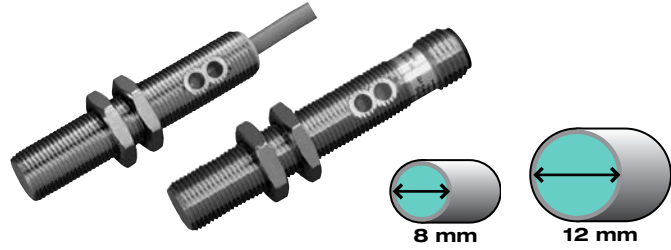


# 2-Wire AC & AC/DC 8 mm and 12 mm Diameter Inductive Sensors

- 1.5 to 8 mm sensing ranges
- 8 mm and 12 mm threaded barrels
- LED power and output indication
- Cable and quick disconnect models



### Technical Specifications

SUPPLY VOLTAGE	Suffix WS, WO	20-150 VAC
	Suffix US	20-250 VAC/300 VDC
SUPPLY FREQUENCY		45-65 Hz
LOAD CURRENT (I <sub>L</sub> )	Suffix WS, WO	5-200 mA max.
	Suffix US	8-200 mA max.
LEAKAGE CURRENT (OFF-STATE)	Suffix WS, WO	≤ 1.7 mA
	Suffix US	≤ 0.8 mA
OUTPUT	Suffix WS, US	Normally open
	Suffix WO	Normally closed
VOLTAGE DROP AT I <sub>L</sub> (MAX.)	Suffix WS, WO	≤ 5 V
	Suffix US	≤ 8 V
INRUSH CURRENT		< 1.7 A/20 ms
HYSTERESIS		3-15% (5% typical)
SHORT CIRCUIT AND OVERLOAD PROTECTION	Suffix WS, WO	No
	Suffix US	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



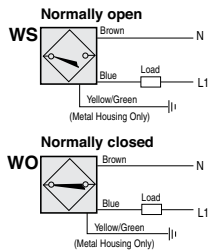
See pages 865-872 for accessories

## Wiring Diagrams

### 2-Wire AC



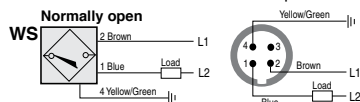
#### Cable Connection



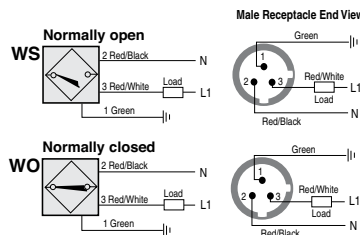
#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

#### V11 Type



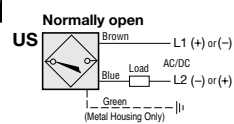
#### V12 Type



### 2-Wire AC/DC



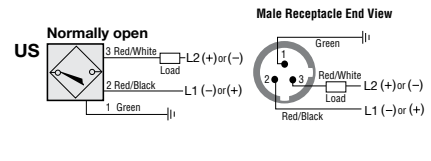
#### Cable Connection



#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

#### V12 Type



### 8 mm and 12 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-WS ⚡	1.5	Flush	Normally open	25 Hz	SS	PVC/#22 AWG	1
	NJ1.5-8GM40-WO ⚡	1.5	Flush	Normally closed	25 Hz	SS	PVC/#22 AWG	1
12	NBB2-12GM60-WS ⚡	2	Flush	Normally open	25 Hz	Ni-Brass	PVC/#22 AWG	2
	NBB2-12GM60-WO ⚡	2	Flush	Normally closed	25 Hz	Ni-Brass	PVC/#22 AWG	2
	NBN4-12GM60-WS ⚡	4	Nonflush	Normally open	25 Hz	Ni-Brass	PVC/#22 AWG	3
	NBN4-12GM60-WO ⚡	4	Nonflush	Normally closed	25 Hz	Ni-Brass	PVC/#22 AWG	3
	NBB4-12GM75-US ⚡	4	Flush	Normally open	30 Hz	Ni-Brass	PUR/#22 AWG	4
	NBN8-12GM75-US ⚡	8	Nonflush	Normally open	30 Hz	Ni-Brass	PUR/#22 AWG	5



