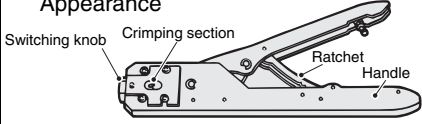


## Accessories (Order Separately)

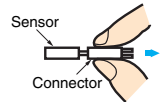
### Ordering Information

#### 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	4 conductors
			EE-1010 1M *1	
		2 m	EE-1006 2M	4 conductors
			EE-1006D	3 conductors
			EE-1006L	2 conductors
	Connector with Robot Cable	1 m	EE-1010-R 1M *1	
		2 m	EE-1010-R 1M*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-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	

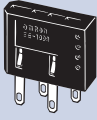



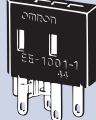

Applicable Sensor models EE-SX91□□-C1J-R (Pre-wired Connector)			
Item	Cable length	Model	Remarks
Connector with Cable	2 m	EE-1016-R	The robot cable is standard for all models.

Applicable Sensor models EE-SX67□□-C1J-R (Pre-wired Connector)			
Item	Cable length	Model	Remarks
Connector with Cable	2 m	EE-1016-R-1	The robot cable is standard for all models.

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

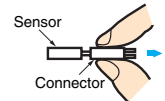
Applicable Sensor models EE-SPX301/401, EE-SPY30□/40□, EE-SPZ301□/401□			
Item	Cable length	Model	Remarks
Connector		EE-1002	
Connector with Cable	1 m	EE-1003	
NPN/PNP Conversion Connector	0.46 m (total length)	EE-2001	
Connector Hold-down Clip		EE-1003A	For EE-1003 only.

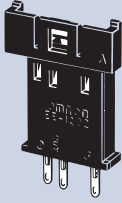
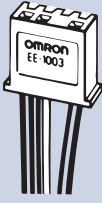
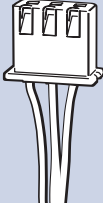


## Ratings and Specifications

Product	Connector *1	Connector with Cable *1	Connector with Robot Cable *1	Connector	Connector (short-circuited between positive (+) and L terminals) *2	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	50 times min.			---		
Insertion strength	No. of poles × 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	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 (solder plating)				
Applicable Photomicrosensors	EE-SX67□ (A,P,R) (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N, EE-SPW311/411					

\*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.



Product	Connector	Connector with Cable	Connector with Cable	Connector with Cable	Connector with Robot Cable	Connector with Robot Cable	
Model	EE-1002	EE-1003	EE-1013	EE-1017	EE-1017-R	EE-1016-R	EE-1016-R-1
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.	1.5 N min.		15 N min.	
Cable length	---	1 m		1 m, 3 m		2 m	
Ambient humidity	-10 to +75°C	-10 to +60°C	-10 to +55°C	-10 to +60°C		-25 to +85°C	
Material	Housing	Nylon					
	Contact	Phosphor bronze (solder plating)					
Applicable Photomicrosensors	EE-SPX301/401, EE-SPY30□/40□, EE-SPZ301□/401□		EE-SPX74□/84□	EE-SX97□C1, EE-SX97□P-C1		EE-SX91□-C1J-R (Pre-wired Connector)	EE-SX67□-C1J-R (Pre-wired Connector)

(Unit: mm)

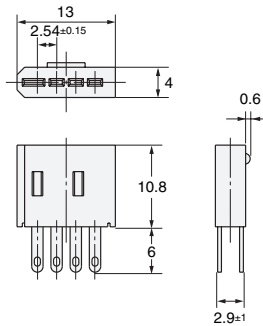
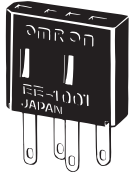
### Dimensions

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

### Photomicrosensor Connectors and Connector Hold-down Clips

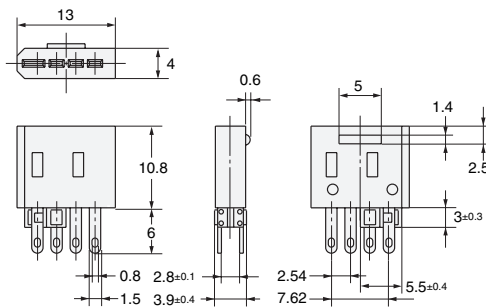
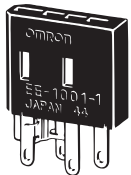
#### Connector

