

Slot-type Photomicrosensor (Non-modulated) ^①

EE-SX47/67

CSM_EE-SX47/67_DS_E_13_2

Global Standard Slot-type photomicrosensors with 50- to 100-mA direct switching capacity.

- Series includes models that enable switching between dark-ON and light-ON operation.
- Response frequency as high as 1 kHz.
- Easy operation monitoring with bright light indicator.
- Wide operating voltage range: 5 to 24 VDC
- Models in which the light indicator turns ON for dark-ON operation are also available.
- A wide range of variations in eight different shapes.
- Flexible robot cable is provided as a standard feature. ^{*2}

 Be sure to read Safety Precautions on page 5.

*1. Pre-wired Models are available only in the EE-SX67 Series.

*2. Only for Pre-wired Models.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

Connector

Appearance	Sensing method	Connect- ing method	Sensing distance	Output configuration	Indicator mode	Model	
						NPN output	PNP output
Standard	Through-beam type (with slot)	Connector (4 poles)	5 mm (slot width)	Dark-ON/Light-ON (selectable) ^{*3 *4}	Incident light	EE-SX670	EE-SX670P
					No incident light	EE-SX670A	EE-SX670R
				Light-ON	Incident light	EE-SX470	--
					Incident light	EE-SX671	EE-SX671P
				Dark-ON/Light-ON (selectable) ^{*3 *4}	No incident light	EE-SX671A	EE-SX671R
					Incident light	EE-SX471	--
				Dark-ON/Light-ON (selectable) ^{*3 *4}	Incident light	EE-SX672	EE-SX672P
					No incident light	EE-SX672A	EE-SX672R
				Light-ON	Incident light	EE-SX472	--
					Incident light	EE-SX673	EE-SX673P
				Dark-ON/Light-ON (selectable) ^{*3 *4}	No incident light	EE-SX673A	EE-SX673R
					Incident light	EE-SX473	--
				Dark-ON/Light-ON (selectable) ^{*3 *4}	Incident light	EE-SX674	EE-SX674P
					No incident light	EE-SX674A	EE-SX674R
				Light-ON	Incident light	EE-SX474	--
					Incident light	EE-SX675	EE-SX675P
				Dark-ON/Light-ON (selectable) ^{*3 *4}	Incident light	EE-SX676	EE-SX676P
					Incident light	EE-SX677	EE-SX677P

*3. Dark-ON when the L terminal of the connector is opened, and light-ON when the L terminal and positive (+) terminal are connected. Do not connect the L terminal to 0 V when using dark-ON operation. When using light-ON, it is useful to select the connector EE-1001-1. The L terminal and positive (+) terminal of this connector are connected in advance.

*4. If you do not use the L terminal wire ((2) pink) when you use a Connector with Cable for an EE-1006 or EE-1010-series Photomicrosensor, noise may affect the Photomicrosensor. To prevent the effects of noise, cut the unused L terminal wire at the base of the connector and wrap it with insulating tape to prevent it from coming in contact with other terminals.

Slot-type Photomicrosensor (Non-modulated) ^①

EE-SX47/67

CSM_EE-SX47/67_DS_E_13_2

具有50至100mA直接开关容量的全球标准槽型光传感器。

*系列包括可在暗开和亮开操作之间切换的型号。*响应频率高达1kHz。*使用明亮的指示灯轻松监控操作。*宽工作电压范围：5至24Vdc*也可提供亮灯指示灯开启暗操作的型号。*八种不同形状的多种变化。*提供柔性机器人电缆作为标准功能。*2



 请务必阅读第5页的安全注意事项。

*1. 预接线型号仅在EE-SX67系列中提供。*2. 仅适用于预接线型号。

有关已通过安全标准认证的型号的最新信息，请参阅您的欧姆龙网站。

订购资料

Connector

Appearance	感测方 法	连接方 法	感应距离	输出配置	指标模式	Model	
						NPN output	PNP output
Standard	通过光束型 (带槽)	连接器 (4 芯)	5 mm (槽宽度)	Dark-ON/Light-ON (Selectable) ^{*3 *4}	入射光	EE-SX670	EE-SX670P
					无入射光	EE-SX670A	EE-SX670R
				Light-ON	入射光	EE-SX470	--
					入射光	EE-SX671	EE-SX671P
				Dark-ON/Light-ON (Selectable) ^{*3 *4}	无入射光	EE-SX671A	EE-SX671R
					入射光	EE-SX471	--
				Dark-ON/Light-ON (Selectable) ^{*3 *4}	入射光	EE-SX672	EE-SX672P
					无入射光	EE-SX672A	EE-SX672R
				Light-ON	入射光	EE-SX472	--
					入射光	EE-SX673	EE-SX673P
				Dark-ON/Light-ON (Selectable) ^{*3 *4}	无入射光	EE-SX673A	EE-SX673R
					入射光	EE-SX473	--
				Dark-ON/Light-ON (Selectable) ^{*3 *4}	入射光	EE-SX674	EE-SX674P
					无入射光	EE-SX674A	EE-SX674R
				Light-ON	入射光	EE-SX474	--
					入射光	EE-SX675	EE-SX675P
				Dark-ON/Light-ON (Selectable) ^{*3 *4}	入射光	EE-SX676	EE-SX676P
					入射光	EE-SX677	EE-SX677P

*3. 连接器的L端子打开时亮，L端子和正(+)端子连接时亮。使用暗开操作时请勿将L端子连接到0V。使用light-ON时，选择连接器EE-1001-1很有用。此连接器的L端子和正(+)端子预先连接。*4. 如果在使用带有EE-1006或EE-1010系列光传感器电缆的连接器时不使用L端子线((2)粉红色)，噪声可能会影响光传感器。为了防止噪声的影响，在连接器的底部切断未使用的L端子线，并用绝缘胶带包裹，以防止它与其他端子接触。

Pre-wired Models

Appearance	Sensing method	Sensing distance	Output configuration	Indicator mode	Connecting method	Model	
						NPN output	PNP output
Standard		Through-beam type (with slot)	5 mm (slot width)	Dark-ON/Light-ON (selectable) *1 *2	Incident light Pre-wired Models (1m)	EE-SX670-WR 1M	EE-SX670P-WR 1M
						EE-SX671-WR 1M	EE-SX671P-WR 1M
						EE-SX672-WR 1M	EE-SX672P-WR 1M
						EE-SX673-WR 1M	EE-SX673P-WR 1M
						EE-SX674-WR 1M	EE-SX674P-WR 1M
						EE-SX675-WR 1M	EE-SX675P-WR 1M
						EE-SX676-WR 1M	EE-SX676P-WR 1M
						EE-SX677-WR 1M	EE-SX677P-WR 1M

*1. Dark-ON operation can be used when the L terminal is left unconnected or Light-ON operation can be used when the L terminal and positive (+) terminal are connected to each other. Do not connect the L terminal to 0 V when using dark-ON operation.

*2. If you do not use the L terminal wire ((2) pink) when you use a Connector with Cable for an EE-1006 or EE-1010-series Photomicrosensor, noise may affect the Photomicrosensor. To prevent the effects of noise, cut the unused L terminal wire at the base of the connector and wrap it with insulating tape to prevent it from coming in contact with other terminals.

Accessories (Order Separately) Connector Models

Type	Cable length	Model	Remarks
Connector		EE-1001	
		EE-1001-1	L terminal and positive (+) terminal are already short-circuited.
		EE-1009 *	
	Connector with Cable	EE-1006 1M	
		EE-1010 1M *	
		EE-1006 2M	
		EE-1010 2M *	
	Connector with Robot Cable	EE-1010-R 1M *	
		EE-1010-R 2M *	
Connector Hold-down Clip		EE-1006A	Applicable Photomicrosensors For EE-SX670@ and 470@ only. (Can be used only with EE-1006 Connectors for the Photomicrosensors listed above.)

Note: For details, refer to the Photomicro Sensors Accessories on EE-□ which can be accessed from your OMRON website.

* 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.

Pre-wired Models

Appearance	感测方法	感应距离	输出配置	指标模式	连接方法	Model	
						NPN output	PNP output
Standard		Through-beam type (with slot)	5 mm (slot width)	Dark-ON/Light-ON (selectable) *1 *2	入射光 Pre-wired Models (1m)	EE-SX670-WR 1M	EE-SX670P-WR 1M
						EE-SX671-WR 1M	EE-SX671P-WR 1M
						EE-SX672-WR 1M	EE-SX672P-WR 1M
						EE-SX673-WR 1M	EE-SX673P-WR 1M
						EE-SX674-WR 1M	EE-SX674P-WR 1M
						EE-SX675-WR 1M	EE-SX675P-WR 1M
						EE-SX676-WR 1M	EE-SX676P-WR 1M
						EE-SX677-WR 1M	EE-SX677P-WR 1M

*1.当L端子保持未连接时可使用暗开操作或当L端子和正(+)端子彼此连接时可使用亮开操作。使用暗开操作时请勿将L端子连接到0V。*2.如果在使用带有EE-1006或EE-1010系列光传感器电缆的连接器时不使用L端子线((2)粉红色), 噪声可能会影响光传感器。为了防止噪声的影响, 在连接器的底部切断未使用的L端子线, 并用绝缘胶带包裹, 以防止它与其他端子接触。

附件 (单独订购) 连接器型号

Type	电缆长度	Model	Remarks
Connector		EE-1001	
		EE-1001-1	L端子和正(+)端子已经短路。
		EE-1009 *	
带电缆的连接器	1 m	EE-1006 1M	
		EE-1010 1M *	
	2 m	EE-1006 2M	
		EE-1010 2M *	
带机器人的连接器	1 m	EE-1010-R 1M *	
	2 m	EE-1010-R 2M *	

