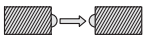
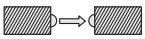
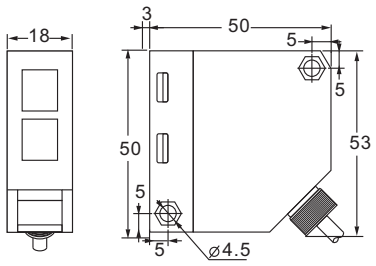
FS50 Series Photoelectric Sensor

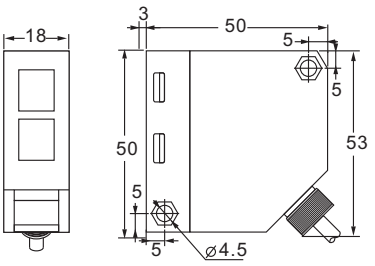
FS50 DC PHOTOELECTRIC SENSORS

Type	FS50	FS50
Sensing mode	Through-beam mode	Through-beam mode
Sensing picture		
Switching distance(sn)	20m	40m
Picture		
Nominal Voltage	10-30VDC	10-30VDC
Residual Ripple	⩽10%	⩽10%
Tolerance	±10%Sn	±10%Sn
Hysteresis	10%	10%
Emission	Infrared(880nm)	Infrared(880nm)
Output	NPN or PNP (programmable)	NPN or PNP (programmable)
Contact	NO or NC (programmable)	NO or NC (programmable)
Max. Output Current	200mA	200mA
Absorption At 30VDC	40mA	40mA
Voltage Drop(Sensor On)	⩽2.0V(I=100mA)	⩽2.0V(I=100mA)
Yellow LED	Output indicator	Output indicator
Green LED	Supply indicator	Supply indicator
Sensitivity Adjustment	Trimmer 1 tum	Trimmer 1 tum
Switching Frequency	200 Hz	200 Hz
Response Time	5mS	5mS
Start Up Delay	100mS	100mS
Short Circuit Protection	Yes	Yes
Electric Protections	Yes	Yes
Temperature Limits	-10 ~ +60℃	-10 ~ +60℃
Light Immunity	>10.000Lux	>10.000Lux
Protection Degree	IP65	IP65
Housing Material	PBT	PBT
Sensing object	-	-
Wiring diagram number(see page 23-12)		

10-30V DC	Through-beam mode	Emitter :	**F1STP50020MDEI2A2** C2	**F1STP50040MDEI2A2** C2
		Receiver	**F1STP50020MDSI4A2** C1	**F1STP50040MDSI4A2** C1
	Diffuse mode			
	Retro-reflective mode			
	Retro-reflective mode (With Polarizing Filters)			
12-24VDC/ 24V-240VAC	Through-beam mode	Emitter :		
		Receiver		
	Diffuse mode			
	Retro-reflective mode			
	Retro-reflective mode (With Polarizing Filters)			

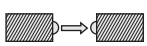
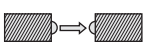
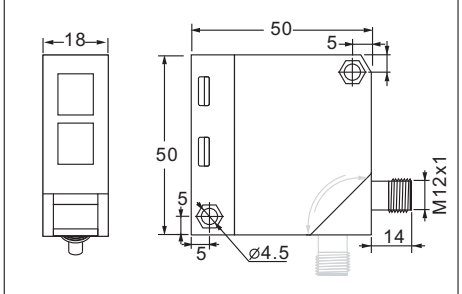
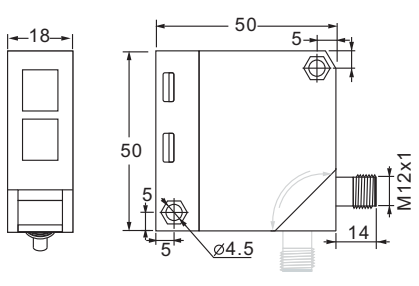
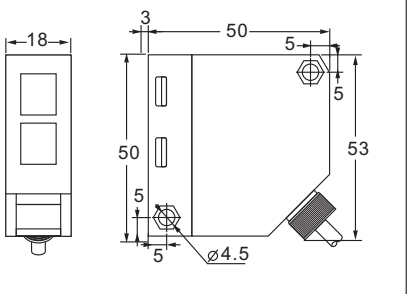
Dimensions (unit: mm)





