

# 3-Wire DC 12, 18, and 30 mm Diameter Pile Driver™ Inductive Sensors

- 2 to 8 mm sensing ranges
- Stainless steel housing and sensing face
- LED power and target indication
- -40°F operational temperature



### Technical Specifications

|                                       |   |
|---------------------------------------|---|
| SUPPLY VOLTAGE                        | 10-30 VDC   |
| CURRENT CONSUMPTION                   | ≤ 10 mA   |
| LOAD CURRENT (I <sub>L</sub> )        | 100 mA max.   |
| LEAKAGE CURRENT (OFF-STATE)           | ≤ 0.01 mA   |
| OUTPUT                                | Suffix E0 NPN normally open<br>Suffix E2 PNP normally open<br>Suffix E3 PNP normally closed |
| VOLTAGE DROP AT I <sub>L</sub> (MAX.) | ≤ 2 VDC   |
| HYSTERESIS                            | 3-15% (5% typical)  |
| SHORT CIRCUIT AND OVERLOAD PROTECTION | Yes   |
| REVERSE POLARITY PROTECTED            | Yes   |
| LED INDICATION                        | See dimension drawings  |
| HOUSING MATERIAL                      | 303 stainless steel (face and barrel)   |
| STANDARDS                             | EN 60947-5-2  |
| ENVIRONMENTAL PROTECTION              | IP68  |
| AMBIENT TEMPERATURE                   | -40 °F to +158 °F (-40 °C to +70 °C)  |
| APPROVALS                             | CE, UL, FM, SP  |



See pages 803-854 for cordsets



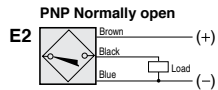
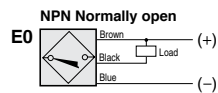
See pages 865-872 for accessories

## Wiring Diagrams

### 3-Wire DC



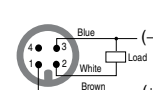
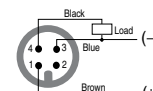
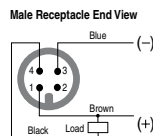
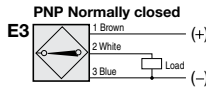
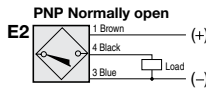
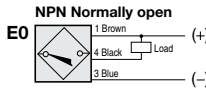
#### Cable Connection



#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

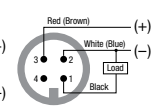
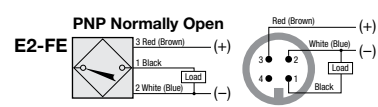
##### V1 Type



#### Quick Disconnect

Note: Wiring diagrams show quick disconnect pin numbers.

##### V94 Type



| 12mm dia. Model         | Reduction Factors |                              |     |    |     |       |     |      |
|-------------------------|-------------------|------------------------------|-----|----|-----|-------|-----|------|
|                         | Mild Steel        | Stainless Steel 303/304, 316 |     | Al | Cu  | Brass | Ti  | Ni   |
| Series FE (Ferrous)     | 1                 | 0.25                         | 0.1 | 0  | 0   | 0     | 0.5 | 0.35 |
| Series NFE (Nonferrous) | 0                 | 0                            | 0   | 1  | 1.1 | 0.9   | 0   | 0    |

| 18mm dia. Model         | Reduction Factors |                              |     |    |     |       |     |      |
|-------------------------|-------------------|------------------------------|-----|----|-----|-------|-----|------|
|                         | Mild Steel        | Stainless Steel 303/304, 316 |     | Al | Cu  | Brass | Ti  | Ni   |
| Series FE (Ferrous)     | 1                 | 0.5                          | 0.2 | 0  | 0   | 0     | 0.5 | 0.35 |
| Series NFE (Nonferrous) | 0                 | 0                            | 0   | 1  | 1.1 | 0.9   | 0   | 0    |

| 30mm dia. Model         | Reduction Factors |                              |     |    |     |       |     |      |
|-------------------------|-------------------|------------------------------|-----|----|-----|-------|-----|------|
|                         | Mild Steel        | Stainless Steel 303/304, 316 |     | Al | Cu  | Brass | Ti  | Ni   |
| Series FE (Ferrous)     | 1                 | 0.7                          | 0.2 | 0  | 0   | 0     | 0.5 | 0.35 |
| Series NFE (Nonferrous) | 0                 | 0                            | 0   | 1  | 1.1 | 0.9   | 0   | 0    |

Specified Sensing Range x Reduction Factor = Actual Sensing Range. For 400 series stainless, consult factory.

