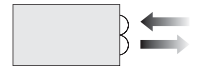


# FQ78 SERIES PHOTOELECTRIC SENSOR

## FQ78 Sensors



### Diffuse Mode



Sensing range: 800mm

(DC10-30V)

### Model number description

Connection	Output	Diffuse Mode	Diffuse Mode (With timing delay)
Terminal	NPN Light/Dark On	FQ78-T08N-P31T	FQ78-T08N-P31T-D
	PNP Light/Dark On	FQ78-T08P-P31T	FQ78-T08P-P31T-D
	NPN/PNP Light/Dark On	FQ78-T08D-P31T	FQ78-T08D-P31T-D
2 M cables	NPN Light/Dark On	FQ78-T08N-P31P2	FQ78-T08N-P31P2-D
	PNP Light/Dark On	FQ78-T08P-P31P2	FQ78-T08P-P31P2-D
	NPN/PNP Light/Dark On	FQ78-T08D-P31P2	FQ78-T08D-P31P2-D
M12 connector	NPN Light/Dark On	FQ78-T08N-P31S12	FQ78-T08N-P31S12-D
	PNP Light/Dark On	FQ78-T08P-P31S12	FQ78-T08P-P31S12-D
	NPN/PNP Light/Dark On	FQ78-T08D-P31S12	FQ78-T08D-P31S12-D

## FQ78 Sensors



### Diffuse Mode



Sensing range: 800mm

(12-240VDC / 24-240VAC)

### Model number description

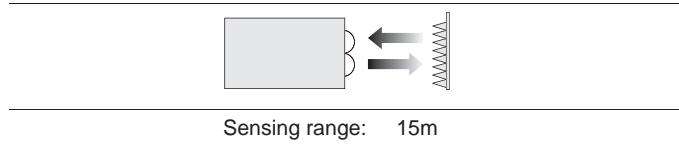
Connection	Output	Diffuse Mode	Diffuse Mode (With timing delay)
Terminal	Relay NO (4 wire)	FQ78-T08U-P35T	FQ78-T08U-P35T-D
2M cables	Relay NO (4 wire)	FQ78-T08U-P35T	FQ78-T08U-P35T-D

# FQ78 SERIES PHOTOELECTRIC SENSOR

## FQ78 Sensors



### Retro-reflective Mode



Sensing range: 15m

(DC10-30V)

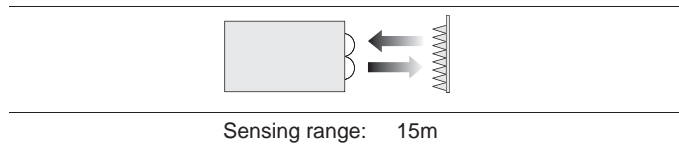
### Model number description

Connection	Output	Retro-reflective Mode	Retro-reflective Mode (With timing delay)
Terminal	NPN Light/Dark On	FQ78-R15MN-P31T	FQ78-R15MN-P31T-D
	PNP Light/Dark On	FQ78-R15MP-P31T	FQ78-R15MP-P31T-D
	NPN/PNP Light/Dark On	FQ78-R15MD-P31T	FQ78-R15MD-P31T-D
2 M cables	NPN Light/Dark On	FQ78-R15MN-P31P2	FQ78-R15MN-P31P2-D
	PNP Light/Dark On	FQ78-R15MP-P31P2	FQ78-R15MP-P31P2-D
	NPN/PNP Light/Dark On	FQ78-R15MD-P31P2	FQ78-R15MD-P31P2-D
M12 connector	NPN Light/Dark On	FQ78-R15MN-P31S12	FQ78-R15MN-P31S12-D
	PNP Light/Dark On	FQ78-R15MP-P31S12	FQ78-R15MP-P31S12-D
	NPN/PNP Light/Dark On	FQ78-R15MD-P31S12	FQ78-R15MD-P31S12-D

