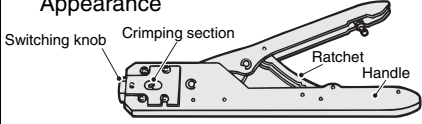


## Accessories (Order Separately)

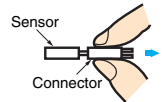
### Ordering Information

#### Connectors and Connector Hold-down Clips

| Applicable Sensor models<br>EE-SX67□ (A, P, R), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N |                       |                 |                                                                                                  |
|----------------------------------------------------------------------------------------------------|-----------------------|-----------------|--------------------------------------------------------------------------------------------------|
| Type                                                                                               | Cable length          | Model           | Remarks                                                                                          |
| Connector                                                                                          |                       | EE-1001         |                                                                                                  |
|                                                                                                    |                       | EE-1001-1       | L terminal and positive (+) terminal are already short-circuited.                                |
|                                                                                                    |                       | EE-1009 *1      |                                                                                                  |
| Connector with Cable                                                                               | 1 m                   | EE-1006 1M      |                                                                                                  |
|                                                                                                    |                       | EE-1010 1M *1   |                                                                                                  |
|                                                                                                    | 2 m                   | EE-1006 2M      | 4 conductors                                                                                     |
|                                                                                                    |                       | EE-1006D        | 3 conductors                                                                                     |
|                                                                                                    |                       | EE-1006L        | 2 conductors                                                                                     |
|                                                                                                    |                       | EE-1010 2M *1   |                                                                                                  |
| Connector with Robot Cable                                                                         | 1 m                   | EE-1010-R 1M *1 |                                                                                                  |
|                                                                                                    | 2 m                   | EE-1010-R 2M*1  |                                                                                                  |
| NPN/PNP Conversion Connector                                                                       | 0.46 m (total length) | EE-2002         |                                                                                                  |
| Connector Hold-down Clip                                                                           |                       | EE-1006A        | For EE-1006, EE-SX670□, 470, EE-SY671, and 672 only.                                             |
| Connector Parts *2                                                                                 | Case (housing)        | EE-1006H        | 100 per carton                                                                                   |
|                                                                                                    | Dispersion Pins       | EE-1006C        | 500 per carton                                                                                   |
|                                                                                                    | Special Crimping Tool | EE-1006T        | Appearance<br> |

\*1. EE-1009- or EE-1010-series Connectors have a builtin locking mechanism to prevent cable disconnection when only the cable is pulled. To remove the Connector from the Sensor, grip the top and bottom of the Connector firmly and push into the Sensor once before pulling out. The locking mechanism prevents the Connector from being removed by pulling on the cable only and enables removal only when the Connector (housing) is pulled.

\*2. The case (housing) and dispersion pins (for hand-crimping) for EE-1006 Connectors can be ordered separately. Use the EE-1006T Special Crimping Tool to prepare the Connector.



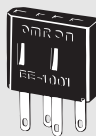
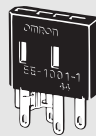
| Applicable Sensor models<br>EE-SX95□-C1J-R |              |              |         |
|--------------------------------------------|--------------|--------------|---------|
| Item                                       | Cable length | Model        | Remarks |
| Connector with Robot Cable                 | 2 m          | EE-1016-R 2M |         |

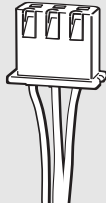
| Applicable Sensor models<br>EE-SX97□-C1, EE-SX97□P-C1 |              |              |         |
|-------------------------------------------------------|--------------|--------------|---------|
| Item                                                  | Cable length | Model        | Remarks |
| Connector with Cable                                  | 1 m          | EE-1017 1M   |         |
|                                                       | 3 m          | EE-1017 3M   |         |
| Connector with Robot Cable                            | 1 m          | EE-1017-R 1M |         |
|                                                       | 3 m          | EE-1017-R 3M |         |

| Applicable Sensor models<br>EE-SPX74□/84□ |              |            |         |
|-------------------------------------------|--------------|------------|---------|
| Item                                      | Cable length | Model      | Remarks |
| Connector with Cable                      | 1 m          | EE-1013 1M |         |

| Applicable Sensor models<br>EE-SPX301/401, EE-SPY30□/40□ |                       |          |                   |
|----------------------------------------------------------|-----------------------|----------|-------------------|
| Item                                                     | Cable length          | Model    | Remarks           |
| Connector                                                |                       | EE-1002  |                   |
| Connector with Cable                                     | 1 m                   | EE-1003  |                   |
| NPN/PNP Conversion Connector                             | 0.46 m (total length) | EE-2001  |                   |
| Connector Hold-down Clip                                 |                       | EE-1003A | For EE-1003 only. |

