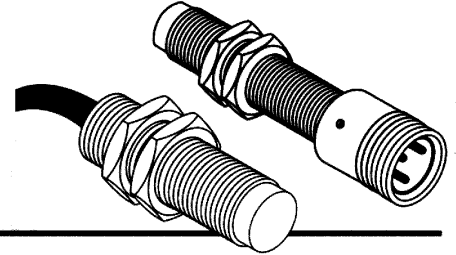


# 8mm | Inductive Tubular Threaded Barrel | DC



### 1mm (Shielded) and 2mm (Unshielded) Sensing Ranges

| Connector Type  | Circuit Description | Housing Material | Housing Length | Shielded Model No. | Unshielded Model No. | Maximum Load Current | Leakage Current | Voltage Drop | Maximum Switching Frequency |            | Short Circuit Protected |
|-----------------|---------------------|------------------|----------------|--------------------|----------------------|----------------------|-----------------|--------------|-----------------------------|------------|-------------------------|
|                 |                     |                  |                |                    |                      |                      |                 |              | Shielded                    | Unshielded |                         |
| DC 10-30V Metal |                     |                  |                |                    |                      |                      |                 |              |                             |            |                         |
| 4-pin Euro      | 3W, NPN, NO         | Metal            | 50mm           | ET310-10151        | ET310-11151          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | no                      |
| 4-pin Euro      | 3W, NPN, NO         | Metal            | 66mm           | ET110-10151        | ET110-11151          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | yes                     |
| 4-pin Euro      | 3W, PNP, NO         | Metal            | 50mm           | ET311-10151        | ET311-11151          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | no                      |
| 4-pin Euro      | 3W, PNP, NO         | Metal            | 66mm           | ET111-10151        | ET111-11151          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | yes                     |
| 6.6' Cable      | 3W, NPN, NO         | Metal            | 35mm           | ET310-10110        | ET310-11110          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | no                      |
| 6.6' Cable      | 3W, NPN, NO         | Metal            | 50mm           | ET110-10110        | ET110-11110          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | yes                     |
| 6.6' Cable      | 3W, PNP, NO         | Metal            | 35mm           | ET311-10110        | ET311-11110          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | no                      |
| 6.6' Cable      | 3W, PNP, NO         | Metal            | 50mm           | ET111-10110        | ET111-11110          | 200mA                | <10µA           | <2.5 VDC     | 1KHz                        | 800Hz      | yes                     |
| NAMUR 5-25 VDC  |                     |                  |                |                    |                      |                      |                 |              |                             |            |                         |
| 6.6' Cable      | Analog              | Metal            | 30mm           | ET112-10310        | —                    | N/A                  | —               | —            | 1KHz                        | —          | N/A                     |

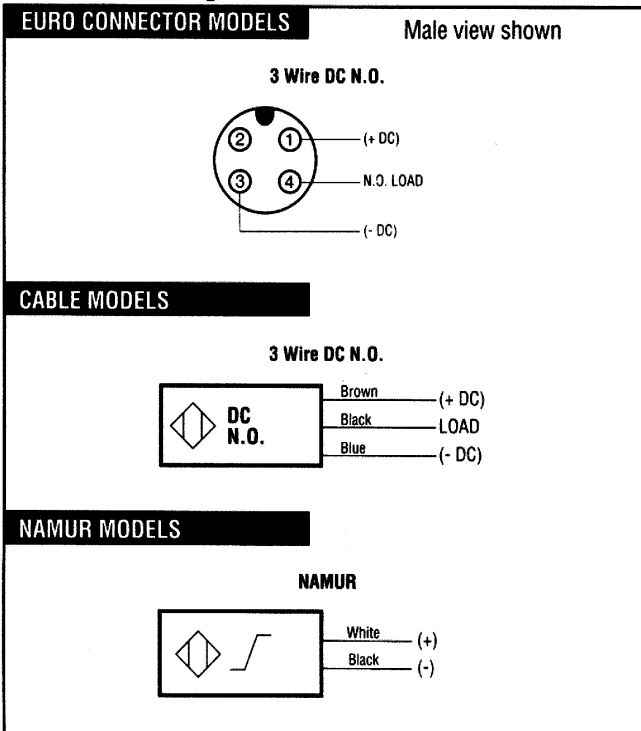
\* Across conducting sensor

☞ A Namco "Best Bet", appropriate for most standard applications; offers best value and availability.

### Common Sensor Characteristics

| 8mm DIAMETER DC SENSORS                 |                                              |
|-----------------------------------------|----------------------------------------------|
| Shielded Sensing Range ( $\pm 10\%$ )   | 1mm                                          |
| Unshielded Sensing Range ( $\pm 10\%$ ) | 2mm                                          |
| Standard Target                         | 8x8x1mm (mild steel)                         |
| Repeatability                           | $\pm 2\%$                                    |
| Hysteresis                              | 3-8% (typ.); 15% (max.)                      |
| Temperature Drift (max.)                | $\pm 15\%$                                   |
| Ambient Temperature Range               | -13°F to +158°F                              |
| Reverse Polarity Protected              | yes                                          |
| Current Consumption                     | <10mA                                        |
| NEMA Enclosure Type                     | 1, 3, 4, 6, 13                               |
| LED Indicator                           | red = target                                 |
| Metal Housings                          | Chrome Plated Brass                          |
| Plastic Housings                        | N/A                                          |
| Cable Type                              | PVC                                          |
| Shipping Weight                         | Connector model: 3 oz.<br>Cable model: 8 oz. |

### Circuit Drawings

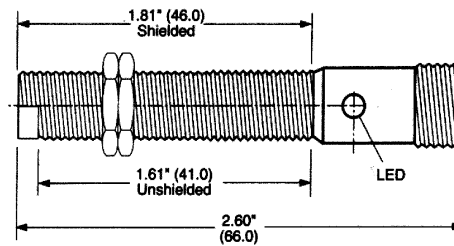
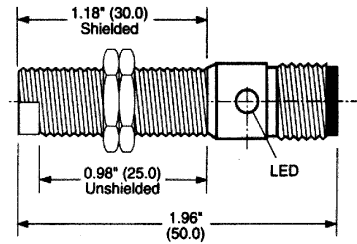