##### EE-1001



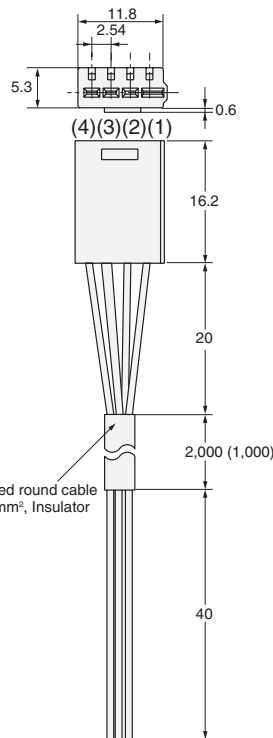
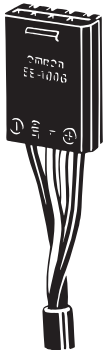
#### Connector (short-circuited between positive (+) and L terminals)

##### EE-1001-1



#### Connector with Cable

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



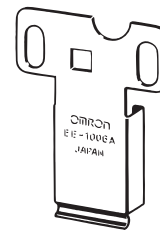
Cable:  
4-dia. 4-conductor vinyl-insulated round cable  
(Conductor cross section: 0.2 mm<sup>2</sup>, Insulator diameter: 1.1 mm).

#### Terminal Arrangement

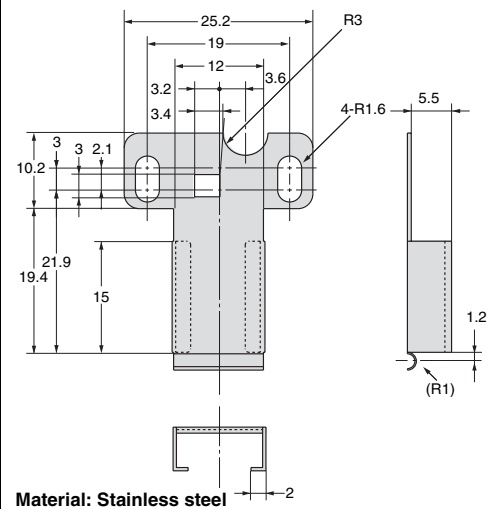
(1)	⊕	Brown
(2)	L	Pink
(3)	OUT	Black
(4)	⊖	Blue

#### Connector Hold-down Clip

##### EE-1006A



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



Material: Stainless steel

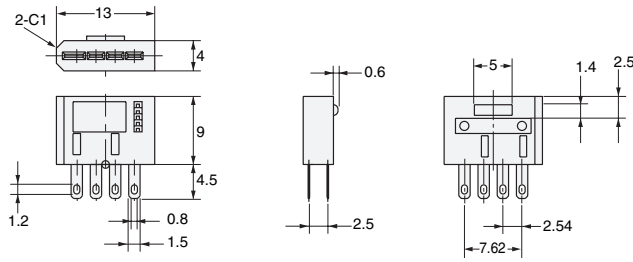
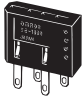
Applicable Photomicrosensors EE-SX67□ (A,P,R) (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□, EE-SPX303N/403N, EE-SPW311/411

