











## Thru-beam Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Thru-beam Mode</p> <p>Sensing Distance: 0-15m</p> <p>Light source: Red light (680nm)</p> 	<p>2m Cable</p> 	10-30V DC	Emitter	<u>RS31-T015MD-EY6C2L2</u>
			NPN Light-ON	<u>RS31-T015MN-LY6C3U2</u>
			NPN Dark-ON	<u>RS31-T015MN-DY6C3U2</u>
			NPN L.O./D.O.	<u>RS31-T015MN-CY6C3U2</u>
			PNP Light-ON	<u>RS31-T015MP-LY6C3U2</u>
			PNP Dark-ON	<u>RS31-T015MP-DY6C3U2</u>
			PNP L.O./D.O.	<u>RS31-T015MP-CY6C3U2</u>
	<p>Quick Disconnect (Pico-style)</p> 	10-30V DC	Emitter	<u>RS31-T015MD-EY6Q4LP</u>
			NPN Light-ON	<u>RS31-T015MN-LY6Q4UP</u>
			NPN Dark-ON	<u>RS31-T015MN-DY6Q4UP</u>
			NPN L.O./D.O.	<u>RS31-T015MN-CY6Q4UP</u>
			PNP Light-ON	<u>RS31-T015MP-LY6Q4UP</u>
			PNP Dark-ON	<u>RS31-T015MP-DY6Q4UP</u>
			PNP L.O./D.O.	<u>RS31-T015MP-CY6Q4UP</u>
	<p>6" Pig Tail (Pico-style)</p> 	10-30V DC	Emitter	<u>RS31-T015MD-EY6P4LP</u>
			NPN Light-ON	<u>RS31-T015MN-LY6P4UP</u>
			NPN Dark-ON	<u>RS31-T015MN-DY6P4UP</u>
			NPN L.O./D.O.	<u>RS31-T015MN-CY6P4UP</u>
			PNP Light-ON	<u>RS31-T015MP-LY6P4UP</u>
			PNP Dark-ON	<u>RS31-T015MP-DY6P4UP</u>
			PNP L.O./D.O.	<u>RS31-T015MP-CY6P4UP</u>

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Ab-01 —







## Diffuse Mode / BGS Type Diffuse Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<b>Diffuse Mode</b> Sensing Distance: 900mm Light source: Red light (680nm)	<b>2m Cable</b> 	10-30V DC	NPN Light-ON	<u>RS31-D0900N-LY6C3U2</u>
			NPN Dark-ON	<u>RS31-D0900N-DY6C3U2</u>
			NPN L.O./D.O.	<u>RS31-D0900N-CY6C3U2</u>
			PNP Light-ON	<u>RS31-D0900P-LY6C3U2</u>
			PNP Dark-ON	<u>RS31-D0900P-DY6C3U2</u>
			PNP L.O./D.O.	<u>RS31-D0900P-CY6C3U2</u>
	<b>Quick Disconnect (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-D0900N-LY6Q4UP</u>
			NPN Dark-ON	<u>RS31-D0900N-DY6Q4UP</u>
			NPN L.O./D.O.	<u>RS31-D0900N-CY6Q4UP</u>
			PNP Light-ON	<u>RS31-D0900P-LY6Q4UP</u>
			PNP Dark-ON	<u>RS31-D0900P-DY6Q4UP</u>
			PNP L.O./D.O.	<u>RS31-D0900P-CY6Q4UP</u>
	<b>6" Pig Tail (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-D0900N-LY6P4UP</u>
			NPN Dark-ON	<u>RS31-D0900N-DY6P4UP</u>
			NPN L.O./D.O.	<u>RS31-D0900N-CY6P4UP</u>
			PNP Light-ON	<u>RS31-D0900P-LY6P4UP</u>
			PNP Dark-ON	<u>RS31-D0900P-DY6P4UP</u>
			PNP L.O./D.O.	<u>RS31-D0900P-CY6P4UP</u>
<b>Diffuse Mode With Background Suppression</b> Sensing Distance: 140mm Light source: Red light (680nm)	<b>2m Cable</b> 	10-30V DC	NPN Light-ON	<u>RS31-D0140N-LY6C3U2-BS</u>
			NPN Dark-ON	<u>RS31-D0140N-DY6C3U2-BS</u>
			NPN L.O./D.O.	<u>RS31-D0140N-CY6C3U2-BS</u>
			PNP Light-ON	<u>RS31-D0140P-LY6C3U2-BS</u>
			PNP Dark-ON	<u>RS31-D0140P-DY6C3U2-BS</u>
			PNP L.O./D.O.	<u>RS31-D0140P-CY6C3U2-BS</u>
	<b>Quick Disconnect (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-D0140N-LY6Q4UP-BS</u>
			NPN Dark-ON	<u>RS31-D0140N-DY6Q4UP-BS</u>
			NPN L.O./D.O.	<u>RS31-D0140N-CY6Q4UP-BS</u>
			PNP Light-ON	<u>RS31-D0140P-LY6Q4UP-BS</u>
			PNP Dark-ON	<u>RS31-D0140P-DY6Q4UP-BS</u>
			PNP L.O./D.O.	<u>RS31-D0140P-CY6Q4UP-BS</u>
	<b>6" Pig Tail (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-D0140N-LY6P4UP-BS</u>
			NPN Dark-ON	<u>RS31-D0140N-DY6P4UP-BS</u>
			NPN L.O./D.O.	<u>RS31-D0140N-CY6P4UP-BS</u>
			PNP Light-ON	<u>RS31-D0140P-LY6P4UP-BS</u>
			PNP Dark-ON	<u>RS31-D0140P-DY6P4UP-BS</u>
			PNP L.O./D.O.	<u>RS31-D0140P-CY6P4UP-BS</u>

