

NPN to PNP Conversion Connector for Amplified Photomicrosensors

- Converts NPN output to PNP output by easy connection to amplified photomicrosensors
- Easy solution to achieve PNP output as required in the U.S. and Europe



Ordering Information

Applicable amplified photomicrosensor models					Part number
EE-SPX301	EE-SPY302	EE-SPZ301Y-01	EE-SPZ301W-02		EE-2001
EE-SPX401	EE-SPY402	EE-SPZ401Y-01	EE-SPZ401W-02		
EE-SPY301	EE-SPZ301-A	EE-SPZ301W-01	EE-SPZ301		
EE-SPY401	EE-SPZ401-A	EE-SPZ401W-01	EE-SPZ401		
EE-SX670/-A	EE-SX470	EE-SPY311	EE-SY671	EE-SB5V/-E	EE-2002
EE-SX671/-A	EE-SX471	EE-SPY312	EE-SY672	EE-SB5VC	
EE-SX672/-A	EE-SX472	EE-SPY411	EE-SPX303/403	EE-SB5M	
EE-SX673/-A	EE-SX473	EE-SPY412	EE-SPX311/411	EE-SB5MC	

Specifications

Note: $T_A = 25^\circ\text{C}$ (77°F), 65% RH

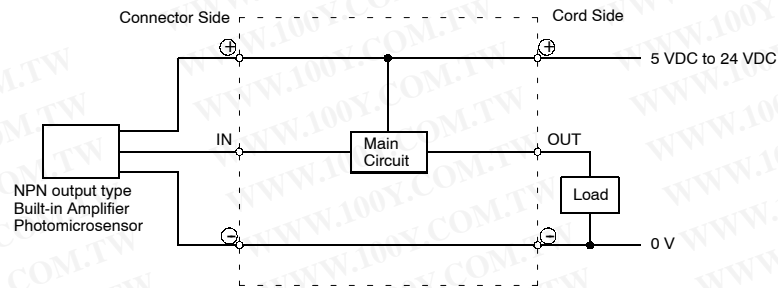
Item	Value	
Supply voltage*	5 V to 24 VDC $\pm 10\%$, ripple (p-p): 5% max.	
Consumption current	5 mA max. under the following conditions: Connector side: \oplus =open, short circuit between IN and \ominus Cord side: \oplus =26.4V, OUT= open, \ominus = 0 V	
Control output	100 mA max. (Residual voltage = 0.8 V max.)	
Ambient temperature	Operating	-10°C to 55°C (14°F to 131°F)
	Storage	-25°C to 65°C (-13°F to 149°F)
Ambient humidity	Operating	5 to 85% RH
	Storage	5 to 95% RH

*Use the indicated supply voltages for the specified products below:

Supply voltage	Part number
12 to 24 VDC $\pm 10\%$, ripple (p-p): 5% max.	EE-SPX303, EE-SPX403
5 to 15 VDC $\pm 10\%$, ripple (p-p): 5% max.	EE-SB5V/-E, EE-SB5VC
5 to 12 VDC $\pm 10\%$, ripple (p-p): 5% max.	EE-SB5M, EE-SB5MC

Operation

■ WIRING DIAGRAM

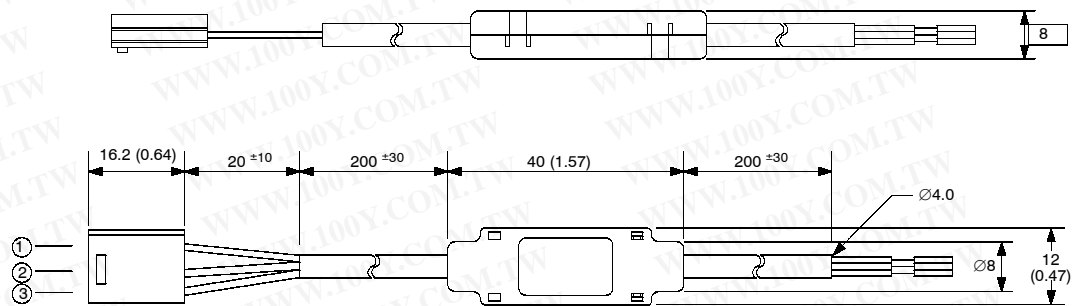
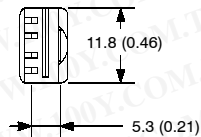


勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

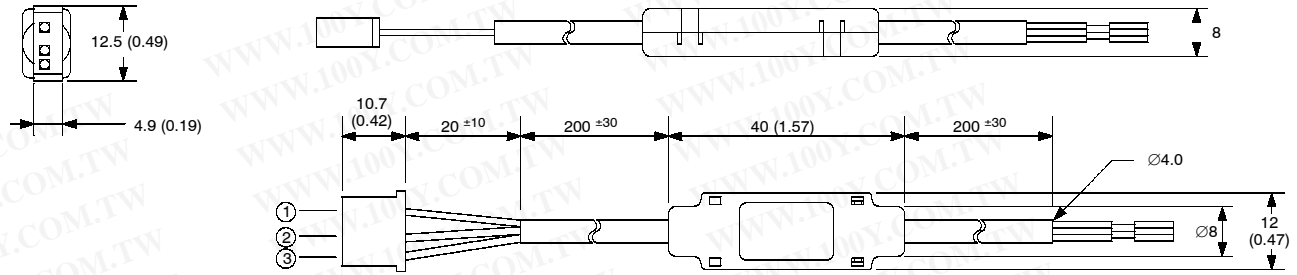
Dimensions

Unit: mm (inch)

■ EE-2001



■ EE-2002



Note: Insulator material of cable is vinyl chloride.

Terminal Arrangement

Connector side (sensor side)		Cord side (power supply side)	
Circuit no. (cable color)	Function	Cable color	Function
1 (Brown)	V _{CC} (+)	Brown	V _{CC} (+)
2 (Black)	Input (Sensor/output)	Black	Output
3 (Blue)	G (0)	Blue	G (0)

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Dedicated Connectors

Dedicated Connectors for Photomicrosensors with Built-in Amplifiers

■ Applicable Connectors

Transmissive-type Photomicrosensors

Model	Name
EE-1009	Connector
EE-1010	Connector with cord
EE-1010-R	Connector with cord (robot cord)
EE-1001	Connector
EE-1001-1	Connector
EE-1006 (see note)	Connector with cord
EE-1006A	Connector hold-down clip
EE-2001	NPN/PNP conversion connector
EE-2002	NPN/PNP conversion connector
EE-1002	Connector
EE-1003	Connector with cord
EE-1003A	Connector hold-down clip

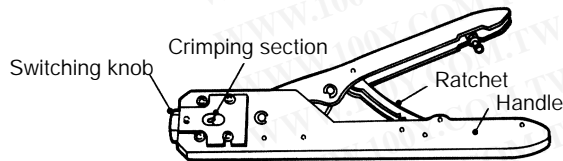
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Note: The housing case and the pin can be kept separate with the EE-1006 model. A dedicated application tool also needs to be prepared.

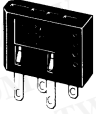


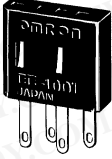




Model	Name
EE-1006H	Case
EE-1006C	Dispersion pin
EE-1006T	Dedicated crimping tool