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

## Photomicrosensor Connectors

### Connectors

#### EE-1009

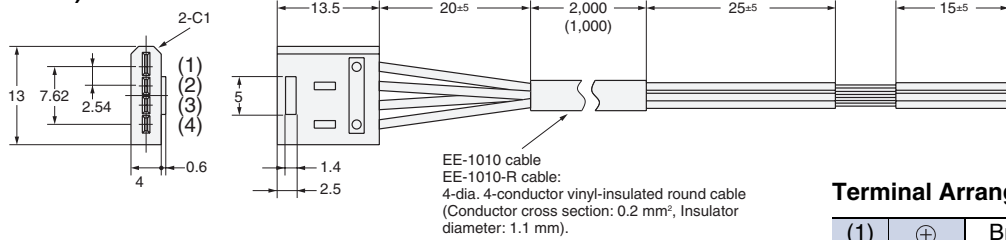


### Connector with Cable

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

#### Connector with Robot Cable

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



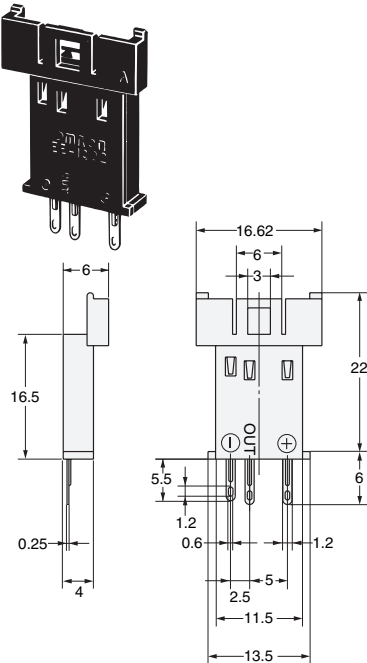
#### Terminal Arrangement

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

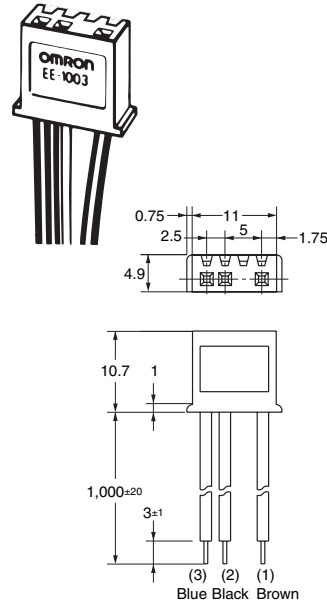
Applicable Photomicrosensors	EE-SX67□ (A,P,R) (Connector Models only), EE-SX47□, EE-SY67□, EE-SPY31□/41□
	EE-SPX303N/403N, EE-SPW311/411

## Photomicrosensor Connectors and Connector Hold-down Clips

### Connector EE-1002

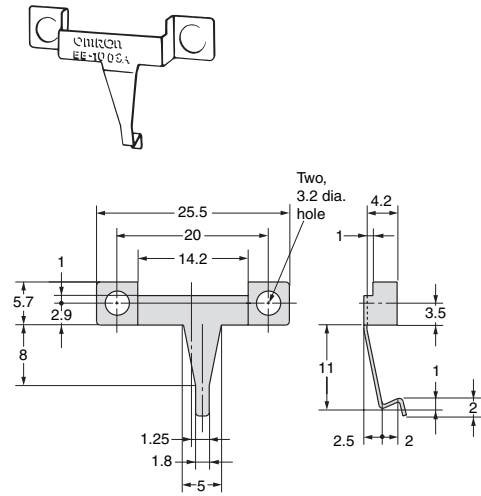


### Connector with Cable EE-1003



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

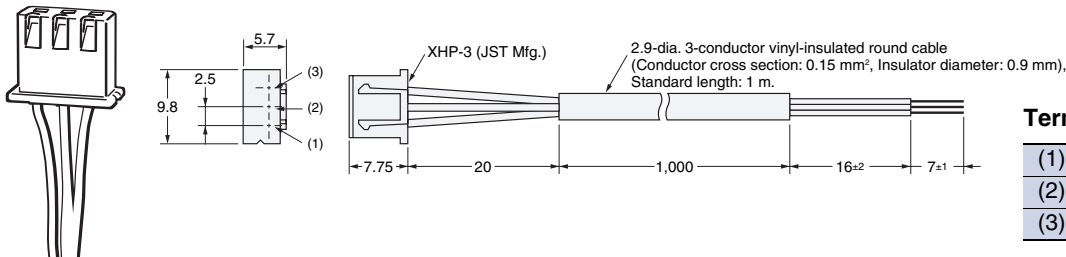
### Connector Hold-down Clips (For EE-1003 only) EE-1003A



#### Applicable Photomicrosensors

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

### Connector with Cable EE-1013



#### Terminal Arrangement

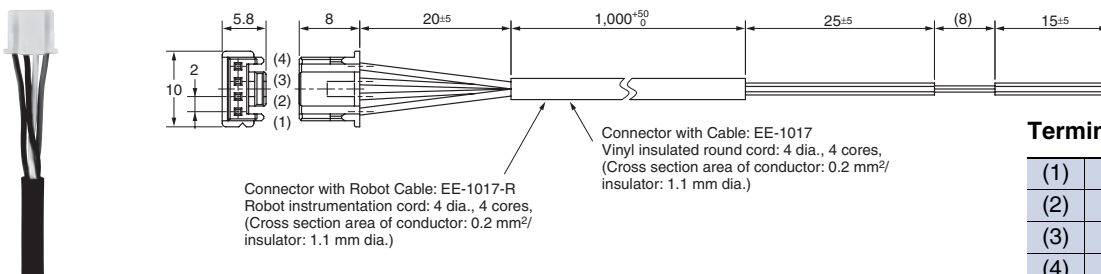
(1)	Blue	GND(0V)
(2)	Black	OUTPUT
(3)	Brown	Vcc