### Dimensional Drawings

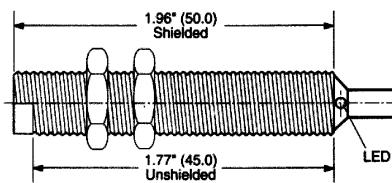
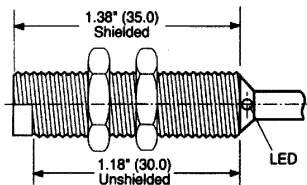
### 8mm-DC

#### EURO CONNECTOR MODELS

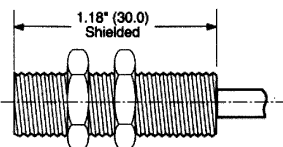
Body threads = M8x1



#### CABLE MODELS



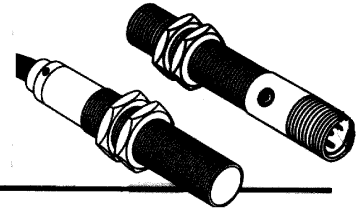
#### CABLE MODELS-NAMUR



# 11

## CONTROLS & SENSORS

## 12mm | Inductive Tubular Threaded Barrel | DC



### 2mm (Shielded) and 4mm (Unshielded) Sensing Ranges

| Connector Type    | Circuit Description | Housing Material | Housing Length | Shielded Model No. | Unshielded Model No. | Maximum Load Current | Leakage Current | Voltage Drop* | Maximum Switching Frequency |            | Short Circuit Protected |
|-------------------|---------------------|------------------|----------------|--------------------|----------------------|----------------------|-----------------|---------------|-----------------------------|------------|-------------------------|
|                   |                     |                  |                |                    |                      |                      |                 |               | Shielded                    | Unshielded |                         |
| DC 10-30V Metal   |                     |                  |                |                    |                      |                      |                 |               |                             |            |                         |
| 4-pin Euro        | 3W, NPN, NO         | Metal            | 54mm           | ET310-22151        | ET310-23151          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 4-pin Euro        | 4W, NPN, NO/NC      | Metal            | 54mm           | ET310-22051        | ET310-23051          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 4-pin Euro        | 3W, PNP, NO         | Metal            | 54mm           | ET311-22151        | ET311-23151          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 4-pin Euro        | 4W, PNP, NO/NC      | Metal            | 54mm           | ET311-22051        | ET311-23051          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 3W, NPN, NO         | Metal            | 35mm           | ET310-22110        | ET310-23110          | 200mA                | <10µA           | <2.5 VDC      | 1200Hz                      | 800Hz      | yes                     |
| 6.6' Cable        | 3W, NPN, NO         | Metal            | 78mm           | ET110-22110        | ET110-23110          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 4W, NPN, NO/NC      | Metal            | 50mm           | ET310-22010        | ET310-23010          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Metal            | 35mm           | ET311-22110        | ET311-23110          | 200mA                | <10µA           | <2.5 VDC      | 1200Hz                      | 800Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Metal            | 78mm           | ET111-22110        | ET111-23110          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 4W, PNP, NO/NC      | Metal            | 50mm           | ET311-22010        | ET311-23010          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| DC 10-30V Plastic |                     |                  |                |                    |                      |                      |                 |               |                             |            |                         |
| 6.6' Cable        | 3W, NPN, NO         | Plastic          | 35mm           | ET310-42110        | ET310-43110          | 200mA                | <10µA           | <2.5 VDC      | 1200Hz                      | 800Hz      | yes                     |
| 6.6' Cable        | 3W, NPN, NO         | Plastic          | 75mm           | ET210-22110        | ET210-23110          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 4W, NPN, NO/NC      | Plastic          | 50mm           | ET310-42010        | ET310-43010          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Plastic          | 35mm           | ET311-42110        | ET311-43110          | 200mA                | <10µA           | <2.5 VDC      | 1200Hz                      | 800Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Plastic          | 75mm           | ET211-22110        | ET211-23110          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| 6.6' Cable        | 4W, PNP, NO/NC      | Plastic          | 50mm           | ET311-42010        | ET311-43010          | 400mA                | <10µA           | <2.5 VDC      | 700Hz                       | 400Hz      | yes                     |
| NAMUR 5-25 VDC    |                     |                  |                |                    |                      |                      |                 |               |                             |            |                         |
| 6.6' Cable        | Analog              | Metal            | 30mm           | ET112-20310        | ET112-21310          | N/A                  | —               | —             | 800Hz                       | 400Hz      | N/A                     |
| 6.6' Cable        | Analog              | Plastic          | 30mm           | ET212-20310        | ET212-21310          | N/A                  | —               | —             | 800Hz                       | 400Hz      | N/A                     |

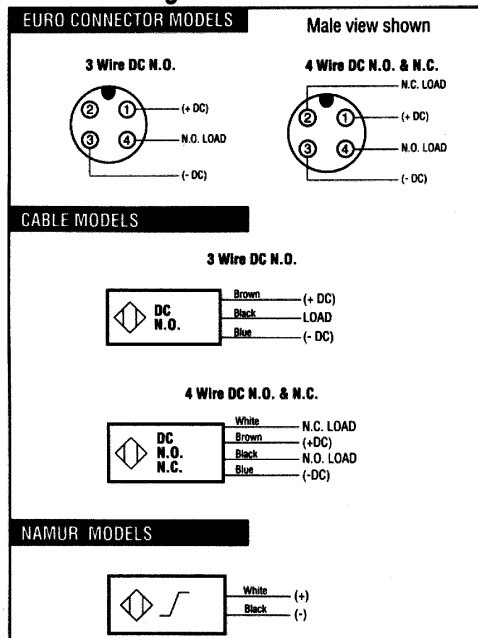
\* Across conducting sensor

A Namco "Best Bet", appropriate for most standard applications; offers best value and availability.