Connect	2m PVC Cable(ϕ 4 4x0.25mm²)	2m PVC Cable(ϕ 4 4x0.25mm²)
Weight	Approx.160 g	Approx.160 g

FS50 DC PHOTOELECTRIC SENSORS

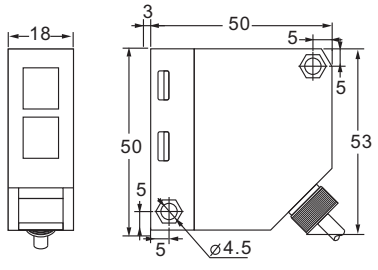
FS50	FS50	FS50	
Through-beam mode	Through-beam mode	Diffuse mode	
			
20m	40m	100mm-400mm	20cm-1m
			
10-30VDC	10-30VDC	10-30VDC	
⩽10%	⩽10%	⩽10%	
±10%Sn	±10%Sn	±10%Sn	
10%	10%	10%	
Infrared(880nm)	Infrared(880nm)	Infrared(880nm)	
NPN or PNP (programmable)	NPN or PNP (programmable)	NPN or PNP (programmable)	
NO or NC (programmable)	NO or NC (programmable)	NO or NC (programmable)	
200mA	200mA	200mA	
40mA	40mA	40mA	
⩽2.0V(I=100mA)	⩽2.0V(I=100mA)	⩽2.0V(I=100mA)	
Output indicator	Output indicator	Output indicator	
Supply indicator	Supply indicator	Supply indicator	
Trimmer 1 tum	Trimmer 1 tum	Trimmer 1 tum	
200 Hz	200 Hz	200 Hz	
5mS	5mS	5mS	
100mS	100mS	100mS	
Yes	Yes	Yes	
Yes	Yes	Yes	
-10 ~ +60℃	-10 ~ +60℃	-10 ~ +60℃	
>10.000Lux	>10.000Lux	>10.000Lux	
IP65	IP65	IP65	
PBT	PBT	PBT	
-	-	10cmx10cm white paper	20cmx20cm white paper
F1STP50020MDEIEA4 C3	**F1STP50040MDEIEA4** C3		
F1STP50020MDSIEA4 C3	**F1STP50040MDSIEA4** C3		
		F1SDP500400DSI4A2 C1	**F1SDP501000DSI4A2** C1
			
M12 Euro style	M12 Euro style	2m PVC Cable(ϕ 4 4x0.25mm²)	
Approx.85g	Approx.85g	Approx.160 g	

