



Q50 series

Compact cubic 50 x 50 mm
universal photoelectric sensor

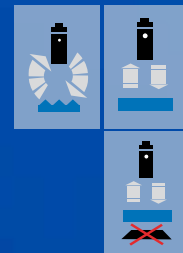


features

- Universal photoelectric sensor, excellent performances and high versatility due to the wide choice of different versions available
- Cable output or revolving connector, NPN/PNP outputs for Vdc models or SPDT relay output for multi -voltage Vdc / Vac models
- Complementary outputs NO + NC available on the Vdc models or selectable output NO/NC available on the multi-voltage Vdc/Vac models
- Totally protected against electrical damages
- Wide choice of optical functions available: Diffuse: 2 m; background suppression: 500 mm; polarized: 6m; through beam: 20 m. Dual multifunction output state LEDs

web content

- Application notes
- Photos
- Catalogue / Manuals



Compact cubic
50 x 50 mm



code description

Q50 R N / B 0 - 0 E

| | | |
|-------------------|------------|--|
| series | Q50 | 50 X 50 mm cubic photoelectric sensor |
| emission | I | LED infrared emission |
| | R | LED red emission |
| type | 6 | Diffuse reflection 1 m |
| | 8 | Diffuse reflection 2 m |
| | S | Background Suppression |
| | N | Polarized |
| output | H | Emitter |
| | D | Receiver |
| | B | Complementary output NO + NC |
| emitter | 0 | Emitter NO/ NC selectable |
| | 0 | Emitter, NPN or PNP (Supply Voltage 10 ... 30 Vdc) |
| housing | T | Emitter, Relay SPDT (Supply Voltage 12... 240 Vdc; 24...240 Vac) |
| | 0 | Plastic housing |
| cable/plug output | A | Cable 2 m |
| | E | Connector M12 4 pins |

available models

| function | distance | adjustment | DC models | | AC / DC models |
|------------------------|--------------|------------|-------------|---------------|----------------|
| | | | cable | M12 connector | cable |
| diffuse | 1 m | • | Q50I6/B0-0A | Q50I6/B0-0E | Q50I6/0T-0A |
| | 2 m | | Q50I8/B0-0A | Q50I8/B0-0E | Q50I8/0T-0A |
| background suppression | 120...500 mm | | Q50IS/B0-0A | Q50IS/B0-0E | - |
| polarized | 6 m | | Q50RN/B0-0A | Q50RN/B0-0E | Q50RN/0T-0A |
| emitter | 20 m | - | Q50IH/00-0A | Q50IH/00-0E | Q50IH/0T-0A |
| receiver | 20 m | • | Q50ID/B0-0A | Q50ID/B0-0E | Q50ID/0T-0A |