## FQ78 Sensors



### Retro-reflective Mode



Sensing range: 15m

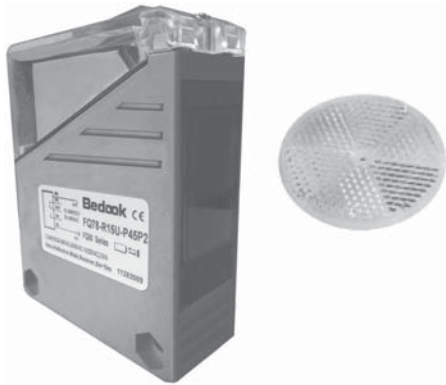
(12-240VDC / 24-240VAC)

### Model number description

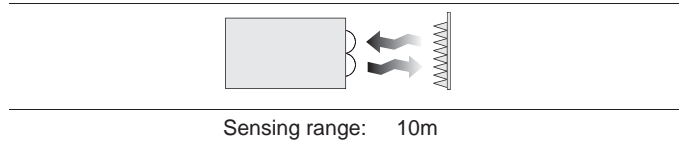
Connection	Output	Retro-reflective Mode	Retro-reflective Mode (With timing delay)
Terminal	Relay NO (4 wire)	FQ78-R15MU-P35T	FQ78-R15MU-P35T-D
2M cables	Relay NO (4 wire)	FQ78-R15MU-P35P2	FQ78-R15MU-P35P2-D

# FQ78 SERIES PHOTOELECTRIC SENSOR

## FQ78 Sensors



### Retro-reflective Mode (With polarizing filter)



Sensing range: 10m

(DC10-30V)

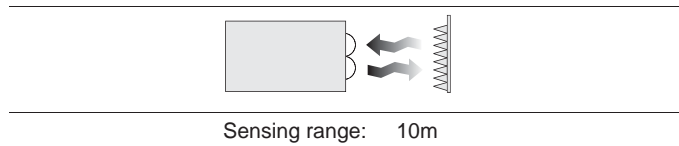
### Model number description

Connection	Output	Mode (Without timing delay)	Mode (With timing delay)
Terminal	NPN Light/Dark On	FQ78-R10MN-P31T-F	FQ78-R10MN-P31T-FD
	PNP Light/Dark On	FQ78-R10MP-P31T-F	FQ78-R10MP-P31T-FD
	NPN/PNP Light/Dark On	FQ78-R10MD-P31T-F	FQ78-R10MD-P31T-FD
2 M cables	NPN Light/Dark On	FQ78-R10MN-P31P2-F	FQ78-R10MN-P31P2-FD
	PNP Light/Dark On	FQ78-R10MP-P31P2-F	FQ78-R10MP-P31P2-FD
	NPN/PNP Light/Dark On	FQ78-R10MD-P31P2-F	FQ78-R10MD-P31P2-FD
M12 connector	NPN Light/Dark On	FQ78-R10MN-P31S12-F	FQ78-R10MN-P31S12-FD
	PNP Light/Dark On	FQ78-R10MP-P31S12-F	FQ78-R10MP-P31S12-FD
	NPN/PNP Light/Dark On	FQ78-R10MD-P31S12-F	FQ78-R10MD-P31S12-FD

## FQ78 Sensors



### Retro-reflective Mode (With polarizing filter)



Sensing range: 10m

(12-240VDC / 24-240VAC)

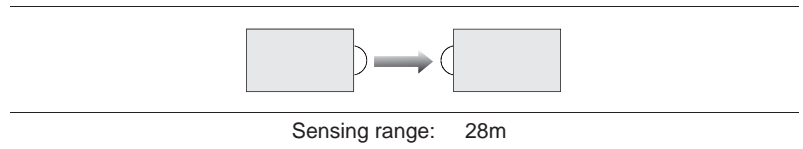
### Model number description

Connection	Output	Mode (Without timing delay)	Mode (With timing delay)
Terminal	Relay NO (4 wire)	FQ78-R10MU-P35T-F	FQ78-R10MU-P35T-FD
2M cables	Relay NO (4 wire)	FQ78-R10MU-P35P2-F	FQ78-R10MU-P35P2-FD