## Ratings and Specifications

| Product                                     |         | Connector *1 *4                                                                              | Connector with Cable *1                                                           | Connector with Robot Cable *1                                                     | Connector *4                                                                       | Connector (short-circuited between positive (+) and L terminals) *2 *4              | Connector with Cable                                                                |
|---------------------------------------------|---------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Model                                       |         | EE-1009                                                                                      | EE-1010                                                                           | EE-1010-R                                                                         | EE-1001                                                                            | EE-1001-1                                                                           | EE-1006                                                                             |
| Appearance                                  |         |             |  |  |  |  |  |
| Item                                        |         |                                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Contact resistance                          |         | 20 mΩ max. (at 20 mV max., 100 mA max.)                                                      |                                                                                   |                                                                                   | 15 mΩ max. (at 100 VDC max.)                                                       |                                                                                     | 10 mΩ max. (100 VDC max.)                                                           |
| Insertion/removal durability *3             |         | 50 times min.                                                                                |                                                                                   |                                                                                   | ---                                                                                |                                                                                     |                                                                                     |
| Insertion strength                          |         | No. of poles × 6 N max.                                                                      |                                                                                   |                                                                                   | 68.6 N max.                                                                        |                                                                                     | 50 N max.                                                                           |
| Surplus strength (housing holding strength) |         | No. of poles × 0.4 N max.                                                                    |                                                                                   |                                                                                   | ---                                                                                |                                                                                     | 20 N max.                                                                           |
| Standard cable length                       |         | ---                                                                                          | 1 m, 2 m                                                                          |                                                                                   | ---                                                                                |                                                                                     | 1 m, 2 m                                                                            |
| Lock strength *3                            |         | No. of poles × 29 N min.                                                                     |                                                                                   |                                                                                   | ---                                                                                |                                                                                     |                                                                                     |
| Ambient humidity                            |         | -10 to +60°C                                                                                 |                                                                                   |                                                                                   | -10 to +75°C                                                                       |                                                                                     | -10 to 60°C                                                                         |
| Material                                    | Housing | Polybutylene phthalate (PBT)                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|                                             | Contact | Phosphor bronze                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Applicable Photomicrosensors                |         | EE-SX67□ (A,P,R) (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |

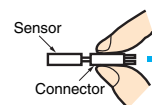
| Item                                           | Product Model | Connector *4                                                                        | Connector with Cable                                                                | Connector with Cable                                                                | Connector with Robot Cable                                                           | Connector with Cable                                                                  | Connector with Robot Cable |
|------------------------------------------------|---------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------|
|                                                |               | EE-1002                                                                             | EE-1003                                                                             | EE-1013                                                                             | EE-1016-R                                                                            | EE-1017                                                                               | EE-1017-R                  |
|                                                | Appearance    |  |  |  |  |  |                            |
| Contact resistance                             |               | 10 mΩ max.<br>(at 10 mADC and 1 ADC)                                                | 20 mΩ max.<br>(at minute current of 1 kHz and 500 VDC)                              |                                                                                     | 25 mΩ max.<br>(at 10 mA DC and 20 mV max.)                                           |                                                                                       |                            |
| Insertion strength                             |               | 20 N max.                                                                           | 23.5 N max.                                                                         | 40 N max.                                                                           | 20 N max.                                                                            |                                                                                       |                            |
| Surplus strength<br>(housing holding strength) |               | 15 N min. (initial)<br>10 N min. (ten times)                                        | 3.5 N min.                                                                          | 10 N min.                                                                           | 15 N min.                                                                            | 1.5 N min.                                                                            |                            |
| Cable length                                   |               | ---                                                                                 | 1 m                                                                                 |                                                                                     | 2 m                                                                                  | 1 m, 3 m                                                                              |                            |
| Ambient humidity                               |               | −10 to +75°C                                                                        | −10 to +60°C                                                                        | −10 to +55°C                                                                        | −25 to +85°C                                                                         | −10 to +60°C                                                                          |                            |
| Material                                       | Housing       | Nylon                                                                               |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                            |
|                                                | Contact       | Phosphor bronze                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                            |
| Applicable Photomicrosensors                   |               | EE-SPX301/401,<br>EE-SPY30□/40□                                                     |                                                                                     | EE-SPX74□/84□                                                                       | EE-SX95□-C1J-R                                                                       | EE-SX97□C1, EE-SX97□P-C1                                                              |                            |

\*1. The Connector has a built-in locking mechanism. To remove the Connector from the Sensor, grip the top and bottom of the Connector housing, as shown in the following diagram, and then pull out the Connector.