### Common Sensor Characteristics

| 12mm DIAMETER DC SENSORS        |                                              |
|---------------------------------|----------------------------------------------|
| Shielded Sensing Range (±10%)   | 2mm                                          |
| Unshielded Sensing Range (±10%) | 4mm                                          |
| Standard Target                 | 12x12x1mm (mild steel)                       |
| Repeatability                   | ±2%                                          |
| Hysteresis                      | 3-8% (typ.); 15% (max.)                      |
| Temperature Drift (max.)        | ±15%                                         |
| Ambient Temperature Range       | -13°F to +158°F                              |
| Reverse Polarity Protected      | yes                                          |
| Current Consumption             | 3W DC = <6mA<br>4W DC = <10mA                |
| NEMA Enclosure Type             | Metal<br>Plastic                             |
|                                 | 1, 3, 4, 6, 13<br>1, 3, 4, 4x, 6, 13         |
| LED Indicator                   | red = target                                 |
| Metal Housings                  | Chrome Plated Brass                          |
| Plastic Housings                | Ultradur®                                    |
| Cable Type                      | PVC                                          |
| Shipping Weight                 | Connector model: 4 oz.<br>Cable model: 9 oz. |

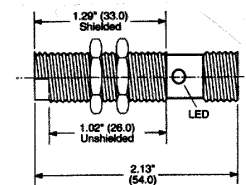
### Circuit Drawings



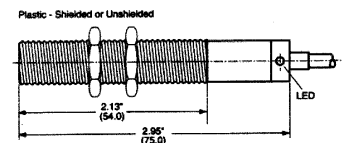
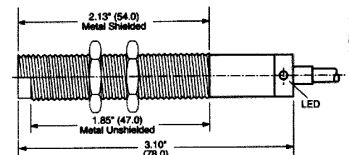
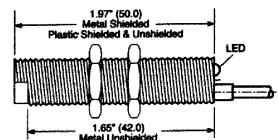
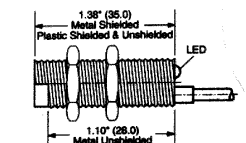
### Dimensional Drawings

#### EURO CONNECTOR MODELS

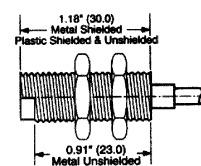
Body threads = M12x1



#### CABLE MODELS

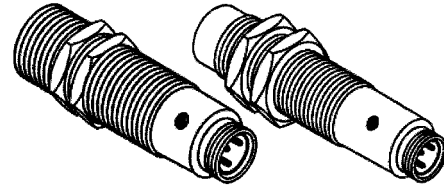


#### CABLE MODELS-NAMUR



# 18mm Inductive Tubular Threaded Barrel

# DC



# 11

# CONTROLS & SENSORS

### 5mm (Shielded) and 8mm (Unshielded) Sensing Ranges

| Connector Type                                                                                 | Circuit Description | Housing Material | Housing Length | Shielded Model No. | Unshielded Model No. | Maximum Load Current | Leakage Current | Voltage Drop | Maximum Switching Frequency |            | Short Circuit Protected |
|------------------------------------------------------------------------------------------------|---------------------|------------------|----------------|--------------------|----------------------|----------------------|-----------------|--------------|-----------------------------|------------|-------------------------|
|                                                                                                |                     |                  |                |                    |                      |                      |                 |              | Shielded                    | Unshielded |                         |
| DC 10-30V Metal                                                                                |                     |                  |                |                    |                      |                      |                 |              |                             |            |                         |
|  4-pin Euro   | 3W, NPN, NO         | Metal            | 76mm           | ET310-32151        | ET310-33151          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Euro   | 4W, NPN, NO/NC      | Metal            | 76mm           | ET310-32651        | ET310-33651          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Euro   | 3W, PNP, NO         | Metal            | 76mm           | ET311-32151        | ET311-33151          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Euro   | 4W, PNP, NO/NC      | Metal            | 76mm           | ET311-32651        | ET311-33651          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Mini   | 3W, NPN, NO         | Metal            | 70mm           | ET310-32100        | ET310-33100          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Mini   | 4W, NPN, NO/NC      | Metal            | 70mm           | ET310-32600        | ET310-33600          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Mini   | 3W, PNP, NO         | Metal            | 70mm           | ET311-32100        | ET311-33100          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  4-pin Mini   | 4W, PNP, NO/NC      | Metal            | 70mm           | ET311-32600        | ET311-33600          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable  | 3W, NPN, NO         | Metal            | 50mm           | ET310-32110        | ET310-33110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 3W, NPN, NO         | Metal            | 80mm           | ET110-32110        | ET110-33110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 4W, NPN, NO/NC      | Metal            | 50mm           | ET310-32610        | ET310-33610          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 3W, PNP, NO         | Metal            | 50mm           | ET311-32110        | ET311-33110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 3W, PNP, NO         | Metal            | 80mm           | ET111-32110        | ET111-33110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 4W, PNP, NO/NC      | Metal            | 50mm           | ET311-32610        | ET311-33610          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
| DC 10-30V Plastic                                                                              |                     |                  |                |                    |                      |                      |                 |              |                             |            |                         |
|  6.6' Cable | 3W, NPN, NO         | Plastic          | 50mm           | ET310-52110        | ET310-53110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 3W, NPN, NO         | Plastic          | 80mm           | ET210-32110        | ET210-33110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 4W, NPN, NO/NC      | Plastic          | 50mm           | ET310-52610        | ET310-53610          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 3W, PNP, NO         | Plastic          | 50mm           | ET311-52110        | ET311-53110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 3W, PNP, NO         | Plastic          | 80mm           | ET211-32110        | ET211-33110          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
|  6.6' Cable | 4W, PNP, NO/NC      | Plastic          | 50mm           | ET311-52610        | ET311-53610          | 400mA                | <10µA           | <2.5 VDC     | 300Hz                       | 250Hz      | yes                     |
| NAMUR 5-25 VDC                                                                                 |                     |                  |                |                    |                      |                      |                 |              |                             |            |                         |
|  6.6' Cable | Analog              | Metal            | 30mm           | ET112-30310        | ET112-31310          | N/A                  | —               | —            | 500Hz                       | 200Hz      | N/A                     |
|  6.6' Cable | Analog              | Plastic          | 30mm           | ET212-30310        | ET212-31310          | N/A                  | —               | —            | 500Hz                       | 200Hz      | N/A                     |