Q50



technical specification

direct diffuse models


Compact cubic
50 x 50 mm



| | Q5016/OT-** | Q5016/B0-** | Q5018/OT-** | Q5018/B0-** |
|---|--|---|--|---|
| nominal sensing distance ⁽¹⁾ | 0.1...2 m ⁽¹⁾ | | 0.3...2 m ⁽¹⁾ | |
| sensing range (Sd) | 0.2...2 m ⁽¹⁾ | | 0.5...2 m ⁽¹⁾ | |
| sensitivity adjustment | single-turn potentiometer | | | |
| emission | infrared LED | | | |
| spot dimension | 70 mm @ 500 mm | | 80 mm @ 1 m | |
| rotary switch | single-turn potentiometer | - | single-turn potentiometer | - |
| operating voltage | from 12 to 240 Vdc / from 24 to 240 Vac, 50 to 60 Hz | from 10 to 30 VDC | from 12 to 240 Vdc / from 24 to 240 Vac, 50 to 60 Hz | from 10 to 30 Vdc |
| ripple | - | ≤ 10 % | - | ≤ 10 % |
| no-load supply current | ≤ 2.5 VA (relè ON) | ≤ 40 mA | ≤ 2.5 VA (relè ON) | ≤ 40 mA |
| load current | - | ≤ 200 mA | - | ≤ 200 mA |
| output voltage drop Ud | - | ≤ 2.5 Vdc @ 200 mA | - | ≤ 2.5 Vdc @ 200 mA |
| maximum load current | 3 A/30 Vdc 3 A/240 Vac | - | 3 A/30 Vdc 3 A/250 Vac | - |
| output type | relay SPDT electrically isolated | PNP or NPN | relay SPDT electrically isolated | PNP or NPN |
| switching frequency | 20 Hz | 500 Hz | 20 Hz | 500 Hz |
| power on delay | ≤ 30 ms | - | ≤ 30 ms | - |
| power supply protections | transients | polarity reversal, transient | transients | polarity reversal, transient |
| output electrical protection | - | short circuit (auto reset) over voltage pulses | - | short circuit (auto reset) over voltage pulses |
| operating temperature range | - 25°C...+ 60°C ⁽²⁾ | | | |
| external light interference | 5,000 lux | | | |
| EMC | in conformity with the EMC Directive according to EN 60947-5-2 | | | |
| protection degree | IP67 (EN60529) ⁽³⁾ | | | |
| housing material | body: PC/ABS; optic: PMMA | | | |
| weight (approximate) | 200 g | 105 g plug 200 g cable | 200 g | 105 g plug 200 g cable |

⁽¹⁾ White target 90% 200*200 mm ⁽²⁾ UL omologation: 0...+60 °C ⁽³⁾ Protection guaranteed only with plug cable well mounted



| | Q50IS/0B-** |
|--|---|
| | background suppression |
| |  |
| distanza di lavoro nominale ⁽¹⁾ | 120...500 mm ⁽¹⁾ |
| minimum sensing distance | 120 mm |
| sensibility adjustment | single-turn potentiometer |
| emission | infrared LED |
| spot dimension | 30 mm @ 500 mm |
| rotary switch | - |
| operating voltage | 10...30 Vdc (ripple included) |
| ripple | ≤ 10 % |
| no-load supply current | ≤ 40 mA |
| load current | ≤ 200 mA |
| output voltage drop | ≤ 2.5 Vdc @ 200 mA |
| maximum load current | - |
| output type | PNP or NPN |
| switching frequency | 500 Hz |
| power on delay | ≤ 2 ms |
| power supply protections | polarity reversal, over voltage pulses |
| output electrical protection | short circuit (auto reset), over voltage pulses |
| operating temperature range | - 25°C...+ 60°C ⁽²⁾ |
| external light interference | 10,000 lux |
| protection degree | IP67 (EN60529) ⁽³⁾ |
| EMC | in conformity with the EMC Directive according to EN 60947-5-2 |
| housing material | body: PC/ABS; optic: PMMA |
| weight (approx) | 105 g plug / 200 g cable |


⁽¹⁾ White target 90% 200*200 mm ⁽²⁾ UL omologation: 0...+60 °C ⁽³⁾ Protection guaranteed only with plug cable well mounted



