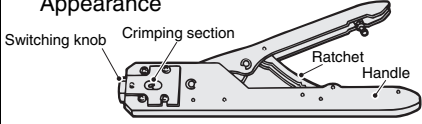


## Accessories (Order Separately)

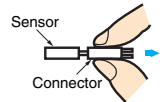
### Ordering Information

#### Connectors and Connector Hold-down Clips

Applicable Sensor models EE-SX67□ (A, P, R), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N, EE-SPW311/411			
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	
		EE-1006 2M	4 conductors
	2 m	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 

\*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.



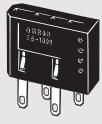


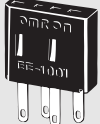
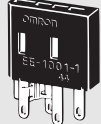

Applicable Sensor models EE-SX95□-C1J-R			
Item	Cable length	Model	Remarks
Connector with Robot Cable	2 m	EE-1016-R 2M	

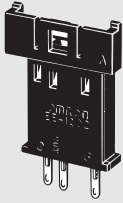
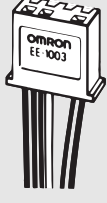
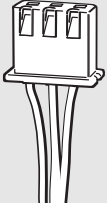


Applicable Sensor models EE-SX97□-C1, EE-SX97□P-C1			
Item	Cable length	Model	Remarks
Connector with Cable	1 m	EE-1017 1M	
	3 m	EE-1017 3M	
Connector with Robot Cable	1 m	EE-1017-R 1M	
	3 m	EE-1017-R 3M	

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

Applicable Sensor models EE-SPX301/401, EE-SPY30□/40□, EE-SPZ301-A/401-A			
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
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, EE-SPW311/411					

Product	Connector *4	Connector with Cable	Connector with Cable	Connector with Robot Cable	Connector with Cable	Connector with Robot Cable
	Model	EE-1002	EE-1003	EE-1013	EE-1016-R	EE-1017
Appearance						
Item						
Contact resistance	10 mΩ max. (at 10 mADC and 1 ADC)	20 mΩ max. (at minute current of 1 kHz and 500 VDC)		25 mΩ max. (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 (housing holding strength)	15 N min. (initial) 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, EE-SPY30□/40□, EE-SPZ301-A/401-A		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.

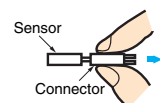
\*2. EE-SX67□ and EE-SY67□ are the best used in the light-ON state.

\*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)

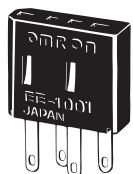
## Dimensions

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

### Photomicrosensor Connectors and Connector Hold-down Clips

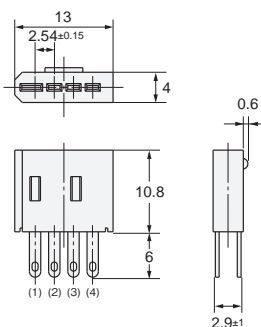
#### Connector

##### EE-1001



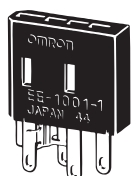
#### Terminal Arrangement

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



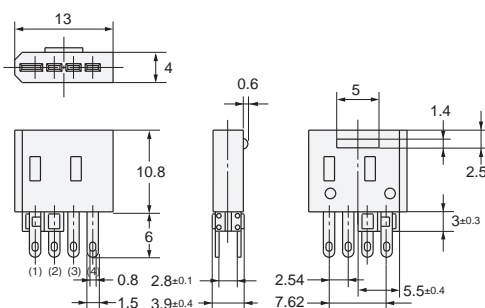
#### Connector (short-circuited between positive (+) and L terminals)

