












Thru-beam Mode (Ultra-small type)

Sensing Mode	Connection	Supply voltage	Connect type	Output Mode	Part Number
Thru-beam mode(Ultra-small type) Sensing Distance: 5mm Light Source: Infrared	K shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-UK</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-UK</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-UK</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-UK</u>
	L shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-UL</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-UL</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-UL</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-UL</u>
	F shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-UF</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-UF</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-UF</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-UF</u>
	R shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-UR</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-UR</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-UR</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-UR</u>
	U shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-UU</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-UU</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-UU</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-UU</u>

Note:

Coming Soon : Part numbers with underline
In Preparation: Part numbers with a line through the middle

Thru-beam Mode (Small type)






Type	Connection	Supply voltage	Connect type	Output Mode	Part Number		
Thru-beam mode(Small type) Sensing Distance: 5mm Light Source: Infrared	K shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-SK</u>		
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-SK</u>		
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-SK</u>		
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-SK</u>		
			T shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-ST</u>
						PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-ST</u>
	3m Cable	NPN L.O./D.O.			<u>SU-T0005N-CY9C4L3-ST</u>		
		PNP L.O./D.O.			<u>SU-T0005P-CY9C4L3-ST</u>		
	L shape type 	10-30V DC			1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-SL</u>
						PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-SL</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-SL</u>		
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-SL</u>		
			Y shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-SY</u>
						PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-SY</u>
	3m Cable	NPN L.O./D.O.			<u>SU-T0005N-CY9C4L3-SY</u>		
		PNP L.O./D.O.			<u>SU-T0005P-CY9C4L3-SY</u>		
	F shape type 	10-30V DC			1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-SF</u>
						PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-SF</u>
			3m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L3-SF</u>		
				PNP L.O./D.O.	<u>SU-T0005P-CY9C4L3-SF</u>		
			R shape type 	10-30V DC	1m Cable	NPN L.O./D.O.	<u>SU-T0005N-CY9C4L1-SR</u>
						PNP L.O./D.O.	<u>SU-T0005P-CY9C4L1-SR</u>
	3m Cable	NPN L.O./D.O.			<u>SU-T0005N-CY9C4L3-SR</u>		
		PNP L.O./D.O.			<u>SU-T0005P-CY9C4L3-SR</u>		

Note:

 Coming Soon : Part numbers with underline
 In Preparation: Part numbers with a line through the middle

Thru-beam Mode (Small type)

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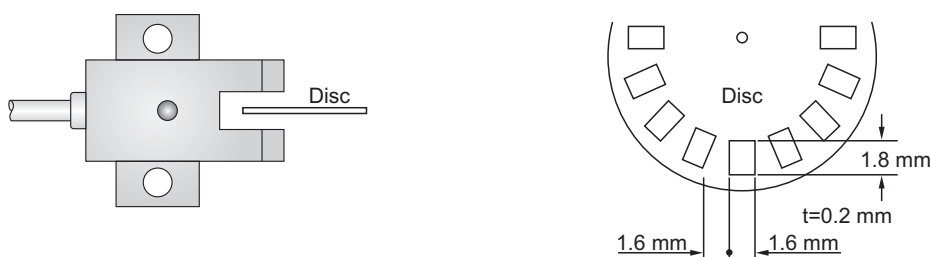
Type	Connection	Supply voltage	Connect type	Output Mode	Part Number
Thru-beam mode (Small type) Sensing Distance: 5mm Light Source: Infrared	K shape type 	10-30V DC	Terminal	NPN L.O./D.O.	<u>SU-T0005N-CY9T4L-SK</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9T4L-SK</u>
	T shape type 	10-30V DC	Terminal	NPN L.O./D.O.	<u>SU-T0005N-CY9T4L-ST</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9T4L-ST</u>
	L shape type 	10-30V DC	Terminal	NPN L.O./D.O.	<u>SU-T0005N-CY9T4L-SL</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9T4L-SL</u>
	Y shape type 	10-30V DC	Terminal	NPN L.O./D.O.	<u>SU-T0005N-CY9T4L-SY</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9T4L-SY</u>
	F shape type 	10-30V DC	Terminal	NPN L.O./D.O.	<u>SU-T0005N-CY9T4L-SF</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9T4L-SF</u>
	R shape type 	10-30V DC	Terminal	NPN L.O./D.O.	<u>SU-T0005N-CY9T4L-SR</u>
				PNP L.O./D.O.	<u>SU-T0005P-CY9T4L-SR</u>

