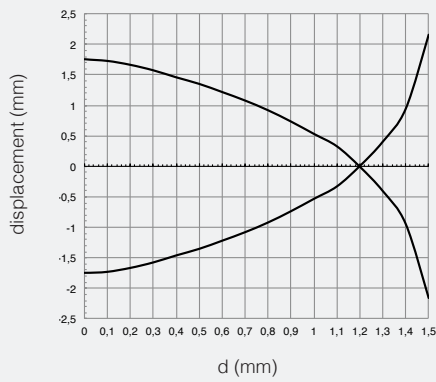


response diagram

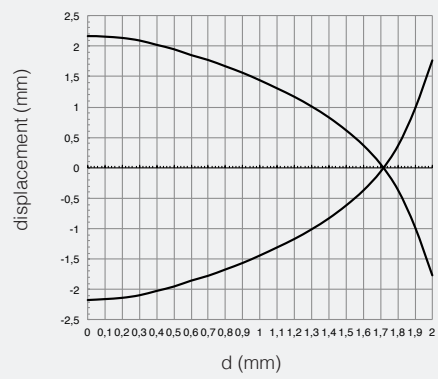


## response diagram

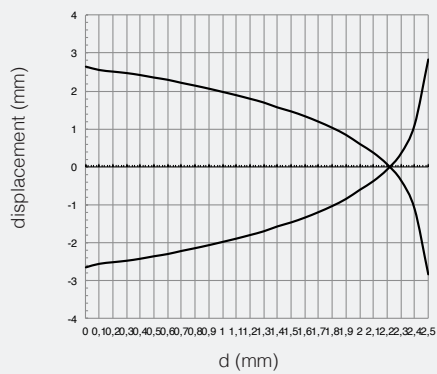
IL9/\*\*-1\* parallel displacement



IL9/\*\*-3\* parallel displacement

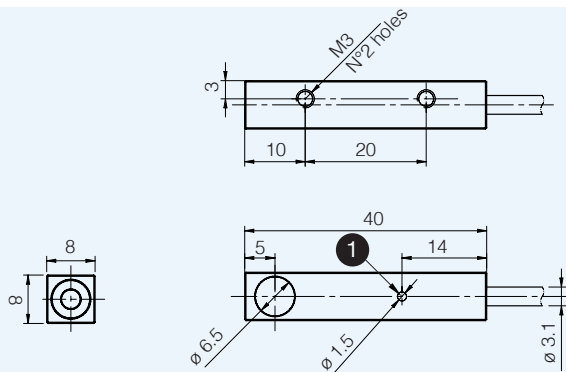


IL9/\*\*-5\* parallel displacement

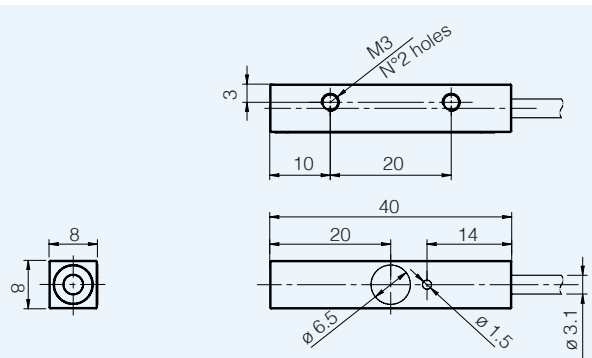


## dimensions (mm)

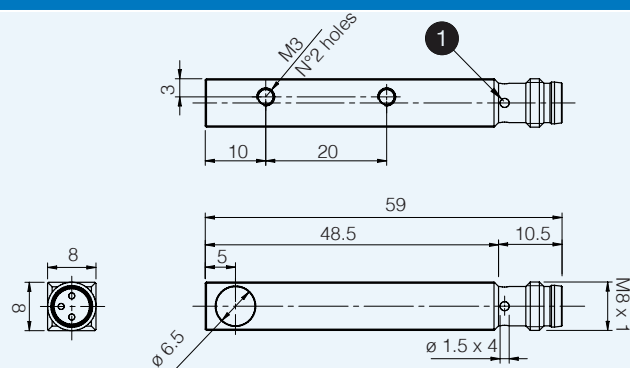
IL8/\*\*-A



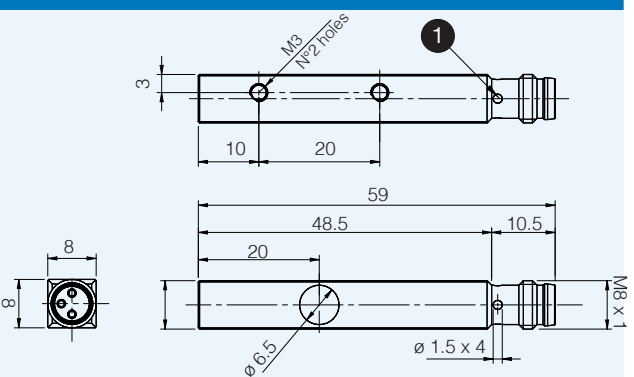
IL9/\*\*-A



IL8/\*\*-F



IL9/\*\*-F



1 LED