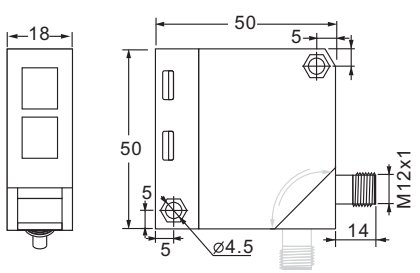
FS50 DC PHOTOELECTRIC SENSORS

Type	FS50	FS50
Sensing mode	Diffuse mode	Diffuse mode
Sensing picture		
Switching distance(sn)	20cm-1.8m / 30cm-2m	100mm-400mm / 20cm-1m
Picture		
Nominal Voltage	10-30VDC	10-30VDC
Residual Ripple	≤10%	≤10%
Tolerance	±10%Sn	±10%Sn
Hysteresis	10%	10%
Emission	Infrared(880nm)	Infrared(880nm)
Output	NPN or PNP (programmable)	NPN or PNP (programmable)
Contact	NO or NC (programmable)	NO or NC (programmable)
Max. Output Current	200mA	200mA
Absorption At 30VDC	40mA	40mA
Voltage Drop(Sensor On)	≤2.0V(I=100mA)	≤2.0V(I=100mA)
Yellow LED	Output indicator	Output indicator
Green LED	Supply indicator	Supply indicator
Sensitivity Adjustment	Trimmer 1 tum	Trimmer 1 tum
Switching Frequency	200 Hz	200 Hz
Response Time	5mS	5mS
Start Up Delay	100mS	100mS
Short Circuit Protection	Yes	Yes
Electric Protections	Yes	Yes
Temperature Limits	-10 ~ +60℃	-10 ~ +60℃
Light Immunity	>10.000Lux	>10.000Lux
Protection Degree	IP65	IP65
Housing Material	PBT	PBT
Sensing object	20cmx20cm white paper	10cmx10cm white paper / 20cmx20cm white paper
Wiring diagram number(see page 23-12)		

10-30V DC	Through-beam mode	Emitter :				
		Receiver				
	Diffuse mode		F1SDP501800DSI4A2 C1	F1SDP502000DSI4A2 C1	F1SDP500400DSIEA4 C3	F1SDP501000DSIEA4 C3
	Retro-reflective mode					
	Retro-reflective mode (With Polarizing Filters)					
12-24VDC/ 24V-240VAC	Through-beam mode	Emitter :				
		Receiver				
	Diffuse mode					
	Retro-reflective mode					
	Retro-reflective mode (With Polarizing Filters)					

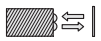
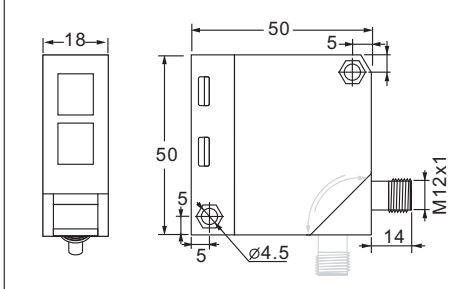
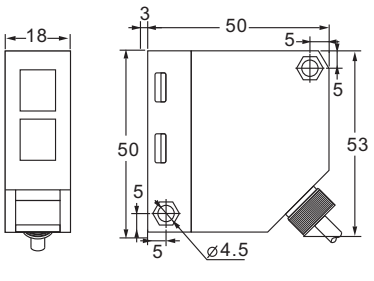
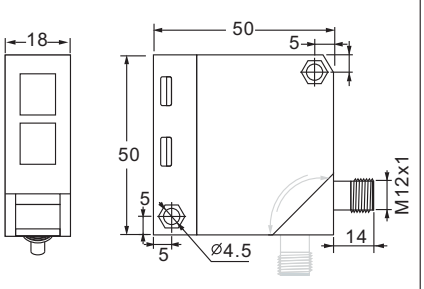
Dimensions (unit: mm)





Connect	2m PVC Cable(ϕ 4 4x0.25mm²)	M12 Euro style
Weight	Approx.160 g	Approx.85g

FS50 DC PHOTOELECTRIC SENSORS

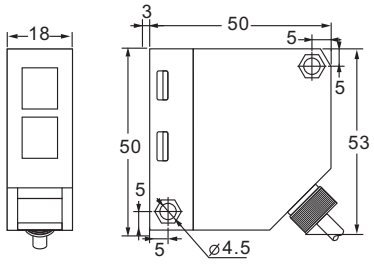
FS50		FS50	FS50
Diffuse mode		Retro-reflective mode	Retro-reflective mode
			