#### Micro AC (M12) Quick Disconnect Models

Dia. (mm)	Model Number	Range (mm)	Mounting	Electrical Output	Switching Frequency	Barrel Material*	Quick Disconnect	Dwg. No.
12	NBB2-12GM60-WS-V11 ⚡	2	Flush	Normally open	25 Hz	Ni-Brass	M12 Micro AC	6
	NBN4-12GM60-WS-V11 ⚡	4	Nonflush	Normally open	25 Hz	Ni-Brass	M12 Micro AC	7



#### Micro AC (1/2"-20) Quick Disconnect Models

Dia. (mm)	Model Number	Range (mm)	Mounting	Electrical Output	Switching Frequency	Barrel Material*	Quick Disconnect	Dwg. No.
12	NBB2-12GM60-WS-V12 ⚡	2	Flush	Normally open	25 Hz	Ni-Brass	1/2"-20 Micro AC	8
	NBB2-12GM60-WO-V12 ⚡	2	Flush	Normally closed	25 Hz	Ni-Brass	1/2"-20 Micro AC	8
	NBN4-12GM60-WS-V12 ⚡	4	Nonflush	Normally open	25 Hz	Ni-Brass	1/2"-20 Micro AC	9
	NBN4-12GM60-WO-V12 ⚡	4	Nonflush	Normally closed	25 Hz	Ni-Brass	1/2"-20 Micro AC	9
	NBB4-12GM65-US-V12 ⚡	4	Flush	Normally open	30 Hz	Ni-Brass	1/2"-20 Micro AC	10
	NBN8-12GM65-US-V12 ⚡	8	Nonflush	Normally open	30 Hz	Ni-Brass	1/2"-20 Micro AC	11

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

- ⚡ Stocked item
- Typical delivery 4 weeks or less
- Consult factory for all other models

Look for this logo in the drawings to identify our X-Series extended range sensors



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

**Drawing No. 1**

NJ1.5-8GM40-WS [N.O.]  
NJ1.5-8GM40-WO [N.C.]

LED  
Yellow: Output Status

13 across the flats  
4 thickness  
M8 x 1

**1.5 mm Sensing Range**

**Drawing No. 2**

NBB2-12GM60-WS [N.O.]  
NBB2-12GM60-WO [N.C.]

LEDs  
Yellow: Output Status  
Green: Power

17 across the flats  
4 thickness  
M12 x 1

**2 mm Sensing Range**

**Drawing No. 3**

NBN4-12GM60-WS [N.O.]  
NBN4-12GM60-WO [N.C.]

LEDs  
Yellow: Output Status  
Green: Power

17 across the flats  
4 thickness  
M12 x 1  
Metal-free zone  
∅10.5

**4 mm Sensing Range**

**Drawing No. 4**

NBB4-12GM75-US [N.O.]

