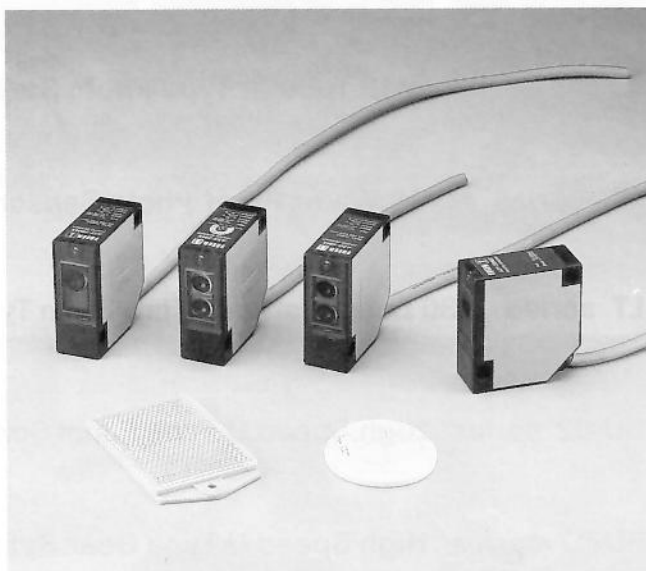


A3 Series FREE POWER PHOTO SENSOR

- * Extensive operating voltage
DC 12~240V or AC 24~240V
 - * High capacity relay output 3A/250VAC
 - * High compact structure IP-66
 - * Multi surge killer circuit effectively
protects from surge damage
 - * B type (Normal close type)
have no stock maybe ,
accepted order to manufacture
- Model : A3R-30XB , A3R-1MXB , A3R-2MXB
A3G-2MRB , A3G-4MXB
A3T-10MXB , A3T-20MXB

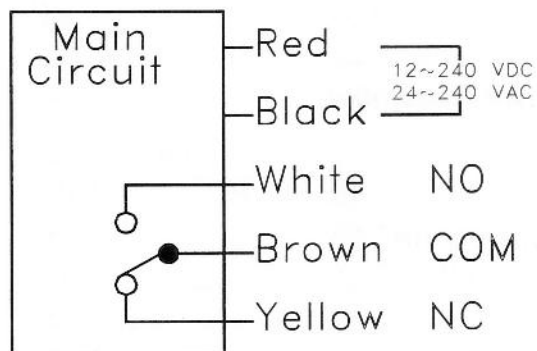


General Specification

Specification	Data
Operating Voltage	12~240 VDC ; 24~240 VAC , 50/60HZ
Current Consumption	2VA max.
Output Method	Relay
Contact Current	3A/250 VAC
Response Time	15ms
Illumination	Lamplight < 10,000 Lux. ; Sunlight < 30,000 Lux.
Connection Method	5 Cores / 6.0 ϕ X 2m
Noise Resistance	1500Vp - p/1 μ s
Surge Resistance	2 KV/1 μ S
Vibration Resistance	10~55Hz / 1.5mm , 2 Hour In X.Y.Z. Direction
Housing Material	Case : Intensive ABS ; Lens : PC
Operating Temp./Hum.	-20°C ~ +60°C ; 35% ~ 85% RH

Connection
Diagram

Connection diagram



Reflex Type

Type	Standard Type			Water-Proof Type		
Model	A3R-30X	A3R-1MX	A3R-2MX	A3R-30XP	A3R-1MXP	A3R-2MXP
Sensing Distance	30cm	100cm	200cm	30cm	100cm	200cm
Protection Class	IP-65			IP-67		
Operating Voltage	12~240 VDC ; 24~240 VAC 50/60Hz					
Output Method	Relay					
Output Status	NO. <Received ON >					
Sensitivity Adjuster	270° Trimmer					
Emitter	Infrared LED					
Min. Sensible Object	5.0 φ					
Weight	Appr.145g			Appr.155g		

Mirror Reflex Type

Type	Standard Type			Water-Proof Type	
Model	A3G-2MR	A3G-2MRS	A3G-4MX	A3G-2MRP	A3G-4MXP
Sensing Distance	3m	2m	4m	3m	4.5m
Emitter	Red LED	Red LED	Infrared LED	Red LED	Infrared LED
Sensing Adjuster	Trimmer	Without		Trimmer	Without
Protect Class	IP-65			IP-67	
Operating Voltage	12~240 VDC ; 24~240 VAC 50/60Hz				
Output Method	Relay				
Output Status	NO. < Break ON >				
Min. Sensible Object	2.0 φ	5.0 φ		2.0 φ	5.0 φ
Weight	Appr.145g			Appr.155g	

Thru Beam Type

Type	Standard Type			Water-Proof Type		
Model	A3T-3MX	A3T-10MX	A3T-20MX	A3T-3MXP	A3T-10MXP	A3T-20MXP
Sensing Distance	3m	10m	20m	3m	10m	20m
Protection Class	IP-65			IP-67		
Operating Voltage	12~240 VDC ; 24~240 VAC 50/60Hz					
Output Method	Relay					
Output Status	NO. < Break ON >					
Emitter	Infrared LED					
Sensitivity Adjuster	Without					
Min. Sensible Object	2.0 φ	5.0 φ	10.0 φ	2.0 φ	5.0 φ	10.0 φ
Weight	Appr.285g			Appr.305g		

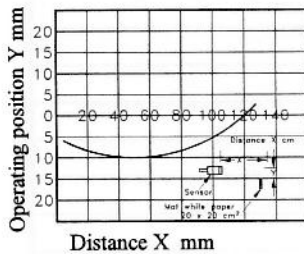
A3 Series FREE POWER PHOTO SENSOR

Characteristic Curve < Typical >

Diffuse Reflex type

A3R-1MX

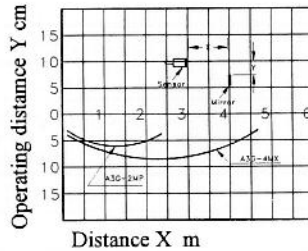
Sensing area



Mirror Reflex type

A3G-2MR/A3G-4MX

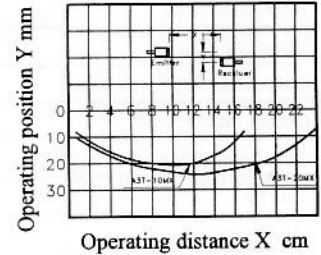
Setting angle



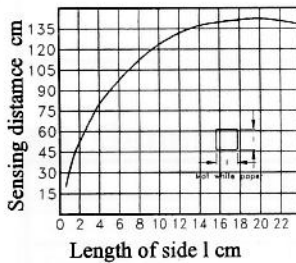
Thru Beam type

A3T-10MX/A3T-20MX

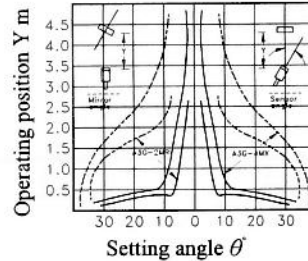
Setting range



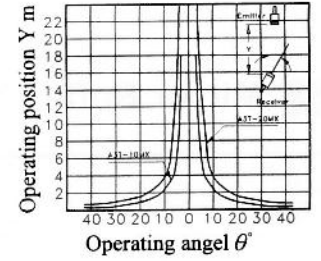
Sensing area



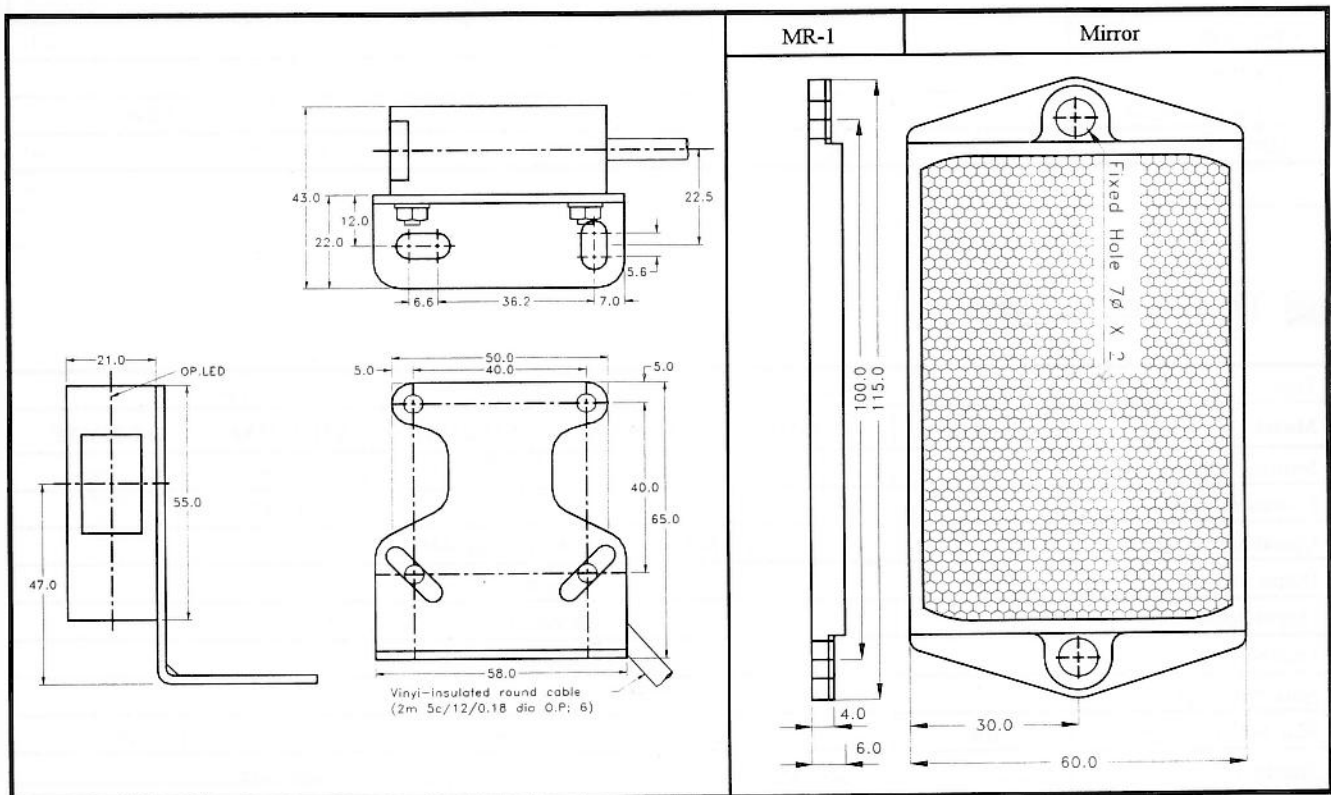
Setting angle



Setting angle



Dimension



SENSOR CONTROLLER

C
series

- ★ High Compact, High Reliability & Low Cost Sensor Controller.
- ★ Input NPN or PNP Selectable
(A : NPN B : PNP)
- ★ Suited for Proximity Sensor or Photo Sensor
- ★ C-6 : Standard Controller
C-10 : OFF DELAY Controller.
C-11 : ON DELAY or ONE SHOT Controller.
C-12 : ON+OFF DELAY Controller (Twin Timer).