Note:

Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Ab-02 —

## Retroreflective Mode / Clear Object Detector

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<b>Retro-reflective Mode</b> With Polarizing filter Sensing Distance: 4m (Note) Light source: Red light (680nm)	<b>2m Cable</b> 	10-30V DC	NPN Light-ON	<u>RS31-L4000N-LY6C3U2-PF</u>
			NPN Dark-ON	<u>RS31-L4000N-DY6C3U2-PF</u>
			NPN L.O./D.O.	<u>RS31-L4000N-CY6C3U2-PF</u>
			PNP Light-ON	<u>RS31-L4000P-LY6C3U2-PF</u>
			PNP Dark-ON	<u>RS31-L4000P-DY6C3U2-PF</u>
			PNP L.O./D.O.	<u>RS31-L4000P-CY6C3U2-PF</u>
	<b>Quick Disconnect (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-L4000N-LY6Q4UP-PF</u>
			NPN Dark-ON	<u>RS31-L4000N-DY6Q4UP-PF</u>
			NPN L.O./D.O.	<u>RS31-L4000N-CY6Q4UP-PF</u>
			PNP Light-ON	<u>RS31-L4000P-LY6Q4UP-PF</u>
			PNP Dark-ON	<u>RS31-L4000P-DY6Q4UP-PF</u>
			PNP L.O./D.O.	<u>RS31-L4000P-CY6Q4UP-PF</u>
	<b>6" Pig Tail (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-L4000N-LY6P4UP-PF</u>
			NPN Dark-ON	<u>RS31-L4000N-DY6P4UP-PF</u>
			NPN L.O./D.O.	<u>RS31-L4000N-CY6P4UP-PF</u>
			PNP Light-ON	<u>RS31-L4000P-LY6P4UP-PF</u>
			PNP Dark-ON	<u>RS31-L4000P-DY6P4UP-PF</u>
			PNP L.O./D.O.	<u>RS31-L4000P-CY6P4UP-PF</u>
<b>Clear Object Detector</b> Sensing Distance: 2m (Note) Light source: Red light (680nm)	<b>2m Cable</b> 	10-30V DC	NPN Light-ON	<u>RS31-S2000N-LY6C3U2</u>
			NPN Dark-ON	<u>RS31-S2000N-DY6C3U2</u>
			NPN L.O./D.O.	<u>RS31-S2000N-CY6C3U2</u>
			PNP Light-ON	<u>RS31-S2000P-LY6C3U2</u>
			PNP Dark-ON	<u>RS31-S2000P-DY6C3U2</u>
			PNP L.O./D.O.	<u>RS31-S2000P-CY6C3U2</u>
	<b>Quick Disconnect (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-S2000N-LY6Q4UP</u>
			NPN Dark-ON	<u>RS31-S2000N-DY6Q4UP</u>
			NPN L.O./D.O.	<u>RS31-S2000N-CY6Q4UP</u>
			PNP Light-ON	<u>RS31-S2000P-LY6Q4UP</u>
			PNP Dark-ON	<u>RS31-S2000P-DY6Q4UP</u>
			PNP L.O./D.O.	<u>RS31-S2000P-CY6Q4UP</u>
	<b>6" Pig Tail (Pico-style)</b> 	10-30V DC	NPN Light-ON	<u>RS31-S2000N-LY6P4UP</u>
			NPN Dark-ON	<u>RS31-S2000N-DY6P4UP</u>
			NPN L.O./D.O.	<u>RS31-S2000N-CY6P4UP</u>
			PNP Light-ON	<u>RS31-S2000P-LY6P4UP</u>
			PNP Dark-ON	<u>RS31-S2000P-DY6P4UP</u>
			PNP L.O./D.O.	<u>RS31-S2000P-CY6P4UP</u>