Applicable Photomicrosensors
仅适用于EE-SX670@和470@。(只能与上面列出的光传感器的EE-1006连接器一起使用。)

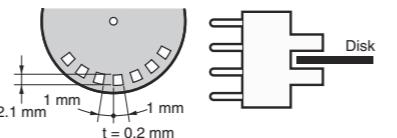
注意: 有关详细信息, 请参阅EE-□上的Photomicro传感器附件, 该附件可从您的欧姆龙网站访问。*EE-1009或EE-1010系列连接器具有内置锁定机制, 可在仅拉动电缆时防止电缆断开。要从传感器上取下连接器, 请牢牢抓住连接器的顶部和底部, 并在拔出之前推入传感器一次。锁定机构防止连接器仅通过拉动电缆而被移除, 并且仅当连接器(壳体)被拉动时才允许移除。

Ratings and Specifications

		Type	Standard	L-shaped	T-shaped, slot center 7 mm	Close-mounting		T-shaped, slot center 10 mm	F-shaped	R-shaped
NPN models	Connector models	EE-SX670 EE-SX670A EE-SX470	EE-SX671 EE-SX671A EE-SX471	EE-SX672 EE-SX672A EE-SX472	EE-SX673 EE-SX673A EE-SX473	EE-SX674 EE-SX674A EE-SX474	EE-SX675	EE-SX676	EE-SX677	
	Pre-wired models	EE-SX670- WR	EE-SX671- WR	EE-SX672- WR	EE-SX673- WR	EE-SX674- WR	EE-SX675- WR	EE-SX676- WR	EE-SX677- WR	
PNP models	Connector models	EE-SX670P EE-SX670R	EE-SX671P EE-SX671R	EE-SX672P EE-SX672R	EE-SX673P EE-SX673R	EE-SX674P EE-SX674R	EE-SX675P	EE-SX676P	EE-SX677P	
	Pre-wired models	EE-SX670P- WR	EE-SX671P- WR	EE-SX672P- WR	EE-SX673P- WR	EE-SX674P- WR	EE-SX675P- WR	EE-SX676P- WR	EE-SX677P- WR	
Sensing distance		5 mm (slot width)								
Sensing object		Opaque: 2 × 0.8 mm min.								
Differential distance		0.025 mm								
Light source		Infrared LED with a peak wavelength of 940 nm								
Indicator *1		Light indicator (red) (turns ON when light is interrupted for models with A or R suffix)								
Supply voltage		5 to 24 VDC ±10%, ripple (p-p): 10% max.								
Current consumption		12 mA max. (Connector models, L terminal open), 35 mA max. (NPN pre-wired models), 30 mA max. (PNP pre-wired models)								
		NPN open collector: 5 to 24 VDC, 100 mA max. 100 mA load current with a residual voltage of 0.8 V max. 40 mA load current with a residual voltage of 0.4 V max. OFF current (leakage current): 0.5 mA max.								
Control output		PNP open collector: 5 to 24 VDC, 50 mA max. 50 mA load current with a residual voltage of 1.3 V max. OFF current (leakage current): 0.5 mA max.								
Protection circuits		Load short circuit protection (Connector models), No circuit protection (Pre-wired models)								
Response frequency *2		1 kHz min. (3 kHz average)								
Ambient illumination		1,000 lx max. with fluorescent light on the surface of the receiver.								
Ambient temperature range		Operating: -25 to +55°C, Storage: -30 to +80°C (with no icing or condensation)								
Ambient humidity range		Operating: 5% to 85%, Storage: 5% to 95% (with no icing or condensation)								
Vibration resistance		Destruction: 20 to 2,000 Hz (peak acceleration: 100 m/s ²) 1.5-mm double amplitude for 2 h (4-min periods) each in X, Y, and Z directions								
Shock resistance		Destruction: 500 m/s ² for 3 times each in X, Y, and Z directions								
Degree of protection		IEC60529 IP50								
Connecting method		Connector Models (direct soldering possible), Pre-wired Models (Standard cable length: 1 m), Models with Connectors (Standard cable length: 0.1 m)								
Weight	Connector models	Approx. 3.1 g	Approx. 3 g	Approx. 2.4 g	Approx. 2.3 g	Approx. 3 g	Approx. 2.7 g	Approx. 2.2 g	Approx. 2.2 g	
	Pre-wired models	Approx. 18.9 g	Approx. 17.3 g	Approx. 17.8 g	Approx. 16.8 g	Approx. 17.1 g	Approx. 18.3 g	Approx. 16.9 g	Approx. 16.9 g	
Material	Case	Polybutylene phthalate (PBT)								
	Cover	Polycarbonate								
Emitter/receiver		Polycarbonate								

*1. The indicator is a GaP red LED (peak wavelength: 690 nm).

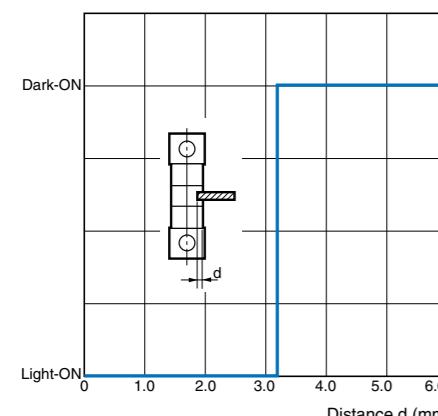
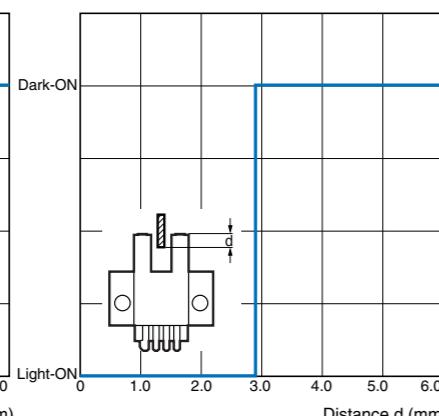
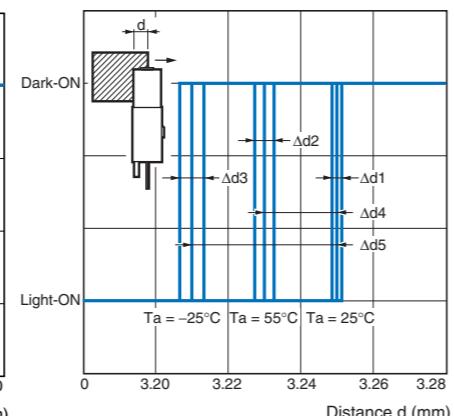
*2. The response frequency was measured by detecting the rotating disk shown at the right.



评级及规格

		Type	Standard	L-shaped	T形, 槽中 心7毫米	Close-mounting		T形, 槽中 心10毫米	F-shaped	R-shaped
NPN models	连接器型号	EE-SX670 EE-SX670A EE-SX470	EE-SX671 EE-SX671A EE-SX471	EE-SX672 EE-SX672A EE-SX472	EE-SX673 EE-SX673A EE-SX473	EE-SX674 EE-SX674A EE-SX474	EE-SX675	EE-SX676	EE-SX677	
	Pre-wired models	EE-SX670- WR	EE-SX671- WR	EE-SX672- WR	EE-SX673- WR	EE-SX674- WR	EE-SX675- WR	EE-SX676- WR	EE-SX677- WR	
PNP models	连接器型号	EE-SX670P EE-SX670R	EE-SX671P EE-SX671R	EE-SX672P EE-SX672R	EE-SX673P EE-SX673R	EE-SX674P EE-SX674R	EE-SX675P	EE-SX676P	EE-SX677P	
	Pre-wired models	EE-SX670P- WR	EE-SX671P- WR	EE-SX672P- WR	EE-SX673P- WR	EE-SX674P- WR	EE-SX675P- WR	EE-SX676P- WR	EE-SX677P- WR	
感应距离		5 mm (slot width)								
感应对象		Opaque: 2 × 0.8 mm min.								
差分距离		0.025 mm								
光源		峰值波长为940nm的红外LED								
Indicator *1		指示灯 (红色) (对于带有a或R后缀的型号, 当指示灯中断时亮起)								
电源电压		5至24vdc±10%纹波(p-p):最大10%.								
电流消耗		最大12ma。 (连接器型号, (端子开路), 最大35mA。 (NPN预接线型号), 最大30mA。 (PNP预接线型号))								
		NPN集电极开路: 5至24VDC, 最大100mA。 100mA负载电流, 最大残余电压为0.8V。40mA负载电流 , 最大残余电压为0.4V。关闭电流(漏电流):最大0.5ma。								
控制输出		PNP集电极开路: 5至24VDC, 最大50mA。 50mA负载电流, 最大残余电压为1.3V。关闭电流(漏电 流):最大0.5ma。								
保护电路		负载短路保护 (连接器型号), 无电路保护 (预接线型号)								
响应频率*2		1 kHz min. (3 kHz average)								
环境照明		最大1 000lx。在接收器的表面上有荧光灯。								
环境温度范围		操作: -25至+55°C, 存储: -30至+80°C (无结冰或冷凝)								
环境湿度范围		操作: 5%至85%, 储存: 5%至95% (无结冰或冷凝)								
抗振动性		破坏: 20至2 000赫兹 (峰值加速度: 100ms ²) 1.5毫米双振幅, 每个2h (4分钟) 在X, Y和Z方向								
抗冲击性		破坏: 500ms<								

Engineering Data (Reference Value)

Sensing Position Characteristics
EE-SX47□/67□Sensing Position Characteristics
EE-SX47□/67□Repeated Sensing Position Characteristics
EE-SX47□/67□

V_{CC}=12 V, No. of repetitions: 20, $\Delta d_1 = 0.002 \text{ mm}$, $\Delta d_2 = 0.004 \text{ mm}$, $\Delta d_3 = 0.005 \text{ mm}$, $\Delta d_4 = 0.02 \text{ mm}$, $\Delta d_5 = 0.04 \text{ mm}$
Note: The data applies to dark status. Operation may be affected by external light interference or light coming through the sensing object.