technical specification

polarized models

Compact cubic
50 x 50 mm

| | Q50RN/OT-** | Q50RN/B0-** |
|--------------------------------|--|------------------------------|
| |  | |
| nominal sensing distance S_n | 0.2...6 m ⁽¹⁾ | |
| minimum sensing distance | 200 mm | |
| sensibility adjustment | single-turn potentiometer | |
| emission | red visible LED light | |
| spot dimension | 280 mm @ 3 m | |
| rotary switch | single-turn potentiometer | - |
| operating voltage | from 12 to 240 VDC / from 24 to 240 VAC, 50 a 60 Hz | from 10 to 30 Vdc |
| ripple | - | ≤ 10 % |
| no-load supply current | ≤ 2.5 VA (relay ON) | ≤ 40 mA |
| load current | - | ≤ 200 mA |
| output voltage drop | - | ≤ 2.5 VDC @ 200 mA |
| maximum load current | 3 A/30 Vdc 3 A/250 Vac | - |
| output type | relay SPDT electrically isolated | PNP or NPN |
| switching frequency | 20 Hz | 500 Hz |
| power on delay | - | ≤ 1 ms |
| power supply protections | transients | reverse polarity, transients |
| output electrical protection | - | overvoltage, short-circuit |
| operating temperature range | - 25°C...+ 60°C ⁽²⁾ | |
| external light interference | 5,000 lux | |
| protection degree | IP67 (EN60529) ⁽³⁾ | |
| EMC | in conformity with the EMC Directive according to EN 60947-5-2 | |
| housing material | body: PC/ABS; optic: PMMA | |
| weight (approx) | 200 g | 200 g cable 105 g plug |

⁽¹⁾ With RL 110 reflector ⁽²⁾ UL omologation: 0...+60 °C ⁽³⁾ Protection guaranteed only with plug cable well mounted



| | emitter | | receiver | |
|------------------------------|---|---|------------------------------|---|
| | Q50IH/00-** | Q50IH/0T-** | Q50ID/B0-** | Q50ID/0T-** |
| | | | | |
| nominal sensing distance Sn | 20 mm ⁽¹⁾ | | 20 m ⁽¹⁾ | |
| minimum sensing distance | - | | - | |
| sensibility adjustment | - | | single-turn potentiometer | |
| emission | infrared LED | | - | |
| spot dimension | 880 mm @ 10 m | | - | |
| rotary switch | - | | - | single-turn potentiometer |
| operating voltage | 10...30 Vdc (ripple included) | 12 to 240 Vdc / 24 to 240 Vac, 50 to 60 Hz | da 10 a 30 Vdc | 12 to 240 Vdc / 24 to 240 Vac, 50 to 60 Hz |
| ripple | ≤ 10 % | - | ≤ 10 % | - |
| no-load supply current | ≤ 50 mA | ≤ 2.5 VA (relay ON) | ≤ 40 mA | ≤ 2.5 VA (relay ON) |
| load current | - | | ≤ 200 mA | - |
| output voltage drop | - | | ≤ 2.5 VDC @ 200 mA | - |
| maximum load current | - | | - | 3 A/30 Vdc 3 A/250 Vac |
| output type | - | | PNP or NPN | relay SPDT electrically isolated |
| switching frequency | - | | 500 Hz | 20 Hz |
| power on delay | - | | ≤ 1 ms | - |
| power supply protections | reverse polarity, transients | transients | reverse polarity, transients | transients |
| output electrical protection | - | | overvoltage, short-circuit | - |
| operating temperature range | - 20°C...+ 60°C ⁽²⁾ | | | |
| external light interference | - | | 10.000 lux | |
| protection degree | IP67 (EN60529) ⁽³⁾ | | | |
| EMC | in conformity with the EMC Directive according to EN 60947-5-2 | | | |
| housing material | body: PC/ABS; optic: PMMA | | | |
| weight (approx) | 200 g cable 105 g plug | 200 g | 200 g cable 105 g plug | 200 g |

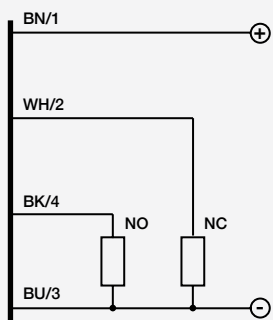
⁽¹⁾ White target 90% 200*200 mm ⁽²⁾ UL omologation: 0...+60 °C ⁽³⁾ Protection guaranteed only with plug cable well mounted



