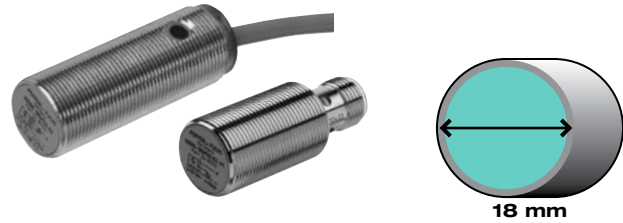


# 3- and 4-Wire DC 18 mm Diameter Inductive Sensors

- 5 to 20 mm sensing ranges
- 18 mm threaded barrels
- LED target indication
- Cable and Micro (M12) quick disconnect models



## Technical Specifications

SUPPLY VOLTAGE	NBB/NBN/NEB Models	10-30 VDC
	NJ Models	10-60 VDC
LOAD CURRENT (I <sub>L</sub> )	GM20/GM30 Models	150 mA max.
	All Other 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 E3	PNP normally closed
	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



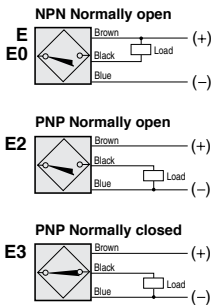
See pages 865-872 for accessories

## Wiring Diagrams

### 3-Wire DC



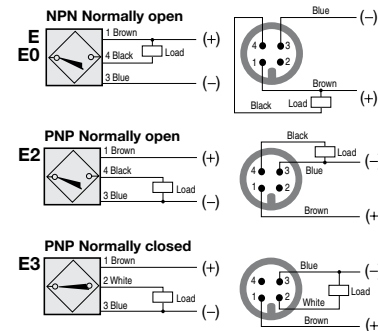
#### Cable Connection



#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

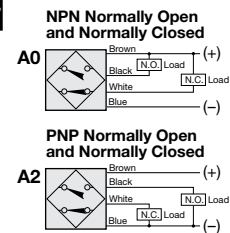
#### V1 Type



### 4-Wire DC



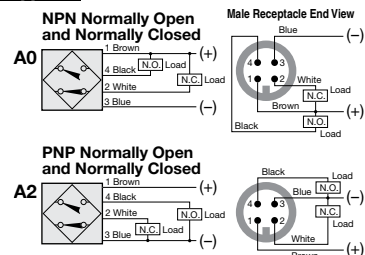
#### Cable Connection



#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

#### V1 Type



### 18 mm Diameter

#### 2-Meter Cable Models

Dia. (mm)	Model Number	Range (mm)	Mounting	Electrical Output	Switching Frequency	Barrel Material*	Cable Jacket/Size	Dwg. No.
18	NJ5-18GM50-E	5	Flush	NPN N.O.	1.5 kHz	SS	PVC/20 AWG	1
	NJ5-18GM50-E2	5	Flush	PNP N.O.	1.5 kHz	SS	PVC/20 AWG	1
	NBB5-18GM50-E0	5	Flush	NPN N.O.	800 Hz	Ni-Brass	PVC/22 AWG	2
	NBB5-18GM50-E2	5	Flush	PNP N.O.	800 Hz	Ni-Brass	PVC/22 AWG	2
	NBB5-18GM60-A0	5	Flush	NPN N.O. & N.C.	800 Hz	Ni-Brass	PVC/22 AWG	3
	NBB5-18GM60-A2	5	Flush	PNP N.O. & N.C.	800 Hz	Ni-Brass	PVC/22 AWG	3
	NJ8-18GM50-E	8	Nonflush	NPN N.O.	1 kHz	SS	PVC/20 AWG	4
	NJ8-18GM50-E2	8	Nonflush	PNP N.O.	1 kHz	SS	PVC/20 AWG	4
	NBB8-18GM30-E2	8	Flush	PNP N.O.	500 Hz	Ni-Brass	PVC/22 AWG	5
	NBB8-18GM30-E3	8	Flush	PNP N.C.	500 Hz	Ni-Brass	PVC/22 AWG	5
	NBB8-18GM50-E0	8	Flush	NPN N.O.	500 Hz	Ni-Brass	PVC/22 AWG	6
	NBB8-18GM50-E2	8	Flush	PNP N.O.	500 Hz	Ni-Brass	PVC/22 AWG	6
	NBN8-18GM50-E0	8	Nonflush	NPN N.O.	500 Hz	Ni-Brass	PVC/22 AWG	7
	NBN8-18GM50-E2	8	Nonflush	PNP N.O.	500 Hz	Ni-Brass	PVC/22 AWG	7
	NBB8-18GM60-A0	8	Flush	NPN N.O. & N.C.	500 Hz	Ni-Brass	PVC/22 AWG	8
	NBB8-18GM60-A2	8	Flush	PNP N.O. & N.C.	500 Hz	Ni-Brass	PVC/22 AWG	8
	NBN8-18GM60-A0	8	Nonflush	NPN N.O. & N.C.	700 Hz	Ni-Brass	PVC/22 AWG	9