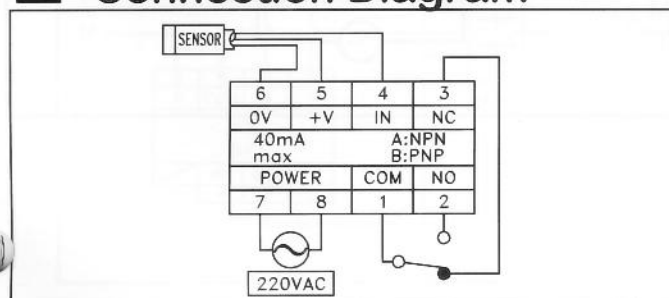
Specification

Model	C - 6	C - 10	C - 11	C - 12
Timer	Non	OFF DELAY	ON DELAY or ONE SHOT	ON DELAY + OFF DELAY
Range of Timer		0 ~ 10 Sec Adjustable		
Power Supply	110V or 220V or 380VAC ± 20% 50/60Hz			
Input Method	NPN or PNP Selectable			
Output Method	Relay (5A/250 VAC)			
Response Time	15 ms	1 ms		
DC Power Output	12 VDC / 40 mA max.			
Current Consumption	3 VA max			
Insulation Resistance	100 MΩ / 500 VDC			
Dielectric Strength	2.5KV / 1 min.			
Protection Class	IP-65			
Operating Temp./Hum.	-20°C ~ +60°C ; 35% ~ 85% RH			
Housing Material	Intensive ABS			
Socket	PF-085A			
Weight				

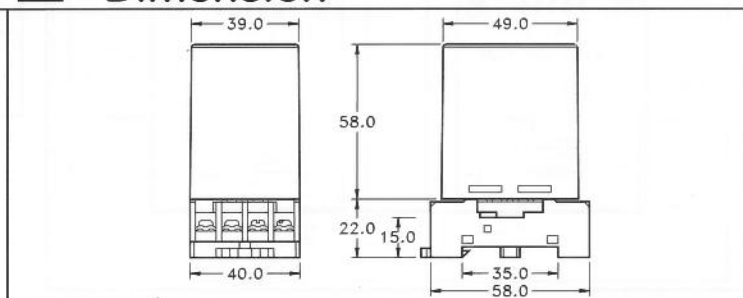
Function of Timer < C-6/C-10/C-11/C-12 >

Model	Timer	Output Timing Chart	Remarks
	PNP INPUT		(一) Mode Selecting "A" NPN INPUT "B" PNP INPUT
C-6	NON DELAY		
C-10	OFF DELAY		(二) Range of Timer 0.01S ~ 10.0S Adjustable
C-11	ON DELAY		
C-11	ONE SHOT		
C-12	ON DELAY+OFF DELAY		

Connection Diagram



Dimension



- * Sensitivity Adjustable With

14 Turns Trimmer.

- * High stability With Low Thermal Drift.

- * Metallic & Non-Metallic Objects.

Are Sensible , Including Glass.

Lumber , Oil , Water and Plastic Objects Ets.

- * NC Type Are Available,

Model : CP18 - 30 NB , CP18 - 30PB ,

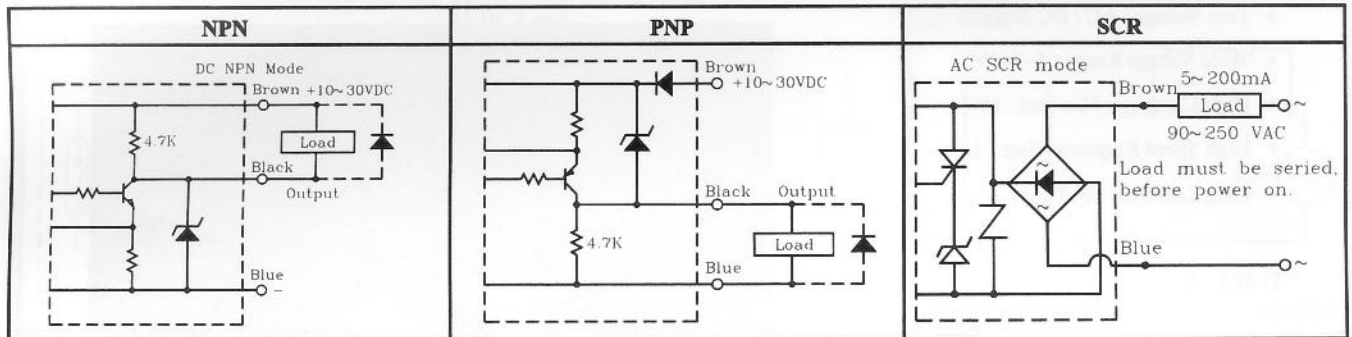
CP30 - 50 NB , CP30 - 50PB , CP30 - 50SB



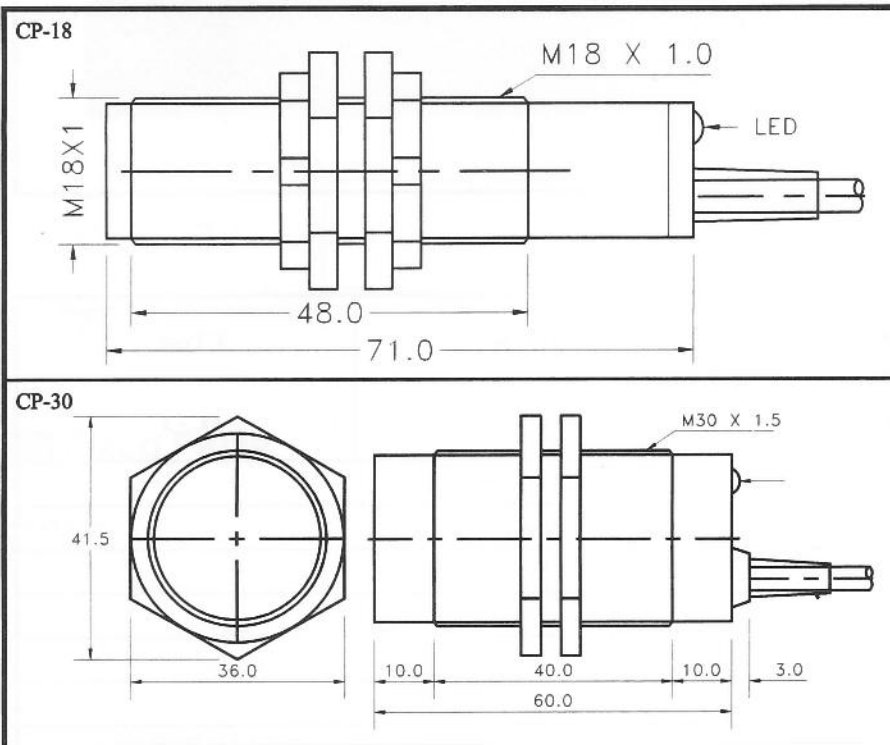
Model Guiding

Type	M18		M30		
Model	CP18-30N	CP18-30P	CP30-50N	CP30-50P	CP30-50S
Sensing Distance	20.0mm		30.0mm		30.0mm
Operating Voltage	10~30 VDC ; Ripple < 20% of Vp-p				90~250 VAC
Current Consumption	20mA max.				1.5 VA max.
Response Frequency	100Hz				15Hz
Output Method	NPN	PNP	NPN	PNP	SCR
Output Current	150mA max.				100mA
Leakage Current	< 0.8mA				< 2.0mA
Circuit Protection	Polarity reversed & Over load protection				
Sensitivity Adjuster	14 Turns trimmer				
Operating Temp./Hum.	-20°C ~ +60°C ; 35%~95% RH				
Protection Class	IP-66				
Housing Material	Ploymid		Cu plated Ni		
Weight	Appr. 70g		Appr. 160g		

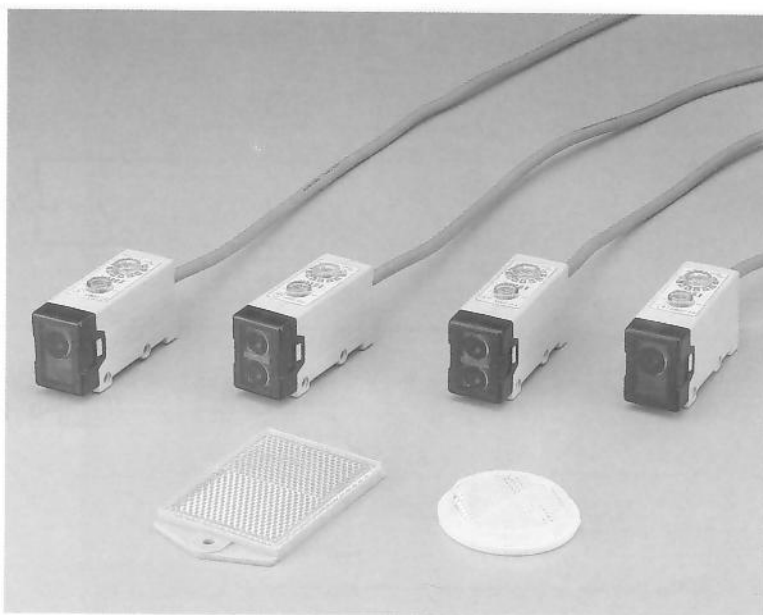
Output Circuit & Connection Diagram



Dimension



- Operating Voltage : 11~30VDC
- NPN & PNP Two Output ,
NO / NC Changeable .
- Polarity Reversed Protection Circuit .
- Vertical & Horizontal Sensing
Direction Are Available .
- Protected By Short Circuit &
Reflex Type : 2M
Mirror Reflex Type : 4M
Thru Beam Type : 20M



General Specification

Specification	Data
Operating Voltage	10~30 VDC ; Ripple < 20% of Peak to Peak
Output Method	NPN & PNP Two Output
Output Status	NO < Normal Open > , NC Type Available Also
Output Current	150mA max.
Protection Circuit	Short Circuit & Polarity Reversed Protection
Residual Voltage	0.8V max.
Leakage Current	0.8mA max.
Sensitivity Adjuster	270° Trimmer
Response Time	2ms Max.
Hysteresis	10% of Sensing Distance Max.
Emitter	Infrared LED
Illumination	Sunlight < 50,000 Lux. ; Lamplight < 10,000 Lux.
Connection Method	4 Cores / 5.0 φ X 2m
Housing Material	Intensive PBT
Operating Temp./Hum.	-20°C ~ +60°C ; 35%~85% RH
Protection Class	IP-65
Output Circuit & Connection Diagram	