I/O Circuit Diagrams

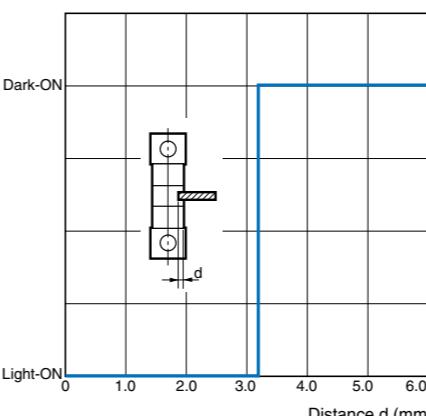
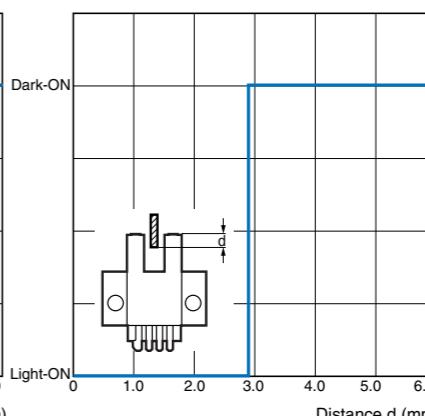
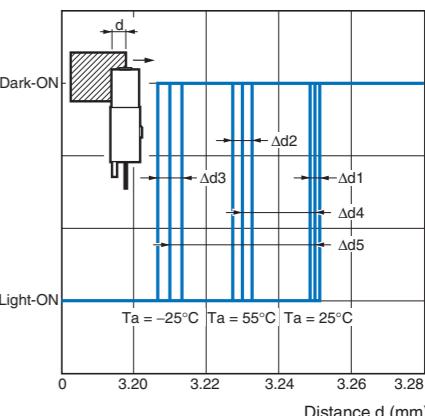
NPN Output

Model	Output configuration	Timing charts	Terminal connections	Output circuit
EE-SX67□ EE-SX67□-WR	Light-ON	 Incident interrupted	Short-circuited between L terminal and positive + terminal	EE-SX67□ EE-SX67□A <p>The circuit diagram shows a main circuit with an NPN transistor. The collector is connected to the OUT terminal, which is also connected to a load. The base of the transistor is controlled by an IC (Control output 100 mA max.) and a diode. The Emitter is connected to ground. A red light indicator is connected in parallel with the main circuit. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
	Dark-ON	 Incident interrupted	Open between L terminal and positive + terminal *1 *2	EE-SX67□-WR <p>The circuit diagram is similar to EE-SX67□A, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A	Light-ON	 Incident interrupted	Short-circuited between L terminal and positive + terminal	EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A <p>The circuit diagram is similar to EE-SX67□-WR, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
	Dark-ON	 Incident interrupted	Open between L terminal and positive + terminal *1 *2	EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A <p>The circuit diagram is similar to EE-SX67□-WR, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
EE-SX470 EE-SX471 EE-SX472 EE-SX473 EE-SX474	Light-ON	 Incident interrupted	--	EE-SX470 EE-SX471 EE-SX472 EE-SX473 EE-SX474 <p>The circuit diagram is similar to EE-SX67□-WR, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>

*1. Do not connect the L terminal to 0 V when using dark-ON operation.

*2. If you do not use the L terminal wire ((2) pink) when you use a Connector with Cable for an EE-1006 or EE-1010-series Photomicrosensor, noise may affect the Photomicrosensor. To prevent the effects of noise, cut the unused L terminal wire at the base of the connector and wrap it with insulating tape to prevent it from coming in contact with other terminals.

工程数据 (参考价值)

感测位置特性
EE-SX47□/67□感测位置特性
EE-SX47□/67□重复感测位置特性
EE-SX47□/67□

V_{CC}=12V, 不。重复次数: 20, $\Delta d_1 = 0.002 \text{ mm}$, $\Delta d_2 = 0.004 \text{ mm}$, $\Delta d_3 = 0.005 \text{ mm}$, $\Delta d_4 = 0.02 \text{ mm}$, $\Delta d_5 = 0.04 \text{ mm}$
注意: 数据适用于暗状态。操作可能受到外部光干扰或穿过感测对象的光的影响。

IO电路图

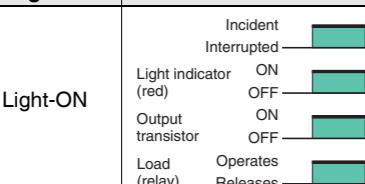
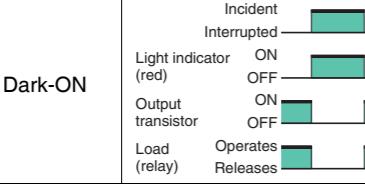
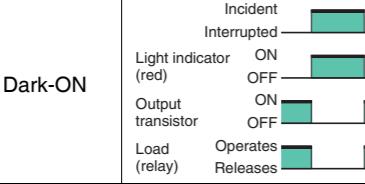
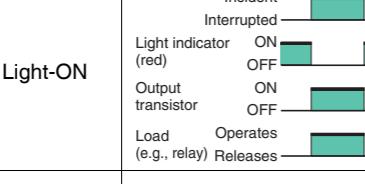
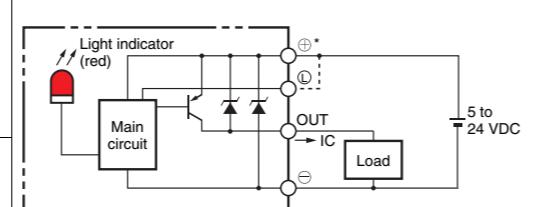
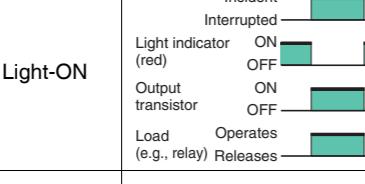
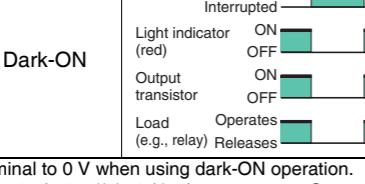
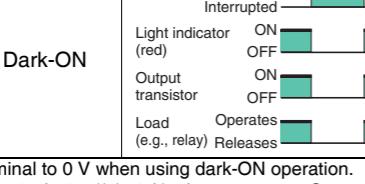
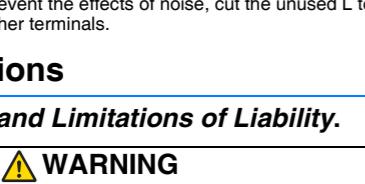
NPN Output

Model	输出配置	时序图	终端连接	输出电路
EE-SX67□ EE-SX67□-WR	Light-ON	 Incident interrupted	端子与正端子之间短路	EE-SX67□ EE-SX67□A <p>The circuit diagram shows a main circuit with an NPN transistor. The collector is connected to the OUT terminal, which is also connected to a load. The base of the transistor is controlled by an IC (Control output 100 mA max.) and a diode. The Emitter is connected to ground. A red light indicator is connected in parallel with the main circuit. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
	Dark-ON	 Incident interrupted	在终端和正之间打开 *1 *2	EE-SX67□-WR <p>The circuit diagram is similar to EE-SX67□A, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A	Light-ON	 Incident interrupted	端子与正端子之间短路	EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A <p>The circuit diagram is similar to EE-SX67□-WR, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
	Dark-ON	 Incident interrupted	在终端和正之间打开 *1 *2	EE-SX670A EE-SX671A EE-SX672A EE-SX673A EE-SX674A <p>The circuit diagram is similar to EE-SX67□-WR, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>
EE-SX470 EE-SX471 EE-SX472 EE-SX473 EE-SX474	Light-ON	 Incident interrupted	--	EE-SX470 EE-SX471 EE-SX472 EE-SX473 EE-SX474 <p>The circuit diagram is similar to EE-SX67□-WR, but the main circuit uses an NPN transistor instead of an FET. The OUT terminal is connected to the collector of the transistor, which is controlled by the IC and diode. The emitter is connected to ground. The OUT terminal is also connected to the IC's control input. The IC's output is connected to the OUT terminal via a diode. The IC's power supply is 5 to 24 VDC.</p>

*1. 使用暗开操作时请勿将L端子连接到0V。*2. 如果在使用带有EE-1006或EE-1010系列光传感器电缆的连接器时不使用L端子线((2)粉红色), 噪声可能会影响光传感器。

为了防止噪声的影响, 在连接器的底部切断未使用的L端子线, 并用绝缘胶带包裹, 以防止它与其他端子接触。

PNP Output

Model	Output configuration	Timing charts	Terminal connections	Output circuit
EE-SX67□P EE-SX67□P-WR	Light-ON	  Short-circuited between ① terminal and positive ② terminal		
	Dark-ON	  Open between ① terminal and positive ② terminal *1 *2		 <p>*The terminal arrangement depends on the model. Check the dimensional diagrams.</p>
EE-SX670R EE-SX671R EE-SX672R EE-SX673R EE-SX674R	Light-ON	  Short-circuited between ① terminal and positive ② terminal		
	Dark-ON	  Open between ① terminal and positive ② terminal *1 *2		

*1. Do not connect the L terminal to 0 V when using dark-ON operation.