20cm-1.8m	30cm-2m	10m	10m
			
10-30VDC		10-30VDC	10-30VDC
≤10%		≤10%	≤10%
±10%Sn		±10%Sn	±10%Sn
10%		10%	10%
Infrared(880nm)		Infrared(880nm)	Infrared(880nm)
NPN or PNP (programmable)		NPN or PNP (programmable)	NPN or PNP (programmable)
NO or NC (programmable)		NO or NC (programmable)	NO or NC (programmable)
200mA		200mA	200mA
40mA		40mA	40mA
≤2.0V(I=100mA)		≤2.0V(I=100mA)	≤2.0V(I=100mA)
Output indicator		Output indicator	Output indicator
Supply indicator		Supply indicator	Supply indicator
Trimmer 1 tum		Trimmer 1 tum	Trimmer 1 tum
200 Hz		200 Hz	200 Hz
5mS		5mS	5mS
100mS		100mS	100mS
Yes		Yes	Yes
Yes		Yes	Yes
-10 ~ +60℃		-10 ~ +60℃	-10 ~ +60℃
>10.000Lux		>10.000Lux	>10.000Lux
IP65		IP65	IP65
PBT		PBT	PBT
20cmx20cm white paper		D83 Dirror	D83 Dirror
F1SDP501800DSIEA4 C3	**F1SDP502000DSIEA4** C3		
		F1SLP50010MDSI4A2 C1	**F1SLP50010MDSIEA4** C3
			
M12 Euro style		2m PVC Cable(ϕ 4 4x0.25mm²)	M12 Euro style
Approx.85g		Approx.160 g	Approx.85g

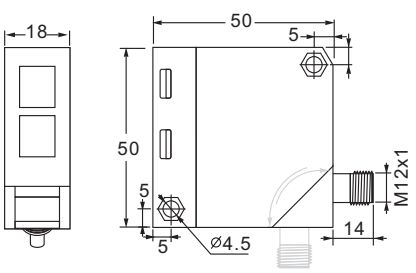
FS50 DC PHOTOELECTRIC SENSORS

Type	FS50	FS50
Sensing mode	Retro-reflective mode	Retro-reflective mode
Sensing picture	(With Polarizing Filters)	(With Polarizing Filters)
Switching distance(sn)	6m	6m
Picture		
Nominal Voltage	10-30VDC	10-30VDC
Mains Frequency	⩽10%	⩽10%
Tolerance	±10%Sn	±10%Sn
Hysteresis	10%	10%
Emission	Red(660nm)	Red(660nm)
Output	NPN or PNP (programmable)	NPN or PNP (programmable)
Max. Output Current	NO or NC (programmable)	NO or NC (programmable)
Power consumption	200mA	200mA
Yellow LED	40mA	40mA
Green LED	⩽2.0V(I=100mA)	⩽2.0V(I=100mA)
Sensitivity Adjustment	Output indicator	Output indicator
Switching Frequency	Supply indicator	Supply indicator
Response Time	Trimmer 1 tum	Trimmer 1 tum
Start Up Delay	200 Hz	200 Hz
Temperature Limits	5mS	5mS
Light Immunity	100mS	100mS
Protection Degree	Yes	Yes
Housing Material	Yes	Yes
Sensing object	-10 ~ +60℃	-10 ~ +60℃
Wiring diagram number(see page 23-12)	>10.000Lux	>10.000Lux
	IP65	IP65
	PBT	PBT
	D83 Dirror	D83 Dirror

10-30V DC	Through-beam mode	Emitter :		
		Receiver		
	Diffuse mode			
	Retro-reflective mode			
	Retro-reflective mode (With Polarizing Filters)		**F1SLP506000DSR4A2** C1	**F1SLP506000DSREA4** C3
12-24VDC/ 24V-240VAC	Through-beam mode	Emitter :		
		Receiver		
	Diffuse mode			
	Retro-reflective mode			
	Retro-reflective mode (With Polarizing Filters)			