##### EE-1001-1



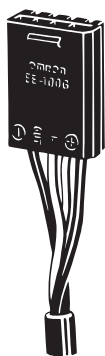
#### Terminal Arrangement

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

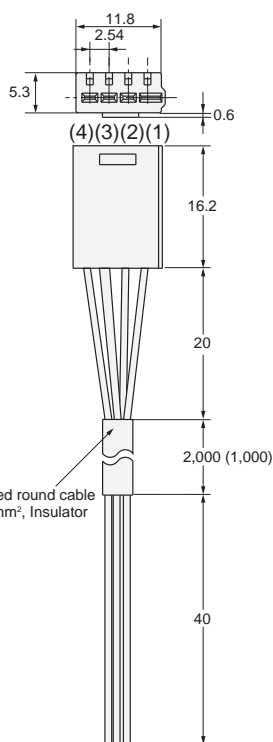


#### Connector with Cable

##### EE-1006 2M (EE-1006 1M)



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

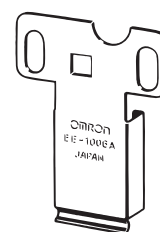


#### Terminal Arrangement

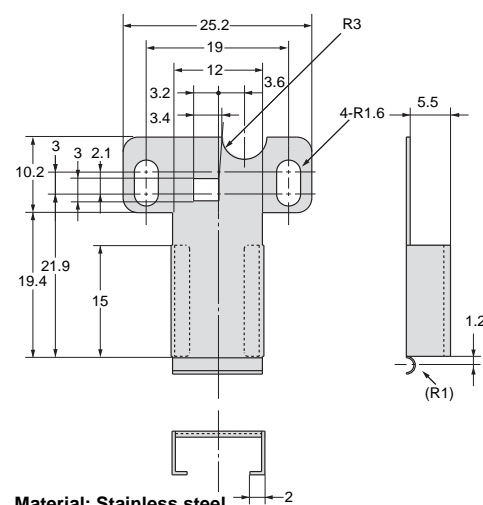
(1)	+	Brown
(2)	L	Pink
(3)	OUT	Black
(4)	-	Blue

#### 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, EE-SPW311/411

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

## Photomicrosensor Connectors

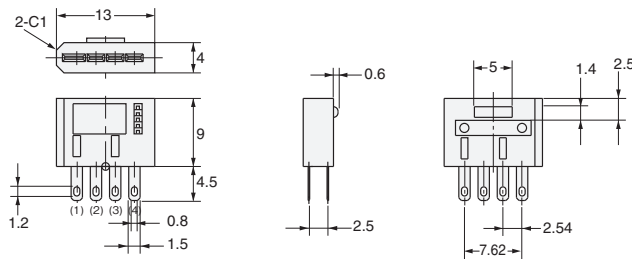
### Connectors

#### EE-1009



#### Terminal Arrangement

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

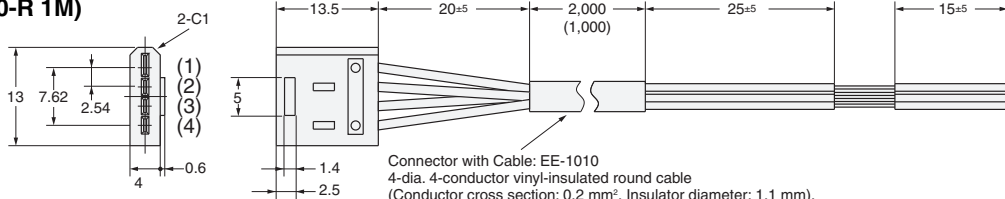


### Connector with Cable

#### 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).

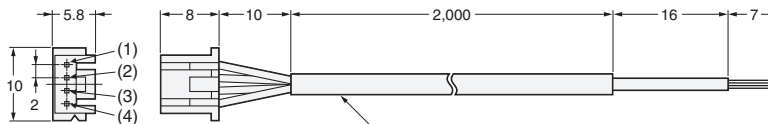
#### Terminal Arrangement

(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□
	EE-SPX303N/403N, EE-SPW311/411