*2. If you do not use the L terminal wire ((2) pink) when you use a Connector with Cable for an EE-1006 or EE-1010-series Photomicrosensor, noise may affect the Photomicrosensor. To prevent the effects of noise, cut the unused L terminal wire at the base of the connector and wrap it with insulating tape to prevent it from coming in contact with other terminals.

Safety Precautions

Refer to Warranty and Limitations of Liability.

WARNING

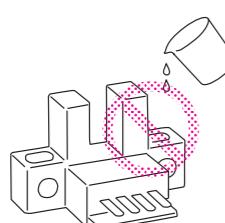
This product is not designed or rated for ensuring safety of persons either directly or indirectly.
Do not use it for such purposes.



Precautions for Safe Use

● Operating Environment

These Photomicrosensors have an IP50 (conforms to IEC) enclosure and do not have a water-proof or dust-proof structure. Therefore, do not use them in applications in which the sensor will be subjected to splashes from water, oil, or any other liquid. Liquid entering the Sensor may result in malfunction.



Precautions for Correct Use

Make sure that this product is used within the rated ambient environment conditions.

● Installation

- When direct soldering to the terminals, use the following guidelines.

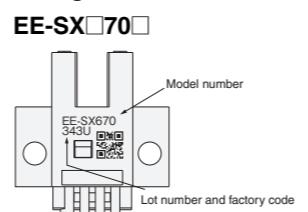
Soldering Conditions

Item	Temperature	Permissible time	Remarks
Soldering iron	350°C max.	3 s max.	The portion between the base of the terminals and the position 1.5 mm from the terminal base must not be soldered.

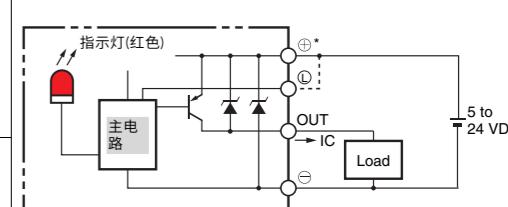
- The terminal base uses a polycarbonate resin, which could be deformed by excessive soldering heat, resulting in damage to the product's functionality.

● Lot Number and Model Number Legend

In the following diagrams, 343U indicates the lot number and factory where the product was manufactured. Do not include this code with the model number when ordering. The QR code on connector models is used by OMRON only.



PNP Output

Model	输出配置	时序图	终端连接	输出电路
EE-SX67□P EE-SX67□P-WR	Light-ON	  端子与正端子之间短路		
	Dark-ON	  在终端和正之间打开 *1 *2		 <p>*1. 终端安排取决于型号。检查尺寸图。 *2. 如果在使用带有EE-1006或EE-1010系列光传感器电缆的连接器时不使用L端子线((2)粉红色)，噪声可能会影响光传感器。</p>
EE-SX670R EE-SX671R EE-SX672R EE-SX673R EE-SX674R	Light-ON	  端子与正端子之间短路		
	Dark-ON	  在终端和正之间打开 *1 *2		

*1. 使用暗开操作时请勿将L端子连接到0V。
*2. 如果在使用带有EE-1006或EE-1010系列光传感器电缆的连接器时不使用L端子线((2)粉红色)，噪声可能会影响光传感器。
为了防止噪声的影响，在连接器的底部切断未使用的L端子线，并用绝缘胶带包裹，以防止它与其他端子接触。

安全预防措施

请参阅保修和责任限制。

WARNING

本产品不是为直接或间接确保人员安全而设计或评级的。
不要将其用于此类目的。



正确使用的注意事项

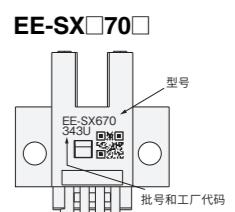
确保本产品在额定环境条件下使用。
●安装•当直接焊接到端子上时，请使用以下指南。

焊接条件

Item	Temperature	允许时间	Remarks
烙铁/烙铁	350°C max.	3 s max.	端子底座之间的部分和距离端子底座1.5毫米的位置不得焊接。

*端子底座使用聚碳酸酯树脂，因焊接温度过高而变形，导致产品功能受损。
●批号及型号图例

在下图中，343U表示产品制造的批号和工厂。订购时不要将此代码与型号一起包含。连接器模型上的QR码仅由欧姆龙使用。

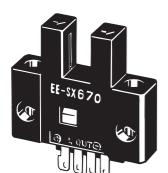


(Unit: mm)

(Unit: mm)

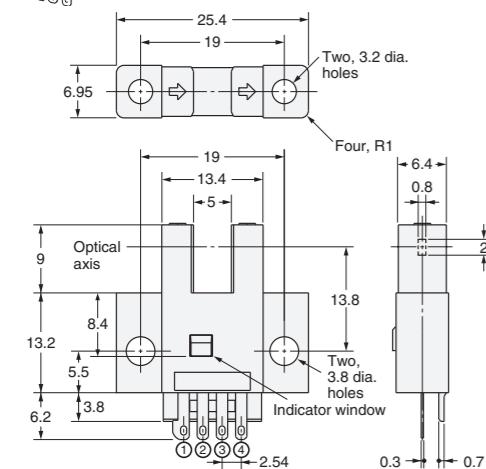
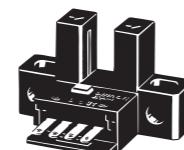
Dimensions

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

Sensors
EE-SX670/670P
EE-SX670A/670R
EE-SX470


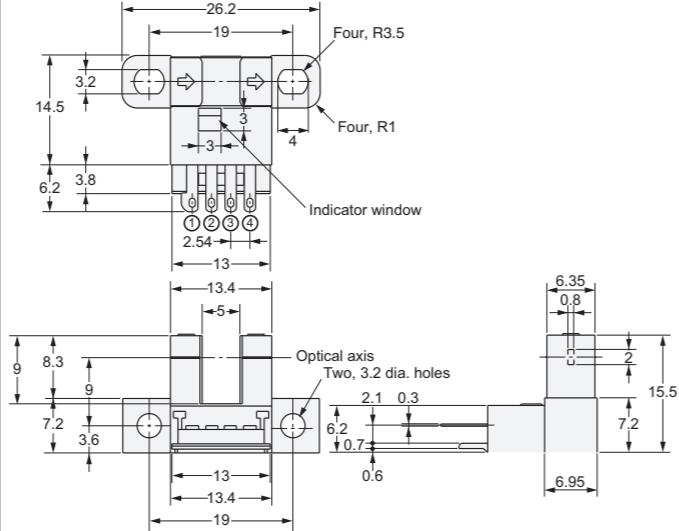
Terminal Arrangement	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

* Pin 2 is not used for the EE-SX470.


EE-SX671/671P
EE-SX671A/671R
EE-SX471


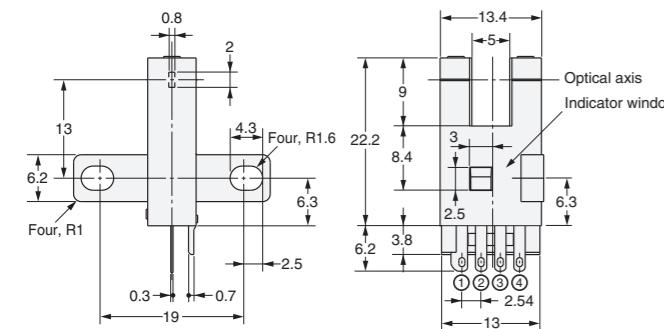
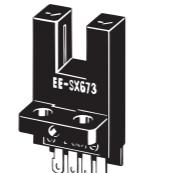
Terminal Arrangement	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

* Pin 2 is not used for the EE-SX471.


EE-SX672/672P
EE-SX672A/672R
EE-SX472

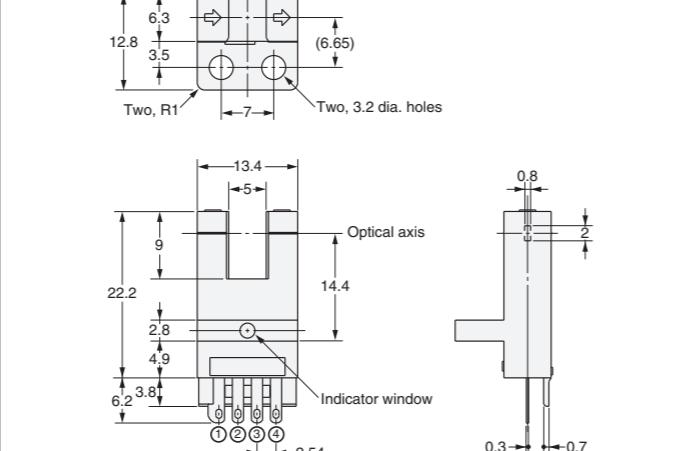

Terminal Arrangement	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

* Pin 2 is not used for the EE-SX472.

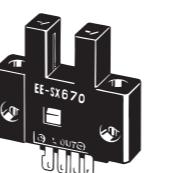

EE-SX673/673P
EE-SX673A/673R
EE-SX473


Terminal Arrangement	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

* Pin 2 is not used for the EE-SX473.