FQ78 Sensors



Through-beam Mode



(DC10-30V)

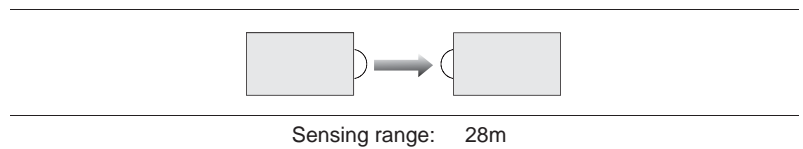
Model number description

Connection	Output	Through-beam Mode	Through-beam Mode (With timing delay)
Terminal	Emitter	FQ78-L28MD-P51T	FQ78-L28MD-P51T-D
	NPN Light/Dark On	FQ78-L28MN-P31T	FQ78-L28MN-P31T-D
	PNP Light/Dark On	FQ78-L28MP-P31T	FQ78-L28MP-P31T-D
	NPN/PNP Light/Dark On	FQ78-L28MD-P31T	FQ78-L28MD-P31T-D
2 M cables	Emitter	FQ78-L28MD-P51P2	FQ78-L28MD-P51P2-D
	NPN Light/Dark On	FQ78-L28MN-P31P2	FQ78-L28MN-P31P2-D
	PNP Light/Dark On	FQ78-L28MP-P31P2	FQ78-L28MP-P31P2-D
	NPN/PNP Light/Dark On	FQ78-L28MD-P31P2	FQ78-L28MD-P31P2-D
M12 connector	Emitter	FQ78-L28MD-P51S12	FQ78-L28MD-P51S12-D
	NPN Light/Dark On	FQ78-L28MN-P31S12	FQ78-L28MN-P31S12-D
	PNP Light/Dark On	FQ78-L28MP-P31S12	FQ78-L28MP-P31S12-D
	NPN/PNP Light/Dark On	FQ78-L28MD-P31S12	FQ78-L28MD-P31S12-D

FQ78 Sensors



Through-beam Mode



(12-240VDC / 24-240VAC)

Model number description

Connection	Output	Retro-reflective Mode	Retro-reflective Mode (With timing delay)
Terminal	Emitter (2 wire)	FQ78-L28MU-P55T	FQ78-L28MU-P55T-D
	Relay NO (4 wire)	FQ78-L28MU-P35T	FQ78-L28MU-P35T-D
2M cables	Emitter (2 wire)	FQ78-L28MU-P55P2	FQ78-L28MU-P55P2-D
	Relay NO (4 wire)	FQ78-L28MU-P35P2	FQ78-L28MU-P35P2-D