Note:
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 In Preparation: Part numbers with a line through the middle
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Specifications

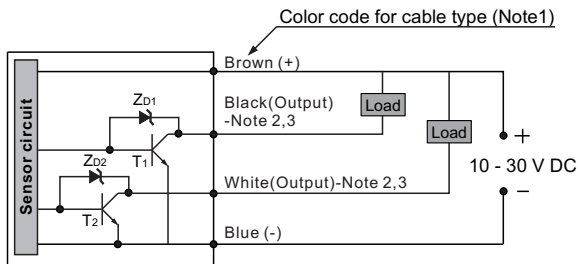
Item	Model No.	Type	Ultra-small type		Small type	
			Cable Type		Cable Type	Terminal Type
			NPN output	SU-T0005N-CY9C4Lx-Ux	SU-T0005N-CY9C4Lx-Sx	SU-T0005N-CY9T4L-Sx
PNP output	SU-T0005P-CY9C4Lx-Ux	SU-T0005P-CY9C4Lx-Sx	SU-T0005P-CY9T4L-Sx			
Sensing range	5 mm					
Minimum sensing object	0.8 X 1.8 mm opaque object					
Hysteresis	0.05 mm or less					
Repeatability	0.03 mm or less					
Supply power	10 - 30 V DC 10% Ripple P-P % or less					
Current consumption	15 mA or less					
Output			<NPN output type> NPN open-collector transistor Maximum sink current: 50 mA Applied voltage: 30V DC or less(between output and 0V) Residual voltage: 0.7 V or less(at 50 mA sink current) 0.4 V or less (at 16 mA sink current)		<PNP output type> PNP open-collector transistor Maximum source current: 50 mA Applied voltage: 30V DC or less(between output and +V) Residual voltage: 0.7 V or less(at 50 mA source current) 0.4 V or less (at 16 mA source current)	
Output operation	Incorporated with 2 outputs: Light-ON / Dark-ON					
Light source	Infrared LED (non-modulated)					
Response time	Under light received condition: 20 μs or less Under light interrupted condition: 100 μs or less (Response frequency: 1 kHz or more) (Note)					
Operation indicator	Vermilion LED (lights up under light received condition)					
Pollution degree	3(Industrial environment)					
Ambient temperature	-25 to +55 °C(No dew condensation or icing allowed), Storage: -30 to + 80 °C					
Ambient humidity	35 to 85% RH, Storage:35 to 85% RH					
Ambient illuminance	Fluorescent light: 1,000 ℓ x at the light-receiving face					
EMC	IEC 60947-5-2 Parts 7.2.6.1,2,3 or RFI>3V/m(In30-1000MHz),EFT>1KV,ESD>4KV(contact)					
Voltage withstandability	IEC 60947-5-2 Parts 8.3.3.4, or 500VDC for one min between all supply terminals connected together and enclosure					
Insulation resistance	>50MΩ, with 250V DC megger between all supply terminals connected together and enclosure					
Vibration resistance	IEC 60947-5-2 Parts 7.4.2 or 10-55Hz 1.0m amplitude in x, y and z directions for 30 min					
Shock resistance	IEC 60947-5-2 Parts 7.4.1 or 30g 11ms in x, y and z directions for six time each					
Material	Enclosure: PBT, Slit cover: Polycarbonate, Terminal part(terminal sensor only): Solder plated					
Cable	0.09 mm ² 4-core cabtyre cable, 1m or 3m long				—	
Cable extension	Extension up to total 100m is possible with 0.3 mm ² , or more, cable.					
Weight	10 g approx.		15 g approx.		3 g approx.	