Dedicated Crimping Tool

EE-1006T



■ Ratings/Characteristics

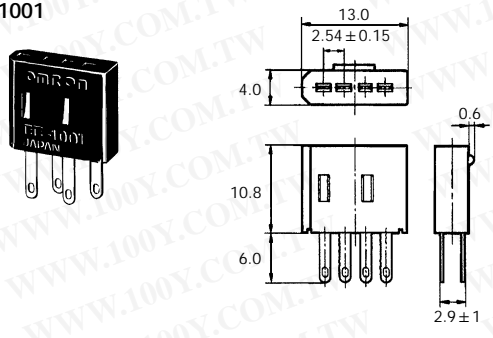
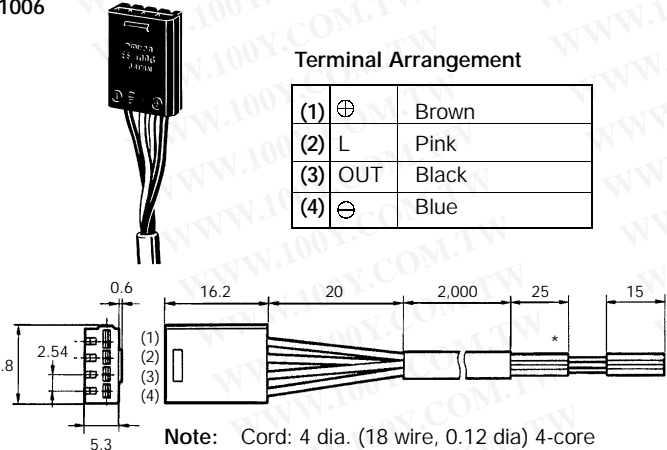
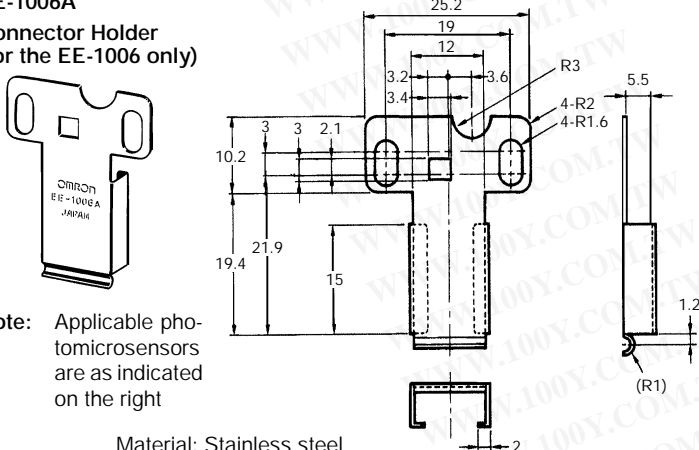
Item	Connector	Connector with cord	Connector with cord (robot cord)	Connector	Connector (see note)	Connector with cord	Connector	Connector with cord	
	EE-1009	EE-1010	EE-1010-R	EE-1001	EE-1001-1	EE-1006	EE-1002	EE-1003	
									
Rated voltage	50 VDC			---		50 VDC		---	
Rated current	1 A			4 A		3 A			
Contact resistance	20 mΩ max. (20 mV max., 100 mA max.)			15 mΩ max. (100 VDC max.)		10 mΩ max. (100 VDC max.)		10 mΩ max. (10 mA DC or 1 A DC)	
Insulation resistance	100 MΩ min. (500 VDC)			10 MΩ min. (100 VDC)		10 MΩ min. (500 VAC)		10 MΩ min. (500 VDC)	
Voltage resistance	1,500 VAC for 1 min. (Leakage current 1 mA max.)			---					
Insertion/Removal durability	50 times min.			---					
Insertion strength	No. of poles × 6.0 N (610 gf) max.			10 N (1 kgf) max.		50 N (5 kgf) max.		5 N (500 gf) max.	
Surplus strength (housing holding strength)	No. of poles × 0.4 N (41 gf) max.			---		20 N (2 kgf) max.		1.5 N (150 gf) min. (first time), 1 N (100 gf) min (10 times)	
Lock strength	No. of poles × 39 N (4.0 kgf) max.			---					
Ambient operating temperature	-10°C to 60°C			-10°C to 75°C		-10°C to 60°C		-10°C to 75°C	
Material	Housing	PBT						Nylon	
	Contact	Phosphor bronze (solder plating)							

