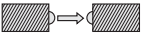





FU31 Series Photoelectric Sensor

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FU31 DC PHOTOELECTRIC SENSORS

Type	FU31		FU31		
Sensing mode	Through-beam mode		Through-beam mode		
Sensing picture					
Switching distance(sn)	5m	10m	5m	10m	
Picture					
	CE		CE		
Nominal Voltage	10-30VDC		10-30VDC		
Residual Ripple	≤10%		≤10%		
Tolerance	±10%Sn		±10%Sn		
Hysteresis	15%		15%		
Emission	Infrared(880nm)		Infrared(880nm)		
Output	NPN N.O.+N.C. or PNP N.O.+N.C.		NPN N.O.+N.C. or PNP N.O.+N.C.		
Max. Output Current	100mA		100mA		
Absorption At 30VDC	<35mA		<35mA		
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	500 Hz		500 Hz		
Response Time	1mS		1mS		
Start Up Delay	<300mS		<300mS		
Short Circuit Protection	Yes		Yes		
Reverse Polarity Protection	Yes		Yes		
Temperature Limits	-25 ~ +55°C		-25 ~ +55°C		
Light Immunity	>5.000Lux		>5.000Lux		
Protection Degree	IP67		IP67		
Housing Material	ABS		ABS		
Sensing object	-		-		
Wiring diagram number(see page 22-07)					
Through-beam mode	Emitter :	F1STP315000DEI2A2 E3	F1STP31010MDEI2A2 E3	F1STP315000DEIPA4 B4	F1STP31010MDEIPA4 B4
	Receiver (PNP N.O. & N.C.)	F1STP315000PSI4A2 E1	F1STP31010MPSI4A2 E1	F1STP315000PSIPA4 B4	F1STP31010MPSIPA4 B4
	Receiver (NPN N.O. & N.C.)	F1STP315000NSI4A2 E2	F1STP31010MNSI4A2 E2	F1STP315000NSIPA4 B4	F1STP31010MNSIPA4 B4
Diffuse mode	PNP N.O. & N.C.				
	NPN N.O. & N.C.				
Retro-reflective mode	PNP N.O. & N.C.				
	NPN N.O. & N.C.				
Retro-reflective mode (With Polarizing Filters)	PNP N.O. & N.C.				
Retro-reflective mode (For transparent)	NPN N.O. & N.C.				
Dimensions (unit: mm)					
	Connect		2m φ3mm Cable		
	Weight		Approx.42 g		
		M8 Pico style			
		Approx.35g			

FU31 DC PHOTOELECTRIC SENSORS

FU31	
Diffuse mode	
110mm	350mm

FU31	
Diffuse mode	
800mm	

FU31	
Diffuse mode	
110mm	350mm



10-30VDC
≤10%
±10%Sn
15%
Infrared(880nm)
NPN N.O.+N.C. or PNP N.O.+N.C.
100mA
<35mA
≤2.0V(I=100mA)
Output indicator
Supply indicator
Trimmer 1 tum
500 Hz
1mS
<300mS
Yes
Yes
-25 ~ +55°C
>5.000Lux
IP67
ABS
10x10cm white paper

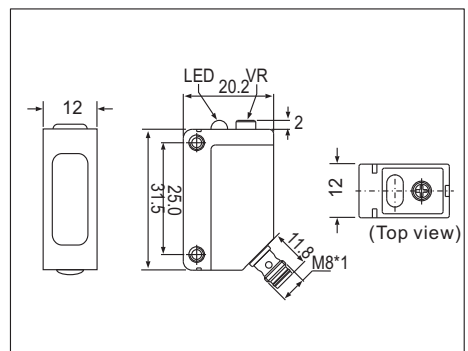
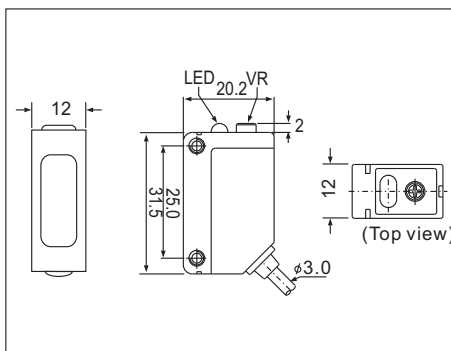
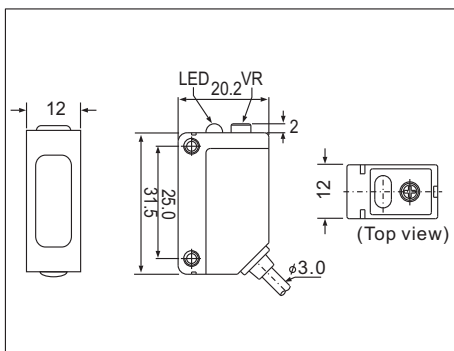
10-30VDC
≤10%
±10%Sn
15%
Infrared(880nm)
NPN N.O.+N.C. or PNP N.O.+N.C.
100mA
<35mA
≤2.0V(I=100mA)
Output indicator
Supply indicator
Trimmer 1 tum
500 Hz
1mS
<300mS
Yes
Yes
-25 ~ +55°C
>5.000Lux
IP67
ABS
20x20cm white paper