Note: The response frequency is the value when the disc, given in the figure below, is rotated.



Connection Diagrams

NPN output type



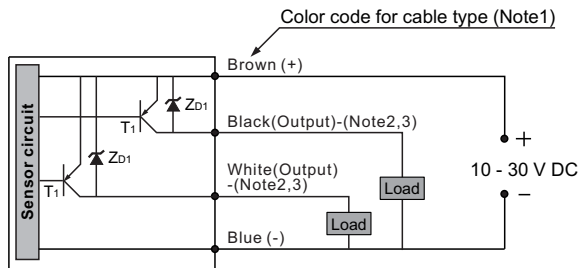
Symbols...ZD1, ZD2: Surge absorption zener diode
T1, T2: NPN output transistor

Output operation type

Color code	Output operation
Black	Light-ON
White	Dark-ON

- Note 1): The color code of the terminal attached cable is also the same.
 2): Make sure to connect terminals correctly as the sensor does not incorporate a reverse polarity protection circuit.
 Further, the output is not incorporated with a short circuit protection circuit. Do not connect it directly to a power supply or a capacitive load. Faulty wiring may result in damage.
 3): Ensure to insulate the unused output wire.

PNP output type



Symbols...ZD1, ZD2: Surge absorption zener diode
T1, T2: PNP output transistor

Output operation type

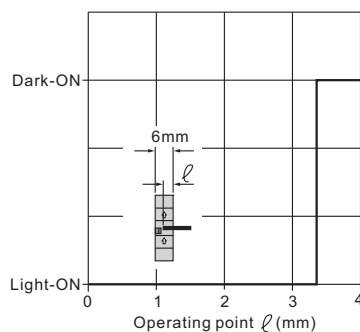
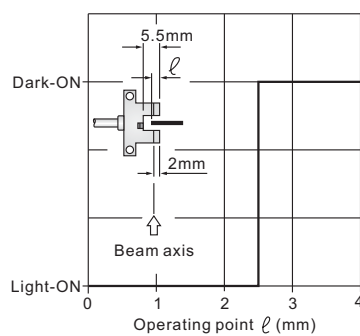
Color code	Output operation
Black	Light-ON
White	Dark-ON

- Note 1): The color code of the terminal attached cable is also the same.
 2): Make sure to connect terminals correctly as the sensor does not incorporate a reverse polarity protection circuit.
 Further, the output is not incorporated with a short circuit protection circuit. Do not connect it directly to a power supply or a capacitive load. Faulty wiring may result in damage.
 3): Ensure to insulate the unused output wire.

Sensing Characteristics (Typical)

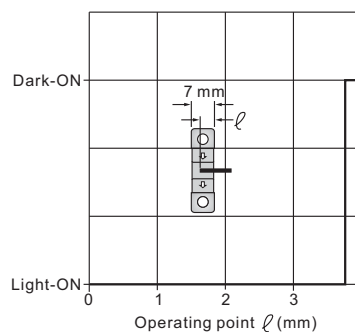
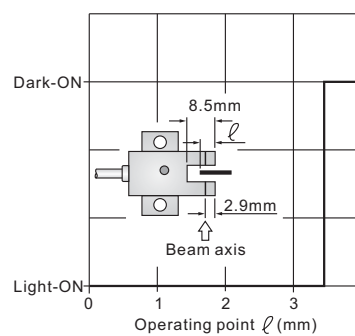
Ultra small type Sensor (with suffix '-Ux')

Sensing position



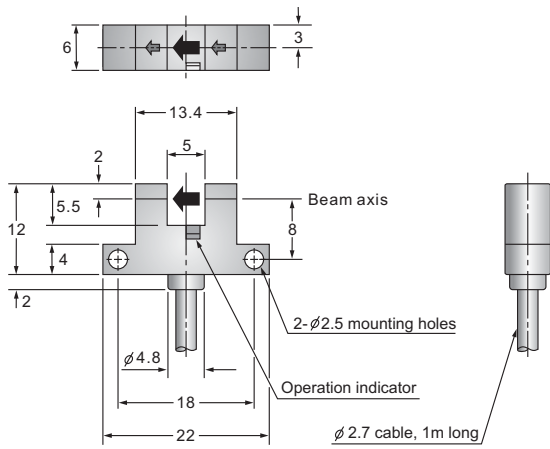
Small type Sensor (with suffix '-Sx')