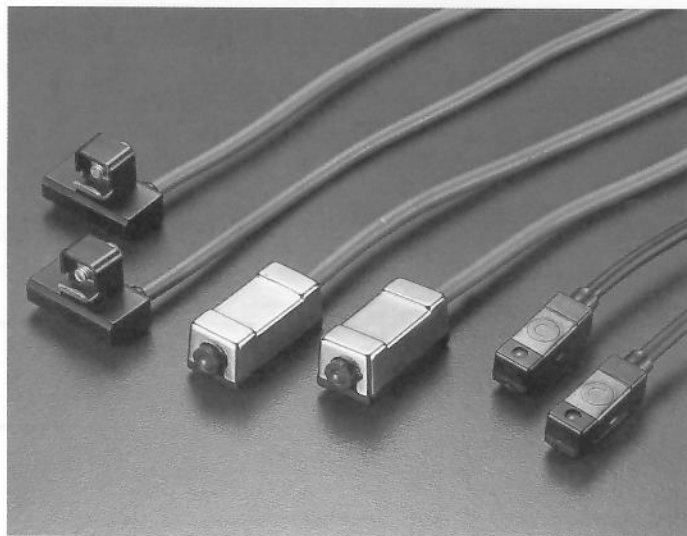
Specification

Reflex Type	FR-1MX	FR-1MX-V	FR-2MX	FR-2MX-V
Sensing Direction	Horizontal	Vertical	Horizontal	Vertical
Sensing Distance	1m		2m	
Current Consumption	20mA max.		35mA max.	
Weight	Appr. 105g	Appr. 120g	Appr. 105g	Appr. 125g
Mirror Reflex Type	FG-3MX		FG-3MX-V	
Sensing Direction	Horizontal		Vertical	
Sensing Distance	4m			
Current Consumption	20mA max.			
Weight	Appr. 105g		Appr. 120g	
Thru Beam Type	FT-10MX	FT-10MX-V	FT-20MX	FT-20MX-V
Sensing Direction	Horizontal	Vertical	Horizontal	Vertical
Sensing Distance	10m		20m	
Current Consumption	Emitter < 30mA ; Receiver < 20mA			
Weight	Appr. 210g	Appr. 240g	Appr. 210g	Appr. 240g

Dimension

FR • FG	FR-V • FG-V	Mirror MR-1
FT	FT-V	

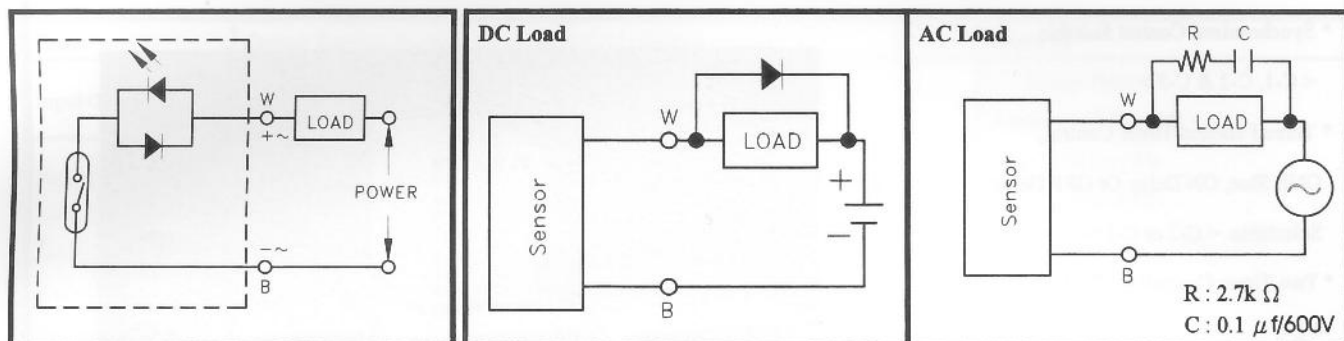
- * Free Voltage : AC / DC Suitable
- * Wide Voltage Range : 5~240V
- * High Capacity of Contact : 8W
- * High Speed Response Time : 1ms
- * Long Life Over 10^7 Times



Specification

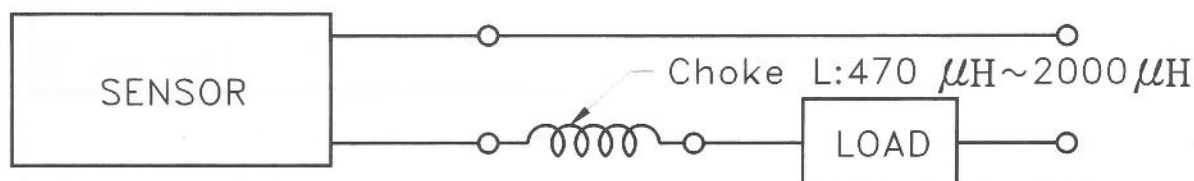
Type	Standard Type	Mini Type	T Type
Model	FC - 1	FC - 2	FC - 3
Operating Voltage	5~240 VAC / DC		
Rated Current	50mA		
Rated Wattage	DC : 8W , AC : 10VA		
Output Status	NO		
Response Time	1ms		
Voltage Drop	2V max.		
Connection Method	2M / 2 Cores		
Operating Temp.	-10 C ~ +60 C		
Protection Class	IP-66	IP-64	IP-66
Weight	42g	33g	35g
Model of NC	FC-1B , FC-2B & FC-3B , Specification same As NO Type , But Operating Voltage is 5~24 VDC , 20mA / 2W Only .		
Dimension			

Circuit & Connection Diagram / Protection Circuit



Notice

If The Lead Wire of Reed Sensor is Extended Over 10m , Please Serie The Choke To Reed Sensor , As Closure As Possible .



Fixed Parts

Band

PN - 16 - S

Material of Cylinder
S : Stainless Steel
A : Aluminum Alloy

Diameter of Cylinder

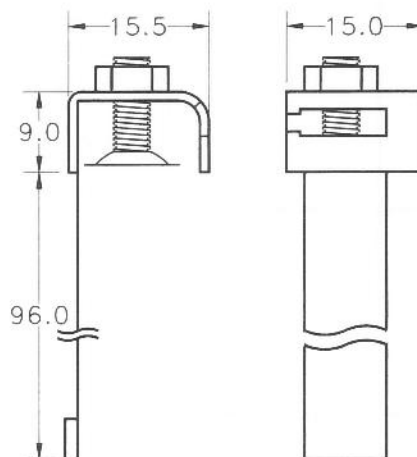
16 : 16.0 \varnothing

20 : 20.0 \varnothing

:

:

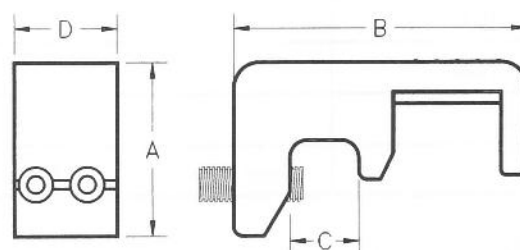
150 : 150.0 \varnothing



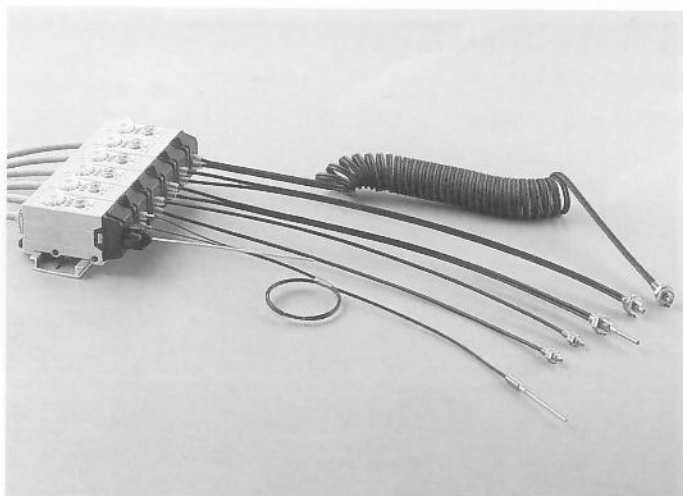
Bracket

Unit : mm

Model	A	B	C	D
PM-6	20.5	31.0	6.0	12.0
PM-8	20.5	34.0	8.0	12.0
PM-10	21.0	36.0	10.0	12.0



High speed response time 0.1 ms/ON.
Free cut fiber cable.
DIN rail fixer.
Thermal drift less than $1 \mu\text{m}/^\circ\text{C}$
Illumination over 10,000 Lux of lamp light.
Fiber sensor with high repetitive $5 \mu\text{m}$.

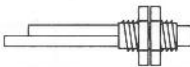
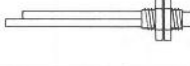
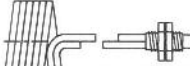


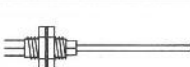
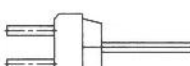


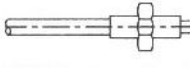
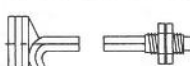
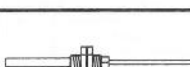
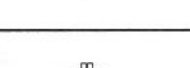
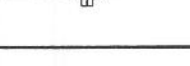


Specification < Amplifier Unit >

Output Method	Standard Type			Long Distance Type	
Model	FF-01G	FF-03R	FF-03X	FF-06R	FF-06X
Emitter	Green LED	Red LED	Infrared LED	Red LED	Infrared LED
Response Time	ON : 0.1ms , OFF : 0.15ms				
Hysteresis	< 5% of Sensing Distance				
Operating Voltage	11~30 VDC ; Ripple < 20% of Peak to Peak				
Current Consumption	30 mA max.			40 mA max.	
Residual Voltage	< 0.8V				
Leakage Current	< 0.8mA				
Output Method	NPN & PNP Two Way Output				
Output Status	NO/NC Changeable				
Output Current	150mA max.				
Protection Method	Short Circuit & Polarity Reversed Protection				
Connection Method	4 Cores / 5.0 φ X 2m				
Protect Class	IP-65				
Illumination	Lamplight < 5,000 Lux ; Sunlight < 10,000 Lux.				
Operating Temp./Hum.	-20 C~+70 C ; 35%~85% RH				
Housing Material	PBT				
Weight	Appr. 105g				

FIBER CABLE UNIT

FF Series

Type	Mode	Model	Fiber shape	Amplifier	Min. detectable object	Sensing distance	Operating temperature	Fiber material
Reflex Type	M6 1.0 \varnothing X 2	FPR-51		FF-01G	0.1 \varnothing	12mm	-40°C +70°C	Poly- plastic
				FF-03R (X)	0.03 \varnothing	35mm		
				FF-06R (X)	0.03 \varnothing	65mm		
	M6 1.0 \varnothing X 2 0.25 \varnothing X 15	FPR-52		FF-01G	0.5 \varnothing	12mm		
				FF-03R (X)	0.03 \varnothing	35mm		
				FF-06R (X)	0.03 \varnothing	65mm		
	M6 1.0 \varnothing X 2	FPR-53		FF-01G	0.2 \varnothing	6mm		
				FF-03R (X)	0.03 \varnothing	15mm		
				FF-06R (X)	0.03 \varnothing	30mm		
	M6 0.5 \varnothing X 2	FPR-54		FF-01G	0.1 \varnothing	8mm		
				FF-03R (X)	0.03 \varnothing	20mm		
				FF-06R (X)	0.03 \varnothing	45mm		
	M6 1.0 \varnothing X 2	FPR-55		FF-01G	0.1 \varnothing	12mm		
				FF-03R (X)	0.03 \varnothing	35mm		
				FF-06R (X)	0.03 \varnothing	65mm		
	M4 0.5 \varnothing X 2	FPR-56		FF-01G	0.1 \varnothing	8mm		
				FF-03R (X)	0.03 \varnothing	20mm		
				FF-06R (X)	0.03 \varnothing	45mm		
	M5 0.5 \varnothing X 2	FPR-57		FF-01G	0.1 \varnothing	8mm		
				FF-03R (X)	0.03 \varnothing	20mm		
				FF-06R (X)	0.03 \varnothing	45mm		
	M4 0.5 \varnothing X 2	FPR-58		FF-01G	0.1 \varnothing	8mm		
				FF-03R (X)	0.03 \varnothing	20mm		
				FF-06R (X)	0.03 \varnothing	45mm		
Thru Beam Type	M4 0.5 \varnothing X 1	FPT-01		FF-01G	0.1 \varnothing	30mm	-40°C +70°C	Poly- plastic
				FF-03R (X)	0.3 \varnothing	50mm		
				FF-06R (X)	0.5 \varnothing	100mm		
	M4 1.0 \varnothing X 2	FPT-02		FF-01G	0.1 \varnothing	45mm		
				FF-03R (X)	0.3 \varnothing	80mm		
				FF-06R (X)	0.5 \varnothing	300mm		
	M4 1.0 \varnothing X 2	FPT-03		FF-01G	0.1 \varnothing	30mm		
				FF-03R (X)	0.3 \varnothing	50mm		
				FF-06R (X)	0.5 \varnothing	100mm		
	M4 1.0 \varnothing X 2	FPT-04		FF-01G	0.1 \varnothing	45mm		
				FF-03R (X)	0.3 \varnothing	80mm		
				FF-06R (X)	0.5 \varnothing	250mm		
	M4 1.0 \varnothing X 2	FPT-05		FF-01G	0.1 \varnothing	45mm		
				FF-03R (X)	0.3 \varnothing	80mm		
				FF-06R (X)	0.5 \varnothing	250mm		
	M3 1.0 \varnothing X 2	FPT-06		FF-01G	0.1 \varnothing	30mm		
				FF-03R (X)	0.3 \varnothing	50mm		
				FF-06R (X)	0.5 \varnothing	150mm		