\*2. EE-SX67□ and EE-SY67□ are the best used in the light-ON state.

\*3. The insertion/removal durability and lock strength apply only to the lock mechanism. They do not apply to the EE-1001, EE-1001-1, and EE-1006, which do not have lock mechanisms.

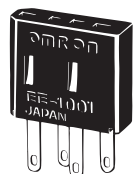
\*4. Do not store the type EE-1009, EE-1001, EE-1001-1 and EE-1002 under the following conditions since their terminals may discolor.  
(1) In the place exposed to the direct sunlight, the high temperature or high humidity.



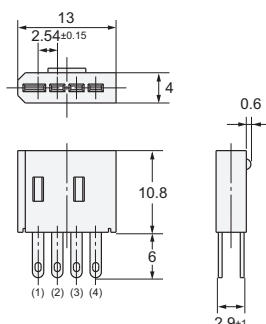
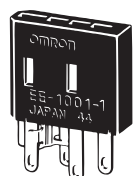
(Unit: mm)

**Dimensions**

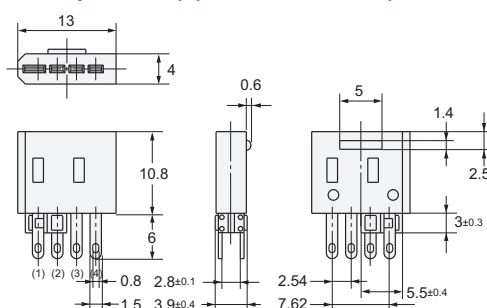
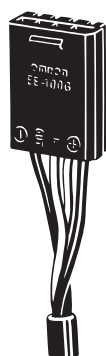
Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

**Photomicrosensor Connectors and Connector Hold-down Clips****Connector****EE-1001****Terminal Arrangement**

|     |     |
|-----|-----|
| (1) | +   |
| (2) | L   |
| (3) | OUT |
| (4) | -   |

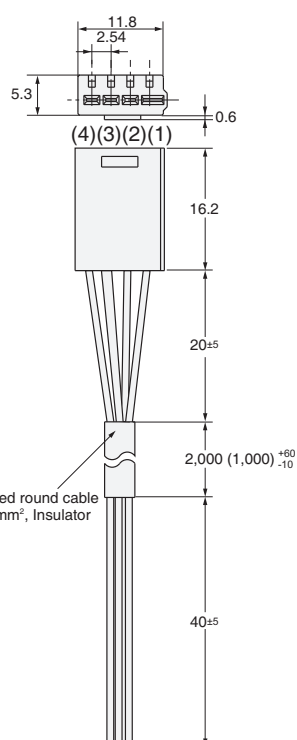
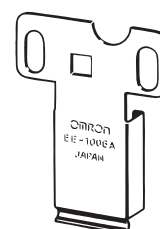
**Connector (short-circuited between positive (+) and L terminals)****EE-1001-1****Terminal Arrangement**

|     |     |
|-----|-----|
| (1) | +   |
| (2) | L   |
| (3) | OUT |
| (4) | -   |

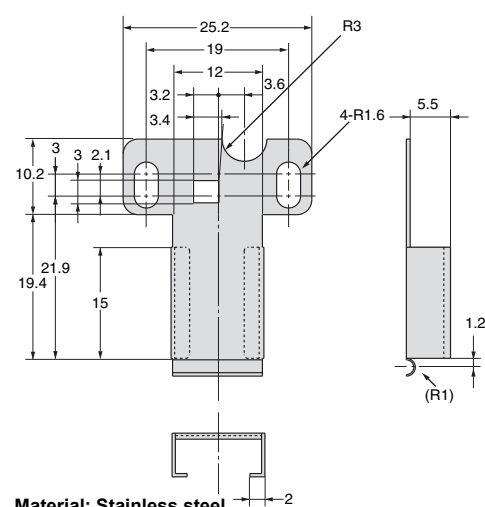
**Connector with Cable****EE-1006 2M (EE-1006 1M)****Terminal Arrangement**

|     |     |       |
|-----|-----|-------|
| (1) | +   | Brown |
| (2) | L   | Pink  |
| (3) | OUT | Black |
| (4) | -   | Blue  |

Cable:  
4-dia. 4-conductor vinyl-insulated round cable  
(Conductor cross section: 0.2 mm<sup>2</sup>, Insulator  
diameter: 1.1 mm).