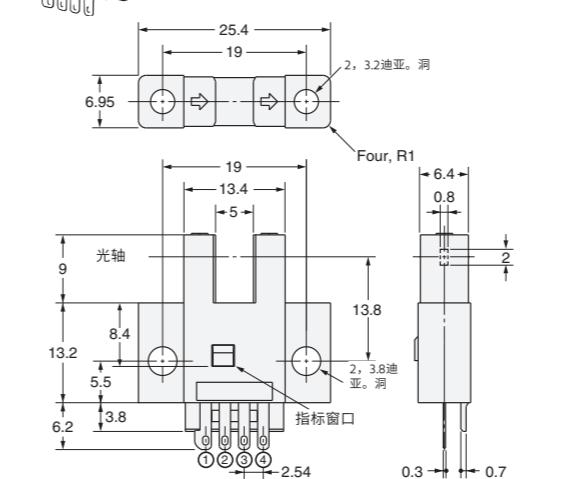
**Dimensions**

除非另有说明，公差等级IT16适用于本数据表中的尺寸。

Sensors
EE-SX670/670P
EE-SX670A/670R
EE-SX470


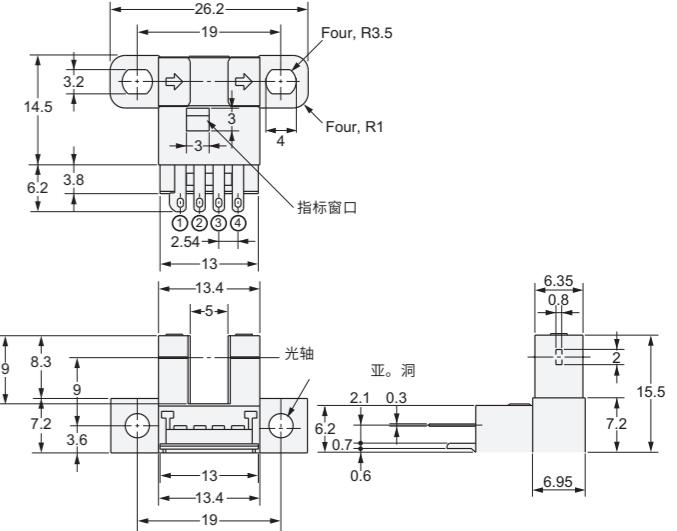
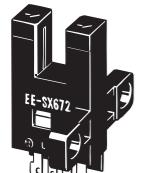
终端安排	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

*引脚2不用于EE-SX470。


EE-SX671/671P
EE-SX671A/671R
EE-SX471

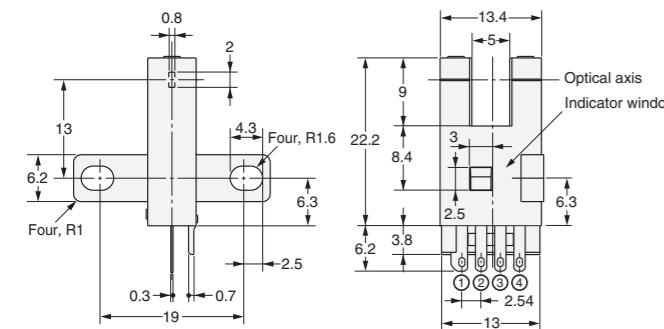
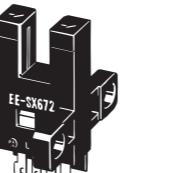

终端安排	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

*引脚2不用于EE-SX471。


EE-SX672/672P
EE-SX672A/672R
EE-SX472


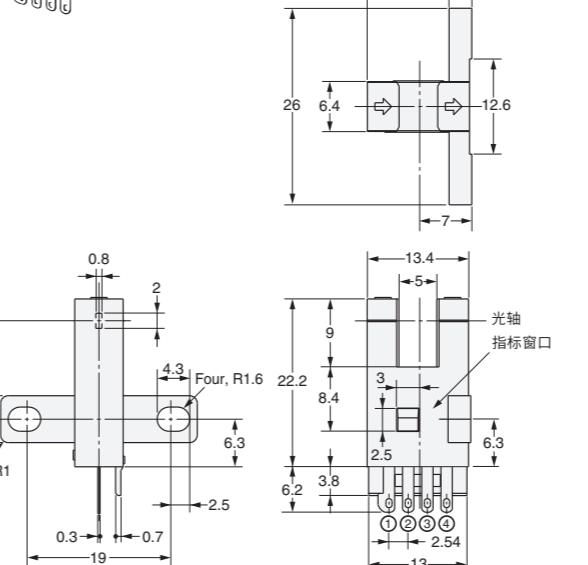
Terminal Arrangement	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

* Pin 2 is not used for the EE-SX472.

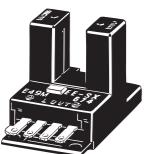

EE-SX673/673P
EE-SX673A/673R
EE-SX473


终端安排	
(1) \oplus	Vcc
(2) L	L*
(3) OUT	OUTPUT
(4) \ominus	GND (0 V)

*引脚2不用于EE-SX473。



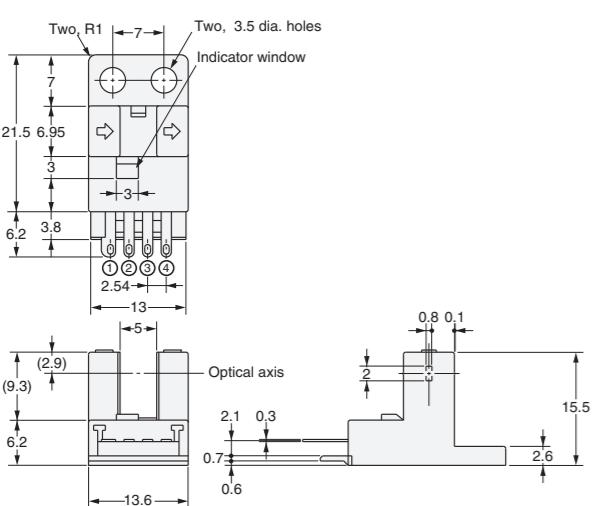
**EE-SX674/674P
EE-SX674A/674R
EE-SX474**



Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

* Pin 2 is not used for the EE-SX474.

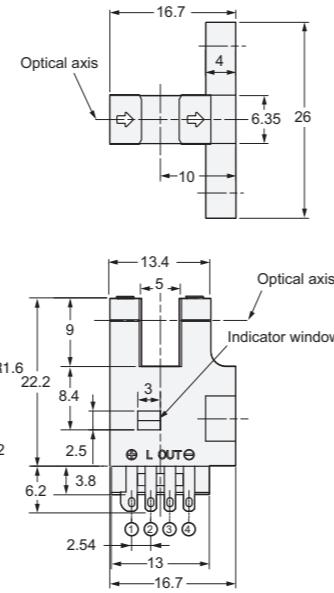


EE-SX675/675P



Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)



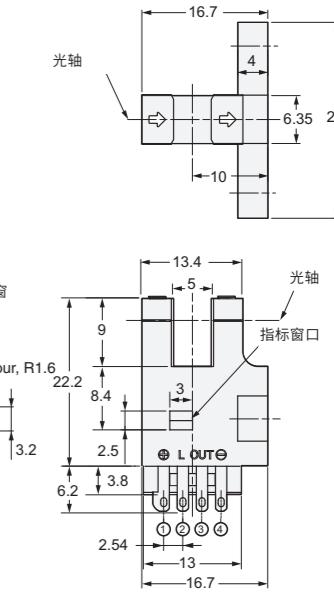
**EE-SX674/674P
EE-SX674A/674R
EE-SX474**