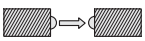
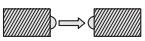
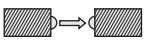
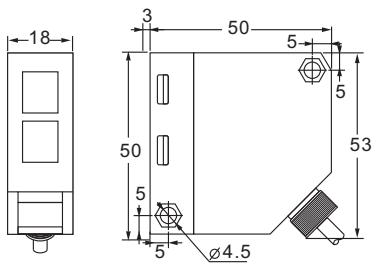
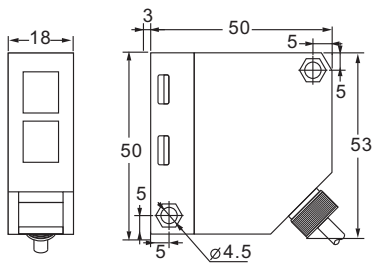
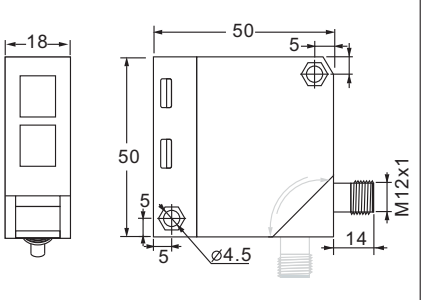
Dimensions (unit: mm)



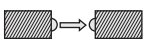


Connect	2m PVC Cable(ϕ 4 4x0.25mm²)	M12 Euro style
Weight	Approx.160 g	Approx.85g

FS50 AC/DC PHOTOELECTRIC SENSOR

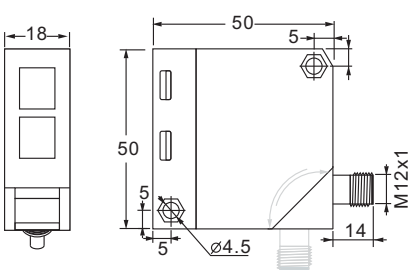
FS50	FS50	FS50
Through-beam mode	Through-beam mode	Through-beam mode
		
20m	40m	20m
		
12-240VDC / 24-240VAC	12-240VDC / 24-240VAC	12-240VDC / 24-240VAC
50/60Hz	50/60Hz	50/60Hz
±10%Sn	±10%Sn	±10%Sn
10%	10%	10%
Infrared(880nm)	Infrared(880nm)	Infrared(880nm)
Relay SPDT	Relay SPDT	Relay SPST
3A/30V AC, 1A/220V AC	3A/30V AC, 1A/220V AC	3A/30V AC, 1A/220V AC
<2.5VA	<2.5VA	<2.5VA
Output indicator	Output indicator	Output indicator
Supply indicator	Supply indicator	Supply indicator
Trimmer 1 tum	Trimmer 1 tum	Trimmer 1 tum
10 Hz	10 Hz	10 Hz
20mS	20mS	20mS
≤300mS	≤300mS	≤300mS
-10 ~ +60℃	-10 ~ +60℃	-10 ~ +60℃
>10.000Lux	>10.000Lux	>10.000Lux
IP65	IP65	IP65
PBT	PBT	PBT
-	-	-
F3STP50020MUEI2B2 C5	**F3STP50040MUEI2B2** C5	**F3STP50020MUEIEB4** C6
F3STP50020MURI5B2 C4	**F3STP50040MURI5B2** C4	**F3STP50020MURIEB4** C6
		
2m PVC Cable(ϕ 4 5x0.30mm²)	2m PVC Cable(ϕ 4 5x0.30mm²)	M12 Euro style
Approx.160 g	Approx.160 g	Approx.85g