When detecting aluminum foil, Series FE Pile Driver must be used.

### 12, 18, and 30 mm Diameter

| 2-Meter Cable Models |                      |            |          |                      |                   |                     |                   |          |
|----------------------|----------------------|------------|----------|----------------------|-------------------|---------------------|-------------------|----------|
| Dia. (mm)            | Model Number         | Range (mm) | Mounting | Std. Target Material | Electrical Output | Switching Frequency | Cable Jacket/Size | Dwg. No. |
| 12                   | NMB2-12GM55-E0-FE ⚡  | 2          | Flush    | Steel                | NPN N.O.          | 50 Hz               | PUR/#22 AWG       | 1        |
|                      | NMB2-12GM55-E2-FE ⚡  | 2          | Flush    | Steel                | PNP N.O.          | 50 Hz               | PUR/#22 AWG       | 1        |
| 18                   | NMB5-18GM55-E0-FE ⚡  | 5          | Flush    | Steel                | NPN N.O.          | 15 Hz               | PUR/#22 AWG       | 2        |
|                      | NMB5-18GM55-E2-NFE ⚡ | 5          | Flush    | Aluminum             | PNP N.O.          | 30 Hz               | PUR/#22 AWG       | 2        |
| 30                   | NMB8-30GM55-E0-FE ⚡  | 8          | Flush    | Steel                | NPN N.O.          | 10 Hz               | PUR/#20 AWG       | 3        |
|                      | NMB8-30GM55-E2-FE ⚡  | 8          | Flush    | Steel                | PNP N.O.          | 10 Hz               | PUR/#20 AWG       | 3        |

| Micro (M12) Quick Disconnect Models |                         |            |          |                      |                   |                     |                  |          |
|-------------------------------------|-------------------------|------------|----------|----------------------|-------------------|---------------------|------------------|----------|
| Dia. (mm)                           | Model Number            | Range (mm) | Mounting | Std. Target Material | Electrical Output | Switching Frequency | Quick Disconnect | Dwg. No. |
| 12                                  | NMB2-12GM65-E0-FE-V1 ⚡  | 2          | Flush    | Steel                | NPN N.O.          | 100 Hz              | M12 Micro        | 4        |
|                                     | NMB2-12GM65-E0-NFE-V1 ⚡ | 2          | Flush    | Aluminum             | NPN N.O.          | 15 Hz               | M12 Micro        | 4        |
|                                     | NMB2-12GM65-E2-FE-V1 ⚡  | 2          | Flush    | Steel                | PNP N.O.          | 100 Hz              | M12 Micro        | 4        |
|                                     | NMB2-12GM65-E2-NFE-V1 ⚡ | 2          | Flush    | Aluminum             | PNP N.O.          | 15 Hz               | M12 Micro        | 4        |
|                                     | NMB2-12GM65-E3-FE-V1 ⚡  | 2          | Flush    | Steel                | PNP N.C.          | 100 Hz              | M12 Micro        | 4        |
| 18                                  | NMB5-18GM65-E0-FE-V1 ⚡  | 5          | Flush    | Steel                | NPN N.O.          | 15 Hz               | M12 Micro        | 5        |
|                                     | NMB5-18GM65-E2-FE-V1 ⚡  | 5          | Flush    | Steel                | PNP N.O.          | 15 Hz               | M12 Micro        | 5        |
|                                     | NMB5-18GM65-E2-NFE-V1 ⚡ | 5          | Flush    | Aluminum             | PNP N.O.          | 30 Hz               | M12 Micro        | 5        |
|                                     | NMB5-18GM65-E3-FE-V1 ⚡  | 5          | Flush    | Steel                | PNP N.C.          | 15 Hz               | M12 Micro        | 5        |
| 30                                  | NMB8-30GM65-E0-FE-V1 ⚡  | 8          | Flush    | Steel                | NPN N.O.          | 10 Hz               | M12 Micro        | 6        |
|                                     | NMB8-30GM65-E2-FE-V1 ⚡  | 8          | Flush    | Steel                | PNP N.O.          | 10 Hz               | M12 Micro        | 6        |
|                                     | NMB8-30GM65-E2-NFE-V1 ⚡ | 8          | Flush    | Aluminum             | PNP N.O.          | 10 Hz               | M12 Micro        | 6        |

| Mini (7/8"-16) Quick Disconnect Model |                         |            |          |                      |                   |                     |                  |          |
|---------------------------------------|-------------------------|------------|----------|----------------------|-------------------|---------------------|------------------|----------|
| Dia. (mm)                             | Model Number            | Range (mm) | Mounting | Std. Target Material | Electrical Output | Switching Frequency | Quick Disconnect | Dwg. No. |
| 18                                    | NMB5-18GM70-E2-FE-V94 ⚡ | 5          | Flush    | Steel                | PNP N.O.          | 15 Hz               | Mini DC          | 7        |