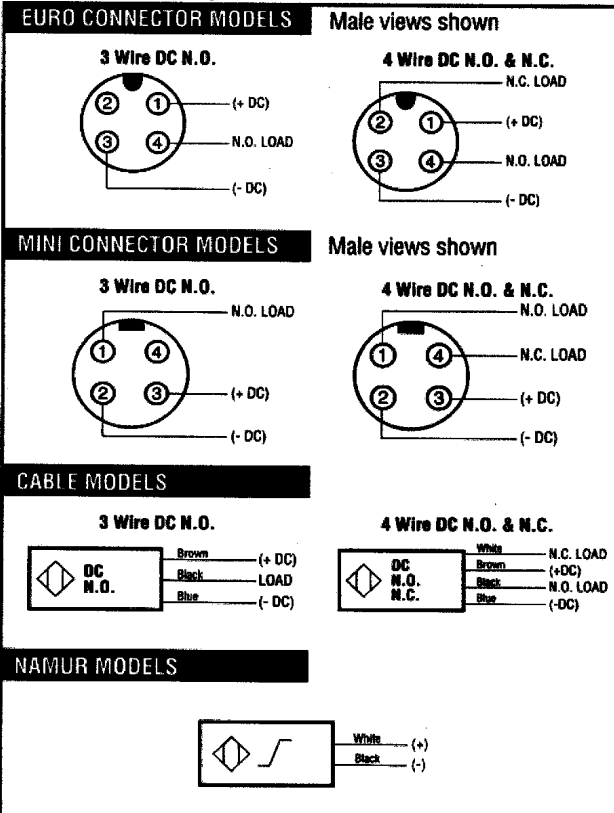
\* Across conducting sensor

A Namco "Best Bet", appropriate for most standard applications; offers best value and availability.

## Common Sensor Characteristics

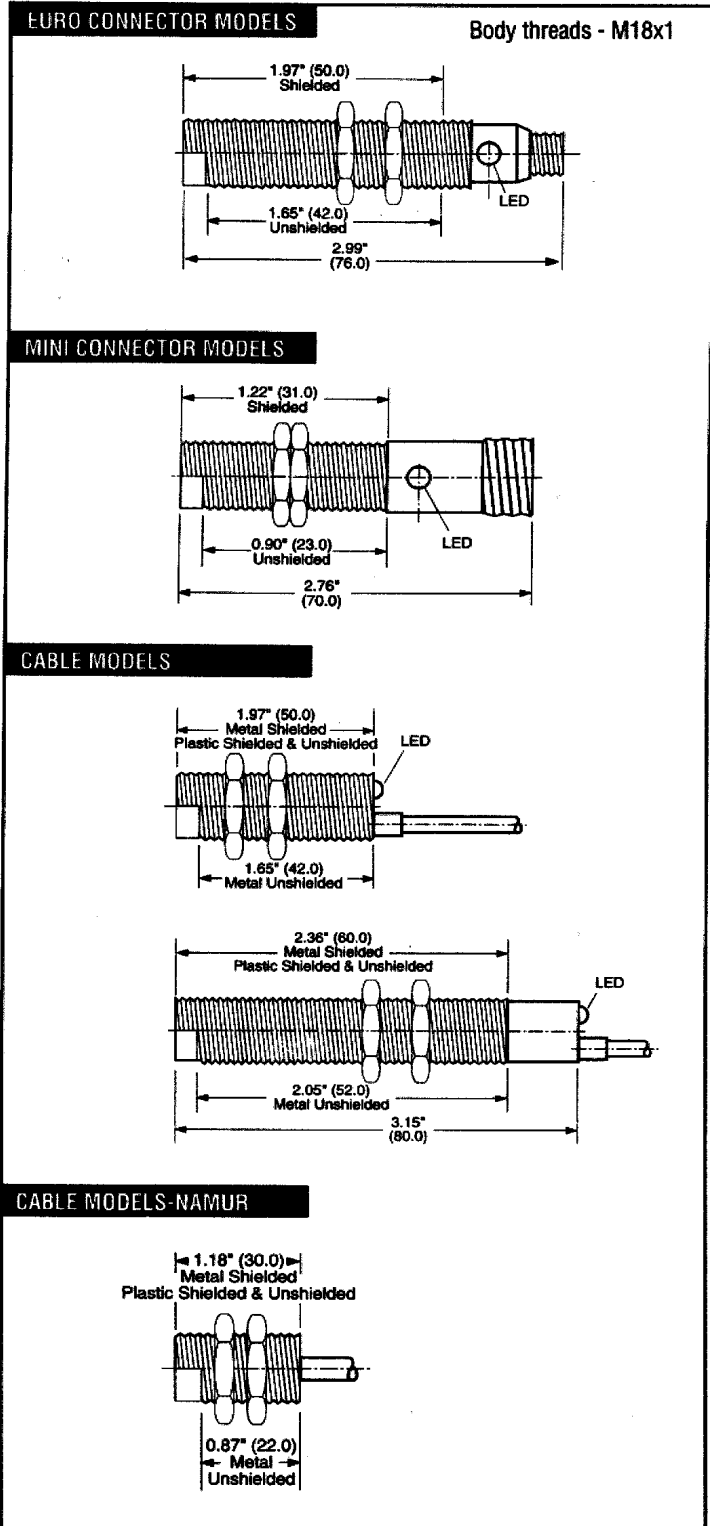
| 18mm DIAMETER DC SENSORS                |                                              |
|-----------------------------------------|----------------------------------------------|
| Shielded Sensing Range ( $\pm 10\%$ )   | 5mm                                          |
| Unshielded Sensing Range ( $\pm 10\%$ ) | 8mm                                          |
| Standard Target (mm) (mild steel)       | 18x18x1 (Shielded)<br>24x24x1 (Unshielded)   |
| Repeatability                           | $\pm 2\%$                                    |
| Hysteresis                              | 3-8% (typ.); 15% (max.)                      |
| Temperature Drift (max.)                | $\pm 15\%$                                   |
| Ambient Temperature Range               | -13°F to +158°F                              |
| Reverse Polarity Protected              | yes                                          |
| Current Consumption                     | <1.5mA                                       |
| NEMA Enclosure Type                     |                                              |
| Metal                                   | 1, 3, 4, 6, 13                               |
| Plastic                                 | 1, 3, 4, 4x, 6, 13                           |
| LED Indicator                           | red = target                                 |
| Metal Housings                          | Chrome Plated Brass                          |
| Plastic Housings                        | Ultradur®                                    |
| Cable Type                              | PVC                                          |
| Shipping Weight                         | Connector model: 4 oz.<br>Cable model: 9 oz. |