Sensing position

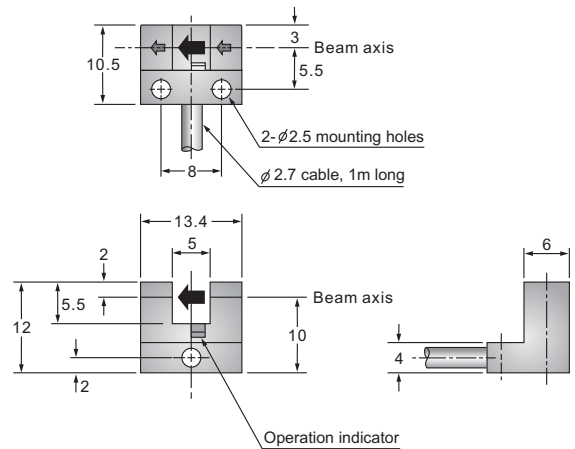


Ultra-small type sensor's Dimensions (Unit: mm)

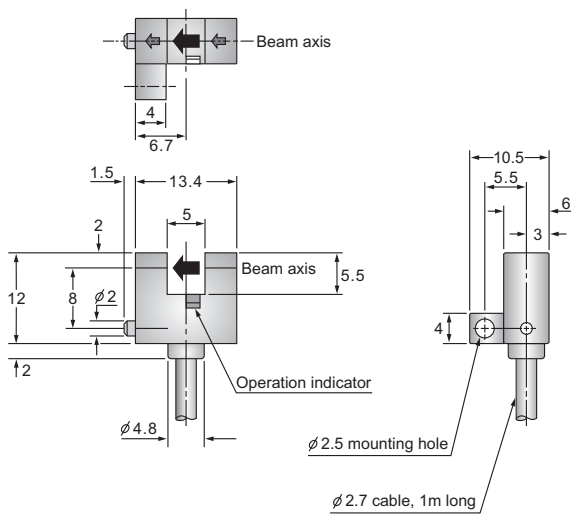
SU-T0005N-CY9C4Lx-UK (K shape)



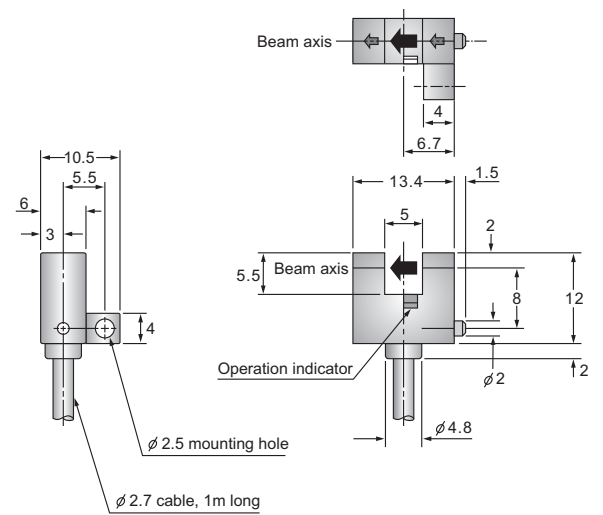
SU-T0005N-CY9C4Lx-UL (L shape)



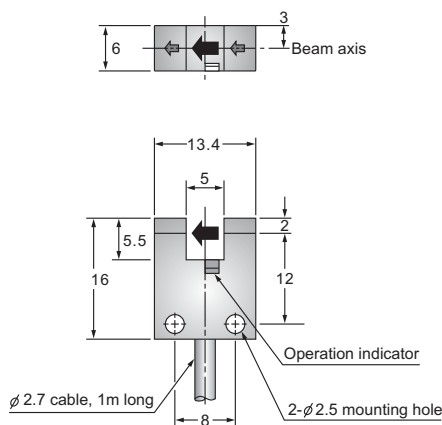
SU-T0005N-CY9C4Lx-UF (F shape)