终端安排

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

*引脚2不用于EE-SX474。

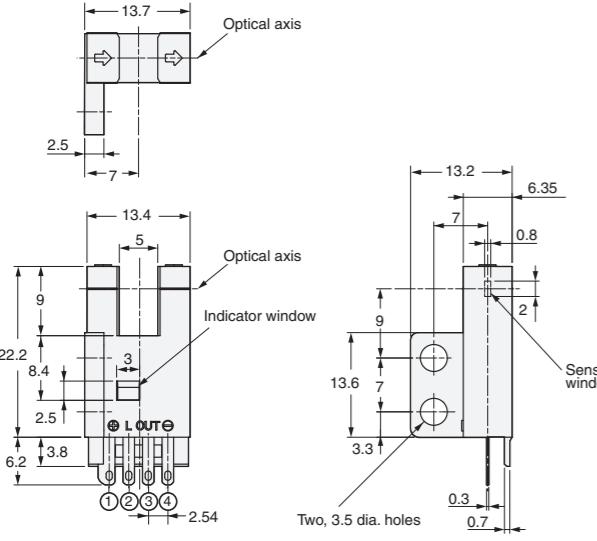


EE-SX676/676P



Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

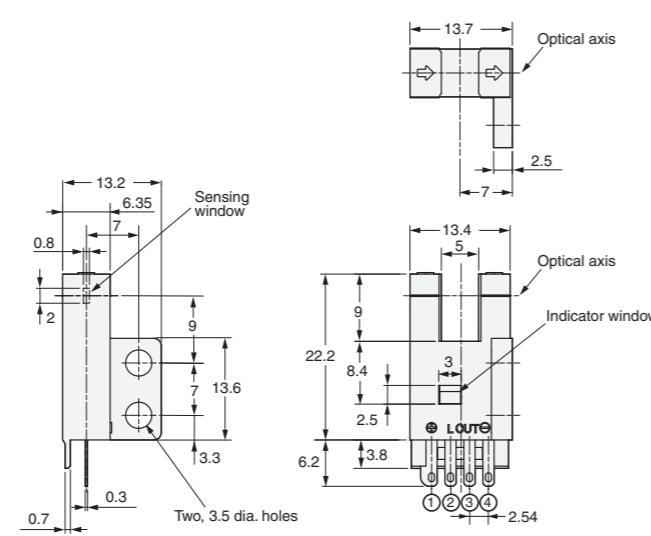


EE-SX677/677P



Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

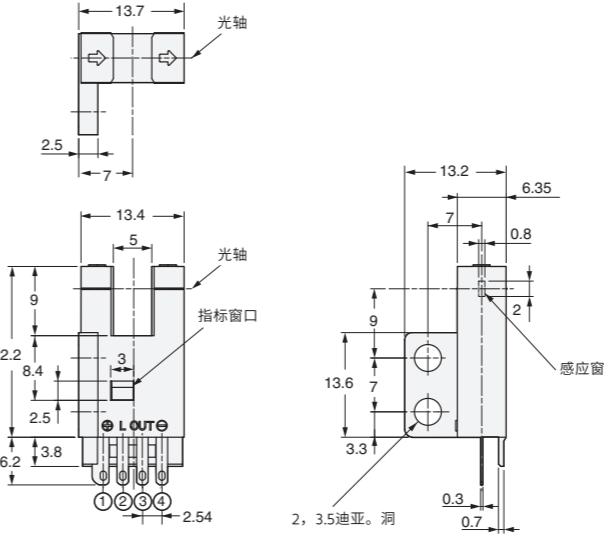


EE-SX676/676P



终端安排

(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

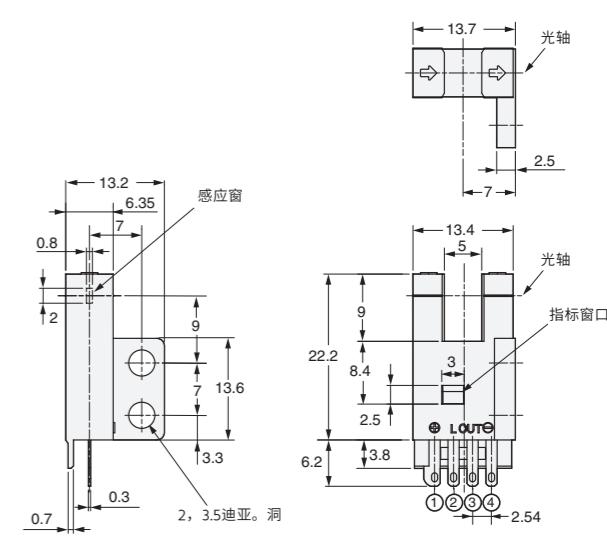


EE-SX677/677P



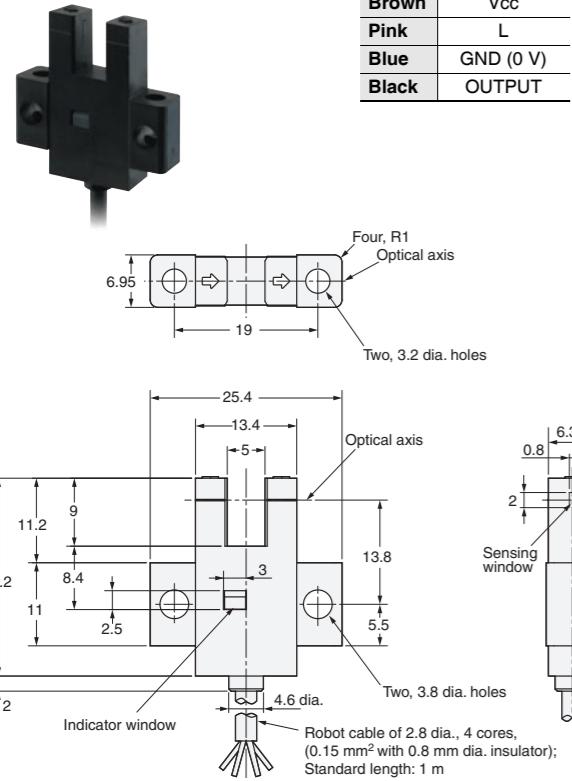
终端安排

(1)	⊕	Vcc
(2)	L	L
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)