## Circuit Drawings



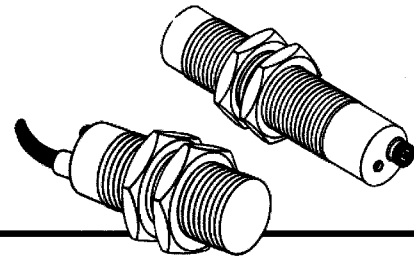
## Dimensional Drawings

## 18mm-DC



# 30mm Inductive Tubular Threaded Barrel

# DC



# 11

# CONTROLS & SENSORS

### 10mm (Shielded) and 15mm (Unshielded) Sensing Ranges

| Connector Type    | Circuit Description | Housing Material | Housing Length           | Shielded Model No. | Unshielded Model No. | Maximum Load Current | Leakage Current | Voltage Drop* | Maximum Switching Frequency |            | Short Circuit Protected |
|-------------------|---------------------|------------------|--------------------------|--------------------|----------------------|----------------------|-----------------|---------------|-----------------------------|------------|-------------------------|
|                   |                     |                  |                          |                    |                      |                      |                 |               | Shielded                    | Unshielded |                         |
| DC 10-30V Metal   |                     |                  |                          |                    |                      |                      |                 |               |                             |            |                         |
| 4-pin Euro        | 3W, NPN, NO         | Metal            | 73mm                     | ET310-62151        | ET310-63151          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 4-pin Euro        | 4W, NPN, NO/NC      | Metal            | 73mm                     | ET310-62651        | ET310-63651          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 4-pin Euro        | 3W, PNP, NO         | Metal            | 73mm                     | ET311-62151        | ET311-63151          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 4-pin Euro        | 4W, PNP, NO/NC      | Metal            | 73mm                     | ET311-62651        | ET311-63651          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 4-pin Mini        | 3W, NPN, NO         | Metal            | 78mm                     | ET110-42100        | ET110-43100          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 4-pin Mini        | 3W, PNP, NO         | Metal            | 78mm                     | ET111-42100        | ET111-43100          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, NPN, NO         | Metal            | 50mm                     | ET310-62110        | ET310-63110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, NPN, NO         | Metal            | 80mm                     | ET110-42110        | ET110-43110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 4W, NPN, NO/NC      | Metal            | 50mm                     | ET310-62610        | ET310-63610          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Metal            | 50mm                     | ET311-62110        | ET311-63110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Metal            | 80mm                     | ET111-42110        | ET111-43110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 4W, PNP, NO/NC      | Metal            | 50mm                     | ET311-62610        | ET311-63610          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| DC 10-30V Plastic |                     |                  |                          |                    |                      |                      |                 |               |                             |            |                         |
| 6.6' Cable        | 3W, NPN, NO         | Plastic          | 50mm                     | ET310-72110        | ET310-73110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, NPN, NO         | Plastic          | 80mm                     | ET210-42110        | ET210-43110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 4W, NPN, NO/NC      | Plastic          | 50mm                     | ET310-72610        | ET310-73610          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Plastic          | 50mm                     | ET311-72110        | ET311-73110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 3W, PNP, NO         | Plastic          | 80mm                     | ET211-42110        | ET211-43110          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| 6.6' Cable        | 4W, PNP, NO/NC      | Plastic          | 50mm                     | ET311-72610        | ET311-73610          | 400mA                | <10µA           | <2.5 VDC      | 200Hz                       | 100Hz      | yes                     |
| NAMUR 5-25 VDC    |                     |                  |                          |                    |                      |                      |                 |               |                             |            |                         |
| 6.6' Cable        | Analog              | Metal            | 40mm (Sh)<br>42mm (UnSh) | ET112-40310        | ET112-41310          | N/A                  | —               | —             | 300Hz                       | 250Hz      | N/A                     |
| 6.6' Cable        | Analog              | Plastic          | 40mm                     | ET212-40310        | ET212-41310          | N/A                  | —               | —             | 300Hz                       | 250Hz      | N/A                     |

\* Across conducting sensor

A Namco "Best Bet", appropriate for most standard applications; offers best value and availability.