### 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

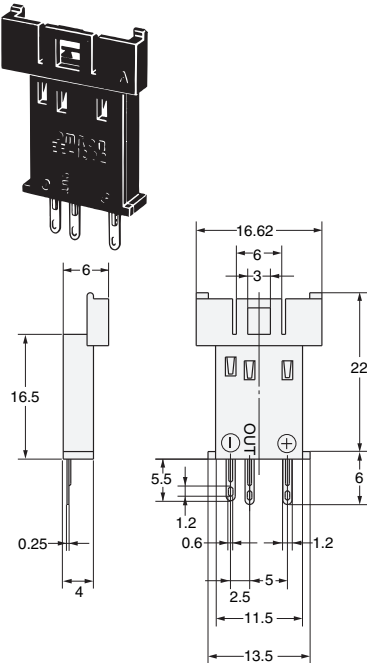
(1)	+	Brown
(2)	OUT2	White
(3)	-	Blue
(4)	OUT1	Black

Applicable Photomicrosensors	EE-SX95□-C1J-R
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## Photomicrosensor Connectors and Connector Hold-down Clips

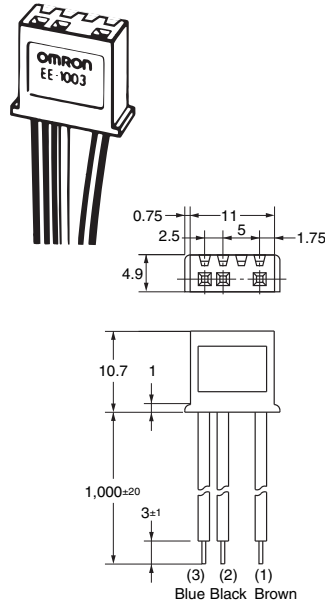
### Connector

#### EE-1002



### Connector with Cable

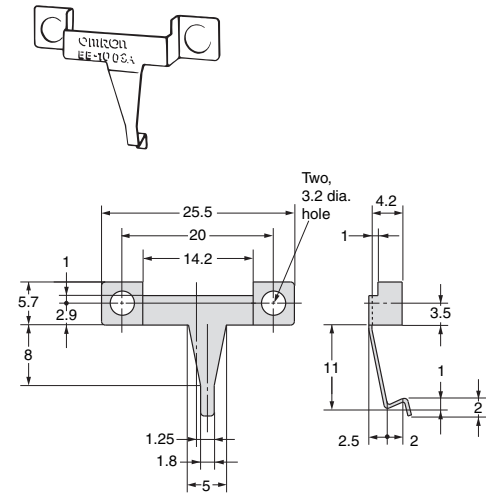
#### EE-1003



Cable:  
1.61-dia. 1-conductor vinyl-insulated round cable  
(Conductor cross section: 0.33 mm<sup>2</sup>).