10-30VDC
≤10%
±10%Sn
15%
Infrared(880nm)
NPN N.O.+N.C. or PNP N.O.+N.C.
100mA
<35mA
≤2.0V(I=100mA)
Output indicator
Supply indicator
Trimmer 1 tum
500 Hz
1mS
<300mS
Yes
Yes
-25 ~ +55°C
>5.000Lux
IP67
ABS
10x10cm white paper

F1SDP310110PSI4A2 B1	F1SDP310350PSI4A2 B1
F1SDP310110NSI4A2 B2	F1SDP310350NSI4A2 B2

F1SDP310800PSI4A2 B1	
F1SDP310800NSI4A2 B2	

F1SDP310110PSIPA4 B4	F1SDP310350PSIPA4 B4
F1SDP310110NSIPA4 B4	F1SDP310350NSIPA4 B4











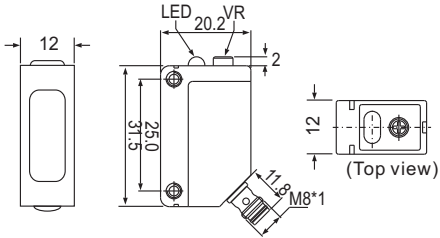
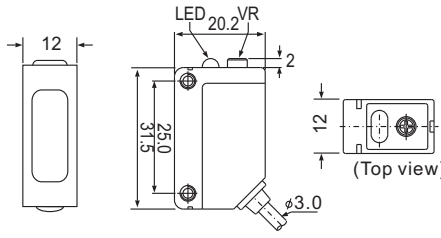


2m ϕ 3mm Cable
Approx.42 g







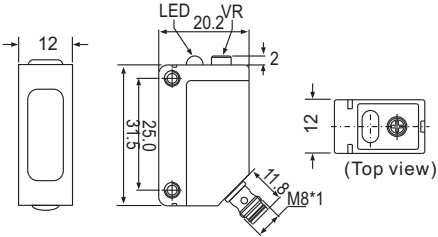
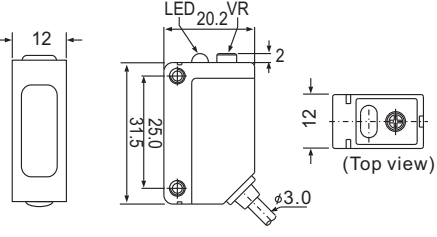
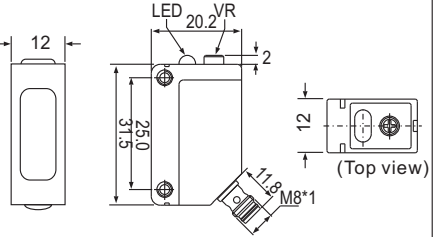
2m ϕ 3mm Cable
Approx.42 g