SU-T0005N-CY9C4Lx-UR (R shape)



SU-T0005N-CY9C4Lx-UU (U shape)

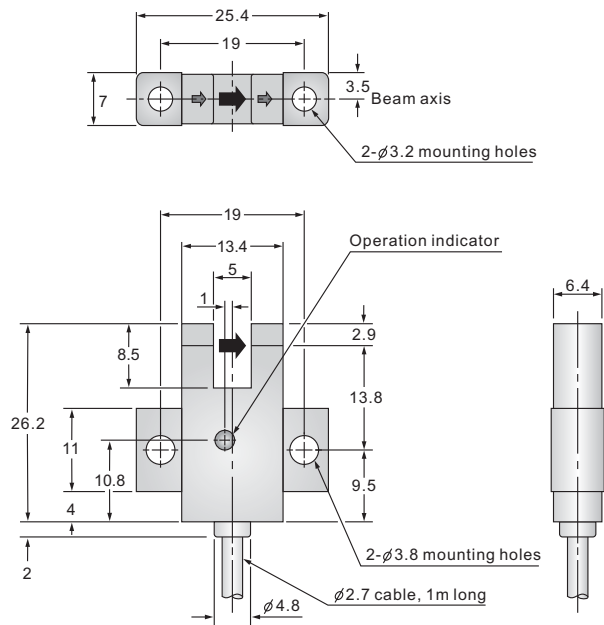


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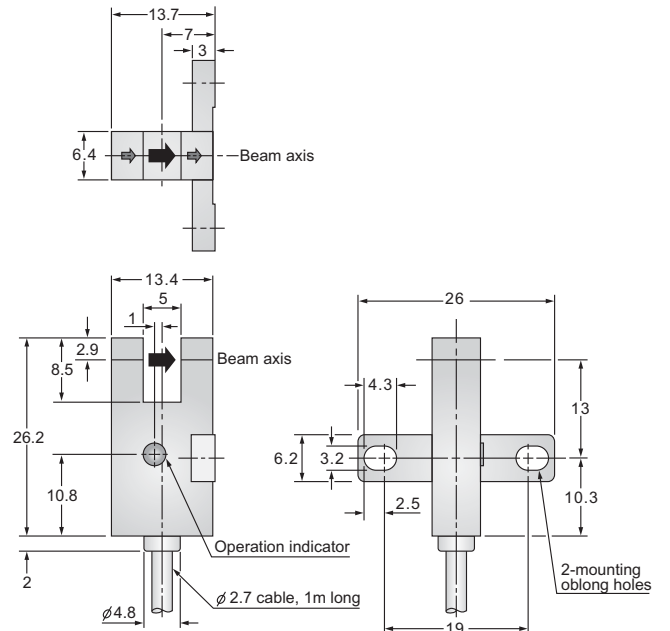
Small type sensor's Dimensions (Unit: mm)

Ai: SU SERIES

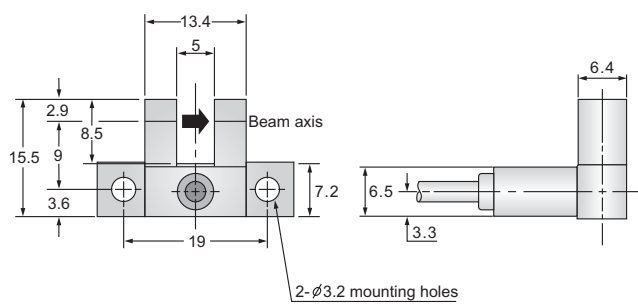
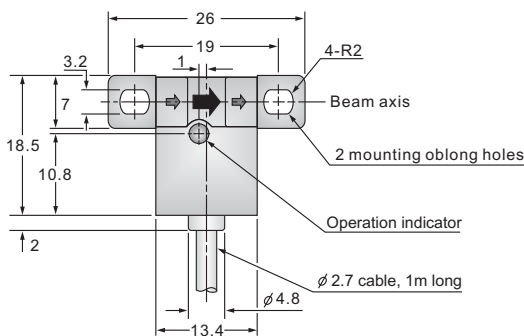
SU-T0005x-CY9C4L1-SK (K shape)