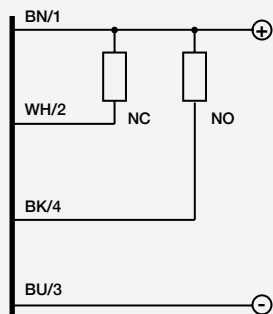
electrical diagrams of the connections

Compact cubic
50 x 50 mm

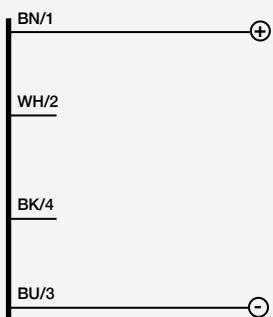
background suppression, polarized retroreflection and receiver with PNP output



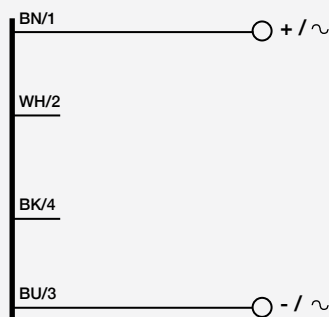
background suppression, polarized retroreflection and receiver with NPN output



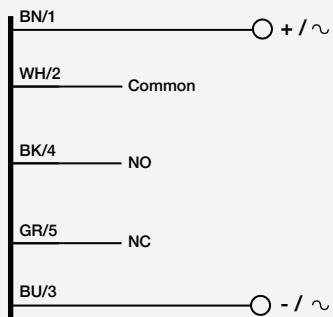
DC emitter



AC/DC emitter



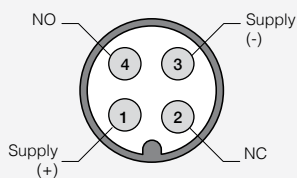
polarized retroreflection and receiver



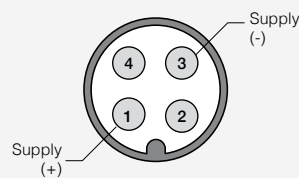
- BN** brown
- BU** blue
- BK** black
- WH** white