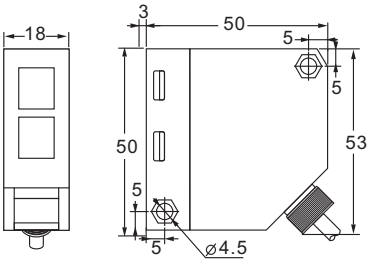
FS50 AC/DC PHOTOELECTRIC SENSOR

Type	FS50	FS50	
Sensing mode	Through-beam mode	Diffuse mode	
Sensing picture			
Switching distance(sn)	40m	100mm-400mm	20cm-1m
Picture			
Nominal Voltage	12-240VDC / 24-240VAC	12-240VDC / 24-240VAC	
Mains Frequency	50/60Hz	50/60Hz	
Tolerance	±10%Sn	±10%Sn	
Hysteresis	10%	10%	
Emission	Infrared(880nm)	Infrared(880nm)	
Output	Relay SPST	Relay SPDT	
Max. Output Current	3A/30V AC, 1A/220V AC	3A/30V AC, 1A/220V AC	
Power consumption	<2.5VA	<2.5VA	
Yellow LED	Output indicator	Output indicator	
Green LED	Supply indicator	Supply indicator	
Sensitivity Adjustment	Trimmer 1 tum	Trimmer 1 tum	
Switching Frequency	10 Hz	10 Hz	
Response Time	20mS	20mS	
Start Up Delay	≤300mS	≤300mS	
Temperature Limits	-10 ~ +60℃	-10 ~ +60℃	
Light Immunity	>10.000Lux	>10.000Lux	
Protection Degree	IP65	IP65	
Housing Material	PBT	PBT	
Sensing object	-	10cmx10cm white paper	20cmx20cm white paper
Wiring diagram number			
Wiring diagram number(see page 23-12)			

10-30V DC	Through-beam mode	Emitter :			
		Receiver			
	Diffuse mode				
	Retro-reflective mode				
	Retro-reflective mode (With Polarizing Filters)				
12-24VDC/ 24V-240VAC	Through-beam mode	Emitter :	**F3STP50040MUEIEB4** C6		
		Receiver	**F3STP50040MURIEB4** C6		
	Diffuse mode			**F3SDP500400URI5B2** C4	**F3SDP501000URI5B2** C4
	Retro-reflective mode				
	Retro-reflective mode (With Polarizing Filters)				

Dimensions (unit: mm)





Connect	M12 Euro style	2m PVC Cable(ϕ 4 5x0.30mm²)
Weight	Approx.85g	Approx.160 g

FS50 AC/DC PHOTOELECTRIC SENSORS

FS50	
Diffuse mode	
20cm-1.8m	30cm-2m
12-240VDC / 24-240VAC	
50/60Hz	
±10%Sn	
10%	
Infrared(880nm)	
Relay SPDT	
3A/30V AC, 1A/220V AC	
<2.5VA	
Output indicator	
Supply indicator	
Trimmer 1 tum	
10 Hz	
20mS	
≤300mS	
-10 ~ +60℃	
>10.000Lux	
IP65	
PBT	
20x20cm white paper	
F3SDP501800URI5B2 C4	F3SDP502000URI5B2 C4
2m PVC Cable(ϕ 4 5x0.30mm²)	
Approx.160 g	

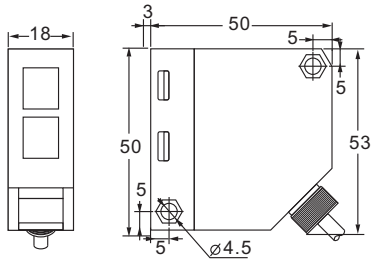
FS50	
Diffuse mode	
100mm-400mm	20cm-1m
12-240VDC / 24-240VAC	
50/60Hz	
±10%Sn	
10%	
Infrared(880nm)	
Relay SPST	
3A/30V AC, 1A/220V AC	
<2.5VA	
Output indicator	
Supply indicator	
Trimmer 1 tum	
10 Hz	
20mS	
≤300mS	
-10 ~ +60℃	
>10.000Lux	
IP65	
PBT	
10cmx10cm white paper	20cmx20cm white paper
F3SDP500400URIEB4 C6	F3SDP501000URIEB4 C6
M12 Euro style	
Approx.85g	