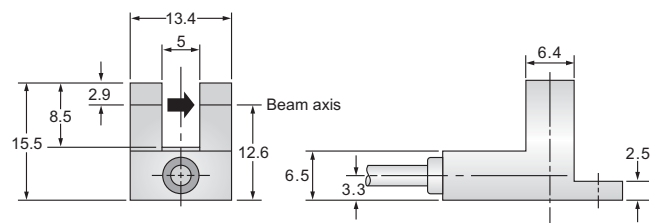
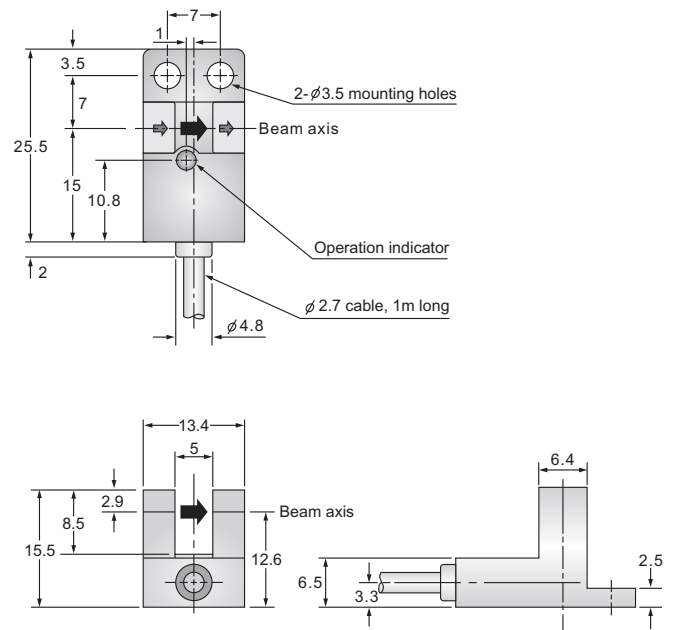
SU-T0005x-CY9C4L1-ST (T shape)



SU-T0005x-CY9C4L1-SL (L shape)

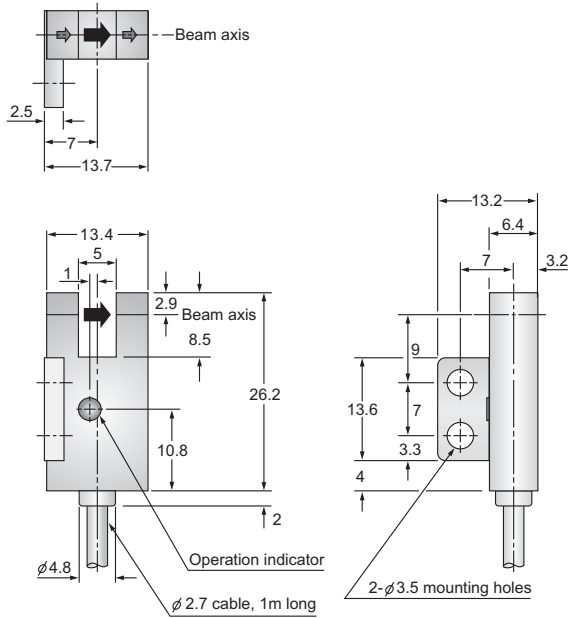


SU-T0005x-CY9C4L1-SY (Y shape)