M8 Pico style
Approx.35g

FU31 DC PHOTOELECTRIC SENSORS

Type	FU31	FU31
Sensing mode	Diffuse mode	Retro-reflective mode
Sensing picture		
Switching distance(sn)	800mm	0.1~4m
Picture	 	 
Nominal Voltage	10-30VDC	10-30VDC
Residual Ripple	≤10%	≤10%
Tolerance	±10%Sn	±10%Sn
Hysteresis	15%	15%
Emission	Infrared(880nm)	Infrared(880nm)
Output	NPN N.O.+N.C. or PNP N.O.+N.C.	NPN N.O.+N.C. or PNP N.O.+N.C.
Max. Output Current	100mA	100mA
Absorption At 30VDC	<35mA	<35mA
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	500 Hz	500 Hz
Response Time	1mS	1mS
Start Up Delay	<300mS	<300mS
Short Circuit Protection	Yes	Yes
Reverse Polarity Protection	Yes	Yes
Temperature Limits	-25 ~ +55℃	-25 ~ +55℃
Light Immunity	>5.000Lux	>5.000Lux
Protection Degree	IP67	IP67
Housing Material	ABS	ABS
Sensing object	20x20cm white paper	D51 Mirror
Wiring diagram number(see page 22-07)		
Through-beam mode	Emitter : Receiver (PNP N.O. & N.C.) Receiver (NPN N.O. & N.C.)	
Diffuse mode	PNP N.O. & N.C. NPN N.O. & N.C.	F1SDP310800PSIPA4  F1SDP310800NSIPA4 
Retro-reflective mode	PNP N.O. & N.C. NPN N.O. & N.C.	F1SLP314000PSI4A2  F1SLP314000NSI4A2 
Retro-reflective mode (With Polarizing Filters)	PNP N.O. & N.C. NPN N.O. & N.C.	
Retro-reflective mode (For transparent)	PNP N.O. & N.C. NPN N.O. & N.C.	
Dimensions (unit: mm)		
Connect	M8 Pico style	2m PVC (Φ4x0.15mm ²)
Weight	Approx.35g	Approx.42 g

FU31 DC PHOTOELECTRIC SENSORS

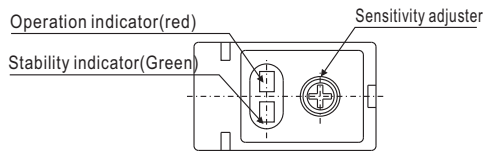
<p>FU31</p> <p>Retro-reflective mode</p>  <p>0.1~4m</p>	<p>FU31</p> <p>Retro-reflective mode</p> <p>(With Polarizing Filters)</p>  <p>0.1~2m</p>	<p>FU31</p> <p>Retro-reflective mode</p> <p>(With Polarizing Filters)</p>  <p>0.1~2m</p>
 <p style="text-align: right;">CE</p>	 <p style="text-align: right;">CE</p>	 <p style="text-align: right;">CE</p>
<p>10-30VDC</p> <p>≤10%</p> <p>±10%Sn</p> <p>15%</p> <p>Infrared(880nm)</p> <p>NPN N.O.+N.C. or PNP N.O.+N.C.</p> <p>100mA</p> <p><35mA</p> <p>≤2.0V(I=100mA)</p> <p>Output indicator</p> <p>Supply indicator</p> <p>Trimmer 1 tum</p> <p>500 Hz</p> <p>1mS</p> <p><300mS</p> <p>Yes</p> <p>Yes</p> <p>-25 ~ +55℃</p> <p>>5.000Lux</p> <p>IP67</p> <p>ABS</p> <p>D51 Mirror</p>	<p>10-30VDC</p> <p>≤10%</p> <p>±10%Sn</p> <p>15%</p> <p>Red(660nm)</p> <p>NPN N.O.+N.C. or PNP N.O.+N.C.</p> <p>100mA</p> <p><35mA</p> <p>≤2.0V(I=100mA)</p> <p>Output indicator</p> <p>Supply indicator</p> <p>Trimmer 1 tum</p> <p>500 Hz</p> <p>1mS</p> <p><300mS</p> <p>Yes</p> <p>Yes</p> <p>-25 ~ +55℃</p> <p>>5.000Lux</p> <p>IP67</p> <p>ABS</p> <p>D51 Mirror</p>	<p>10-30VDC</p> <p>≤10%</p> <p>±10%Sn</p> <p>15%</p> <p>Red(660nm)</p> <p>NPN N.O.+N.C. or PNP N.O.+N.C.</p> <p>100mA</p> <p><35mA</p> <p>≤2.0V(I=100mA)</p> <p>Output indicator</p> <p>Supply indicator</p> <p>Trimmer 1 tum</p> <p>500 Hz</p> <p>1mS</p> <p><300mS</p> <p>Yes</p> <p>Yes</p> <p>-25 ~ +55℃</p> <p>>5.000Lux</p> <p>IP67</p> <p>ABS</p> <p>D51 Mirror</p>
<p>F1SLP314000PSIPA4 B4</p> <p>F1SLP314000NSIPA4 B4</p>	<p>F1SLP312000PSR4A2 B1</p> <p>F1SLP312000NSR4A2 B2</p>	<p>F1SLP312000PSRPA4 B4</p> <p>F1SLP312000NSRPA4 B4</p>
 <p>(Top view)</p>	 <p>(Top view)</p>	 <p>(Top view)</p>
<p>M8 Pico style</p> <p>Approx.35g</p>	<p>2m φ3mm Cable</p> <p>Approx.42 g</p>	<p>M8 Pico style</p> <p>Approx.35g</p>