#### Applicable Photomicrosensors

EE-SPX74□/84□

### Connector with Cable EE-1017

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



#### Terminal Arrangement

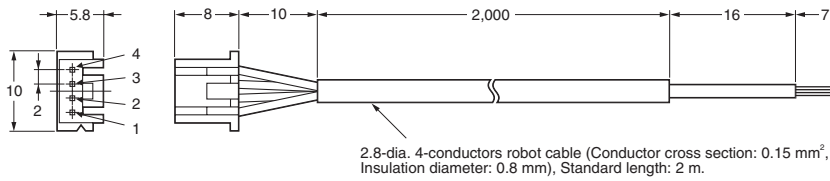
(1)	⊕	Brown
(2)	1	Black
(3)	2	White
(4)	⊖	Blue

#### Applicable Photomicrosensors

EE-SX97□-C1, EE-SX97□P-C1

## Connector with Robot Cable

### EE-1016-R



#### Terminal Arrangement

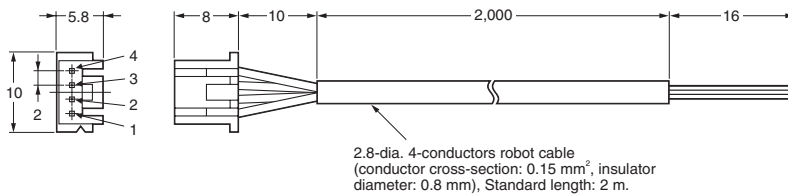
(1)	+	Brown
(2)	OUT2	White
(3)	-	Blue
(4)	OUT1	Black

#### Applicable Photo-microsensors

EE-SX91□-C1J-R (Models with Junction Connectors)

## Connector with Cable (Connection with Robot Cable)

### EE-1016-R-1



#### Terminal Arrangement

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

#### Applicable Photo-microsensors

EE-SX67□-C1J-R  
EE-SX67□P-C1J-R

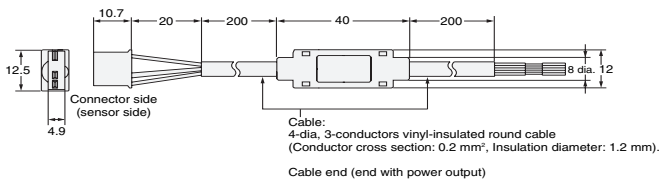
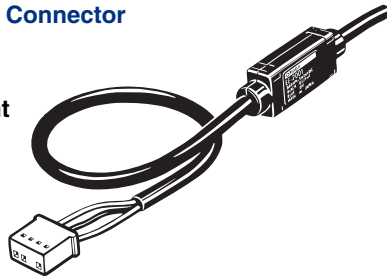
## NPN to PNP Transistor Output Conversion Connectors

### NPN/PNP Conversion Connector

#### EE-2001

#### Terminal Arrangement

(1)	+	Brown
(2)	OUT	Black
(3)	-	Blue

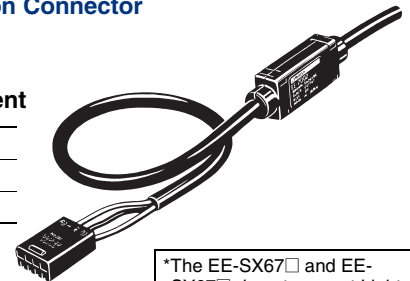


### NPN/PNP Conversion Connector

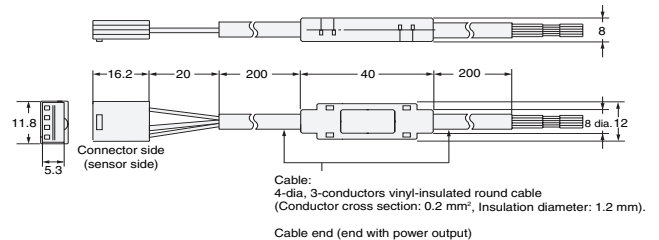
#### EE-2002 \*

#### 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-SPZ301□/401□

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

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2010.12

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