	NBN8-18GM60-A2	8	Nonflush	PNP N.O. & N.C.	700 Hz	Ni-Brass	PVC/22 AWG	9
	NBN12-18GM35-E2	12	Nonflush	PNP N.O.	200 Hz	Ni-Brass	PVC/22 AWG	10
	NBN12-18GM50-E0	12	Nonflush	NPN N.O.	200 Hz	Ni-Brass	PVC/22 AWG	11
NBN12-18GM50-E2	12	Nonflush	PNP N.O.	200 Hz	Ni-Brass	PVC/22 AWG	11	
NBN12-18GM50-A0	12	Nonflush	NPN N.O. & N.C.	1 kHz	Ni-Brass	PVC/22 AWG	11	
NBN12-18GM50-A2	12	Nonflush	PNP N.O. & N.C.	1 kHz	Ni-Brass	PVC/22 AWG	11	



Inductive Cylindrical

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.
18	NJ5-18GM50-E2-V1	5	Flush	PNP N.O.	1.5 kHz	SS	M12 Micro	12
	NBB5-18GM20-E2-V1	5	Flush	PNP N.O.	1 kHz	Ni-Brass	M12 Micro	13
	NBB5-18GM50-E0-V1	5	Flush	NPN N.O.	800 Hz	Ni-Brass	M12 Micro	14
	NBB5-18GM50-E2-V1	5	Flush	PNP N.O.	800 Hz	Ni-Brass	M12 Micro	14
	NBB5-18GM60-A0-V1	5	Flush	NPN N.O. & N.C.	800 Hz	Ni-Brass	M12 Micro	15
	NBB5-18GM60-A2-V1	5	Flush	PNP N.O. & N.C.	800 Hz	Ni-Brass	M12 Micro	15
	NJ8-18GM50-E2-V1	8	Nonflush	NPN N.O.	1 kHz	SS	M12 Micro	16
	NBB8-18GM30-E2-V1	8	Flush	PNP N.O.	500 Hz	Ni-Brass	M12 Micro	17
	NBB8-18GM30-E3-V1	8	Flush	PNP N.C.	500 Hz	Ni-Brass	M12 Micro	17
	NBB8-18GM50-E0-V1	8	Flush	NPN N.O.	500 Hz	Ni-Brass	M12 Micro	18
	NBB8-18GM50-E2-V1	8	Flush	PNP N.O.	500 Hz	Ni-Brass	M12 Micro	18
	NBN8-18GM50-E0-V1	8	Nonflush	NPN N.O.	500 Hz	Ni-Brass	M12 Micro	19
	NBN8-18GM50-E2-V1	8	Nonflush	PNP N.O.	500 Hz	Ni-Brass	M12 Micro	19
	NBB8-18GM60-A0-V1	8	Flush	NPN N.O. & N.C.	500 Hz	Ni-Brass	M12 Micro	20
	NBB8-18GM60-A2-V1	8	Flush	PNP N.O. & N.C.	500 Hz	Ni-Brass	M12 Micro	20
	NBN8-18GM60-A0-V1	8	Nonflush	NPN N.O. & N.C.	700 Hz	Ni-Brass	M12 Micro	21
	NBN8-18GM60-A2-V1	8	Nonflush	PNP N.O. & N.C.	700 Hz	Ni-Brass	M12 Micro	21
	NBN12-18GM50-E2-V1	12	Semi-flush	NPN N.O.	500 Hz	Ni-Brass	M12 Micro	22
	NBN12-18GM35-E2-V1	12	Nonflush	PNP N.O.	200 Hz	Ni-Brass	M12 Micro	23
	NBN12-18GM50-E0-V1	12	Nonflush	NPN N.O.	200 Hz	Ni-Brass	M12 Micro	24
	NBN12-18GM50-E2-V1	12	Nonflush	PNP N.O.	200 Hz	Ni-Brass	M12 Micro	24
	NBN12-18GM50-A0-V1	12	Nonflush	NPN N.O. & N.C.	1 kHz	Ni-Brass	M12 Micro	24
	NBN12-18GM50-A2-V1	12	Nonflush	PNP N.O. & N.C.	1 kHz	Ni-Brass	M12 Micro	24
	NEN20-18GM50-E2-V1	20	Nonflush	PNP N.O.	200 Hz	Ni-Brass	M12 Micro	25