Dimension

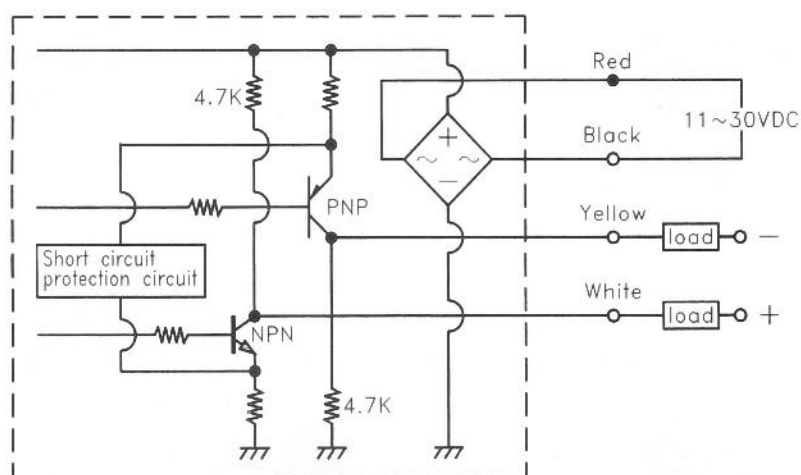
Reflex Type

FPR-51	FPR-52	FPR-53
FPR-54	FPR-55	FPR-56
FPR-57	FPR-58	

Thru Beam Type

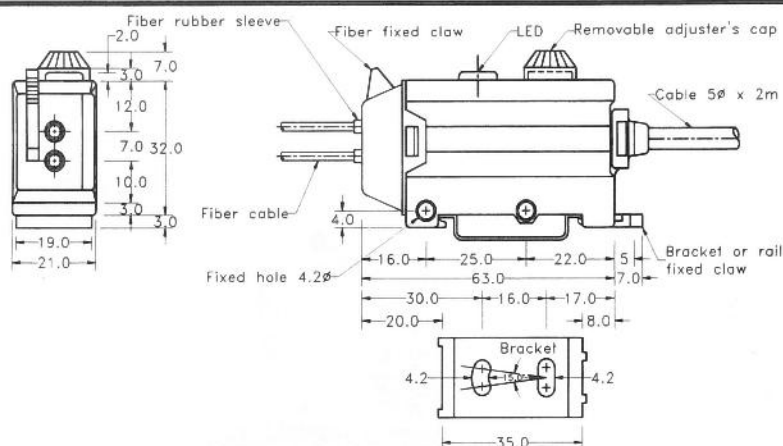
FPT-01	FPT-02	FPT-03
FPT-04	FPT-05	FPT-06

Output Circuit & Connection Diagram

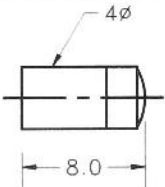
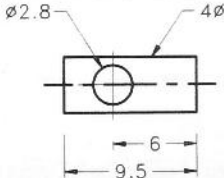


Red = +V Red = 0V
 Black = 0V Black = +V
 Yellow = PNP/NO Yellow = PNP/NC
 White = NPN/NO White = NPN/NC
 ie, Power polarity reversed
 output state reversed

Dimension < Amplifier Unit >



Attachment < Lens >

Type	Right View Lens		Aside View Lens	
Model	FL-1		FL-2	
Shape				
Suitable fiber unit	FPT-02			
Amplifier	FF-03R (X)	FF-06R (X)	FF-03R (X)	FF-06R (X)
Sensing distance	1200mm	2000mm	400mm	600mm
Min. sensible object	1 φ			

FF Series

How to use correctly

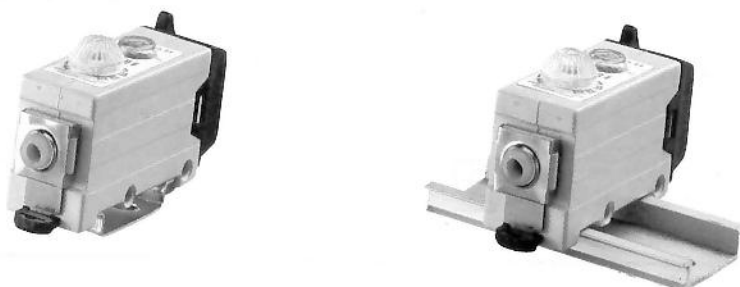
To combine amplifier with fiber cable

- First, to select the right fiber cable rubber sleeve ① fixed by fiber fixed claw ② of amplifier. (Two kinds of rubber sleeve have the same outer diameter but have the different inner diameter - 1ϕ or 2ϕ)
- Put down the fiber fixed claw to horizontal direction, then inserting the fiber cable through the rubber sleeve to emitter and receiver.
- Put up the fiber fixed claw to vertical direction.

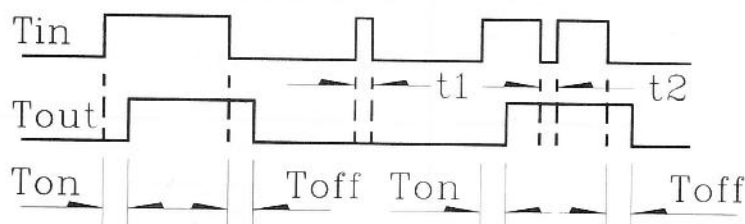


To mount or detach the amplifier unit

All F series can be mounted to DIN rail or fixed bracket.



Response Time



Tin : Object Passing Time

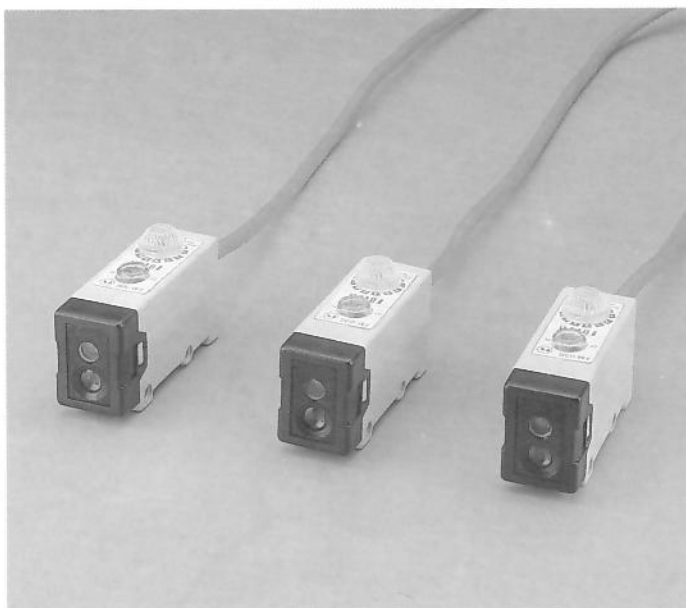
Tout : Sensor Output Time

Ton : Delay Time of Sensor ON

Toff : Delay Time of Sensor OFF

If $t1 < Ton$, Sensor Can't Detect Object.

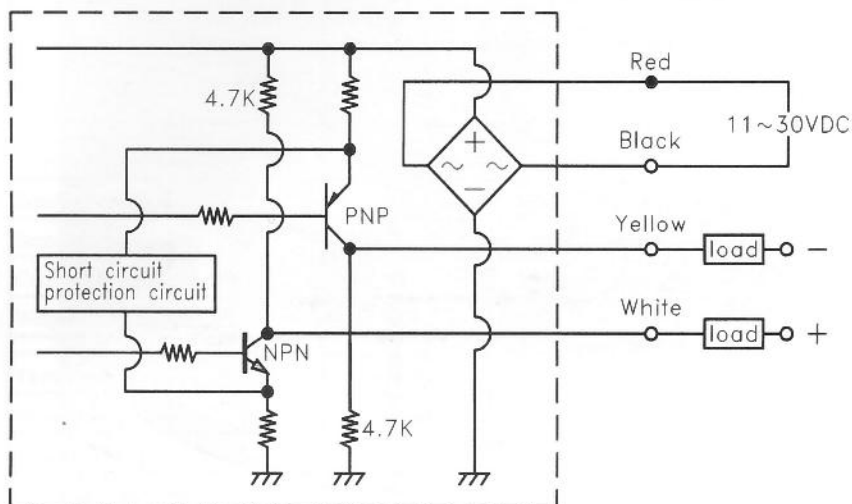
If $t1 > Ton$, Sensor Can't Distinguish Object.