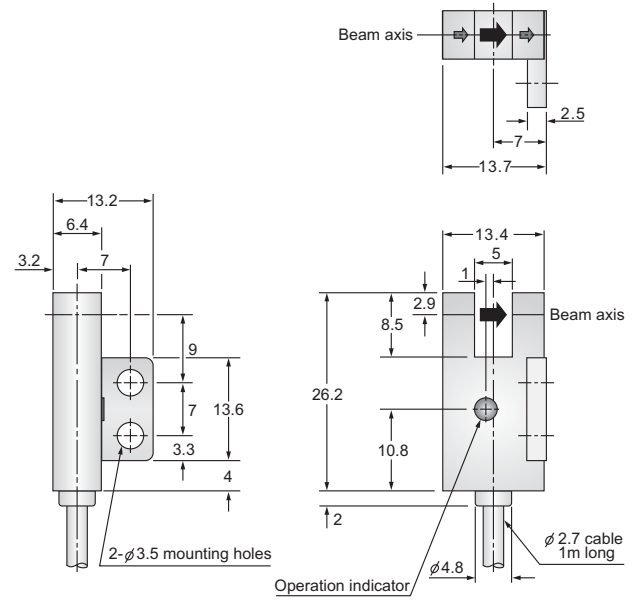


Small type sensor's Dimensions (Unit: mm)

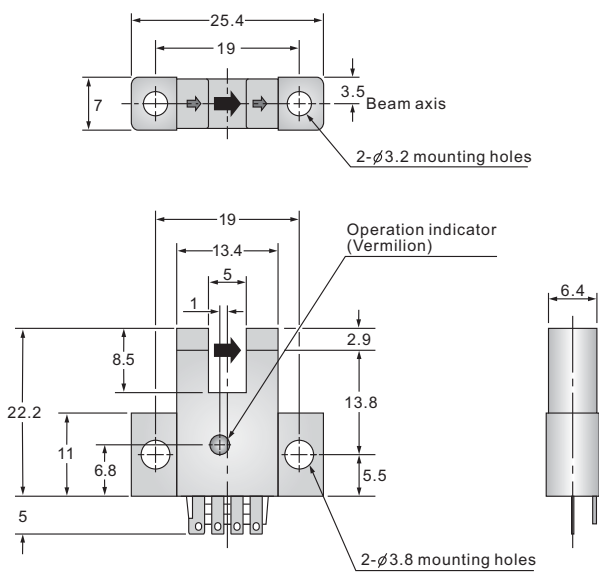
SU-T0005x-CY9C4L1-SF (F shape)



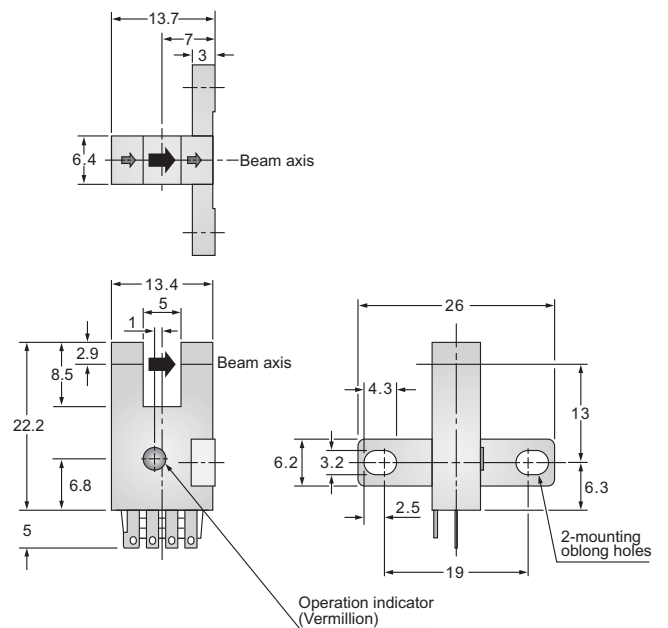
SU-T0005x-CY9C4L1-SR (R shape)



SU-T0005x-CY9T4L-SK (K shape)