plug

M8



M12

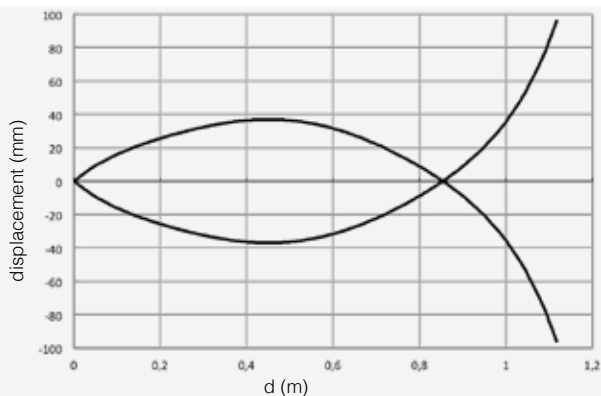


Q50

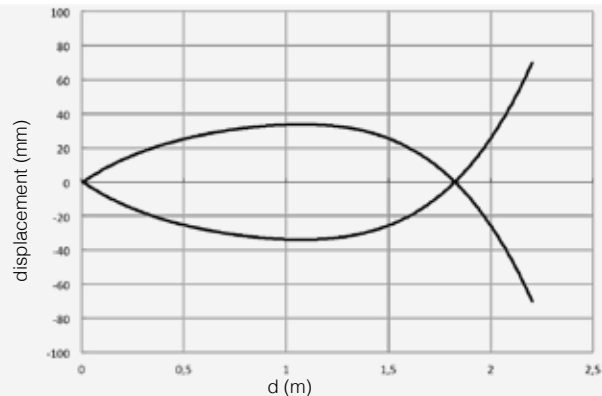
response diagrams

direct reflection models

Q5016/**-** parallel displacement



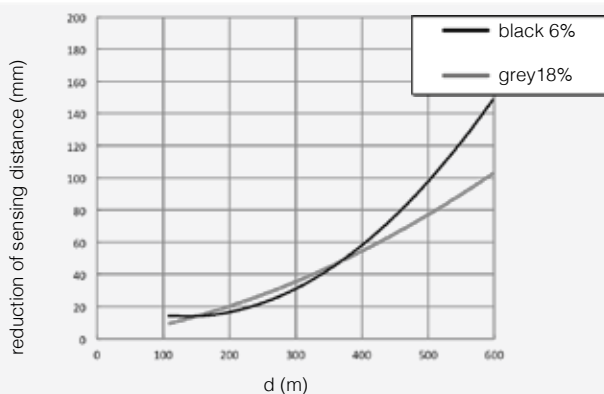
Q5018/**-** parallel displacement



response diagrams

background suppression models

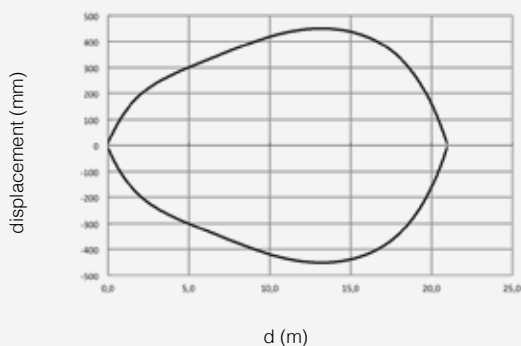
Q501S/**-** reduction of sensing distance



