

3- and 4-Wire DC 8 mm Diameter Inductive Sensors

- 1.5 to 6 mm sensing ranges
- 8 mm threaded barrels
- LED target indication
- Cable, Nano (M8), or Micro (M12) quick disconnect models



Technical Specifications

| | | |
|---------------------------------------|------------------------|--------------------------------------|
| SUPPLY VOLTAGE | NBB/NBN/NEB/NEN Models | 10-30 VDC |
| | NJ Models | 10-60 VDC |
| LOAD CURRENT (I _L) | NBB/NBN/NJ Models | 100 mA max. |
| | NEB/NEN Models | 200 mA max. |
| LEAKAGE CURRENT (OFF-STATE) | NBB/NBN/NJ Models | ≤ 0.5 mA |
| | NEB/NEN Models | ≤ 0.1 mA |
| OUTPUT | Suffix E, E0 | NPN normally open |
| | Suffix E2 | PNP normally open |
| | Suffix A0 | NPN normally open & normally closed |
| | Suffix A2 | PNP normally open & normally closed |
| VOLTAGE DROP AT I _L (MAX.) | NBB/NBN/NJ Models | ≤ 3 VDC |
| | NEB/NEN Models | ≤ 2 VDC |
| HYSTERESIS | | 3-15% (5% typical) |
| SHORT CIRCUIT AND OVERLOAD PROTECTION | | Yes |
| REVERSE POLARITY PROTECTED | | Yes |
| LED INDICATION | | See dimension drawings |
| SENSING FACE MATERIAL | | PBT |
| STANDARDS | | EN 60947-5-2 |
| ENVIRONMENTAL PROTECTION | | IP67 |
| AMBIENT TEMPERATURE | | -13 °F to +158 °F (-25 °C to +70 °C) |
| APPROVALS | | |



See pages 803-854 for cordsets



See pages 865-872 for accessories

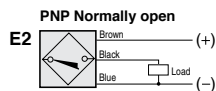
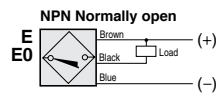
3-Wire and 4-Wire DC

Wiring Diagrams

3-Wire DC



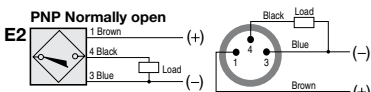
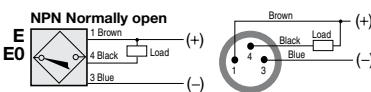
Cable Connection



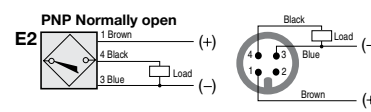
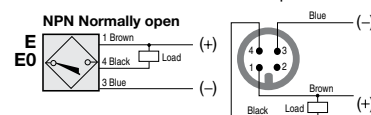
Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

V3 Type



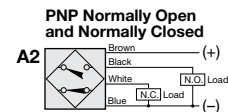
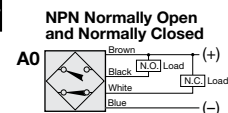
V1 Type



4-Wire DC



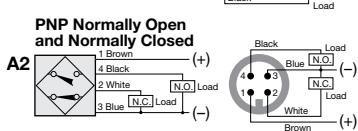
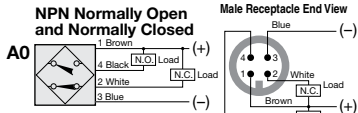
Cable Connection



Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

V1 Type



8 mm Diameter

2-Meter Cable Models

| Dia. (mm) | Model Number | Range (mm) | Mounting | Electrical Output | Switching Frequency | Barrel Material† | Cable Jacket/Size | Dwg. No. | |
|---------------|-----------------|------------|------------|-------------------|---------------------|------------------|-------------------|-------------|----|
| 8 | NJ1.5-8GM40-E2 | ⚡ | 1.5 | Flush | PNP N.O. | 500 Hz | SS | PUR/#26 AWG | 1 |
| | NJ1.5-8GM50-E | ⚡ | 1.5 | Flush | NPN N.O. | 5 kHz | SS | PUR/#26 AWG | 2 |
| | NBB1.5-8GM25-E0 | | 1.5 | Flush | NPN N.O. | 2 kHz | Ni-Brass | PVC/#26 AWG | 3 |
| | NBB1.5-8GM50-E0 | ⚡ | 1.5 | Flush | NPN N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 4 |
| | NBB1.5-8GM50-E2 | ⚡ | 1.5 | Flush | PNP N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 4 |
| | NBB1.5-8GM60-A0 | | 1.5 | Flush | NPN N.O. & N.C. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 5 |
| | NBB1.5-8GM60-A2 | ⚡ | 1.5 | Flush | PNP N.O. & N.C. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 5 |
| | NJ2-8GM40-E2 | ⚡ | 2 | Nonflush | PNP N.O. | 400 Hz | SS | PUR/#26 AWG | 6 |
| | NJ2-8GM50-E | ⚡ | 2 | Nonflush | NPN N.O. | 3 kHz | SS | PUR/#26 AWG | 7 |
| | NBB2-8GM30-E0 | ⚡ | 2 | Flush | NPN N.O. | 2.5 kHz | Ni-Brass | PVC/#26 AWG | 8 |
| | NBB2-8GM30-E2 | ⚡ | 2 | Flush | PNP N.O. | 3 kHz | Ni-Brass | PVC/#26 AWG | 8 |
| | NBN2-8GM50-E0 | ⚡ | 2 | Nonflush | NPN N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 9 |
| | NBN2-8GM50-E2 | | 2 | Nonflush | PNP N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 9 |
| | NBB2-8GM50-E0 | ⚡ | 2 | Flush | NPN N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 10 |
| | NBB2-8GM50-E2 | ⚡ | 2 | Flush | PNP N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 10 |
| | NBN3-8GM30-E0 | | 3 | Nonflush | NPN N.O. | 2.5 kHz | Ni-Brass | PVC/#26 AWG | 11 |
| NBN3-8GM30-E2 | ⚡ | 3 | Nonflush | PNP N.O. | 2 kHz | Ni-Brass | PVC/#26 AWG | 11 | |
| NBN3-8GM50-E0 | ⚡ | 3 | Nonflush | NPN N.O. | 1.5 kHz | Ni-Brass | PVC/#26 AWG | 12 | |
| NEB3-8GM45-E2 | | 3 | Semi-flush | PNP N.O. | 1 kHz | Ni-Brass | PUR/#26 AWG | 13 | |



Inductive Cylindrical

Nano (M8) Quick Disconnect Models

| Dia. (mm) | Model Number | Range (mm) | Mounting | Electrical Output | Switching Frequency | Barrel Material† | Quick Disconnect | Dwg. No. | |
|-----------|--------------------|------------|----------|-------------------|---------------------|------------------|------------------|----------|----|
| 8 | NJ1.5-8GM40-E2-V3 | ⚡ | 1.5 | Flush | PNP N.O. | 2 kHz | SS | M8 Nano | 14 |
| | NBB1.5-8GM20-E2-V3 | ⚡ | 1.5 | Flush | PNP N.O. | 2 kHz | Ni-Brass | M8 Nano | 15 |
| | NBB1.5-8GM50-E0-V3 | ⚡ | 1.5 | Flush | NPN N.O. | 1.5 kHz | Ni-Brass | M8 Nano | 16 |
| | NBB1.5-8GM50-E2-V3 | ⚡ | 1.5 | Flush | PNP N.O. | 1.5 kHz | Ni-Brass | M8 Nano | 16 |
| | NBB2-8GM25-E0-V3 | | 2 | Flush | NPN N.O. | 3 kHz | Ni-Brass | M8 Nano | 17 |
| | NBB2-8GM25-E2-V3 | ⚡ | 2 | Flush | PNP N.O. | 3 kHz | Ni-Brass | M8 Nano | 17 |
| | NBB2-8GM40-E2-V3 | ⚡ | 2 | Flush | PNP N.O. | 3 kHz | Ni-Brass | M8 Nano | 18 |
| | NBN3-8GM25-E0-V3 | | 3 | Nonflush | PNP N.O. | 2 kHz | Ni-Brass | M8 Nano | 19 |
| | NBN3-8GM25-E2-V3 | ⚡ | 3 | Nonflush | PNP N.O. | 2 kHz | Ni-Brass | M8 Nano | 19 |
| | NBN3-8GM45-E2-V3 | | 3 | Nonflush | PNP N.O. | 2 kHz | Ni-Brass | M8 Nano | 20 |
| | NEB3-8GM50-E-V3 | ⚡ | 3 | Semi-flush | NPN N.O. | 1 kHz | Ni-Brass | M8 Nano | 21 |
| | NEB3-8GM50-E2-V3 | ⚡ | 3 | Semi-flush | PNP N.O. | 1 kHz | Ni-Brass | M8 Nano | 21 |