## FQ78 SERIES PHOTOELECTRIC SENSOR

### FQ78 Sensors Specifications (DC type)

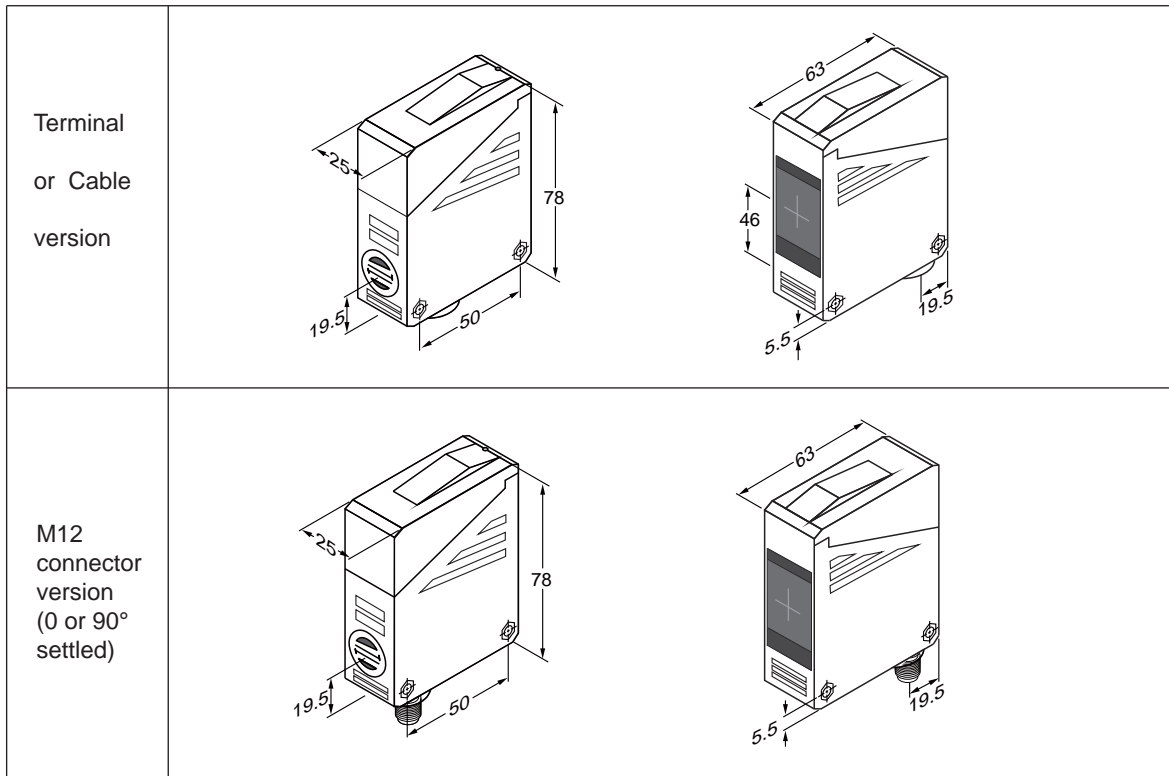
Item \ Mode	Diffuse	Through Beam	Retroreflective	Retroreflective with Polarized Filter
Sensing range	800 mm	28 m	15 m	10 m
Supply voltage	10 - 30VDC (limit values)			
Emitting element	Infrared LED(880nm)		Red LED(650nm)	
Angle of Divergence	Approx. 17 °			
Light spot size	15mm@800mm	300mm@20m	150mm@5m	
Output	PNP, NPN, PNP/PNP, Light on/Dark on			
Max output current	100mA			
Ripple (within Vs tolerance)	≤5V peak-to-peak			
Consumption (no load)	<35mA			
Short-circuit protection	Yes			
Over current protection	Yes			
Reverse polarity protection	Yes			
Response time	1ms			
Switching frequency	500 Hz			
Operation indicator	Yellow LED: Power supply Red LED: Margin		Green LED: Output	
Protection	IP66 / NEMA4			
Ambient temperature	-20 to +55°C			
Time options	No delay, On delay, Off delay, One-shot (with timer mode only)			
Time settings	0.1~5s variable (with timer mode only)			
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>10V/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	>20mA (with 500VDC or 1500VAC 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-, Part 7.4.1 or 30g 11ms in x, y and z directions for six time each			
Sensitivity adjustment	Trimmer 1 turn			
Housing material	Glass fiber reinforced plastic			
Connecting	Terminal or 2M cables or Euro(M12) connector			

## FQ78 SERIES PHOTOELECTRIC SENSOR

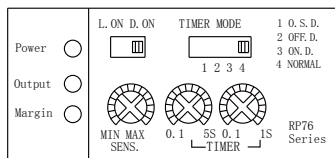
### FQ78 Sensors Specifications (AC/DC type)

