

# 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 <sub>L</sub> )	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 <sub>L</sub> (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

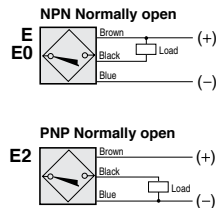
3-Wire and 4-Wire DC

## Wiring Diagrams

### 3-Wire DC



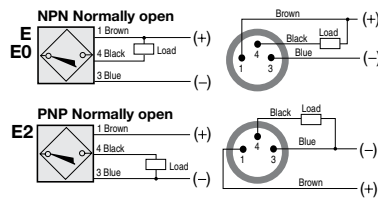
#### Cable Connection



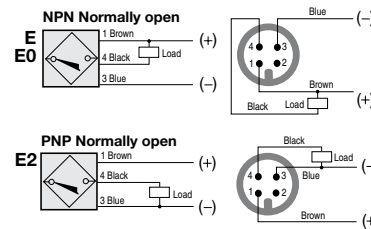
#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

#### V3 Type



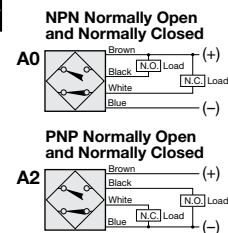
#### V1 Type



### 4-Wire DC



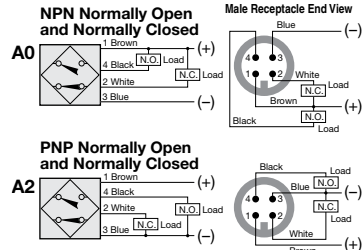
#### Cable Connection



#### 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

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

**1/2**  
PINT  
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

## 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

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  
25  
6  
13 across the flats  
4 thickness  
M8 x 1

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

**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

35  
25  
6  
13 across the flats  
4 thickness  
M8 x 1

Ø6.4 Metal-free zone

**3 mm Sensing Range**

**Drawing No. 20**

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

Snap-On Threaded M8 x 1

55  
46  
6  
13 across the flats  
4 thickness  
M8 x 1

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

Ø6.4 Metal-free zone

**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

60  
32.5  
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

60  
40  
32.5  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

**1.5 mm Sensing Range**

**Drawing No. 23**

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

LED Yellow: Output Status

60  
38.5  
26  
13 across the flats  
4 thickness  
M8 x 1

M12 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.]

LED Yellow: Output Status

65  
40  
6  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

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

**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

70  
50  
40  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

**1.5 mm Sensing Range**

**Drawing No. 26**

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

LED Yellow: Output Status

55  
45  
30  
6  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

4-way LED Yellow: Output Status

**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.]

LED Yellow: Output Status

55  
45  
30  
6  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

4-way LED Yellow: Output Status

**2 mm Sensing Range**

**Drawing No. 28**

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

LED Yellow: Output Status

65  
40  
6  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

4-way LED Yellow: Output Status

**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

55  
45  
30  
6  
13 across the flats  
4 thickness  
M8 x 1

Ø6.4 Metal-free zone

M12 x 1

**3 mm Sensing Range**

**Drawing No. 30**

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

LED Yellow: Output Status

66  
44  
33  
8  
13 across the flats  
4 thickness  
M8 x 1

M12 x 1

Metal-free zone

**6 mm Sensing Range**