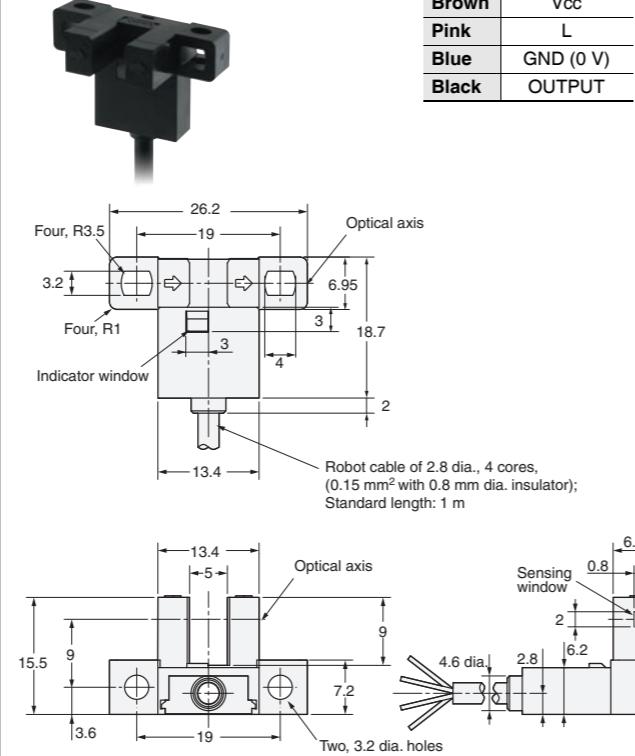
EE-SX670-WR/670P-WR

Terminal Arrangement	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



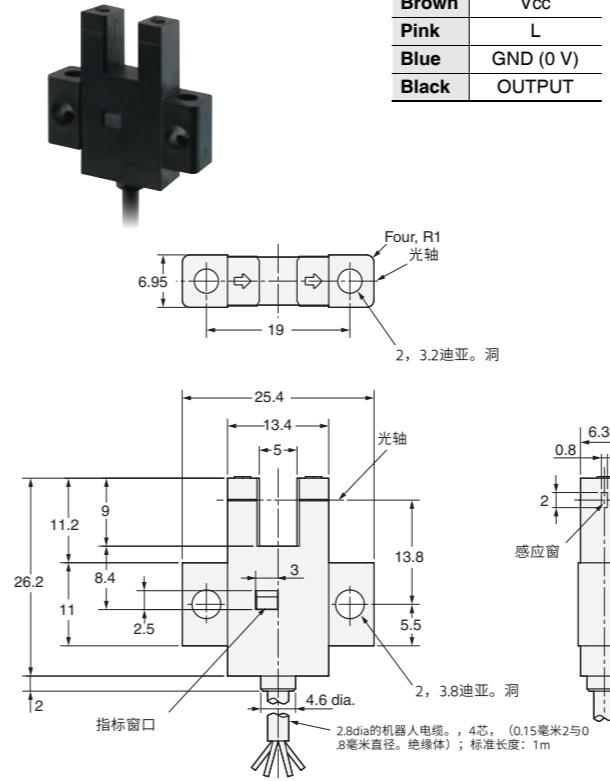
EE-SX671-WR/671P-WR

Terminal Arrangement	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



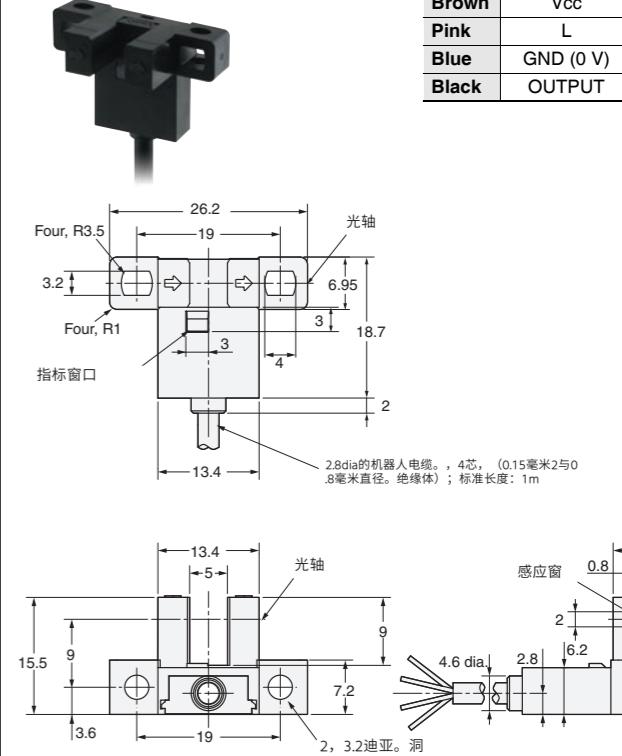
EE-SX670-WR/670P-WR

终端安排	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



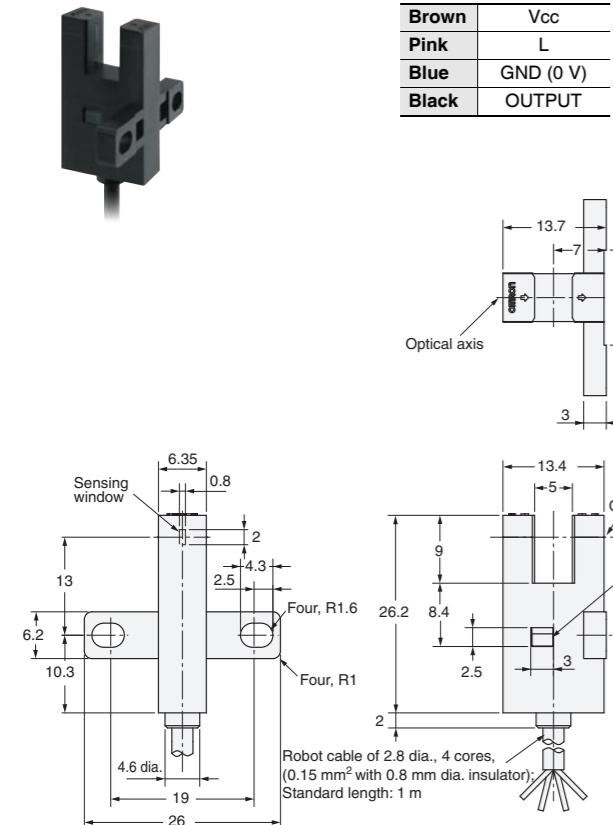
EE-SX671-WR/671P-WR

终端安排	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



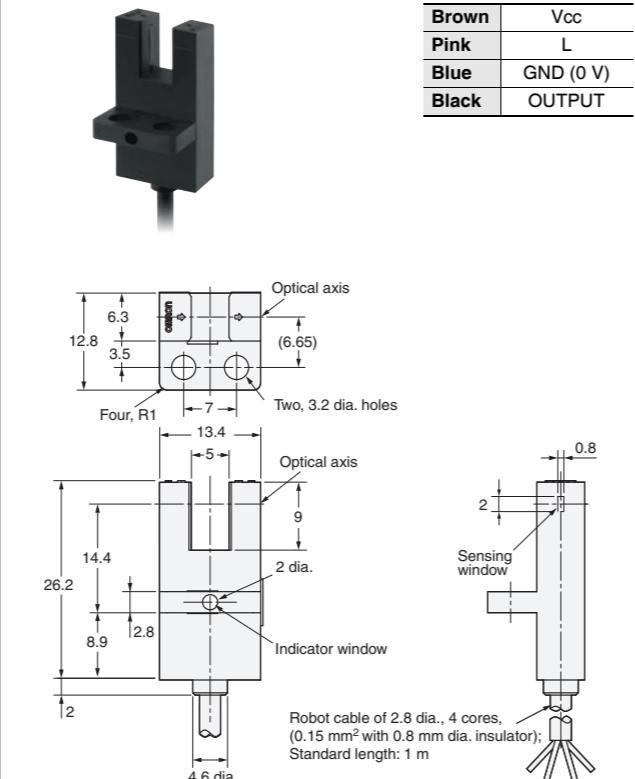
EE-SX672-WR/672P-WR

Terminal Arrangement	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



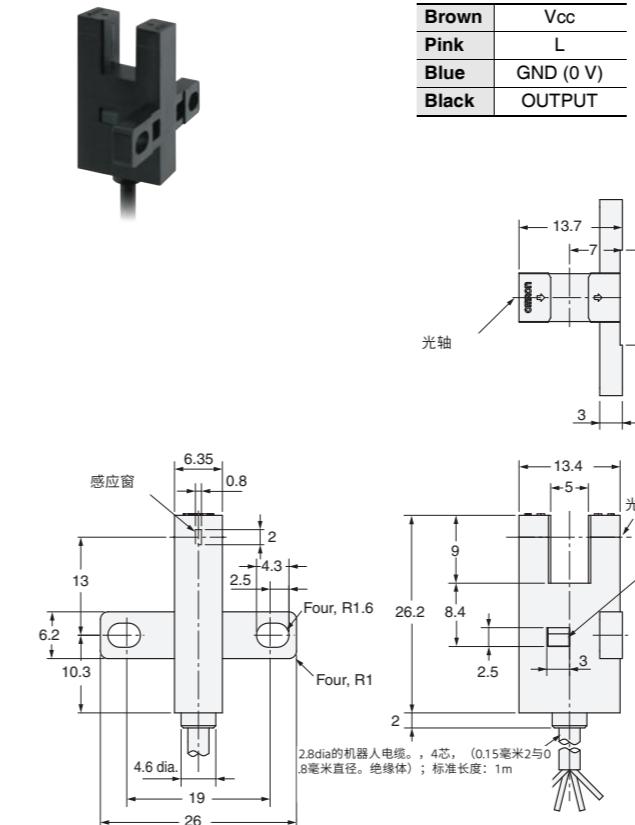
EE-SX673-WR/673P-WR

Terminal Arrangement	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



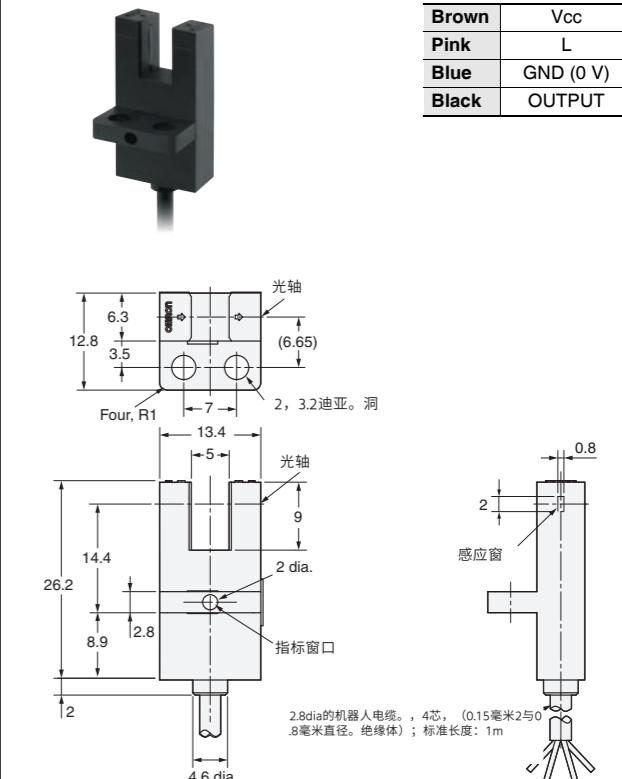
EE-SX672-WR/672P-WR

终端安排	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT

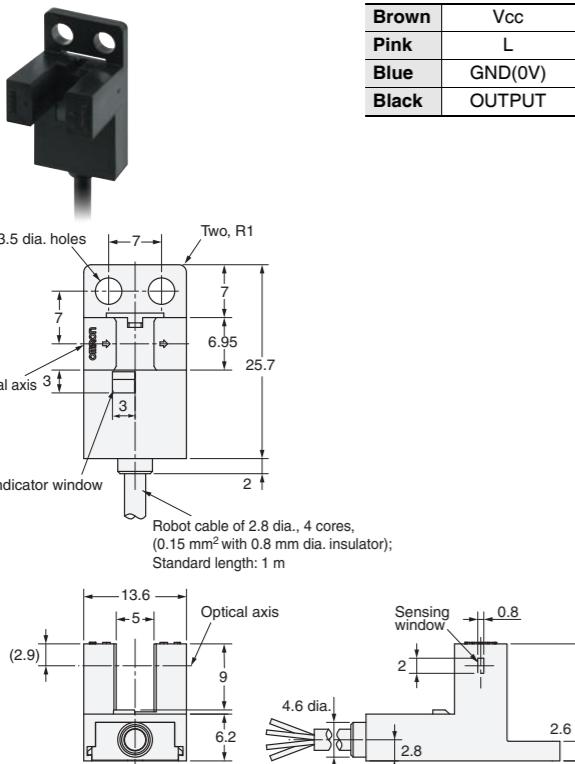


EE-SX673-WR/673P-WR

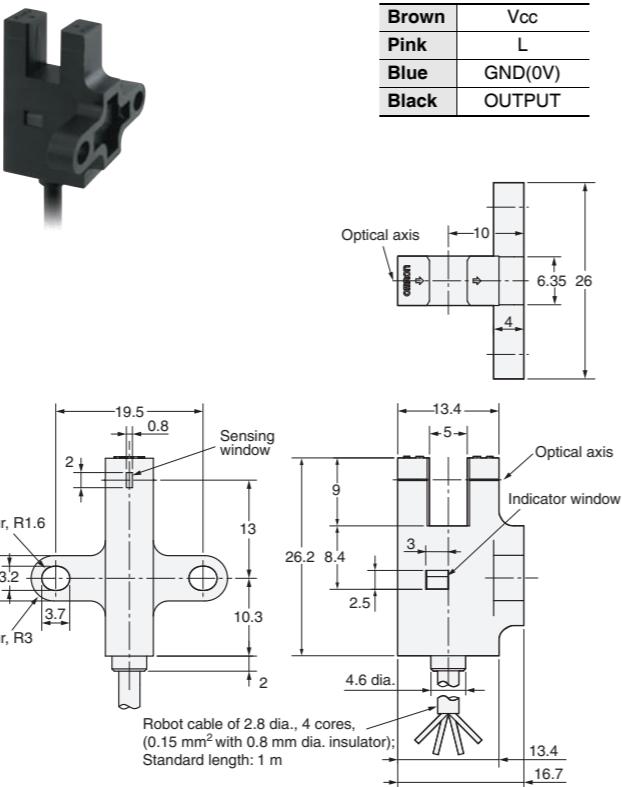
终端安排	
Brown	Vcc
Pink	L
Blue	GND (0 V)
Black	OUTPUT