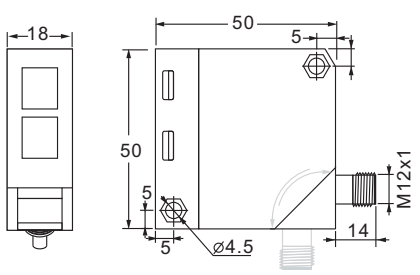
FS50	
Diffuse mode	
20cm-1.8m	30cm-2m
12-240VDC / 24-240VAC	
50/60Hz	
±10%Sn	
10%	
Infrared(880nm)	
Relay SPST	
3A/30V AC, 1A/220V AC	
<2.5VA	
Output indicator	
Supply indicator	
Trimmer 1 tum	
10 Hz	
20mS	
≤300mS	
-10 ~ +60℃	
>10.000Lux	
IP65	
PBT	
20x20cm white paper	
F3SDP501800URIEB4 C6	F3SDP502000URIEB4 C6
M12 Euro style	
Approx.85g	

Type	FS50	FS50
Sensing mode	Retro-reflective mode	Retro-reflective mode
Sensing picture		
Switching distance(sn)	10m	10m
Picture		
Nominal Voltage	12-240VDC / 24-240VAC	12-240VDC / 24-240VAC
Mains Frequency	50/60Hz	50/60Hz
Tolerance	±10%Sn	±10%Sn
Hysteresis	10%	10%
Emission	Infrared(880nm)	Infrared(880nm)
Output	Relay SPDT	Relay SPST
Max. Output Current	3A/30V AC, 1A/220V AC	3A/30V AC, 1A/220V AC
Power consumption	<2.5VA	<2.5VA
Yellow LED	Output indicator	Output indicator
Green LED	Supply indicator	Supply indicator
Sensitivity Adjustment	Trimmer 1 tum	Trimmer 1 tum
Switching Frequency	10 Hz	10 Hz
Response Time	20mS	20mS
Start Up Delay	≤300mS	≤300mS
Temperature Limits	-10 ~ +60℃	-10 ~ +60℃
Light Immunity	>10.000Lux	>10.000Lux
Protection Degree	IP65	IP65
Housing Material	PBT	PBT
Sensing object	D83 Mirror	D83 Mirror
Wiring diagram number		
Wiring diagram number(see page 23-12)		

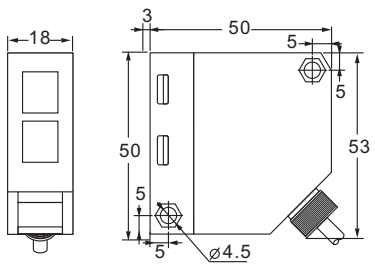
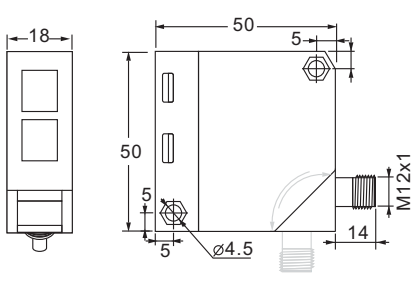
10-30V DC	Through-beam mode	Emitter :		
		Receiver		
	Diffuse mode			
	Retro-reflective mode			
	Retro-reflective mode (With Polarizing Filters)			
12-24VDC/ 24V-240VAC	Through-beam mode	Emitter :		
		Receiver		
	Diffuse mode			
	Retro-reflective mode		**F3SLP50010MURI5B2** C4	**F3SLP50010MURIEB4** C6
	Retro-reflective mode (With Polarizing Filters)			

Dimensions (unit: mm)