**Note:** Used with RE-6152 (supplied with sensor) reflector.  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

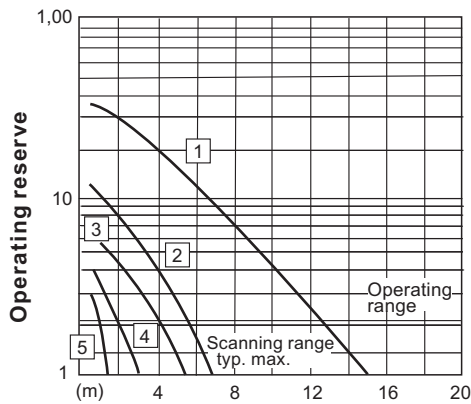
## Specifications

Item	Sensing Mode				
	Thru-beam	Diffuse	Diffuse (With Background Suppression)	Retroreflective (with polarizing filter)	Clear Object Detector
Sensing Range (Adjustable)	15m	900 mm	4-140mm	4 m (Note)	2m (Note)
Field of View	3.1° 1.5°	6.8°	—	4°	4°
Light Source	Visible red 680nm				
Indicator LEDs	Signal strength indicator orange: switching output active				
Response Time	≤0.5 ms				
Supply Voltage	10-30V DC (Ripple= 10%)				
Output Type	NPN, PNP				
Output Current	≤100 mA				
Switching Mode	Light-ON, Dark-ON, Light/Dark changeover (see type number)				
Voltage Drop	<1.8 V				
Material	Housing: ABS, Optics: PC				
Power consumption	<20 mA <15 mA	≤30 mA			
Enclosure Rating	IP65				
Circuit Protection	Outputs short circuit and over current protected, Vs reverse polarity protected				
Switching frequency	1000Hz				
Ambient Operating Temperature	-25...55°C				
Storage Temperature	-40...70°C				
EMC	IEC 60947-5-2, Parts 7.2.6.1. 2.3 or RFI>3V/m (in 30-1000MHz), EFT>1KV, ESD>4KV(contact)				
Voltage Withstand Ability	IEC 60947-5-2, Part 8.3.3.4 or 500VDC for one min, between all supply terminals connected together and enclosure				
Insulation Resistance	>20M Ω, with 500V DC megger between all supply terminals connected together and enclosure				
Vibration Resistance	IEC 60947-5-2, Part 7.4.2 or 10-55Hz, 1.0mm amplitude in x , y and z directions for 30 min				
Shock Resistance	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x , y and z directions for six time each				
Weight	Cable type: approx.53g, connector type: approx.9g				
Connection Type	Cable type: 2m PVC(Φ3.8 dia.), Connector type: 4-pin M8(pico-style), Pigtail type: See Pigtail Series or our Cables & Connectors catalogue.				

Note: Used with RE-6152 (supplied with sensor) reflector.

## Sensing Characteristics (Typical)

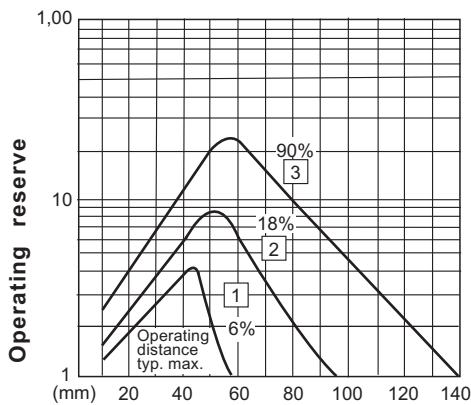
### Thru-beam Mode (Sn=15m)