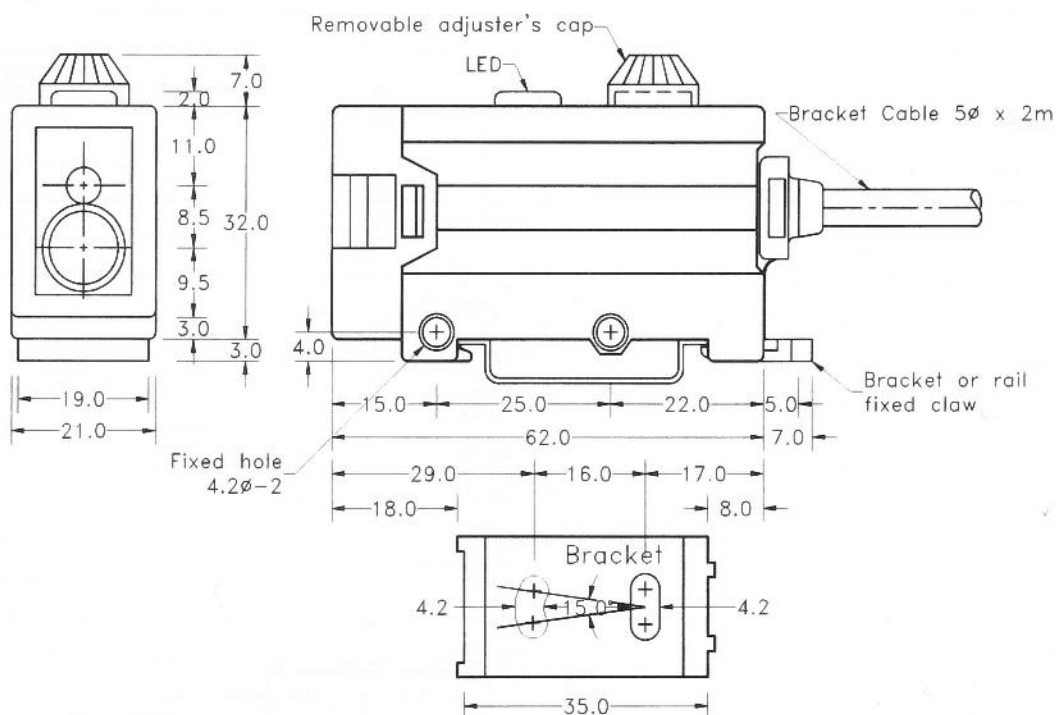
■ Specification

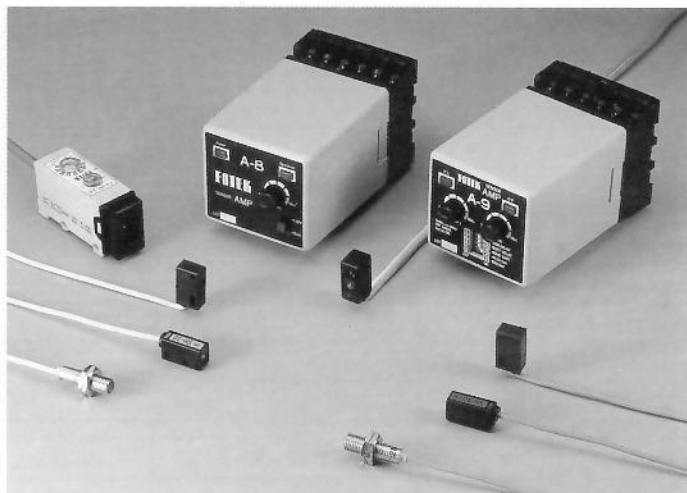
Type	High Speed Type	Standard Type		
Model	FM-01R FM-01G	FM-01PR FM-01PG	FM-03R FM-03G	FM-10R
Setting Distance	15.0mm	12.0mm	32.0mm	100.0mm
Light Spot	1.0 ϕ	2.0 ϕ		
Response Time	0.25ms	2ms		
Sensitivity Adjuster	270° Trimmer			
Operating Voltage	11~30 VDC ; Ripple < 20% of Peak to Peak			
Current Consumption	45mA max.	30mA max.		
Light Source	G : Green Led ; R : Red LED			
Hysteresis	5% of Sensing Distance			
Illumination	Lamplight < 5,000 Lux ; Sunlight < 10,000 Lux.			
Output Method	NPN & PNP Two Way Output			
Output Status	NO / NC Changeable			
Output Current	150mA max.			
Leakage Current	0.8mA max.			
Residual Voltage	0.8V max.			
Protection Circuit	Short Circuit & Polarity Reversed Protection			
Connection Method	4 Cores / 5.0 ϕ X 2m			
Housing Material	PBT			
Operating Temp./Hum.	-20° C ~ +60° C ; 35% ~ 85%RH			
Protection Class	IP-65			
Weight	Appr. 105g			

Output Circuit & Connection Diagram



Dimension

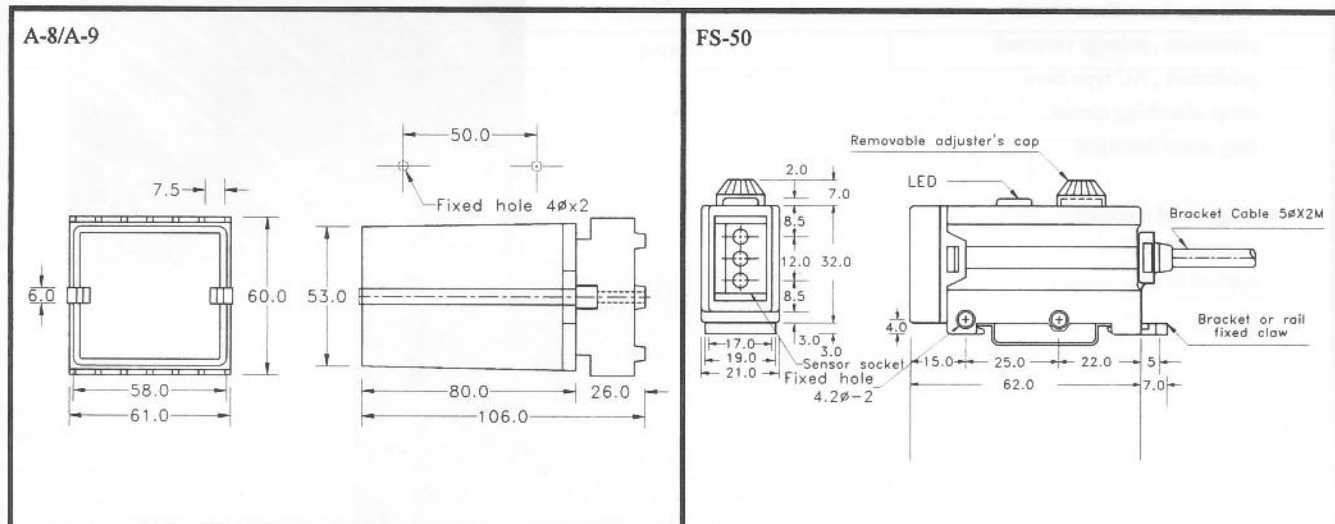




Amplifier Unit

Type	AC Type		DC Type
Model	A-8	A-9	FS-50
Operating Voltage	110/220VAC, 50/60Hz		11~30 VAC
Current Consumption	3VA max.		30mA max.
Response Time	15ms	2ms	2ms
Output Method	Relay, 5A/250 VAC		NPN & PNP, 150mA
Output Control	Non	Timer : 0.01s~10s Adjustable ON Delay OFF Delay One Shot	Non
Output Status	NO / NC Changeable		
Sensitivity Adjuster	270° Trimmer		
Operating Temp./Hum.	-20°C~+60°C ; 35%~250% RH		
Connection Diagram	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Receiver</p> <p>Shielded White</p> <p>7 8</p> </div> <div style="text-align: center;"> <p>Projector</p> <p>Shielded Red</p> <p>10 11</p> </div> </div> <div style="text-align: center; margin: 10px 0;"> <p>FOTEK Sensor Amplifier</p> <p>A-8 & A-9</p> <p>1 2 3 4 5 6</p> <p>COM NO NC</p> </div> <div style="display: flex; justify-content: space-between;"> <div> <p>AC 110V/120V</p> <p>AC 220V/240V</p> </div> <div> <p>Relay contact capacity</p> <p>AC 250V 5A max.</p> <p>Non-inductive</p> </div> </div>		

Dimension



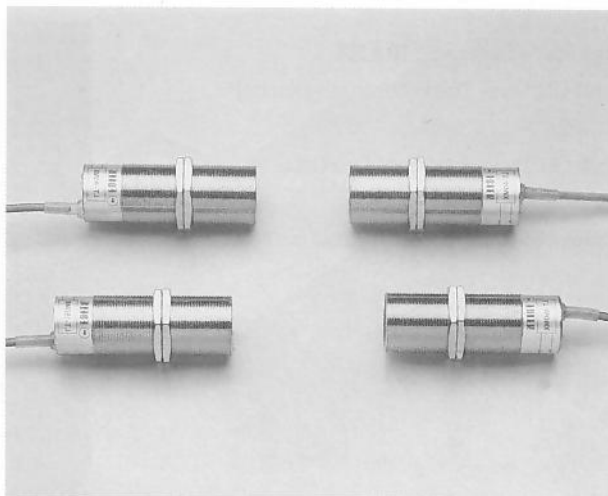
Sensor Head Unit

Type	Shape & Dimension	Model	Light Source	Sensible Distance	Sensible Object	Illumination	Housing Material	Operating Temp
Thru Beam Type		SV-10	Green LED	15cm	2 φ	Infrared LED	Intensive-ABS	-20 C +60 C
		SV-15	Red LED	15cm	0.5 φ			
		SV-30	Red LED	30cm	1 φ	Lamp-light ≤ 10,000 LUX		
		SV-50	Red LED	50cm	2 φ			
		SV-2M	Infrared	200cm	2 φ			
		SH-10	Green LED	15cm	2 φ	Sunlight ≤ 30,000 LUX		
		SH-15	Red LED	15cm	0.5 φ			
		SH-30	Red LED	30cm	1 φ	Red LED Green LED		
		SH-50	Red LED	50cm	2 φ			
		SH-2M	Infrared	200cm	2 φ			
		SC-10	Green LED	15cm	2 φ	Lamp-light < 5,000 LUX		
		SC-15	Red LED	15cm	0.5 φ			
		SC-30	Red LED	30cm	1 φ	Sunlight < 10,000 LUX		
		SC-50	Red LED	50cm	2 φ			
		SC-2M	Infrared	200cm	2 φ			
Reflex Type		SB-03	Red LED	3m	2 φ			
		SB-10	Infrared LED	10cm	1 φ			

M30 LONG DISTANCE THRU BEAM TYPE PHOTO SENSOR

LT
Series

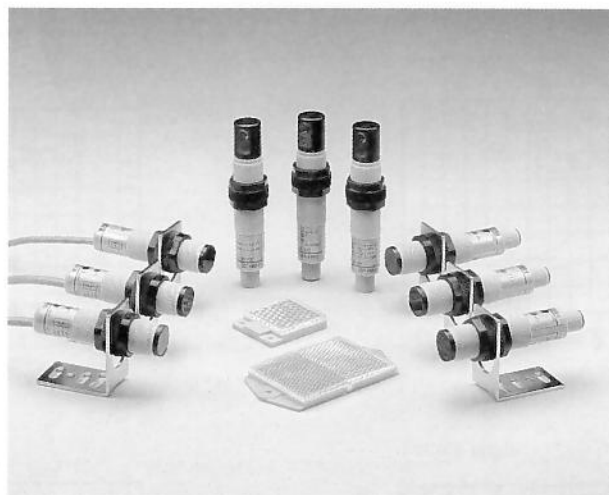
- * Longer Setting Distance : 150m
- * Enough Setting Margin : Over 50% of Setting Distance.
- * Two Way Output :
NPN & PNP



Specification

Model	LT-40MX	LT-80MX	LT-150MX
Setting Distance	40m+50%	80m+50%	150m+50%
Min. Sensible Object	10.0 ϕ	30.0 ϕ	50.0 ϕ
Sensitivity Adjuster	Non		
Hysteresis	< 20% of Setting Distance		
Response Time	5ms	50ms	
Operating Voltage	10~30VDC ; Ripple < 20% of Peak to Peak		
Current Consumption	Emitter < 30mA ; Receiver < 20mA		
Output Method	NPN & PNP Two Way Output		
Light Source	Infrared LED		
Cable	Emitter : 2 Cores / 4.2 ϕ X 2m ; Receiver : 4 Cores / 5.0 ϕ X 2m		
Operating Temp./Hum.	-20° C ~ +60° C ; 35% ~ 95% RH		
Housing Material	Cu Plated Ni		
Output Circuit & Connection	<div>Emitter</div>	<div>Receiver</div>	
Dimension			

- * All type with sensitivity adjuster, easy to get the best sensing condition.
- * All DC type with NPN & PNP output, meet any control requirement.
- * All DC type having over load protection, and polarity reversed-protection.
- * All AC type with surge protection, may avoided damaged.
- * Unique vertical type saving mounted space.
- * High solid compact structure, IP66 applied in poor circumstance suitable.