## Common Sensor Characteristics

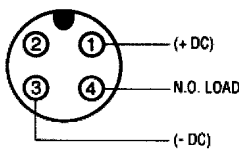
| 30mm DIAMETER DC SENSORS                |                                               |
|-----------------------------------------|-----------------------------------------------|
| Shielded Sensing Range ( $\pm 10\%$ )   | 10mm                                          |
| Unshielded Sensing Range ( $\pm 10\%$ ) | 15mm                                          |
| Standard Target (mm) (mild steel)       | 30x30x1 (Shielded)<br>45x45x1 (Unshielded)    |
| Repeatability                           | $\pm 2\%$                                     |
| Hysteresis                              | 3-8% (typ.); 15% (max.)                       |
| Temperature Drift (max.)                | $\pm 15\%$                                    |
| Ambient Temperature Range               | -13°F to +158°F                               |
| Reverse Polarity Protected              | yes                                           |
| Current Consumption                     | <1.5mA                                        |
| NEMA Enclosure Type                     |                                               |
| Metal                                   | 1, 3, 4, 6, 13                                |
| Plastic                                 | 1, 3, 4, 4x, 6, 13                            |
| LED Indicator                           | red = target                                  |
| Metal Housings                          | Chrome Plated Brass                           |
| Plastic Housings                        | Ultradur®                                     |
| Cable Type                              | PVC                                           |
| Shipping Weight                         | Conductor model: 5 oz.<br>Cable model: 10 oz. |

## Circuit Drawings

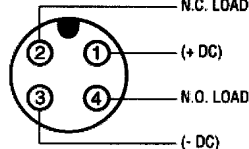
### EURO CONNECTOR MODELS

Male views shown

3 Wire DC N.O.



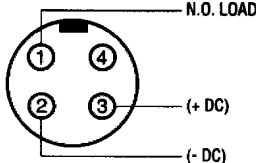
4 Wire DC N.O. & N.C.



### MINI CONNECTOR MODELS

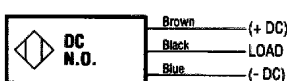
Male view shown

3 Wire DC N.O.

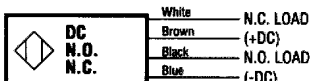


### CABLE MODELS

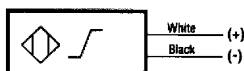
3 Wire DC N.O.



4 Wire DC N.O. & N.C.



### NAMUR MODELS

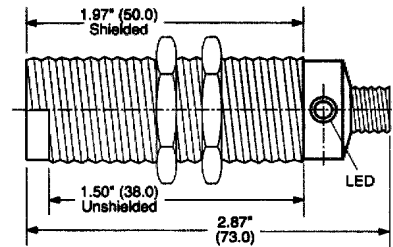


## Dimensional Drawings

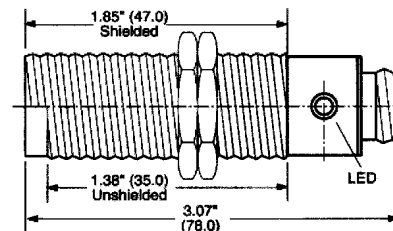
## 30mm-DC

### EURO CONNECTOR MODELS

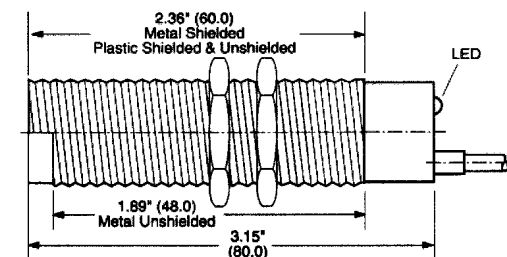
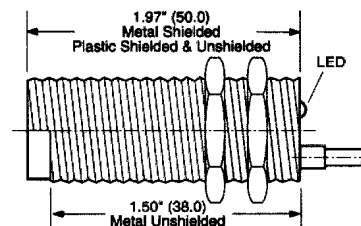
Body threads = M30x1.5



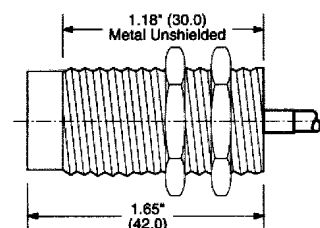
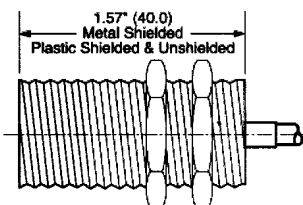
### MINI CONNECTOR MODELS



### CABLE MODELS



### CABLE MODELS-NAMUR



## Inductive Limit Switch Style

## AC/DC



# 11

# CONTROLS & SENSORS

### AC/DC 20-230V 13mm (Unshielded) Sensing Range

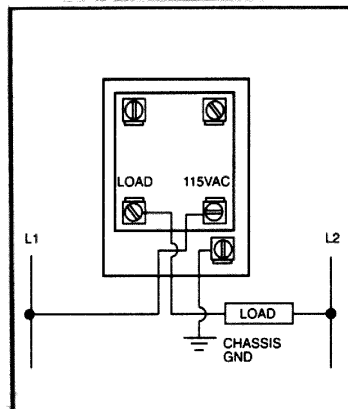
| Connector Type             | Circuit Description | Sensing Face | Housing Dimensions | Shielded Model No. | Unshielded Model No. | Maximum Load Current | Leakage Current | Voltage Drop* | Maximum Operating Frequency | Short Circuit Protected |
|----------------------------|---------------------|--------------|--------------------|--------------------|----------------------|----------------------|-----------------|---------------|-----------------------------|-------------------------|
| <b>COMPLETE ASSEMBLIES</b> |                     |              |                    |                    |                      |                      |                 |               |                             |                         |
| Terminal                   | 2W, AC/DC, NO       | Side         | 43x41x117mm        | —                  | EE630-50510          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| Terminal                   | 2W, AC/DC, NC       | Side         | 43x41x117mm        | —                  | EE630-50610          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| Terminal                   | 2W, AC/DC, NO       | Top          | 43x41x117mm        | —                  | EE630-54510          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| Terminal                   | 2W, AC/DC, NC       | Top          | 43x41x117mm        | —                  | EE630-54610          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| <b>SENSING HEADS</b>       |                     |              |                    |                    |                      |                      |                 |               |                             |                         |
| —                          | 2W, AC/DC, NO       | Side         | N/A                | —                  | EE631-00510          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| —                          | 2W, AC/DC, NC       | Side         | N/A                | —                  | EE631-00610          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| —                          | 2W, AC/DC, NO       | Top          | N/A                | —                  | EE631-04510          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| —                          | 2W, AC/DC, NC       | Top          | N/A                | —                  | EE631-04610          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |
| <b>BASE ASSEMBLY</b>       |                     |              |                    |                    |                      |                      |                 |               |                             |                         |
| Terminal                   | —                   | —            | N/A                | —                  | EE631-51000          | 500mA                | 1.7mA           | <10V          | 15Hz                        | yes                     |