**Connector Hold-down Clip****EE-1006A**

(Can be used only with EE-1006  
Connectors for the  
Photomicrosensors listed  
below.)



Material: Stainless steel

**Applicable Photomicrosensors** EE-SX67□ (A,P,R) (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N

For EE-SX670□, 470□, EE-SY671, and 672 only.

Photomicrosensor Connectors

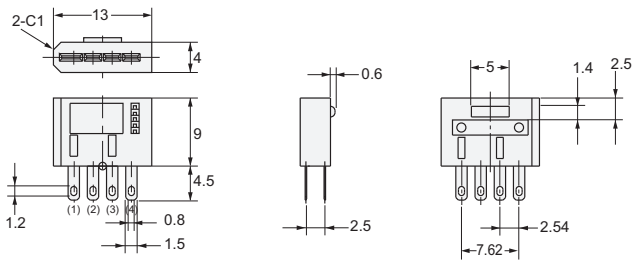
Connectors

EE-1009



Terminal Arrangement

|     |     |
|-----|-----|
| (1) | ⊕   |
| (2) | L   |
| (3) | OUT |
| (4) | ⊖   |

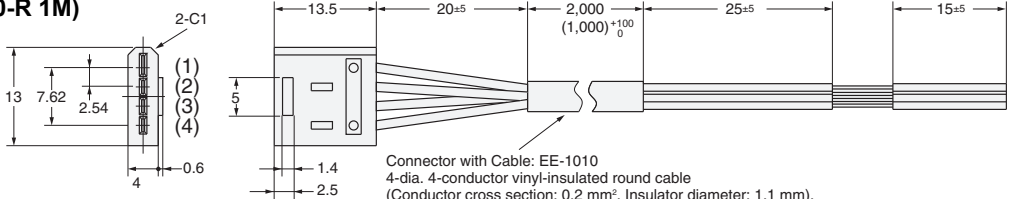


Connector with Cable

EE-1010 2M (EE-1010 1M)

Connector with Robot Cable

EE-1010-R 2M (EE-1010-R 1M)



Connector with Cable: EE-1010  
4-dia. 4-conductor vinyl-insulated round cable  
(Conductor cross section: 0.2 mm<sup>2</sup>, Insulator diameter: 1.1 mm).  
Connector with Robot Cable: EE-1010-R  
4-dia. 4-conductor robot instrumentation cable  
(Conductor cross section: 0.2 mm<sup>2</sup>, Insulator diameter: 1.1 mm).

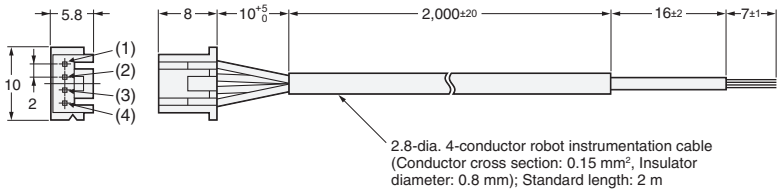
Terminal Arrangement

|     |     |       |
|-----|-----|-------|
| (1) | ⊕   | Brown |
| (2) | L   | Pink  |
| (3) | OUT | Black |
| (4) | ⊖   | Blue  |

|                              |                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------|
| Applicable Photomicrosensors | EE-SX67□ (A,P,R) (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□<br>EE-SPX303N/403N |
|------------------------------|------------------------------------------------------------------------------------------------|

Connector with Robot Cable

EE-1016-R



2.8-dia. 4-conductor robot instrumentation cable  
(Conductor cross section: 0.15 mm<sup>2</sup>, Insulator diameter: 0.8 mm); Standard length: 2 m