Specification

Power Type	DC Type	AC Type
Operating Voltage	10 ~ 30 VDC , Ripple < 20% of Vp-p	90 ~ 25 VAC , 50/60 Hz
Output Method	NPN & PNP	SCR
Output Current	150mA max.	100mA max.
Residual Voltage	0.8V max.	
Leakage Current	0.8mA max.	2mA max.
Protection Circuit	Short Circuit & Polarity Reversed Protection	Surge Protection Circuit
Response Time	2ms	10ms
Sensitivity Adjuster	270° Trimmer	Non
Hysteresis	10% of Sensing Distance max.	
Illumination	Lamplight < 10,000 Lux. ; Sunlight < 30,000 Lux.	
Connection Method	Lead Wire : 4 Cores / 5.0 ϕ X 2m	Lead Wire : 3 Cores / 4.2 ϕ X 2m
	Plug : 4 Pins	Plug : 3 Pins
Housing Color	Grey	Blue
Housing Material	Intensive Polymid	
Operating Temp./Hum.	-20 °C ~ +60 °C ; 35% ~ 95% RH	
Protection Class	IP-66	
Weight		



M18 TUBULAR TYPE PHOTO SENSOR

M18-C Series

Reflex Type

Type	Model	Output Status	Sensing Direction	Sensing Distance	Operating Voltage	Current Consumption	Output Method	Sensitivity Adjuster				
Lead Wire	CDR-10X	NO	Horizontal	10cm	10~30VDC	25mA max.	NPN & PNP 150mA max.	270° Trimmer				
	CDR-10XB	NC		30cm								
	CDR-30X	NO										
	CDR-30XB	NC										
	CDR-30X-V	NO	Vertical	30cm	90~250VAC 50/60Hz	0.5VA max.	SCR 100mA	270° Trimmer				
	CDR-30XB-V	NC										
	CAR-10X	NO	Horizontal	10cm								
	CAR-10XB	NC										
	CAR-10X-V	NO	Vertical	10cm								
	CAR-10XB-V	NC										
Connector	CDR-10X-M12	NO	Horizontal	10cm					10~30VDC	25mA max.	NPN & PNP 150mA max.	270° Trimmer
	CDR-10XB-M12	NC	Horizontal	30cm								
	CDR-30X-M12	NO										
	CDR-30XB-M12	NC										
	CDR-30X-V-M12	NO	Vertical	30cm								
	CDR-30XB-V-M12	NC										

Mirror Reflex Type

Type	Model	Output Status	Sensing Direction	Sensing Distance	Operating Voltage	Current Consumption	Output Method	Sensitivity Adjuster
Lead Wire	CDM-1MN	NO	Horizontal	0.1m~1.6m	10~30VDC	20mA max.	NPN	Non
	CDM-1MR	NO	Horizontal	0.1m~1.6m	10~30VDC	20mA max.	NPN & PNP 150mA max.	270° Trimmer
	CDM-1MRB	NC		0.1m~2.5m				
	CDM-2MX	NO						
	CDM-2MXB	NC		Vertical				
	CDM-2MX-V	NO						
	CDM-2MXB-V	NC	Horizontal	0.1m~2.0m	90~250VAC	0.5VA max.	SCR 100mA	270° Trimmer
	CAM-2MX	NO						
	CAM-2MXB	NC						
	CAM-2MX-V	NO						
	CAM-2MXB-V	NC	Vertical					
Connector	CDM-2MX-M12	NO		Horizontal	0.1m~2.5m	10~30VDC	20mA max.	NPN & PNP 150mA max.
	CDM-2MXB-M12	NC						
	CDM-2MX-V-M12	NO	Vertical	0.1m~2.0m				
	CDM-2MXB-V-M12	NC						

Thru Beam Type

Type	Model	Output Status	Sensing Direction	Sensing Distance	Operating Voltage	Current Consumption	Output Method	Sensitivity Adjuster
Lead Wire	CDT-10MX	NO	Horizontal	10m	10~30VDC	P<20mA R<25mA	NPN & PNP 150mA	270° Trimmer
	CDT-10MXB	NC						
	CDT-6MX-V	NO	Vertical	6m				
	CDT-6MXB-V	NC						
Connector	CDT-10MX-M12	NO	Horizontal	10m	10~30VDC	P<20mA R<25mA	NPN & PNP 150mA	270° Trimmer
	CDT-10MXB-M12	NC						
	CDT-6MX-V-M12	NO	Vertical	6m				
	CDT-6MXB-V-M12	NC						

Guiding of Model

Ex. CDR-30X-B-V M12

① ② ③ ④ ⑤ ⑥

① Model

CDR=DC Reflex Type
CAR=AC Reflex Type
CDM=DC Mirror Reflex Type
CAM=AC Mirror Reflex Type
CDT=DC Thru Beam Type

② Sensing Distance

30=30cm
2M=2m
10M=10m

③ Light Source

X=Infrared LED
R=Red LED

④ Output Status

B=NC Type
Non=NO Type

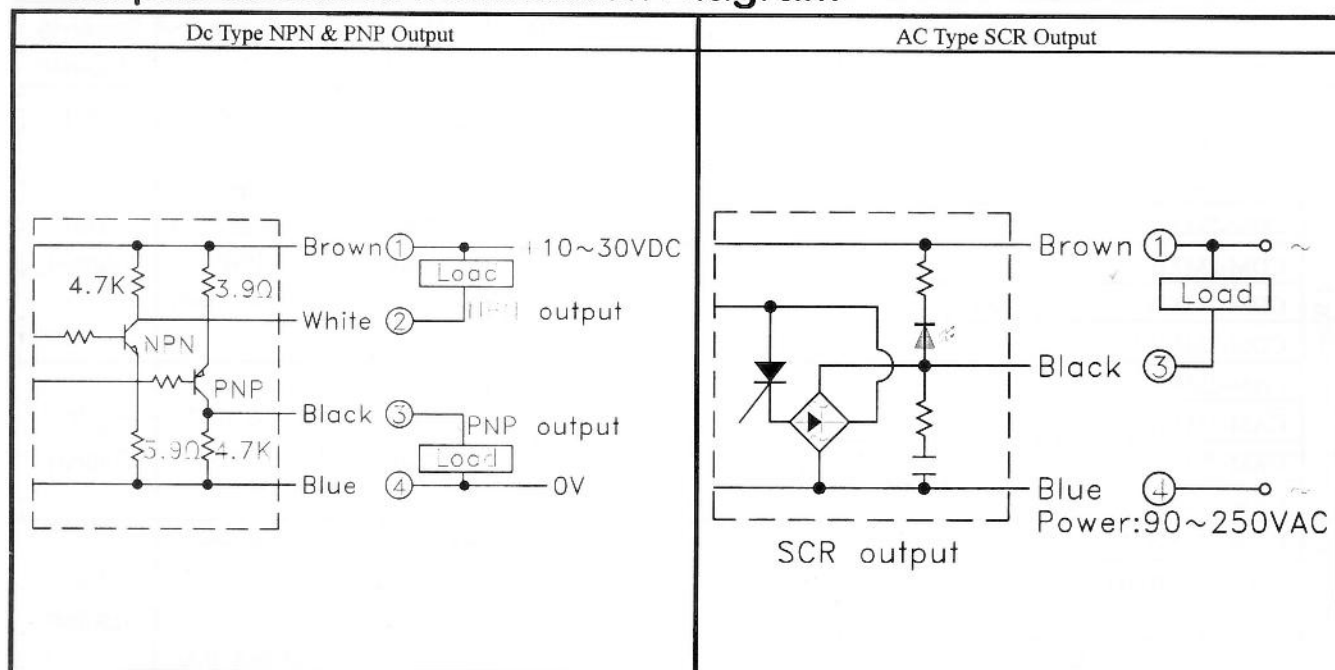
⑤ Sensing Direction

V=Vertical Type
Non=Horizontal Type

⑥ Connector Type

M12= M12x1.0

Output Circuit & Connection Diagram

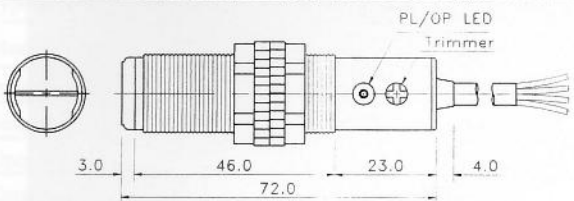
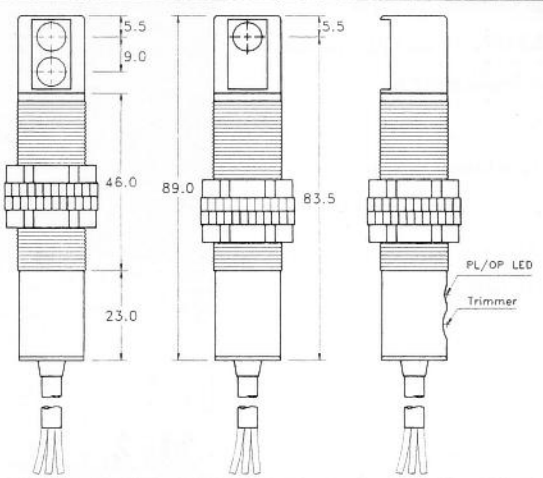
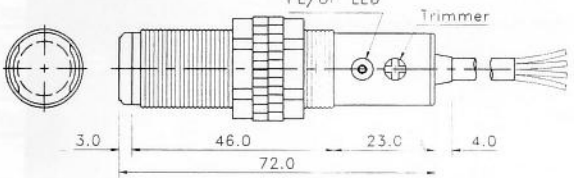
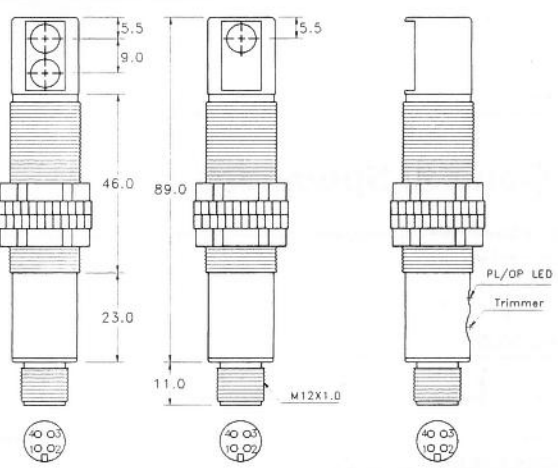
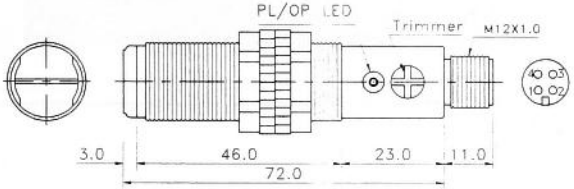
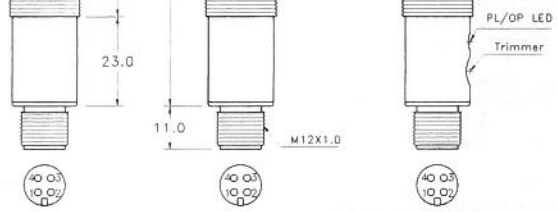
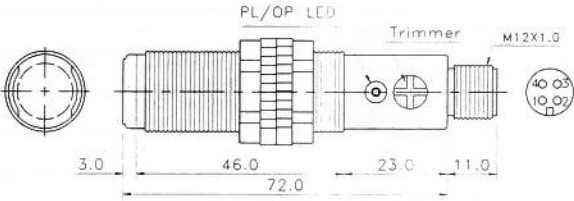
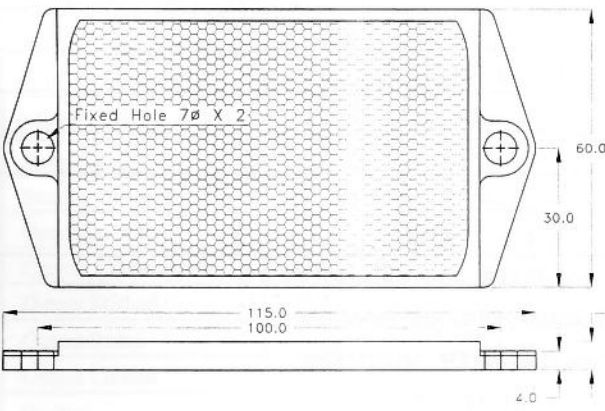
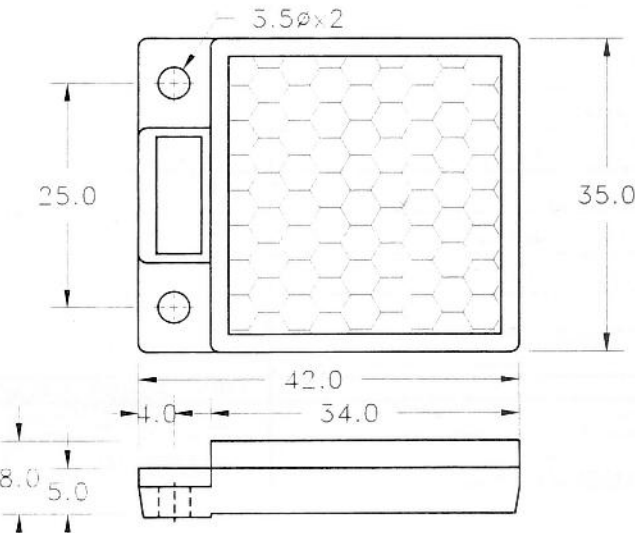