3-Wire and 4-Wire DC

Micro (M12) Quick Disconnect Models

| Dia. (mm) | Model Number | Range (mm) | Mounting | Electrical Output | Switching Frequency | Barrel Material† | Quick Disconnect | Dwg. No. | |
|-----------|--------------------|------------|----------|-------------------|---------------------|------------------|------------------|-----------|----|
| 8 | NJ1.5-8GM40-E-V1 | ⚡ | 1.5 | Flush | NPN N.O. | 5 kHz | SS | M12 Micro | 22 |
| | NJ1.5-8GM40-E2-V1 | ⚡ | 1.5 | Flush | PNP N.O. | 500 Hz | SS | M12 Micro | 23 |
| | NBB1.5-8GM40-E0-V1 | ⚡ | 1.5 | Flush | NPN N.O. | 1.5 kHz | Ni-Brass | M12 Micro | 24 |
| | NBB1.5-8GM40-E2-V1 | ⚡ | 1.5 | Flush | PNP N.O. | 1.5 kHz | Ni-Brass | M12 Micro | 24 |
| | NBB1.5-8GM50-A0-V1 | | 1.5 | Flush | NPN N.O. & N.C. | 1.5 kHz | Ni-Brass | M12 Micro | 25 |
| | NBB1.5-8GM50-A2-V1 | ⚡ | 1.5 | Flush | PNP N.O. & N.C. | 1.5 kHz | Ni-Brass | M12 Micro | 25 |
| | NBB2-8GM30-E0-V1 | ⚡ | 2 | Flush | NPN N.O. | 3 kHz | Ni-Brass | M12 Micro | 26 |
| | NBB2-8GM30-E2-V1 | ⚡ | 2 | Flush | PNP N.O. | 3 kHz | Ni-Brass | M12 Micro | 26 |
| | NBB2-8GM30-A0-V1 | | 2 | Flush | NPN N.O. & N.C. | 1 kHz | Ni-Brass | M12 Micro | 27 |
| | NBB2-8GM30-A2-V1 | | 2 | Flush | PNP N.O. & N.C. | 1 kHz | Ni-Brass | M12 Micro | 27 |
| | NBB2-8GM40-E0-V1 | ⚡ | 2 | Flush | NPN N.O. | 1.5 kHz | Ni-Brass | M12 Micro | 28 |
| | NBB2-8GM40-E2-V1 | ⚡ | 2 | Flush | PNP N.O. | 1.5 kHz | Ni-Brass | M12 Micro | 28 |
| | NBN3-8GM30-E0-V1 | ⚡ | 3 | Nonflush | NPN N.O. | 2 kHz | Ni-Brass | M12 Micro | 29 |
| | NBN3-8GM30-E2-V1 | ⚡ | 3 | Nonflush | PNP N.O. | 2 kHz | Ni-Brass | M12 Micro | 29 |
| | NEN6-8GM45-E2-V1 | ⚡ | 6 | Semi-flush | PNP N.O. | 500 Hz | Ni-Brass | M12 Micro | 30 |



CONTINUED

*Also available in A0/A2 outputs.

†SS = stainless steel, Ni-Brass = nickel-plated brass

⚡ Stocked item

• Typical delivery 4 weeks or less

Consult factory for all other models

Subject to modifications without notice

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8 mm Diameter

Look for these logos in the drawings to identify our X-Series extended range and Half Pint short-barrel sensors



X-Series™
Sensing range 25-240% beyond "traditional" inductive sensors



Half Pint
Short-barrel cylindrical sensors for space-critical applications

Inductive Cylindrical

3-Wire and 4-Wire DC

Drawing No. 1
NJ1.5-8GM40-E2 [PNP N.O.]

1.5 mm Sensing Range

Drawing No. 2
NJ1.5-8GM50-E [NPN N.O.]

1.5 mm Sensing Range

Drawing No. 3
NBB1.5-8GM25-E0 [NPN N.O.]

1.5 mm Sensing Range

Drawing No. 4
NBB1.5-8GM50-E0 [NPN N.O.]
NBB1.5-8GM50-E2 [PNP N.O.]

1.5 mm Sensing Range

Drawing No. 5
NBB1.5-8GM60-A0 [NPN N.O. & N.C.]
NBB1.5-8GM60-A2 [PNP N.O. & N.C.]

1.5 mm Sensing Range

Drawing No. 6
NJ2-8GM40-E2 [PNP N.O.]

2 mm Sensing Range

Drawing No. 7
NJ2-8GM50-E [NPN N.O.]

2 mm Sensing Range

Drawing No. 8
NBB2-8GM30-E0 [NPN N.O.]
NBB2-8GM30-E2 [PNP N.O.]

2 mm Sensing Range

Drawing No. 9
NBN2-8GM50-E0 [NPN N.O.]
NBN2-8GM50-E2 [PNP N.O.]

2 mm Sensing Range

Drawing No. 10
NBB2-8GM50-E0 [NPN N.O.]
NBB2-8GM50-E2 [PNP N.O.]

2 mm Sensing Range

Drawing No. 11
NBN3-8GM30-E0 [NPN N.O.]
NBN3-8GM30-E2 [PNP N.O.]

3 mm Sensing Range

Drawing No. 12
NBN3-8GM50-E0 [NPN N.O.]

3 mm Sensing Range

Drawing No. 13
NEB3-8GM45-E2 [PNP N.O.]