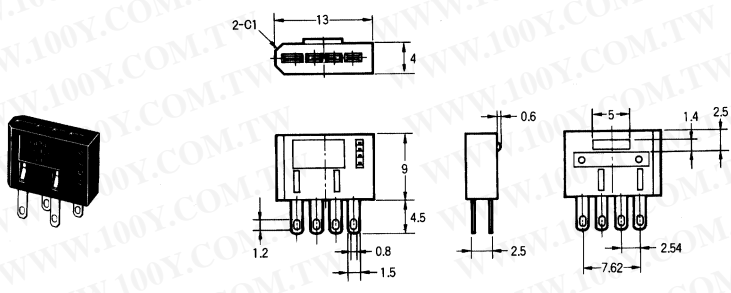
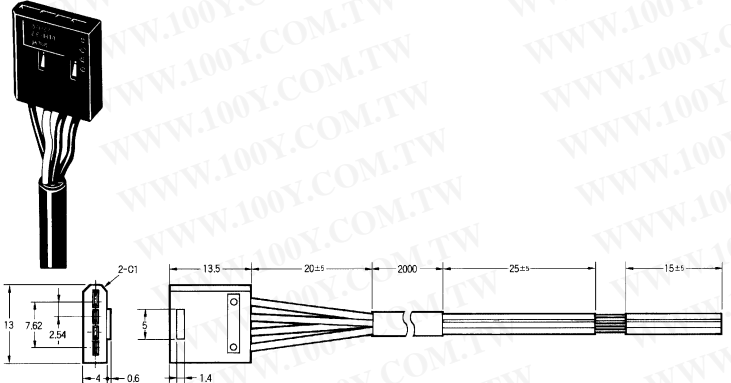
Note: EE-SX67J and EE-SY67J are best used in the light-ON state. Short-circuit between the positive terminal and the L terminal.

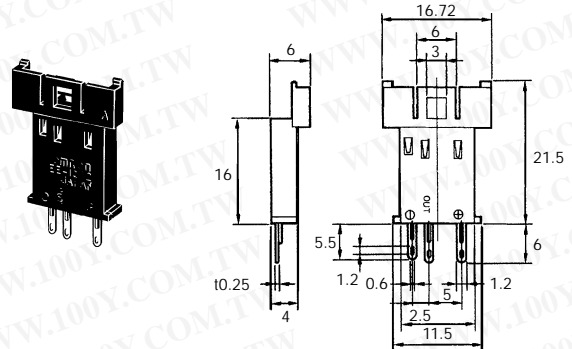
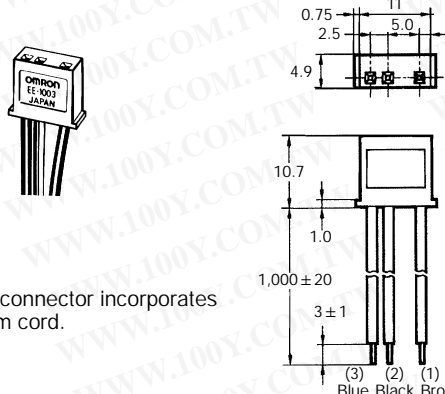
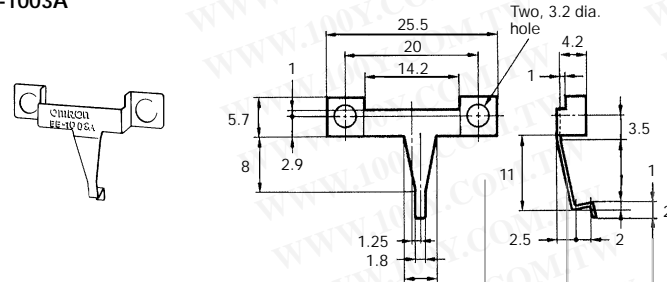
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■ Connectors for Photomicrosensors with Built-in Amplifiers