CONTINUED

\*SS = stainless steel, Ni-Brass = nickel-plated brass

## 18 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**  
NJ5-18GM50-E [NPN N.O.]  
NJ5-18GM50-E2 [PNP N.O.]

**5 mm Sensing Range**

**Drawing No. 2**  
NBB5-18GM50-E0 [NPN N.O.]  
NBB5-18GM50-E2 [PNP N.O.]

**5 mm Sensing Range**

**Drawing No. 3**  
NBB5-18GM60-A0 [NPN N.O. & N.C.]  
NBB5-18GM60-A2 [PNP N.O. & N.C.]

**5 mm Sensing Range**

**Drawing No. 4**  
NJ8-18GM50-E [NPN N.O.]  
NJ8-18GM50-E2 [PNP N.O.]

**8 mm Sensing Range**

**Drawing No. 5**  
NBB8-18GM30-E2 [PNP N.O.]  
NBB8-18GM30-E3 [PNP N.C.]

**8 mm Sensing Range**

**Drawing No. 6**  
NBB8-18GM50-E0 [NPN N.O.]  
NBB8-18GM50-E2 [PNP N.O.]

**8 mm Sensing Range**

**Drawing No. 7**  
NBN8-18GM50-E0 [NPN N.O.]  
NBN8-18GM50-E2 [PNP N.O.]

**8 mm Sensing Range**

**Drawing No. 8**  
NBB8-18GM60-A0 [NPN N.O. & N.C.]  
NBB8-18GM60-A2 [PNP N.O. & N.C.]

**8 mm Sensing Range**

**Drawing No. 9**  
NBN8-18GM60-A0 [NPN N.O. & N.C.]  
NBN8-18GM60-A2 [PNP N.O. & N.C.]

**8 mm Sensing Range**

**Drawing No. 10**  
NBN12-18GM35-E2 [PNP N.O.]

**12 mm Sensing Range**

**Drawing No. 11**  
NBN12-18GM50-E0 [NPN N.O.]  
NBN12-18GM50-E2 [PNP N.O.]  
NBN12-18GM50-A0 [NPN N.O. & N.C.]  
NBN12-18GM50-A2 [PNP N.O. & N.C.]