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

#### EE-1003A

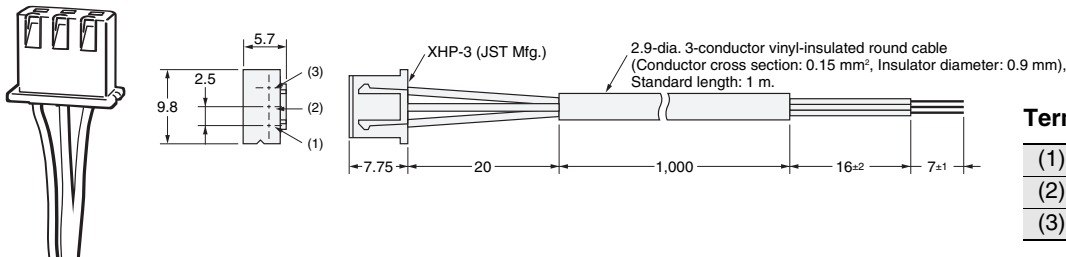


#### Applicable Photomicrosensors

EE-SPX301/401, EE-SPY30□/40□, EE-SPZ301-A/401-A

### Connector with Cable

#### EE-1013



#### Terminal Arrangement

(1)	Blue	GND(0V)
(2)	Black	OUTPUT
(3)	Brown	Vcc

#### Applicable Photomicrosensors

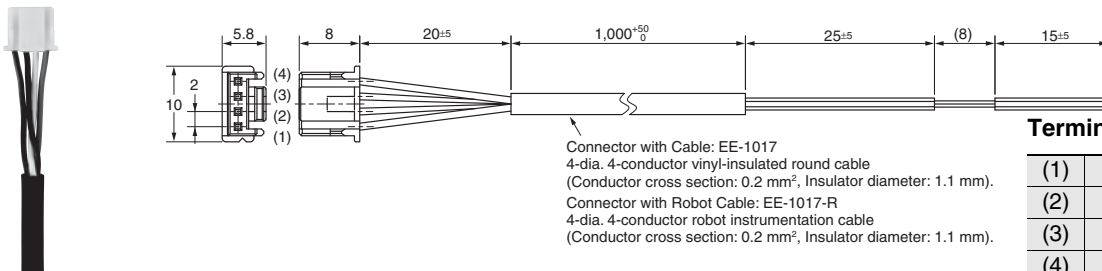
EE-SPX74□/84□

### Connector with Cable

#### EE-1017

### Connector with Robot Cable

#### EE-1017-R



#### Terminal Arrangement

(1)	⊕	Brown
(2)	1	Black
(3)	2	White
(4)	⊖	Blue

#### Applicable Photomicrosensors

EE-SX97□-C1, EE-SX97□P-C1

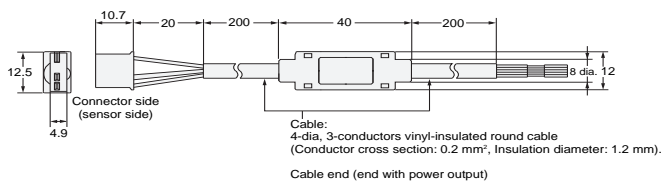
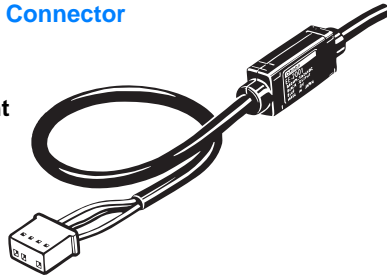
## NPN to PNP Transistor Output Conversion Connectors

### NPN/PNP Conversion Connector

#### EE-2001

#### Terminal Arrangement

(1)	⊕	Brown
(2)	OUT	Black
(3)	⊖	Blue

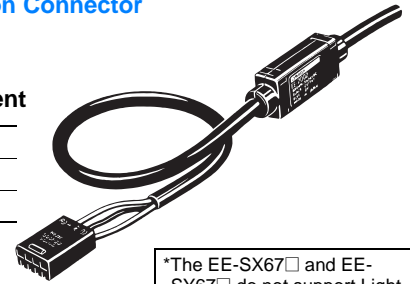


### NPN/PNP Conversion Connector

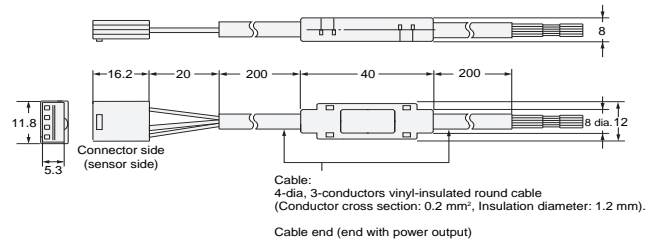
#### EE-2002 \*

#### Terminal Arrangement

(1)	⊕	Brown
(2)	OUT	Black
(3)	⊖	Blue



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



<b>Applicable Photomicrosensors</b>	EE-SPX301/401, EE-SPY30□/40□,
	EE-SPZ301-A/401-A

EE-SX67□/□A (Connector Models only), EE-SX47□,
EE-SY67□, EE-SPY31□/41□,
EE-SPX303N/403N, EE-SPW311/411

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