LEDs  
Green: Power  
Yellow: Output Status

17 across the flats  
4 thickness  
M12 x 1

**4 mm Sensing Range**

Inductive Cylindrical

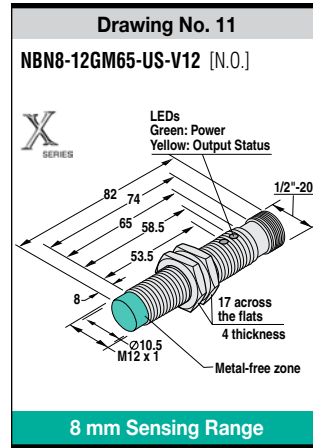
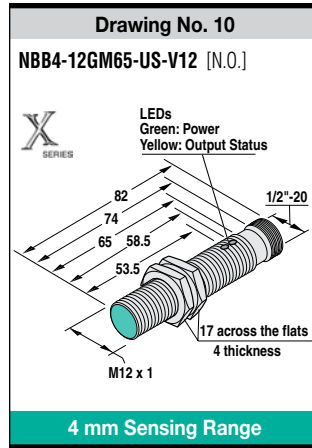
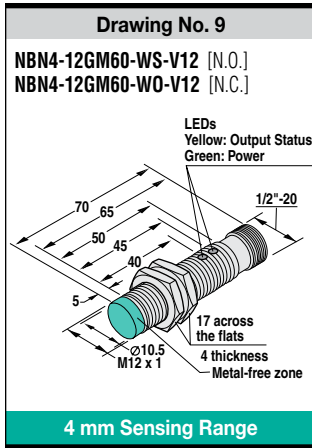
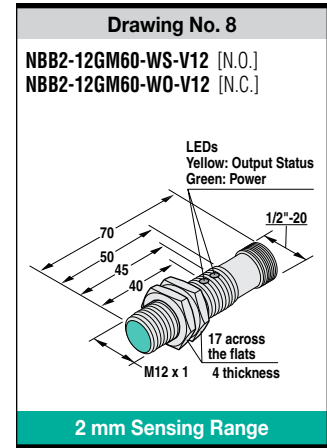
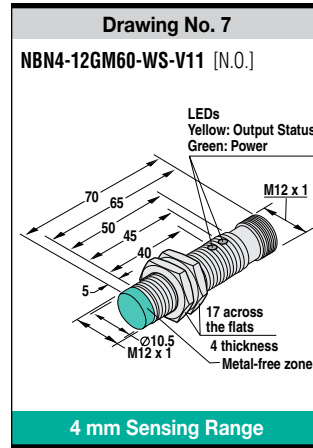
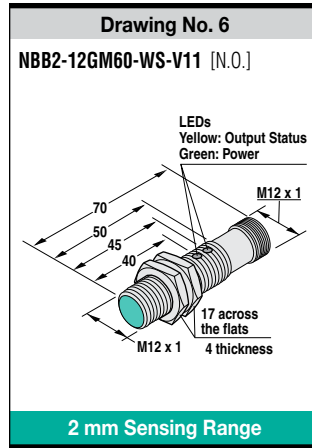
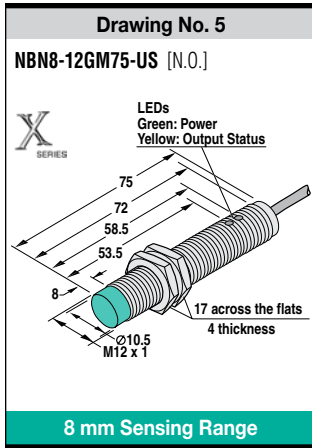
2-Wire AC & AC/DC

CONTINUED

8 mm and 12 mm Diameter

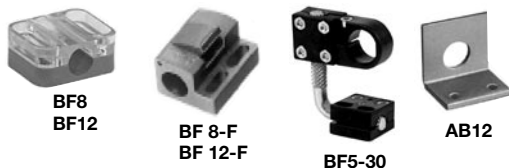
Inductive Cylindrical

2-Wire  
AC &  
AC/DC



8 mm and 12 mm Diameter

Recommended Accessories



Mounting Brackets

Dia.	Model	Description
8	BF8	8 mm clamp bracket
	BF 8-F	8 mm snap lever bracket
	BF5-30	5-30 mm universal bracket

Dia.	Model	Description
12	BF12	12 mm clamp bracket
	BF 12-F	12 mm snap lever bracket
	BF5-30	5-30 mm universal bracket
	AB12	12 mm right angle bracket

See pages 865-872 for complete accessory listing.



Micro AC Cordsets

Straight "Micro" (M12)	
Model	Description
V11B-G-YE2M-PVC	2 m length, PVC jacket
V11B-G-YE4M-PVC	4 m length, PVC jacket

Right Angle "Micro" (M12)	
Model	Description
V11B-W-YE2M-PVC	2 m length, PVC jacket
V11B-W-YE4M-PVC	4 m length, PVC jacket

Straight "Micro" (1/2"-20)	
Model	Description
V12-G-YE2M-PVC	2 m length, PVC jacket
V12-G-YE5M-PVC	5 m length, PVC jacket

Right Angle "Micro" (1/2"-20)	
Model	Description
V12-W-YE2M-PVC	2 m length, PVC jacket
V12-W-YE5M-PVC	5 m length, PVC jacket

See pages 803-854 for complete cordset listing.