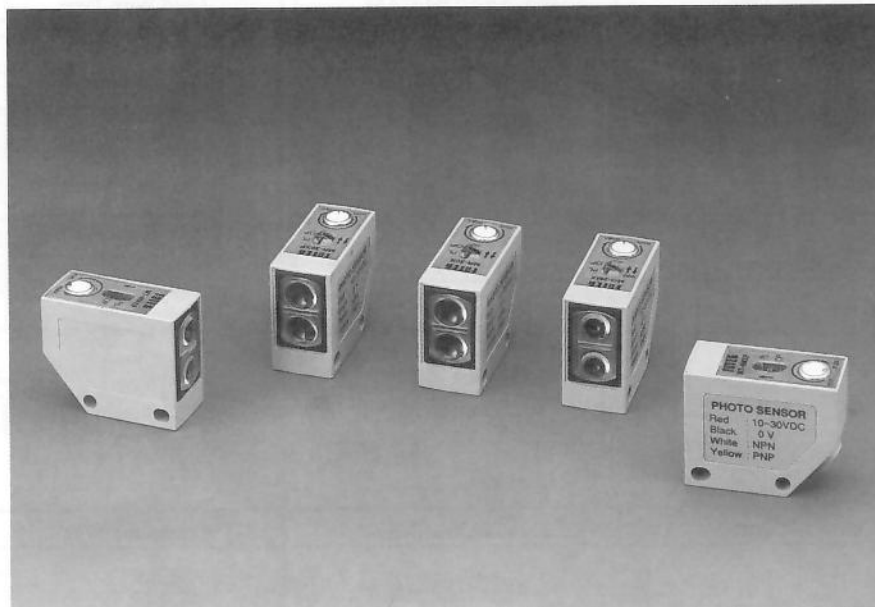
M18 TUBULAR TYPE PHOTO SENSOR

M18-C Series

Dimension

Lead Wire Type		Lead Wire Type	
CDR/CAR/CDM/CAM		Vertical Type	
			
Lead Wire Type		Connector Type	
CDT		Vertical Type	
			
Connector Type		Connector Type	
CDR-M12/CDM-M12		Vertical Type	
			
Connector Type		Mirror	
CDT		MR-1	
			
Mirror		Mirror	
MR-2		MR-2	
			

- High Compact Structure
- 13.5 (W) X 25.0 (H) X 30.0 (L)
- High Protection Class
- IP-67
- Long Sensing Distance
- Reflex Type : 30cm , 60cm
 - Mirror Reflex Type : 2m
 - Thru Beam Type : 6m



General Specification

Specification	Data
Operating Voltage	10 ~ 30 VDC ; Ripple < 20% of Peak to Peak
Output Method	NPN & PNP Two Output
Output Status	NO < Normal Open > , NC Type Available Also
Output Current	150mA max.
Leakage Current	0.8mA max.
Residual Voltage	0.6V max.
Protection Circuit	Short Circuit & Polarity Reversed Protection
Response Time	2ms Max.
Sensitivity Adjuster	270° Trimmer
Emitter	Infrared LED
Illumination	Sunlight < 10,000 Lux. ; Lamplight < 5,000 Lux.
Hysteresis	10% of Sensing Distance Max.
Housing Material	Case : PBT ; Lens : PC
Operating Temp./Hum.	-20°C ~ +60°C ; 35% ~ 85% RH
Connection Method	Lead Wire Type : 4 Cores / 5.0 φ X 2m Plug Type : 4 Pins
Model of NC Type	Reflex Type : MR-30XB , MR-30XPB , MR-60XB , MR-60XPB PR-30XB , PR-30XPB , PR-60XB , PR-MXPB Mirror Reflex Type : MG-2MXB , MG-2MXPB , PG-2MXB , PG-2MXPB Thru Beam Type : MT-6MXB , MT-6MXPB , PT-6MXB , PT-6MXPB
Remarks	Water Proof By Expose Filled for IP-67

Reflex Type

Type	Lead Wire Type				Plug Type			
Model	MR-30X	MR-30XP	MR-60X	MR-60XP	PR-30X	PR-30XP	PR-60X	PR-60XP
Protection Class	IP-65	IP-67	IP-65	IP-67	IP-65	IP-67	IP-65	IP-67
Sensing Distance	30cm		60cm		30cm		60cm	
Operating Voltage	10~30 VDC ; Ripple < 20% Peak to Peak							
Current Consumption	30mA max.							
Output Method	NPN & PNP Two Way Output							
Output Status	NO < Normal Open >							
Output Current	150mA max.							
Emitter	Infrared LED							
Protection Circuit	Short Circuit & Polarity Reversed Protection							
Weight < Appr. >	78g	84g	78g	84g	12g	18g	12g	18g

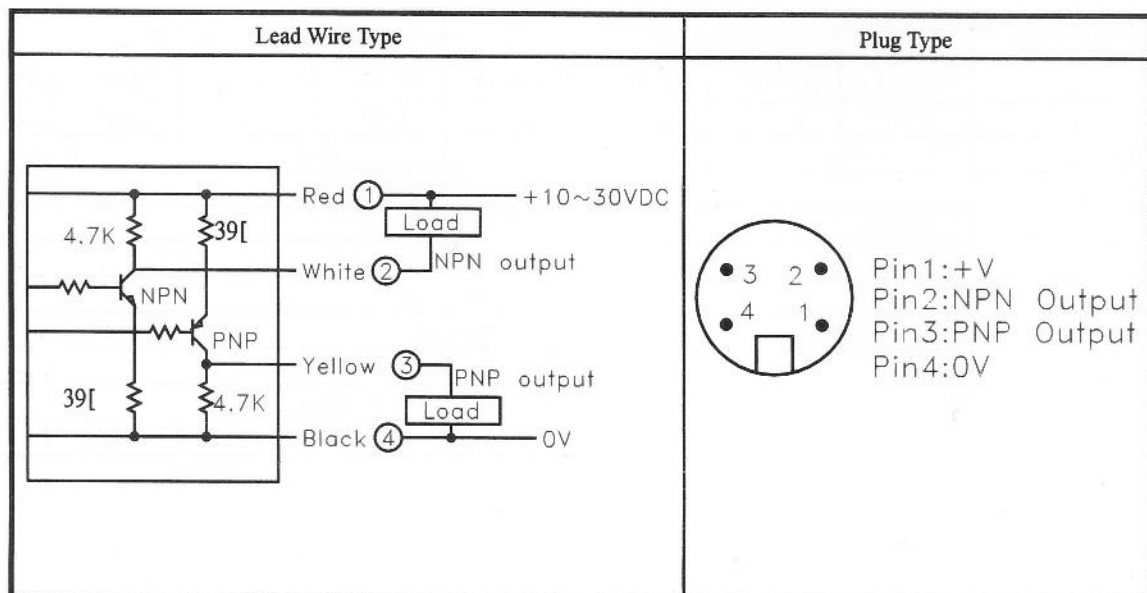
Mirror Reflex Type

Type	Lead Wire Type		Plug Type	
Model	MG-2MX	MG-2MXP	PG-2MX	PG-2MXP
Protection Class	IP-65	IP-67	IP-65	IP-67
Sensing Distance	2m			
Operating Voltage	10~30 VDC ; Ripple < 20% Peak to Peak			
Current Consumption	30mA max.			
Output Method	NPN & PNP Two Way Output			
Output Status	NO < Normal Open >			
Output Current	150mA max.			
Emitter	Infrared LED			
Protection Circuit	Short Circuit & Polarity Reversed Protection			
Weight < Appr. >	78g	84g	12g	18g