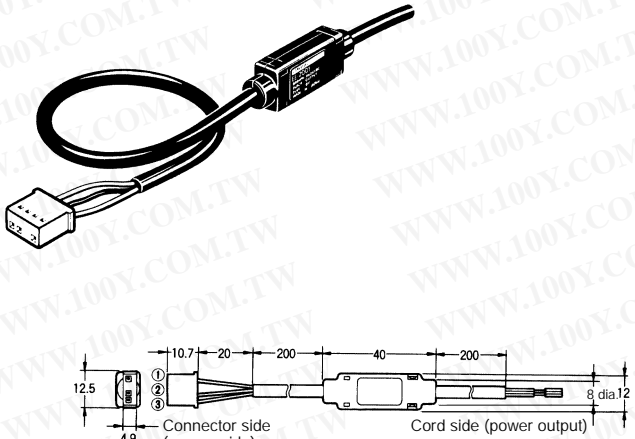
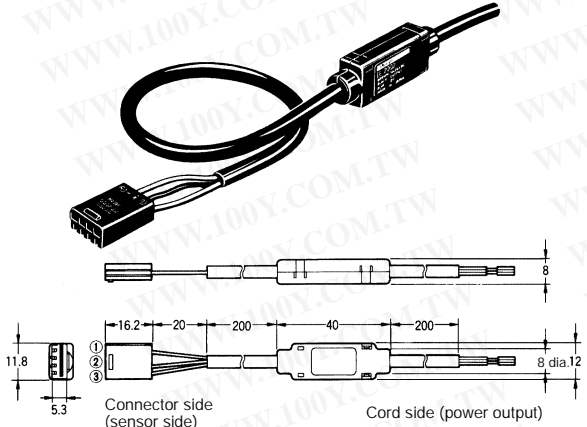
Note: The core wire color has changed in keeping with changes to the standard. The old core wire colors are indicated in parenthesis.

Appearance and dimensions	Applicable Sensors								
<p>EE-1001</p>  <p>13.0 2.54 ± 0.15 4.0 10.8 6.0 0.6 2.9 ± 1</p> <p>Note: L terminal and positive (+) terminal short circuit Connector (EE-1001-1) is available.</p> <p>EE-1006</p>  <p>Terminal Arrangement</p> <table border="1" data-bbox="470 806 774 952"> <tr> <td>(1) ⊕</td> <td>Brown</td> </tr> <tr> <td>(2) L</td> <td>Pink</td> </tr> <tr> <td>(3) OUT</td> <td>Black</td> </tr> <tr> <td>(4) ⊖</td> <td>Blue</td> </tr> </table> <p>0.6 11.8 2.54 5.3 16.2 20 2,000 25 15</p> <p>Note: Cord: 4 dia. (18 wire, 0.12 dia) 4-core</p>	(1) ⊕	Brown	(2) L	Pink	(3) OUT	Black	(4) ⊖	Blue	<p>EE-SX670/-SX470, EE-SX671/-SX471, EE-SX672/-SX472, EE-SX673/-SX473, EE-SX670A/-SX671A, EE-SX672A/-SX673A, EE-SPX303/-SPX403, EE-SPY311/-SPY411, EE-SPY312/-SPY412, EE-SX674/-SX674A, EE-SX474</p> <div style="border: 2px solid red; padding: 5px; text-align: center;"> <p>勝特力材料 886-3-5753170 勝特力电子(上海) 86-21-54151736 勝特力电子(深圳) 86-755-83298787 Http://www.100y.com.tw</p> </div>
(1) ⊕	Brown								
(2) L	Pink								
(3) OUT	Black								
(4) ⊖	Blue								
<p>EE-1006A Connector Holder (for the EE-1006 only)</p>  <p>Note: Applicable photomicrosensors are as indicated on the right</p> <p>Material: Stainless steel</p> <p>25.2 19 12 3.2 3.6 R3 3.4 4-R2 4-R1.6 5.5 10.2 3 3 2.1 19.4 21.9 15 1.2 (R1) 2</p>	<p>EE-SX470/-SX670, EE-SX670A, EE-SY671/-SY672 with EE-1006 Connector</p>								