#### scanning range reduction when slotted masks are used

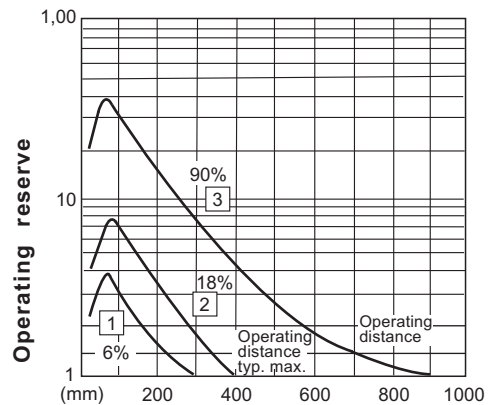
1	Without mask/polarization filter
2	With polarization filter tip adapter
3	With slotted mask, width 2.0 mm
4	With slotted mask, width 1.0 mm
5	With slotted mask, width 0.5mm

### Background Suppression Diffuse (Sn=140mm)



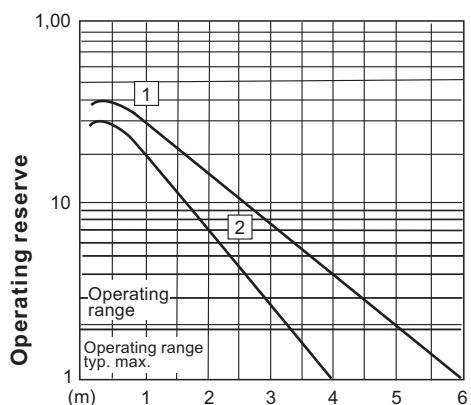
1	Scanning distance on black, 6% remission
2	Scanning distance on grey, 18% remission
3	Scanning distance on white, 90% remission

### Diffuse Mode (Sn=900mm)



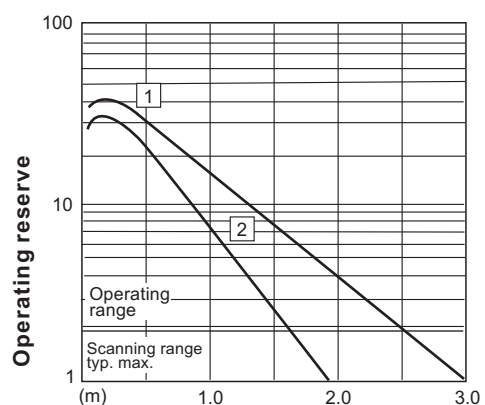
1	Scanning distance on black, 6% remission
2	Scanning distance on grey, 18% remission
3	Scanning distance on white, 90% remission

### Polarized Retroreflective Mode (Sn=4m)



	Reflector type	Operating range (m)
1	RE-8484	0.01-5
2	RE-6152	0.01-4.0
3	RE-6041	0.01-3.8

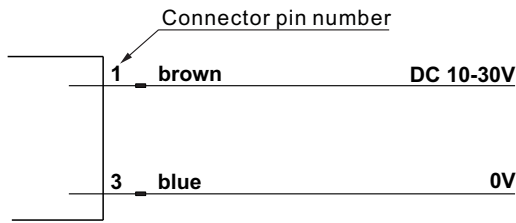
### Clear Object Detector (Sn=2m)



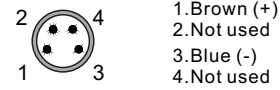
	Reflector type	Operating range(m)
1	RE-8484	0.01-2.6
2	RE-6152	0.01-2
3	RE-6041	0.01-2