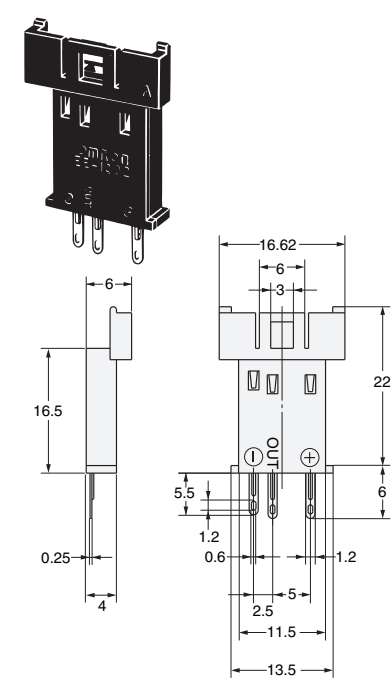
Terminal Arrangement

|     |      |       |
|-----|------|-------|
| (1) | ⊕    | Brown |
| (2) | OUT2 | White |
| (3) | ⊖    | Blue  |
| (4) | OUT1 | Black |

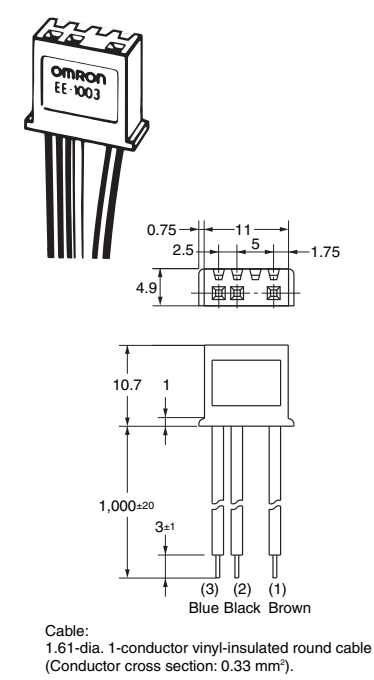
|                              |                |
|------------------------------|----------------|
| Applicable Photomicrosensors | EE-SX95□-C1J-R |
|------------------------------|----------------|