FU31 DC PHOTOELECTRIC SENSORS

Type	FU31	FU31
Sensing mode	Retro-reflective mode	Retro-reflective mode
Sensing picture	(For transparent)	(For transparent)
Switching distance(sn)	0.1~0.7m	0.1~0.7m
Picture	 CE	 CE
Nominal Voltage	10-30VDC	10-30VDC
Residual Ripple	≤10%	≤10%
Tolerance	±10%Sn	±10%Sn
Hysteresis	15%	15%
Emission	Infrared(880nm)	Infrared(880nm)
Output	NPN N.O.+N.C. or PNP N.O.+N.C.	NPN N.O.+N.C. or PNP N.O.+N.C.
Max. Output Current	100mA	100mA
Absorption At 30VDC	<35mA	<35mA
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	500 Hz	500 Hz
Response Time	1mS	1mS
Start Up Delay	<300mS	<300mS
Short Circuit Protection	Yes	Yes
Reverse Polarity Protection	Yes	Yes
Temperature Limits	-25 ~ +55°C	-25 ~ +55°C
Light Immunity	>5.000Lux	>5.000Lux
Protection Degree	IP67	IP67
Housing Material	ABS	ABS
Sensing object	D51 Mirror	D51 Mirror
Wiring diagram number(see page 22-07)		
Through-beam mode	Emitter : Receiver (PNP N.O. & N.C.) Receiver (NPN N.O. & N.C.)	
Diffuse mode	PNP N.O. & N.C. NPN N.O. & N.C.	
Retro-reflective mode	PNP N.O. & N.C. NPN N.O. & N.C.	
Retro-reflective mode (With Polarizing Filters)	PNP N.O. & N.C. NPN N.O. & N.C.	
Retro-reflective mode (For transparent)	PNP N.O. & N.C. NPN N.O. & N.C.	
	F1SLP310700PSI4A2 E1 F1SLP310700NSI4A2 E2	F1SLP310700PSIPA4 B4 F1SLP310700NSIPA4 B4
Dimensions (unit: mm)		
Connect	2m φ3mm Cable	M8 Pico style
Weight	Approx.42 g	Approx.35g

FU31 DC PHOTOELECTRIC SENSORS

Sensitivity adjustment

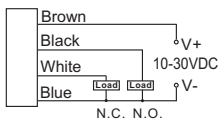


Note: The trimmer just needs one turn.

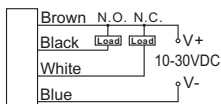
- 1) SENSITIVITY INCREASE
Screw the trimmer towards right towards position “+”
- 2) SENSITIVITY DECREASE
Screw the trimmer towards left towards position “-”

Wiring diagrams

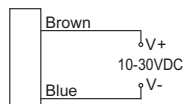
B1 PNP-N.O. & N.C.



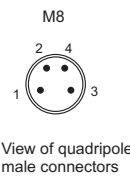
B2 NPN-N.O. & N.C.



B3 Emitter(DC)



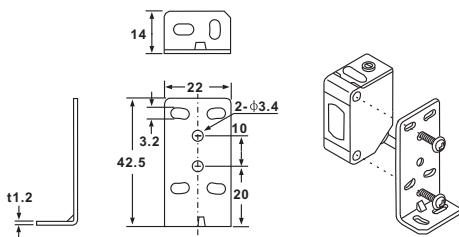
B4 Connection with connector (DC)



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

Accessories

• Brackets



• Reflectors D51