**12 mm Sensing Range**

**Drawing No. 12**  
NJ5-18GM50-E2-V1 [PNP N.O.]

**5 mm Sensing Range**

## 18 mm Diameter



See pages  
803-854 for  
cordsets



See pages  
865-872 for  
accessories

Inductive Cylindrical

3-Wire  
and  
4-Wire  
DC

CONTINUED

**Drawing No. 13**  
NBB5-18GM20-E2-V1 [PNP N.O.]

**5 mm Sensing Range**

**Drawing No. 14**  
NBB5-18GM50-E0-V1 [NPN N.O.]  
NBB5-18GM50-E2-V1 [PNP N.O.]

**5 mm Sensing Range**

**Drawing No. 15**  
NBB5-18GM60-A0-V1 [NPN N.O. & N.C.]  
NBB5-18GM60-A2-V1 [PNP N.O. & N.C.]

**5 mm Sensing Range**

**Drawing No. 16**  
NJ8-18GM50-E2-V1 [PNP N.O.]

**8 mm Sensing Range**

**Drawing No. 17**  
NBB8-18GM30-E2-V1 [PNP N.O.]  
NBB8-18GM30-E3-V1 [PNP N.C.]

**8 mm Sensing Range**

**Drawing No. 18**  
NBB8-18GM50-E0-V1 [NPN N.O.]  
NBB8-18GM50-E2-V1 [PNP N.O.]

**8 mm Sensing Range**

**Drawing No. 19**  
NBN8-18GM50-E0-V1 [NPN N.O.]  
NBN8-18GM50-E2-V1 [PNP N.O.]

**8 mm Sensing Range**

**Drawing No. 20**  
NBB8-18GM60-A0-V1 [NPN N.O. & N.C.]  
NBB8-18GM60-A2-V1 [PNP N.O. & N.C.]

**8 mm Sensing Range**

**Drawing No. 21**  
NBN8-18GM60-A0-V1 [NPN N.O. & N.C.]  
NBN8-18GM60-A2-V1 [PNP N.O. & N.C.]

**8 mm Sensing Range**

**Drawing No. 22**  
NEB12-18GM50-E2-V1 [PNP N.O.]

**12 mm Sensing Range**

**Drawing No. 23**  
NBN12-18GM35-E2-V1 [PNP N.O.]

**12 mm Sensing Range**

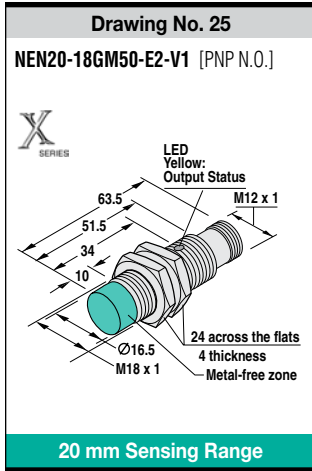
**Drawing No. 24**  
NBN12-18GM50-E0-V1 [NPN N.O.]  
NBN12-18GM50-E2-V1 [PNP N.O.]  
NBN12-18GM50-A0-V1 [NPN N.O. & N.C.]  
NBN12-18GM50-A2-V1 [PNP N.O. & N.C.]

**12 mm Sensing Range**

18 mm Diameter

Inductive Cylindrical

3-Wire and 4-Wire DC



Recommended Accessories



Mounting Brackets

Model	Description
BF18	18 mm clamp bracket
BF 18-F	18 mm snap lever bracket
BF5-30	5-30 mm universal bracket
AB18	18 mm right angle bracket

See pages 865-872 for complete accessory listing.



Micro Cordsets

Straight "Micro" (M12)	
Model	Description
V1-G-YE2M-PVC	2 m length, PVC jacket
V1-G-YE5M-PVC	5 m length, PVC jacket
V1-G-YE2M-PUR	2 m length, PUR jacket
V1-G-YE5M-PUR	5 m length, PUR jacket

Right Angle "Micro" (M12)	
Model	Description
V1-W-YE2M-PVC	2 m length, PVC jacket
V1-W-YE5M-PVC	5 m length, PVC jacket
V1-W-YE2M-PUR	2 m length, PUR jacket
V1-W-YE5M-PUR	5 m length, PUR jacket

See pages 803-854 for complete cordset listing.



See pages 803-854 for cordsets



See pages 865-872 for accessories