Photomicrosensor Connectors and Connector Hold-down Clips

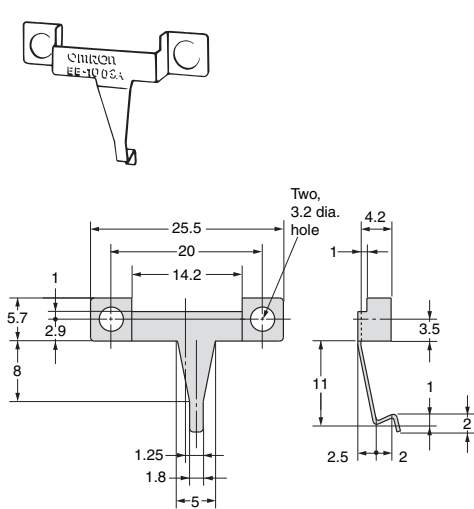
Connector  
EE-1002



Connector with Cable  
EE-1003

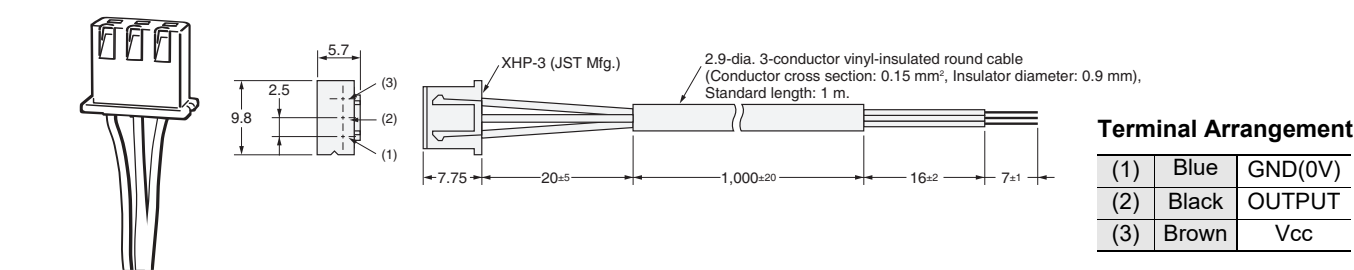


Connector Hold-down Clips  
(For EE-1003 only)  
EE-1003A



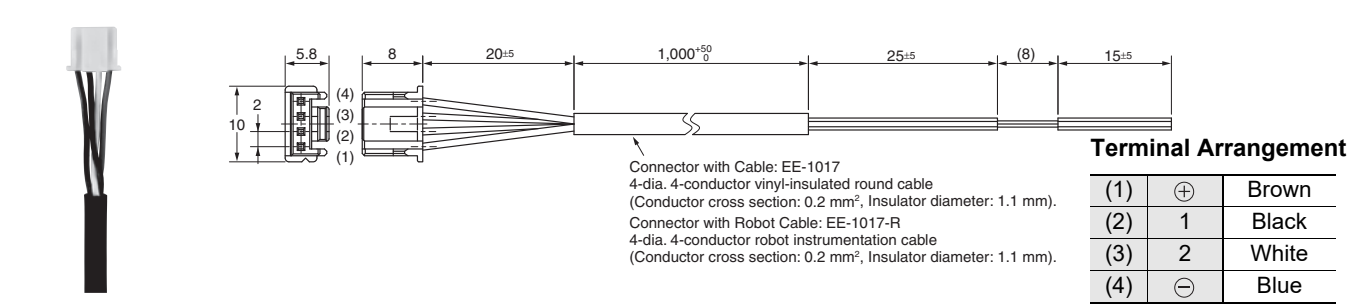
|                                 |                              |
|---------------------------------|------------------------------|
| Applicable<br>Photomicrosensors | EE-SPX301/401, EE-SPY30□/40□ |
|---------------------------------|------------------------------|

Connector with Cable  
EE-1013



|                                 |               |
|---------------------------------|---------------|
| Applicable<br>Photomicrosensors | EE-SPX74□/84□ |
|---------------------------------|---------------|

Connector with Cable  
EE-1017  
Connector with Robot Cable  
EE-1017-R



|                                 |                           |
|---------------------------------|---------------------------|
| Applicable<br>Photomicrosensors | EE-SX97□-C1, EE-SX97□P-C1 |
|---------------------------------|---------------------------|

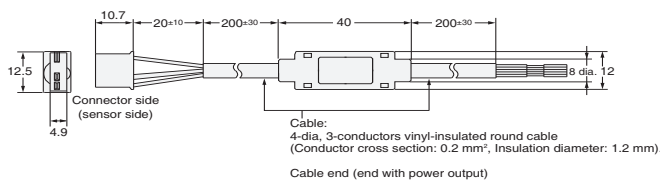
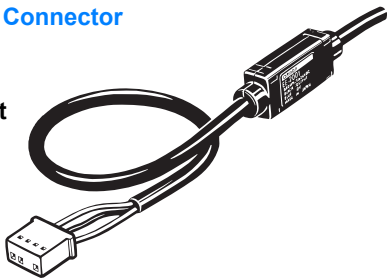
NPN to PNP Transistor Output Conversion Connectors

NPN/PNP Conversion Connector

EE-2001

Terminal Arrangement

|     |     |       |
|-----|-----|-------|
| (1) | ⊕   | Brown |
| (2) | OUT | Black |
| (3) | ⊖   | Blue  |

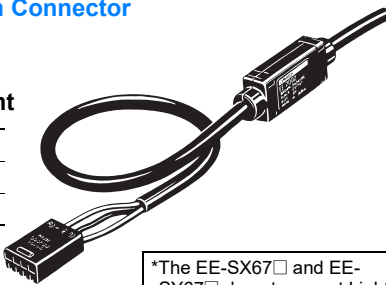


NPN/PNP Conversion Connector

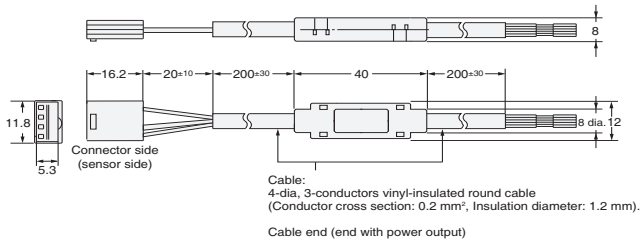
EE-2002 \*

Terminal Arrangement

|     |     |       |
|-----|-----|-------|
| (1) | ⊕   | Brown |
| (2) | OUT | Black |
| (3) | ⊖   | Blue  |



\*The EE-SX67□ and EE-SY67□ do not support Light-ON mode.



|                              |                              |                                                                                         |
|------------------------------|------------------------------|-----------------------------------------------------------------------------------------|
| Applicable Photomicrosensors | EE-SPX301/401, EE-SPY30□/40□ | EE-SX67□/□A (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N |
|------------------------------|------------------------------|-----------------------------------------------------------------------------------------|

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