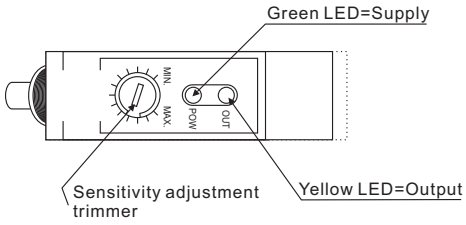




Connect	2m PVC Cable(ϕ 4 5x0.30mm²)	M12 Euro style
Weight	Approx.160 g	Approx.85g

FS50	FS50	
Retro-reflective mode	Retro-reflective mode	
(With Polarizing Filters)	(With Polarizing Filters)	
6m	6m	
		
12-240VDC / 24-240VAC	12-240VDC / 24-240VAC	
50/60Hz	50/60Hz	
±10%Sn	±10%Sn	
10%	10%	
Infrared(880nm)	Infrared(880nm)	
Relay SPDT	Relay SPST	
3A/30V AC, 1A/220V AC	3A/30V AC, 1A/220V AC	
<2.5VA	<2.5VA	
Output indicator	Output indicator	
Supply indicator	Supply indicator	
Trimmer 1 tum	Trimmer 1 tum	
10 Hz	10 Hz	
20mS	20mS	
≤300mS	≤300mS	
-10 ~ +60℃	-10 ~ +60℃	
>10.000Lux	>10.000Lux	
IP65	IP65	
PBT	PBT	
D83 Mirror	D83 Mirror	
F3SLP506000URR5B2 C4	**F3SLP506000URREB4** C3	
		
2m PVC Cable(ϕ 4 5x0.30mm²)	M12 Euro style	
Approx.160 g	Approx.85g	

Sensitivity adjustment

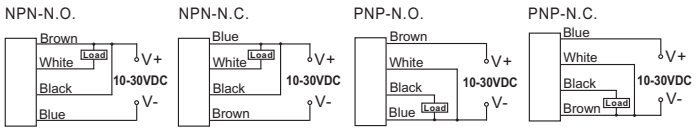


Note: The trimmer just needs one turn.

1) SENSITIVITY INCREASE
Screw the trimmer towards right towards position" + "
2)SENSITIVITY DECREASE
Screw the trimmer towards left towards position" - "

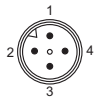
Wiring diagrams

C1 Wiring diagrams(DC)



C3 Connection with connector (DC)

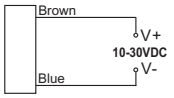
Euro style(M12)



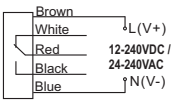
View of quadripole male connector.

Output	Contact numbers			
	1	2	3	4
NPN N.O.	+	N.O.	–	+
NPN N.C.	–	N.C.	+	+
PNP N.O.	+	-	–	N.O.
PNP N.C.	–	-	+	N.C.
Emitter	+		–	

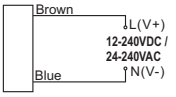
C2 Emitter(DC)



C4 Wiring diagrams(AC/DC)

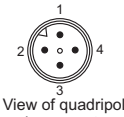


C5 Emitter(AC/DC)



C6 Connection with connector (AC/DC)

Euro style(M12)



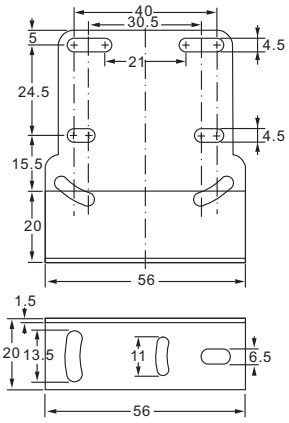
View of quadripole male connector.

Output	Contacts numbers			
	1	2	3	4
Relay	L(+)	Com	N(-)	N.O.
Emitter	L(+)		N(-)	
Wire colors	Brown	White	Blue	Black

Note: Photoelectric sensor not suitable for use with 90° connectors.

Accessories

- Brackets



- Reflectors D83