3 mm Sensing Range

Drawing No. 14
NJ1.5-8GM40-E2-V3 [PNP N.O.]

1.5 mm Sensing Range

Drawing No. 15
NBB1.5-8GM20-E2-V3 [PNP N.O.]

1.5 mm Sensing Range

Drawing No. 16
NBB1.5-8GM50-E0-V3 [NPN N.O.]
NBB1.5-8GM50-E2-V3 [PNP N.O.]

1.5 mm Sensing Range

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8 mm Diameter



See pages
803-854 for
cordsets



See pages
865-872 for
accessories

Inductive Cylindrical

3-Wire
and
4-Wire
DC

Drawing No. 17

NBB2-8GM25-E0-V3 [NPN N.O.]
NBB2-8GM25-E2-V3 [PNP N.O.]

LED Yellow: Output Status

M8 x 1

35

25

6

13 across the flats

4 thickness

M8 x 1

2 mm Sensing Range

Drawing No. 18

NBB2-8GM40-E2-V3 [PNP N.O.]

Snap-On Threaded M8 x 1

50

40

6

4-way LED (90° apertures) Yellow: Output Status

M8 x 1

13 across the flats

4 thickness

M8 x 1

2 mm Sensing Range

Drawing No. 19

NBN3-8GM25-E0-V3 [NPN N.O.]
NBN3-8GM25-E2-V3 [PNP N.O.]

LED Yellow: Output Status

M8 x 1

35

25

6

13 across the flats

4 thickness

Ø6.4 Metal-free zone

M8 x 1

3 mm Sensing Range

Drawing No. 20

NBN3-8GM45-E2-V3 [PNP N.O.]

Snap-On Threaded M8 x 1

55

45

6

4-way LED (90° apertures) Yellow: Output Status

M8 x 1

13 across the flats

4 thickness

Ø6.4 Metal-free zone

M8 x 1

3 mm Sensing Range

Drawing No. 21

NEB3-8GM50-E-V3 [NPN N.O.]
NEB3-8GM50-E2-V3 [PNP N.O.]

LED Yellow: Output Status

M8 x 1

60

50

6

13 across the flats

4 thickness

M8 x 1

3 mm Sensing Range

Drawing No. 22

NJ1.5-8GM40-E-V1 [NPN N.O.]

LED Yellow: Output Status

M12 x 1

60

40

6

13 across the flats

4 thickness

M8 x 1

1.5 mm Sensing Range

Drawing No. 23

NJ1.5-8GM40-E2-V1 [PNP N.O.]

LED Yellow: Output Status

M12 x 1

60

40

6

13 across the flats

4 thickness

M8 x 1

1.5 mm Sensing Range

Drawing No. 24

NBB1.5-8GM40-E0-V1 [NPN N.O.]
NBB1.5-8GM40-E2-V1 [PNP N.O.]

M12 x 1

65

40

6

4-way LED (90° apertures) Yellow: Output Status

M8 x 1

13 across the flats

4 thickness

1.5 mm Sensing Range

Drawing No. 25

NBB1.5-8GM50-A0-V1 [NPN N.O. & N.C.]
NBB1.5-8GM50-A2-V1 [PNP N.O. & N.C.]

LED Yellow: Output Status

M12 x 1

70

50

6

13 across the flats

4 thickness

M8 x 1

1.5 mm Sensing Range

Drawing No. 26

NBB2-8GM30-E0-V1 [NPN N.O.]
NBB2-8GM30-E2-V1 [PNP N.O.]

M12 x 1

55

30

6

4-way LED Yellow: Output Status

M8 x 1

13 across the flats

4 thickness

2 mm Sensing Range

Drawing No. 27

NBB2-8GM30-A0-V1 [NPN N.O. & N.C.]
NBB2-8GM30-A2-V1 [PNP N.O. & N.C.]

M12 x 1

55

30

6

4-way LED Yellow: Output Status

M8 x 1

13 across the flats

4 thickness

2 mm Sensing Range

Drawing No. 28

NBB2-8GM40-E0-V1 [NPN N.O.]
NBB2-8GM40-E2-V1 [PNP N.O.]

M12 x 1

65

40

6

4-way LED Yellow: Output Status

M8 x 1

13 across the flats

4 thickness

2 mm Sensing Range

Drawing No. 29

NBN3-8GM30-E0-V1 [NPN N.O.]
NBN3-8GM30-E2-V1 [PNP N.O.]

LED Yellow: Output Status

M12 x 1

55

30

6

13 across the flats

4 thickness

Ø6.4 Metal-free zone

M8 x 1

3 mm Sensing Range

Drawing No. 30

NEN6-8GM45-E2-V1 [PNP N.O.]

LED Yellow: Output Status

M12 x 1

66

45

8

13 across the flats

4 thickness

Ø6.4 Metal-free zone

M8 x 1

6 mm Sensing Range

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