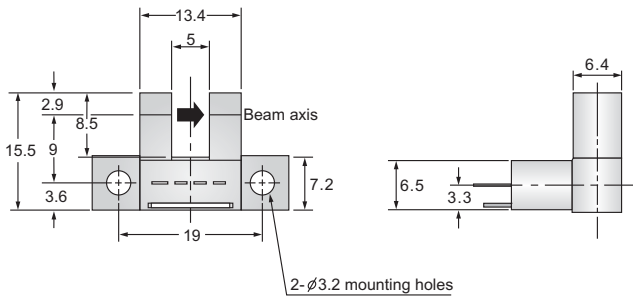
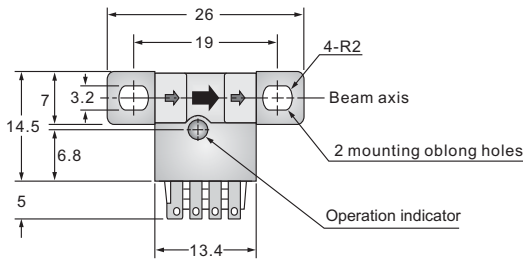
SU-T0005x-CY9T4L-ST (T shape)



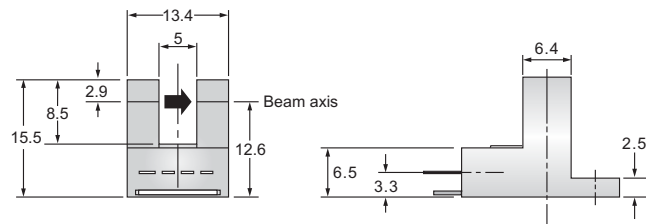
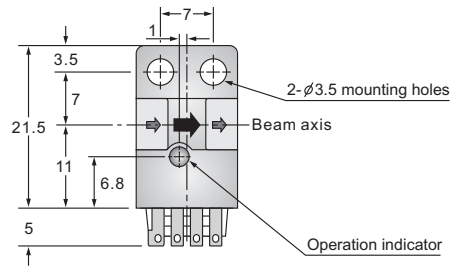
Small type sensor's Dimensions (Unit: mm)

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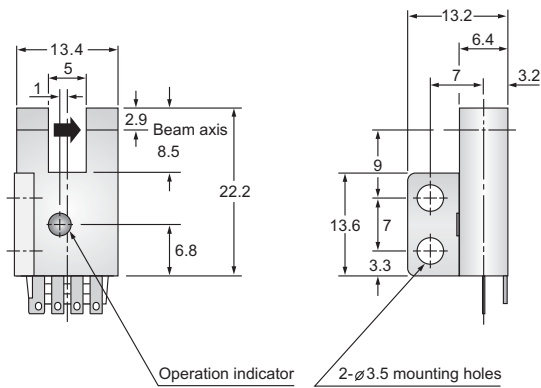
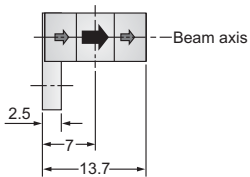
SU-T0005x-CY9T4L-SL (L shape)



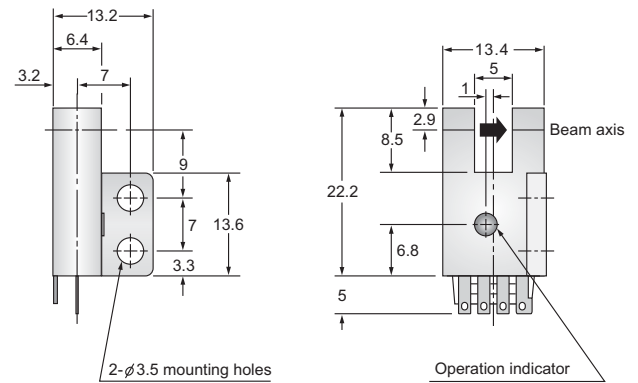
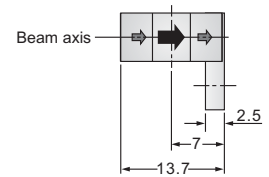
SU-T0005x-CY9T4L-SY (Y shape)



SU-T0005x-CY9T4L-SF (F shape)



SU-T0005x-CY9T4L-SR (R shape)



Terminal part