Item \ Mode	Diffuse	Through Beam	Retroreflective	Retroreflective with Polarized Filter
Sensing range	800 mm	28 m	15 m	10 m
Supply voltage	12-240VDC /24-240VAC (10%)			
Emitting element	Infrared LED(880nm)		Red LED(650nm)	
Angle of Divergence	Approx. 17 °	Approx. 1 °	Approx. 17 °	
Light spot size	15mm@800mm	350mm@20m	150mm@5m	
Output	Relay NO output, Light on/Dark on			
Max switching voltage	240VAC			
Max switching current	3A			
No load current	<30mA			
Power consumption	<2VA			
Short-circuit protection	No			
Reverse polarity protection	Yes			
Response time	<20ms			
Switching Frequency	25Hz			
Operation indicator	Yellow LED: Power supply Red LED: Margin		Green LED: Output	
Protection	IP66 / NEMA4			
Ambient temperature	-20 to +55°C			
Time options	No delay, On delay, Off delay, One-shot (with timer mode only)			
Time settings	0.1~5s variable (with timer mode only)			
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>10V/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	>20mA (with 500VDC or 1500VAC 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-, Part 7.4.1 or 30g 11ms in x, y and z directions for six time each			
Sensitivity adjustment	Trimmer 1 turn			
Housing material	Glass fiber reinforced plastic			
Connecting	Terminal or 2M cables			

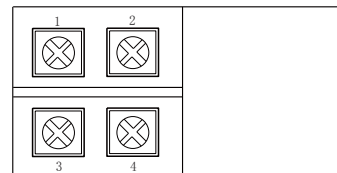
FQ50 Sensor Dimensions (unit: mm)



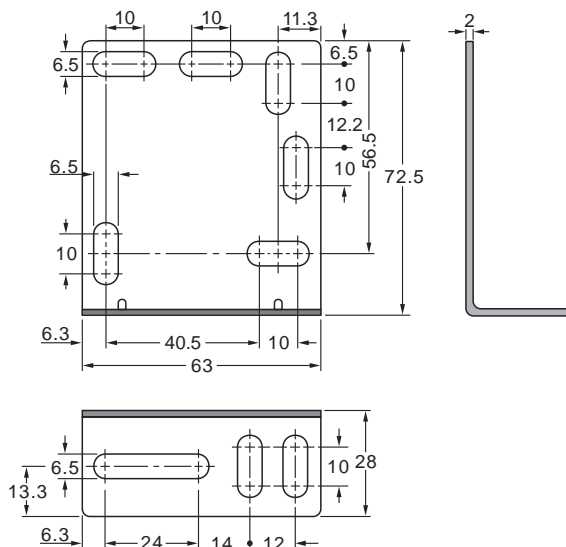
Timer Mode Panel



Terminal Viewing

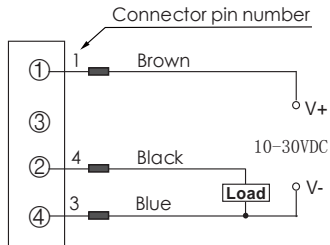


FQ78-B1 (Mounting bracket) (Optional)

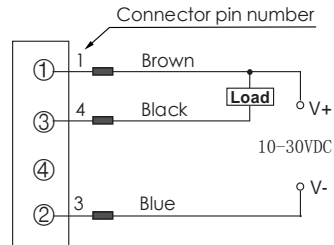


FQ50 Sensors Wiring Diagram

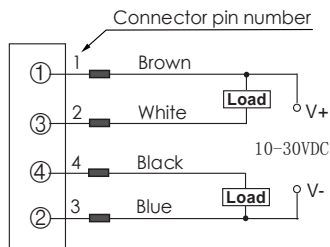
PNP Output



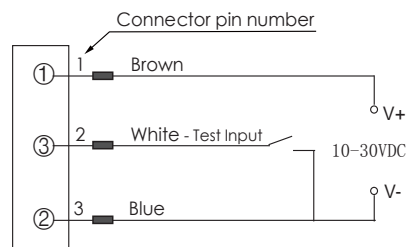
NPN Output



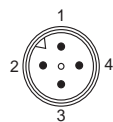
PNP/NPN Output



Emitter (DC)

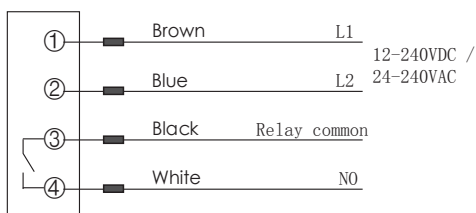


M12 Connector Face viewing



M12 (Euro style)

Relay N.O. Output



Emitter (AC/DC)