Appearance and dimensions	Applicable Sensors
<p>EE-1009</p>  <p>EE-1010 EE-1010-R (robot cord)</p> 	<p>EE-SX670/-SX671, EE-SX672/-SX673 EE-SX674/-SX670A, EE-SX671A/-SX672A EE-SX673A/-SX674A, EE-SX470/-SX471 EE-SX472/-SX473, EE-SX474, EE-SY671/-SY672 EE-SPX303/-SPX403, EE-SPX611 EE-SPY312/-SPY412, EE-SPW311/-SPW411</p> <div style="border: 2px solid red; padding: 5px; text-align: center;"> <p>勝特力材料 886-3-5753170 勝特力电子(上海) 86-21-54151736 勝特力电子(深圳) 86-755-83298787 Http://www.100y.com.tw</p> </div>

Appearance and dimensions	Applicable Sensors
<p>EE-1002</p>  <p>Technical drawing of the EE-1002 connector showing top, side, and front views with dimensions: 16.72, 6, 16, 10.25, 4, 5.5, 1.2, 0.6, 2.5, 11.5, 13.5, 21.5, 6, 1.2.</p>	<p>EE-SPX301/-SPX401, EE-SPY301/-SPY401, EE-SPY302/-SPY402, EE-SPZ301-A/-SPZ401-A, EE-SPZ301Y-01/-SPZ401Y-01, EE-SPZ301W-02/-SPZ401W-02</p> <div style="border: 2px solid red; padding: 5px; text-align: center;"> <p>勝特力材料 886-3-5753170 勝特力电子(上海) 86-21-54151736 勝特力电子(深圳) 86-755-83298787 Http://www.100y.com.tw</p> </div>
<p>EE-1003</p>  <p>Technical drawing of the EE-1003 connector showing top and side views with dimensions: 0.75, 2.5, 5.0, 1.75, 4.9, 11, 10.7, 1.0, 1,000±20, 3±1.</p> <p>Note: The connector incorporates a 1-m cord.</p> <p>(3) Blue (Black) (2) Black (White) (1) Brown (Red)</p>	
<p>EE-1003A</p>  <p>Technical drawing of the EE-1003A connector showing top and side views with dimensions: 25.5, 20, 14.2, 5.7, 8, 2.9, 1, 1.25, 1.8, 5, Two, 3.2 dia. hole, 4.2, 1, 3.5, 11, 2.5, 2, 1.</p>	

■ NPN to PNP Transistor Output Conversion Connector

Appearance and dimensions	Applicable Sensors
<p>EE-2001</p>  <p>Cord: 4 dia. (18 wire, 0.12 dia), 3-conductor</p>	<p>EE-SPX301/-SPX401, EE-SPY301/-SPY401 EE-SPY302/-SPY402, EE-SPZ301-A/-SPZ401-A EE-SPZ301Y-01/-SPZ401Y-01 EE-SPZ301W-02/-SPZ401W-02</p> <div style="border: 2px solid red; padding: 5px; text-align: center;"> <p>勝特力材料 886-3-5753170 勝特力电子(上海) 86-21-54151736 勝特力电子(深圳) 86-755-83298787 Http://www.100y.com.tw</p> </div>
<p>EE-2002</p> <p>Note: Models EE-SX67j and EE-SY67j cannot be used with the Light-ON</p>  <p>Cord: 4 dia. (18 wire, 0.12 dia), 3-conductor</p>	<p>EE-SX670/-SX671, EE-SX672/-SX673 EE-SX674, EE-SX670A/-SX671A EE-SX672A/-SX673A, EE-SX674A EE-SX470/-SX471, EE-SX472/-SX473 EE-SX474, EE-SY671/-SY672 EE-SPX303/-SPX403, EE-SPY311/-SPY411 EE-SPY312/-SPY412, EE-SPW311/-SPW411</p>