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

Inductive Pile Driver™

**Drawing No. 1**

NMB2-12GM55-E0-FE [NPN N.O.]  
NMB2-12GM55-E2-FE [PNP N.O.]

2 mm Sensing Range

**Drawing No. 2**

NMB5-18GM55-E0-FE [NPN N.O.]  
NMB5-18GM55-E2-FE [PNP N.O.]  
NMB5-18GM55-E2-NFE [PNP N.O.]

5 mm Sensing Range

**Drawing No. 3**

NMB8-30GM55-E0-FE [NPN N.O.]  
NMB8-30GM55-E2-FE [PNP N.O.]

8 mm Sensing Range

**Drawing No. 4**

NMB2-12GM65-E0-FE-V1 [NPN N.O.]  
NMB2-12GM65-E0-NFE-V1 [NPN N.O.]  
NMB2-12GM65-E2-FE-V1 [PNP N.O.]  
NMB2-12GM65-E2-NFE-V1 [PNP N.O.]  
NMB2-12GM65-E3-FE-V1 [PNP N.C.]

2 mm Sensing Range

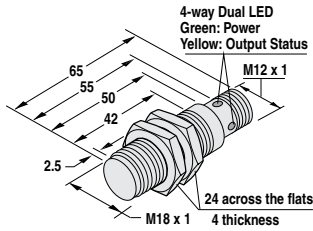
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12, 18, and 30 mm Diameter

Inductive Pile Driver™

Drawing No. 5

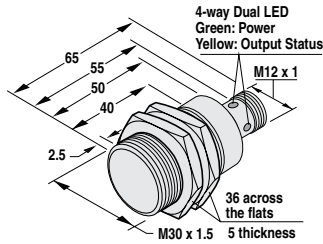
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 NMB5-18GM65-E2-FE-V1 [PNP N.O.]  
 NMB5-18GM65-E2-NFE-V1 [PNP N.O.]  
 NMB5-18GM65-E3-FE-V1 [PNP N.C.]



5 mm Sensing Range

Drawing No. 6

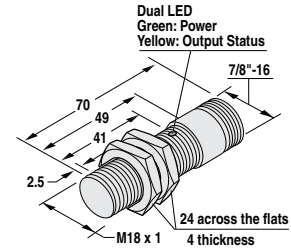
NMB8-30GM65-E0-FE-V1 [NPN N.O.]  
 NMB8-30GM65-E2-FE-V1 [PNP N.O.]  
 NMB8-30GM65-E2-NFE-V1 [PNP N.O.]



8 mm Sensing Range

Drawing No. 7

NMB5-18GM70-E2-FE-V94 [PNP N.O.]



5 mm Sensing Range

Recommended Accessories



BF12  
BF18  
BF30



BF 12-F  
BF 18-F  
BF 30-F



BF5-30



AB12  
AB18  
AB30

Mounting Brackets

| 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 |

| Dia. | Model   | Description               |
|------|---------|---------------------------|
| 18   | 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 |

| Dia. | Model   | Description               |
|------|---------|---------------------------|
| 30   | BF30    | 30 mm clamp bracket       |
|      | BF 30-F | 30 mm snap lever bracket  |
|      | BF5-30  | 5-30 mm universal bracket |
|      | AB30    | 30 mm right angle bracket |

See pages 803-854 for complete cordset listing.

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 |



Mini Cordsets

| Straight "Mini" (7/8"-16) |                          |
|---------------------------|--------------------------|
| Model                     | Description              |
| V94-G-YE2M-ST00W          | 2 m length, ST00W jacket |
| V94-G-YE4M-ST00W          | 4 m length, ST00W jacket |

| Right Angle "Mini" (7/8"-16) |                          |
|------------------------------|--------------------------|
| Model                        | Description              |
| V94-W-YE2M-ST00W             | 2 m length, ST00W jacket |
| V94-W-YE4M-ST00W             | 4 m length, ST00W jacket |

3-Wire DC