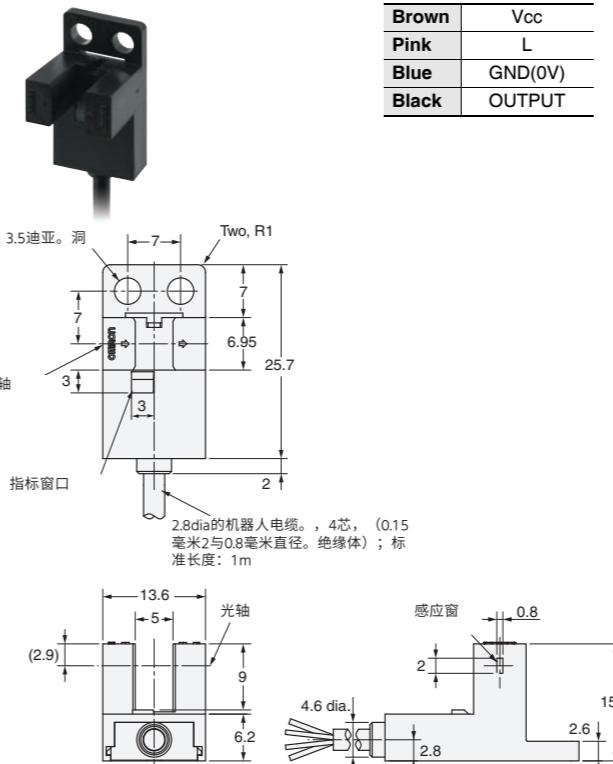
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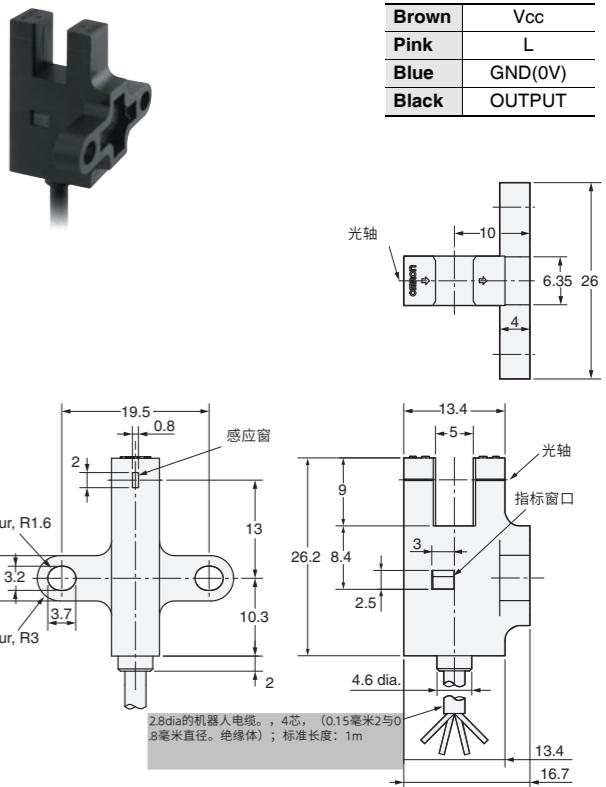
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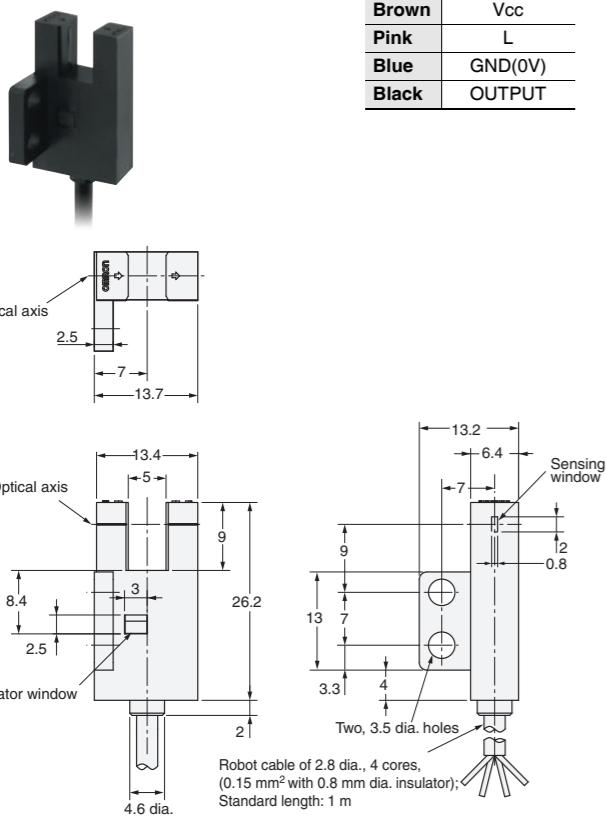
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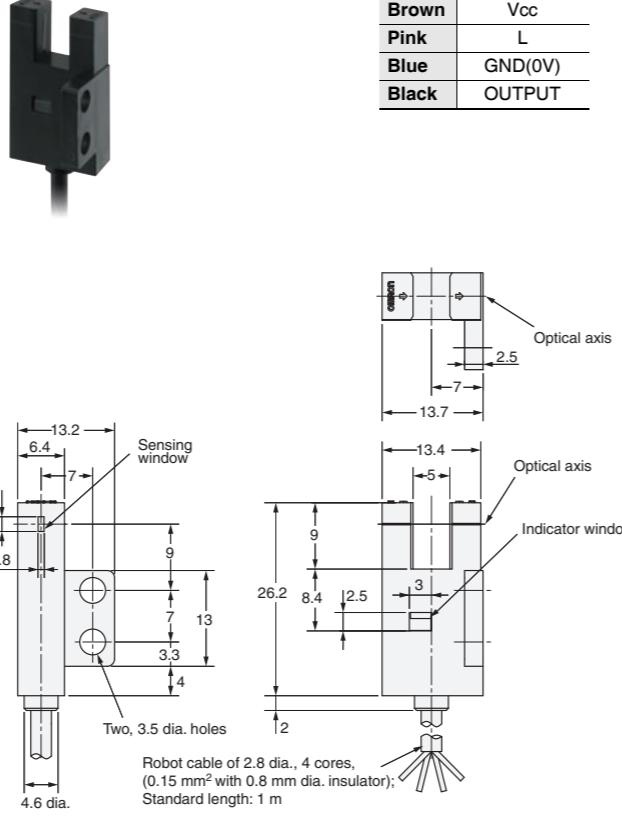
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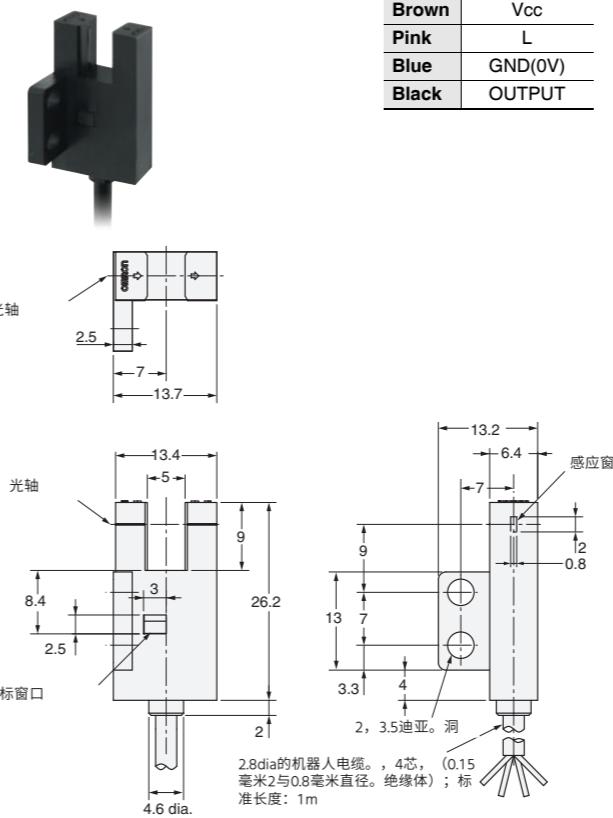
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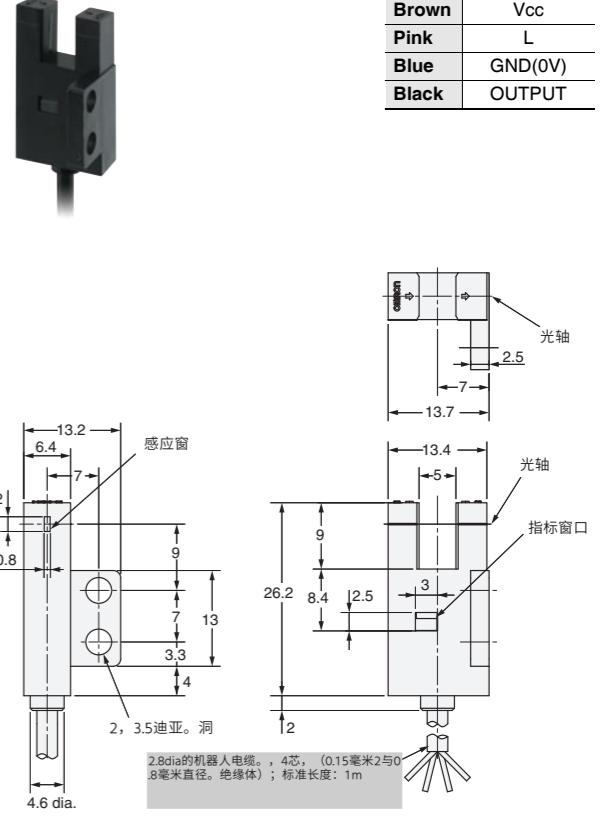
EE-SX677-WR/677P-WR



EE-SX676-WR/676P-WR



EE-SX677-WR/677P-WR



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