\* Across conducting sensor

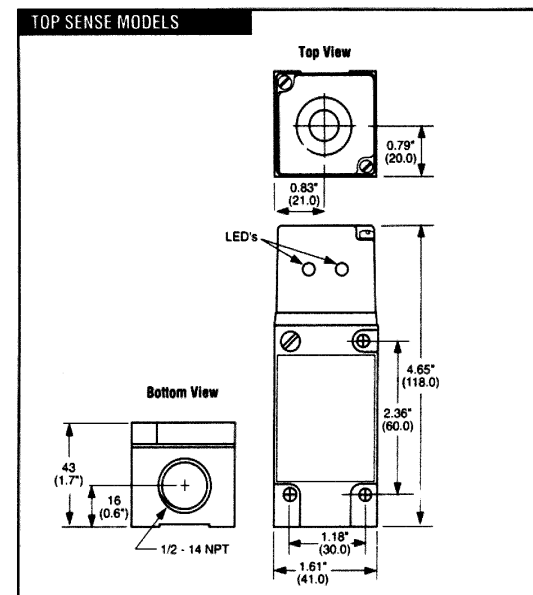
### Common Sensor Characteristics

| LIMIT SWITCH STYLE SENSORS |                               |
|----------------------------|-------------------------------|
| Sensing Distance           | 0.5" ±10%                     |
| Repeatability              | <±1%                          |
| Hysteresis                 | 10%                           |
| Ambient Temperature Range  | -4°F to +158°F                |
| Reverse Polarity Protected | yes                           |
| NEMA Enclosure Type        | 1, 12, 13                     |
| LED Indicators             | red = power<br>green = target |
| Shipping Weight            | 14 oz.                        |

### Wiring Diagram



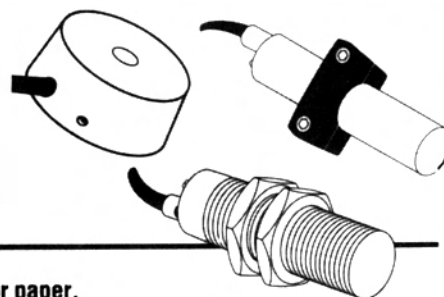
### Dimensional Drawings





## Capacitive Sensors

DC  
AC



For sensing metallic and non-metallic objects such as liquids, glass, plastic, powders or paper.

### 0-70mm (Unshielded) and 3-10mm (Shielded) Adjustable Sensing Ranges

| Connector Type                                            | Circuit Description | Housing Material | Shielded Model No. | Unshielded Model No. | Sensing Range                  | Maximum Load Current @ 140°F | Maximum Load Current @ 176°F | Leakage Current | Voltage Drop | Maximum Switching Frequency | Short Circuit Protected |
|-----------------------------------------------------------|---------------------|------------------|--------------------|----------------------|--------------------------------|------------------------------|------------------------------|-----------------|--------------|-----------------------------|-------------------------|
| <b>18mm Threaded Tubular 2-8mm Adjustable DC 10-30V</b>   |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 3W, NPN, NO         | Plastic          | —                  | ET710-33110          | 2-8mm Adjustable               | 200mA                        | 100mA                        | <10µA           | <3 VDC       | 300Hz                       | yes                     |
| 6.6' Cable                                                | 3W, PNP, NO         | Plastic          | —                  | ET711-33110          | 2-8mm Adjustable               | 200mA                        | 100mA                        | <10µA           | <3 VDC       | 300Hz                       | yes                     |
| <b>18mm Threaded Tubular 2-8mm Adjustable AC 80-250V</b>  |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 2W, AC, NO          | Plastic          | —                  | ET720-33410          | 2-8mm Adjustable               | 200mA                        | 100mA                        | <2mA            | <7 VAC       | 20Hz                        | no                      |
| <b>30mm Threaded Tubular 3-10mm Adjustable DC 10-30V</b>  |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 3W, NPN, NO         | Metal            | ET710-42110        | —                    | 3-10mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <2.5 VDC     | 100Hz                       | yes                     |
| 6.6' Cable                                                | 3W, PNP, NO         | Metal            | ET711-42110        | —                    | 3-10mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <2.5 VDC     | 100Hz                       | yes                     |
| <b>30mm Threaded Tubular 3-10mm Adjustable AC 80-250V</b> |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 2W, AC, NO          | Metal            | ET720-42410        | —                    | 3-10mm Adjustable              | 200mA                        | 100mA                        | <2mA            | <7 VAC       | 20Hz                        | no                      |
| <b>30mm Threaded Tubular 5-15mm Adjustable DC 10-30V</b>  |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 3W, NPN, NO         | Metal            | —                  | ET710-43110          | 5-15mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <2.5 VDC     | 100Hz                       | yes                     |
| 6.6' Cable                                                | 3W, PNP, NO         | Metal            | —                  | ET711-43110          | 5-15mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <2.5 VDC     | 100Hz                       | yes                     |
| 6.6' Cable                                                | 3W, NPN, NO         | Plastic          | —                  | ET710-53110          | 5-15mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <2.5 VDC     | 100Hz                       | yes                     |
| 6.6' Cable                                                | 3W, PNP, NO         | Plastic          | —                  | ET711-53110          | 5-15mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <2.5 VDC     | 100Hz                       | yes                     |
| <b>30mm Threaded Tubular 5-15mm Adjustable AC 80-250V</b> |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 2W, AC, NO          | Metal            | —                  | ET720-43410          | 5-15mm Adjustable              | 200mA                        | 100mA                        | <2mA            | <7 VAC       | 20Hz                        | no                      |
| 6.6' Cable                                                | 2W, AC, NO          | Plastic          | —                  | ET720-53410          | 5-15mm Adjustable              | 200mA                        | 100mA                        | <2mA            | <7 VAC       | 20Hz                        | no                      |
| <b>34mm Smooth Tubular 0-20mm Adjustable DC 10-30V</b>    |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 3W, NPN, NO         | Plastic          | ET710-82110        | ET710-83110          | 0-15mm(Shld) 0-20mm Adjustable | 200mA                        | 100mA                        | <10µA           | <3 VDC       | 100Hz                       | yes                     |
| 6.6' Cable                                                | 3W, PNP, NO         | Plastic          | —                  | ET711-83110          | 0-20mm Adjustable              | 200mA                        | 100mA                        | <10µA           | <3 VDC       | 100Hz                       | yes                     |
| <b>34mm Smooth Tubular 0-20mm Adjustable AC 20-250V</b>   |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 2W, AC, NO          | Plastic          | —                  | ET720-83410          | 0-20mm Adjustable              | 200mA                        | 100mA                        | <2mA            | <7 VAC       | 20Hz                        | no                      |
| <b>Round Flat Pack 20-70mm Adjustable DC 10-30V</b>       |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 3W, NPN, NO         | Plastic          | —                  | ET710-93110          | 20-70mm Adjustable             | 400mA                        | 400mA                        | <10µA           | <1.5 VDC     | 30Hz                        | yes                     |
| 6.6' Cable                                                | 3W, PNP, NO         | Plastic          | —                  | ET711-93110          | 20-70mm Adjustable             | 400mA                        | 400mA                        | <10µA           | <1.5 VDC     | 30Hz                        | yes                     |
| <b>Round Flat Pack 20-70mm Adjustable AC 80-250V</b>      |                     |                  |                    |                      |                                |                              |                              |                 |              |                             |                         |
| 6.6' Cable                                                | 2W, AC, NO          | Plastic          | —                  | ET720-93410          | 20-70mm Adjustable             | 400mA                        | 400mA                        | <1mA            | <12 VAC      | 8Hz                         | no                      |