response diagrams

through-beam models

Q501H/**-** & Q501D/**-** Parallel displacement



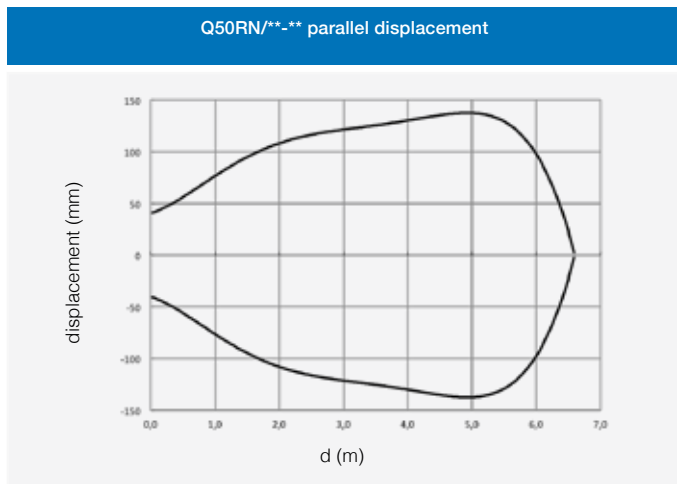
Compact cubic
50 x 50 mm



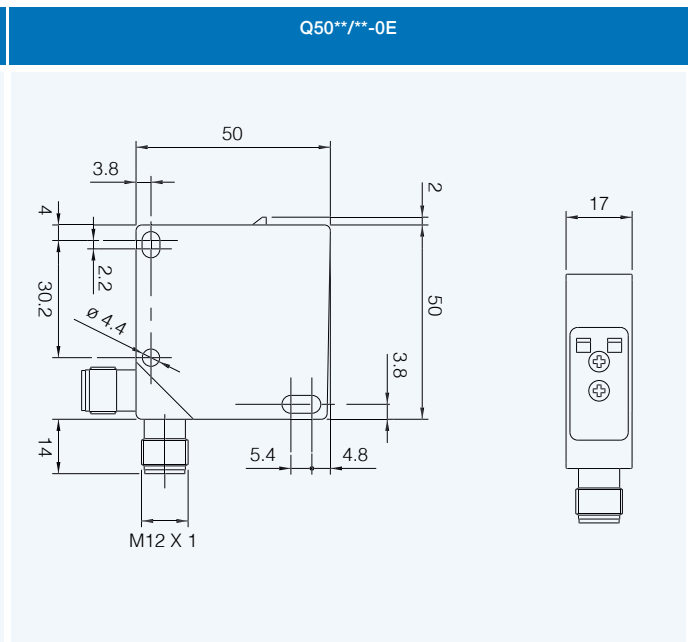
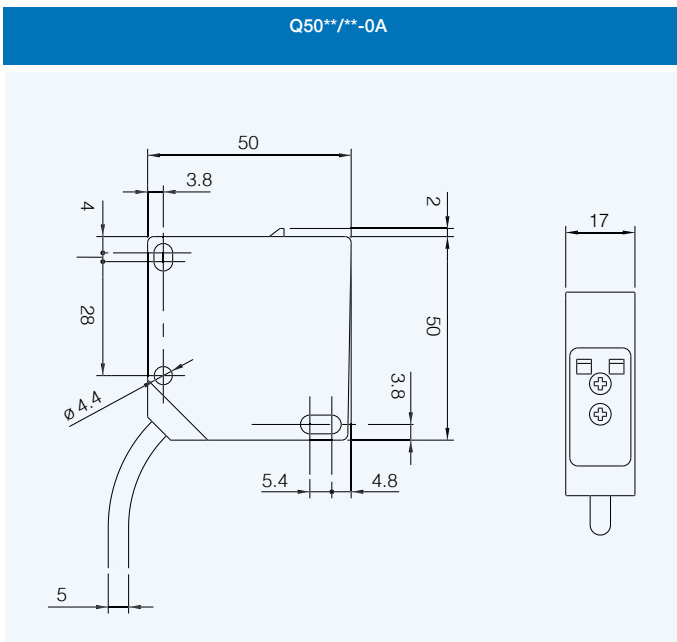
response diagrams

polarized models

Compact cubic
50 x 50 mm

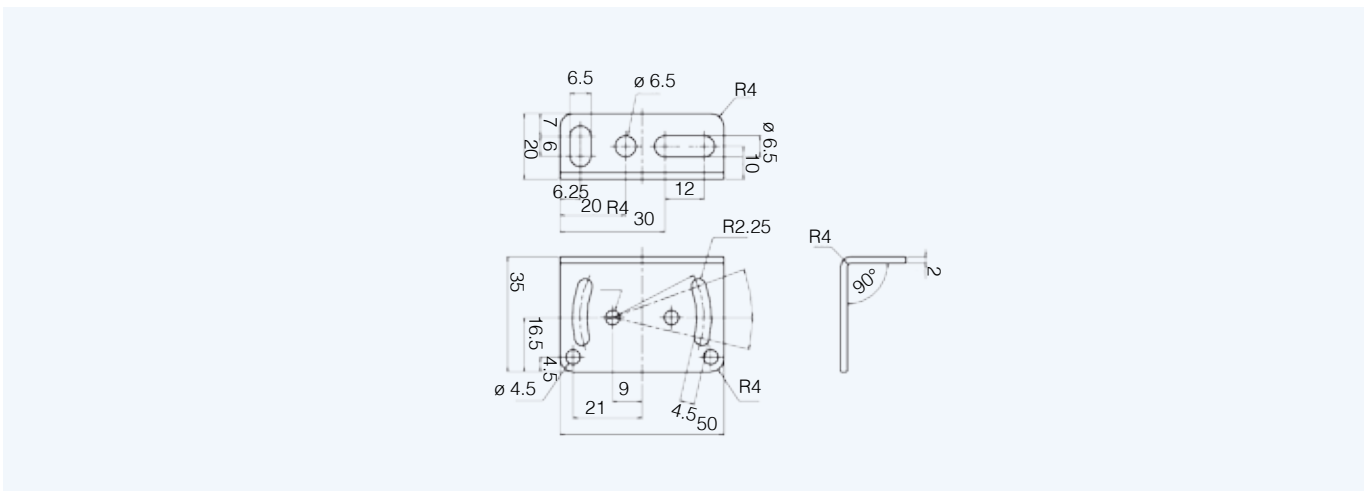


dimensions (mm)



dimensions (mm)

accessories included in all models



Q50