## Connection Diagrams

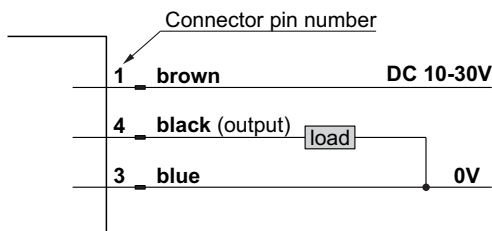
### Emitter of Thru-beam Mode



Connector face view  
Pico-Style

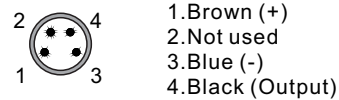


### PNP Light-ON (Dark-ON) Output Type

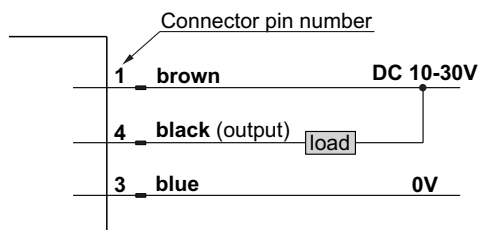


Connector face view

Pico-Style

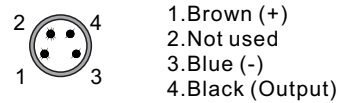


### NPN Light-ON (Dark-ON) Output Type

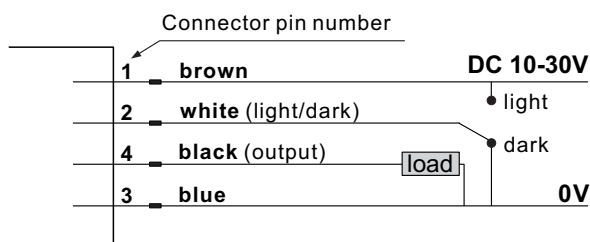


Connector face view

Pico-Style

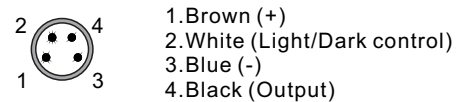


### PNP L.O./D.O. output type

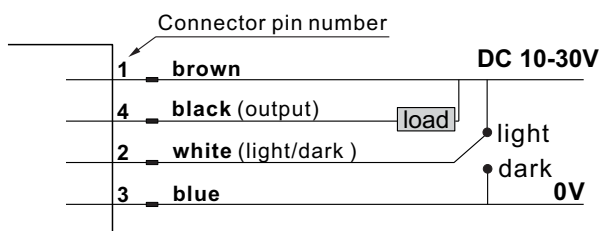


Connector face view

Pico-Style



### NPN L.O./D.O. output type



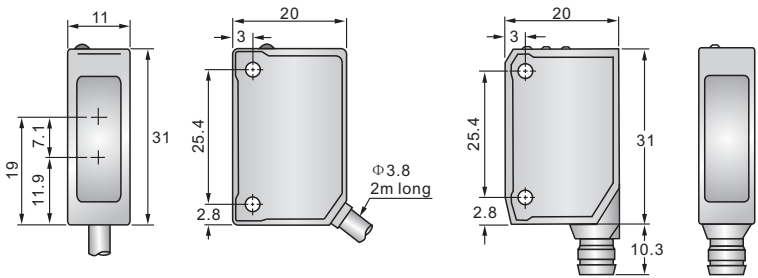
Connector face view

Pico-Style



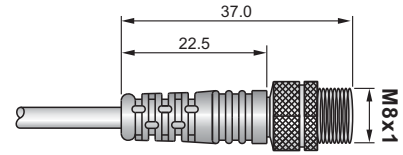
## Dimensions (Unit: mm)

### Sensor Type



Cable Type

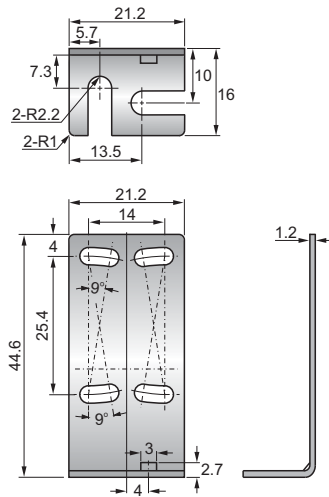
Connector Type (Pico-style)



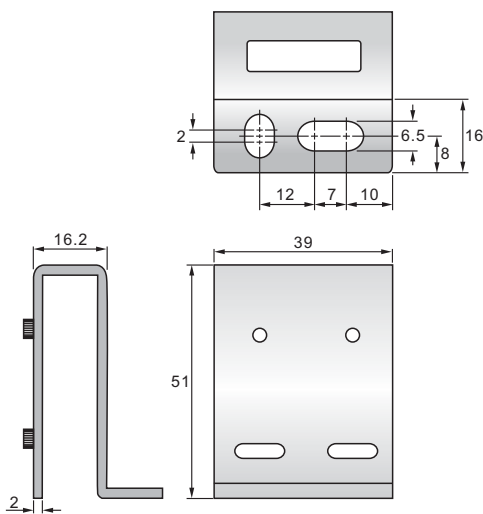
Pigtail\* Type (Pico-style)

\*: Please see Pigtail Series or our Cables & Connectors catalogue for more information.

### MB-4521 (Mounting bracket-optional)



### PB-5139 (Protective bracket-optional)



### PB-6539 (Protective bracket-optional)