\* Across conducting sensor

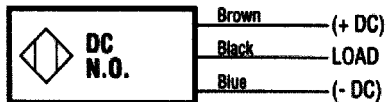
### Common Sensor Characteristics

| CAPACITIVE SENSORS                |                                                                                                                                                |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Shielded Sensing Range            | 3-10mm                                                                                                                                         |
| Unshielded Sensing Range          | 0-70mm                                                                                                                                         |
| Standard Target (mm) (mild steel) | 24x24x1 (2-8 Unshielded Range)<br>45x45x1 (3-10mm Shielded Range)<br>60x60x1 (0-20mm Unshielded Range)<br>210x210x1 (20-70mm Unshielded Range) |
| Repeatability                     | ±5%                                                                                                                                            |
| Hysteresis                        | 3-20%                                                                                                                                          |
| Temperature Drift (max.)          | ± 20%                                                                                                                                          |
| Ambient Temperature Range         | -13°F to +176°F (18mm & 34mm)<br>-13°F to +140°F (30mm & Flat Pack)                                                                            |
| Reverse Polarity Protected        | yes                                                                                                                                            |
| Current Consumption               | 18mm & 34mm DC: <7mA<br>30mm & 34mm AC: <2mA<br>30mm & Flat Pack DC: <10mA<br>Flat Pack AC: <7mA                                               |
| NEMA Enclosure Type               |                                                                                                                                                |
| Metal                             | 1, 12, 13                                                                                                                                      |
| Plastic                           | 1, 3, 4, 4x, 6, 12, 13                                                                                                                         |
| LED Indicator                     | red = target                                                                                                                                   |
| Metal Housings                    | Chrome Plated Brass                                                                                                                            |
| Plastic Housings                  | Ultradur®                                                                                                                                      |
| Shipping Weight                   | 18mm: 8 oz.<br>30mm: 10 oz.<br>34mm: 11 oz.<br>Flat Pack: 5 lb.<br>(Add 5 oz. for 6' Cable)                                                    |

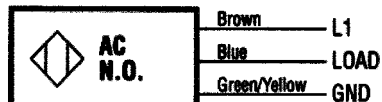
### Circuit Drawings

#### CABLE MODELS

##### 3 Wire DC N.O.



##### 2 Wire AC N.O.



### Dimensional Drawings

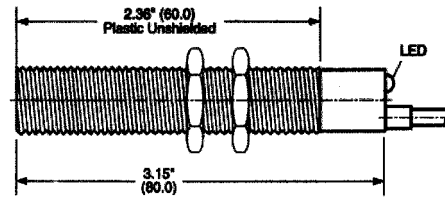
### DC & AC

# 11

# CONTROLS & SENSORS

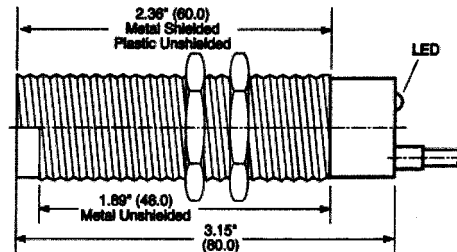
#### 18mm MODELS

Body threads = M18x1

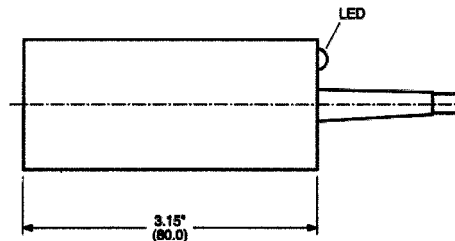


#### 30mm MODELS

Body threads = M30x1.5



#### 34mm MODELS

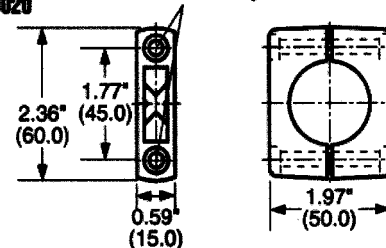


#### MOUNTING BRACKET

Part No. ET018-20020

Included with sensors

Hex Key M5



#### FLAT PACK MODELS