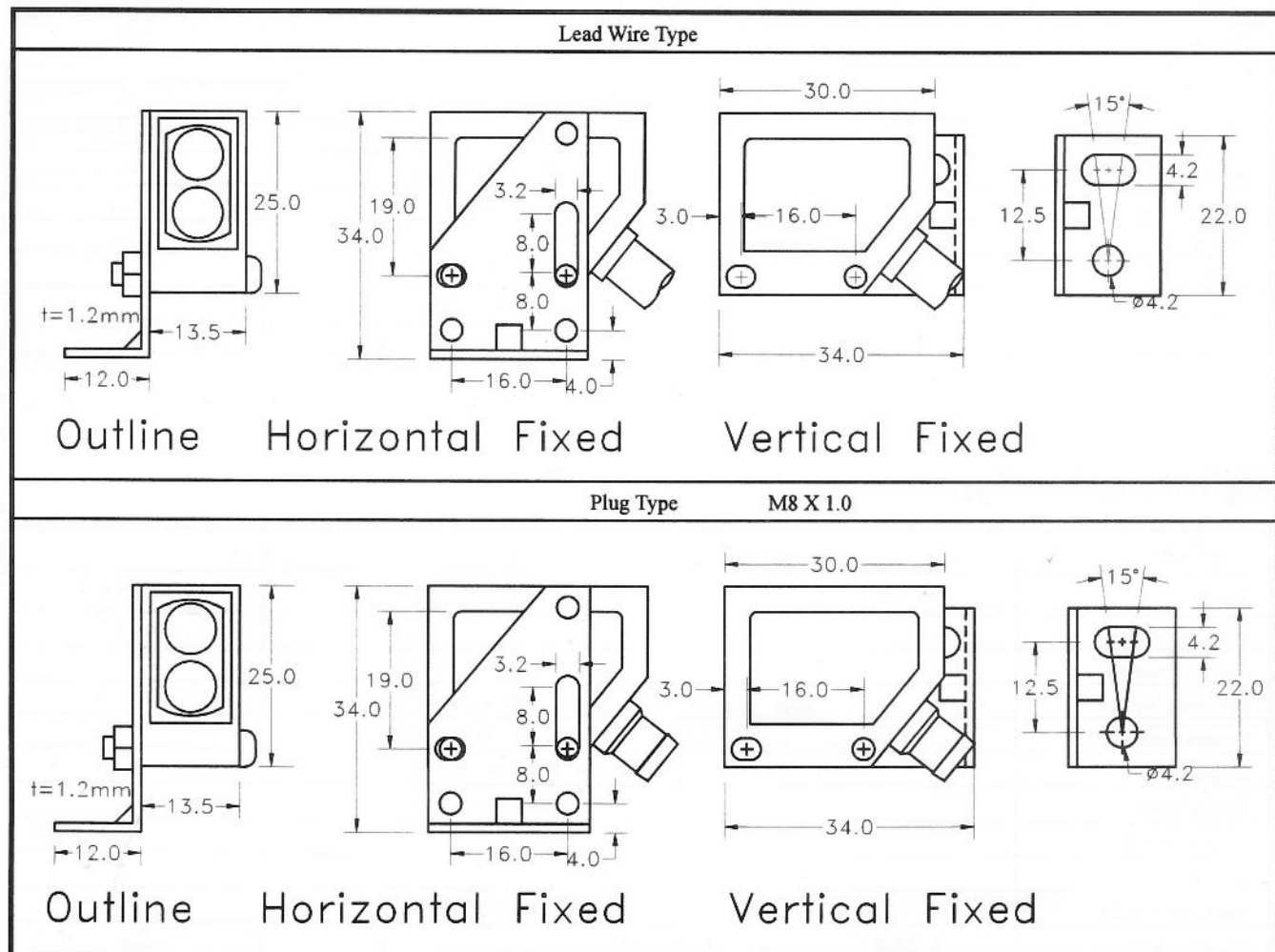
Thru Beam Type

Type	Lead Wire Type		Plug Type	
Model	MT-6MX	MT-6MXP	PT-6MX	PT-6MXP
Protection Class	IP-65	IP-67	IP-65	IP-67
Sensing Distance	6m		6m	
Operating Voltage	10~30 VDC ; Ripple < 20% Peak to Peak			
Current Consumption	Emitter < 20mA , Receiver < 25mA			
Output Method	NPN & PNP Two Way Output			
Output Status	NO < Normal Open >			
Output Current	150mA max.			
Emitter	Infrared LED			
Protection Circuit	Short Circuit & Polarity Reversed Protection			
Weight < Appr. >	180g	162g	20g	32g

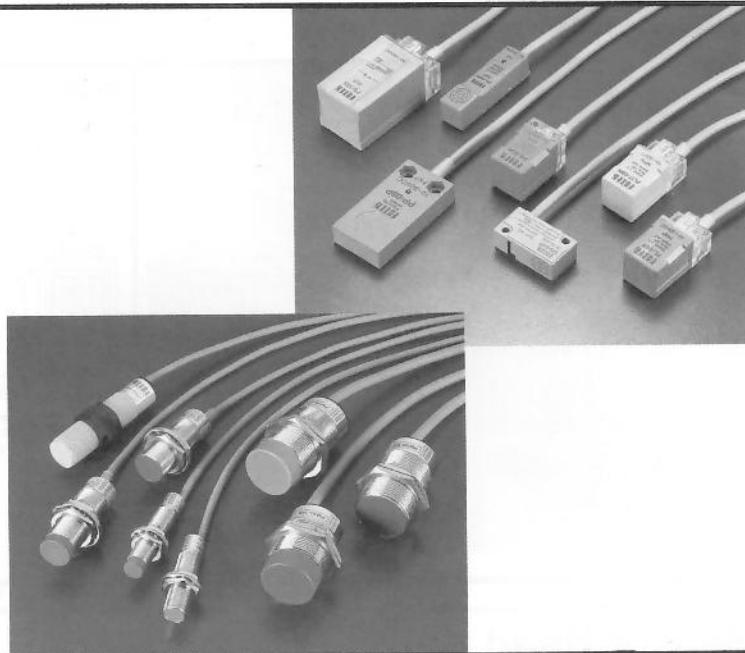
Output Circuit & Connection Diagram



Dimension



- * DC type have short circuit protection , polarity reversed protection ; AC type have surge absorbing circuit may avoid damaged
- * High solid compact structure - IP67 - applied in poor circum - stance suitable
- * All models with operating LED , adjusted conveniently .



Model Guiding

Tubular Type

Ex. PM-12-04 N B-S

① ② ③ ④ ⑤ ⑥

① Type 形狀

PM = Screw Type

② Outline Diameter 外徑

12 = M12 18 = M18

30 = M30

③ Sensing Distance 檢測距離

02 = 2.0mm 10 = 10.0mm

05 = 5.0mm 15 = 15.0mm

④ Output Method 輸出方式

N = NPN P = PNP

S = SCR

⑤ Output Status 輸出狀態

B = NC Type

Non = No Type

⑥ Length of Body 身體長度

S = Short Type

Non = Standard Type

Square Type

Ex. PS-04 N B-V

① ② ③ ④ ⑤

① Type 形狀

PS = Square Type PP = Plate Type

PL = Long Type BS = Micro Type

② Sensing Distance 檢測距離

04 = 4.0mm 10 = 10.0mm

05 = 5.0mm 15 = 15.0mm

③ Output Method 輸出方式

N = NPN P = PNP

S = SCR

④ Output Status 輸出狀態

B = NC Type

Non = No Type

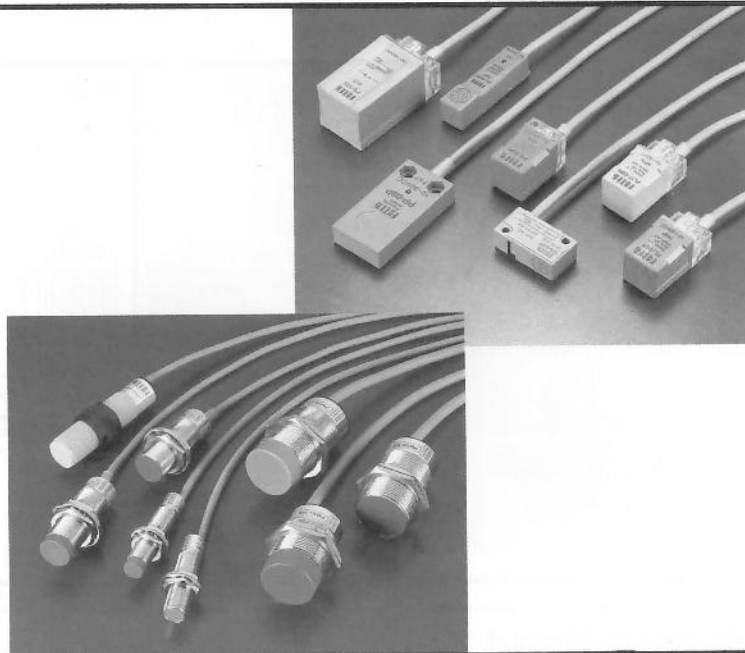
⑤ Direction of Sensing 檢測方面

V = Vertical Type

Non = Horizontal Type

Note : The B < NC > Type Have No Stock Maybe,
Accepted Order To Manufacture.

- * DC type have short circuit protection , polarity reversed protection ; AC type have surge absorbing circuit may avoid damaged
- * High solid compact structure - IP67 - applied in poor circum - stance suitable
- * All models with operating LED , adjusted conveniently .



Model Guiding

Tubular Type

Ex. PM-12-04 N B-S

① ② ③ ④ ⑤ ⑥

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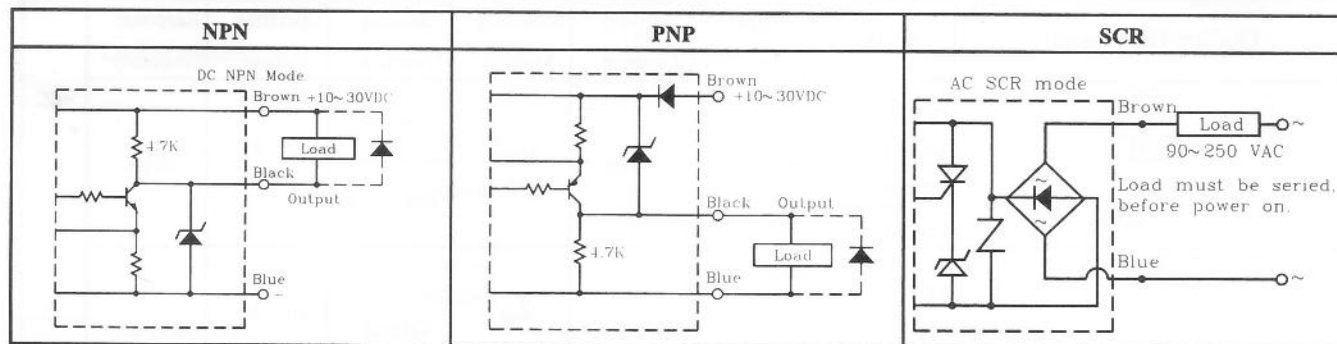
⑤ Direction of Sensing 檢測方面

V = Vertical Type

Non = Horizontal Type

Note : The B < NC > Type Have No Stock Maybe,
Accepted Order To Manufacture.

Output Circuit & Connection Diagram



General Data

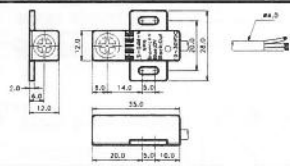
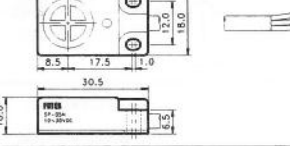
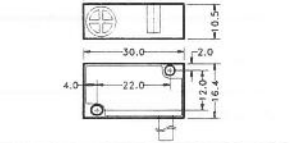
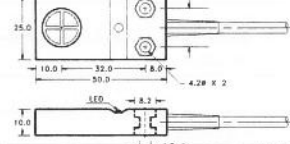
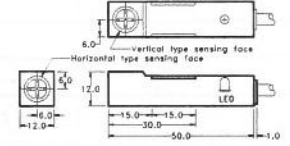
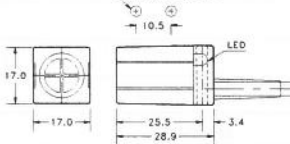
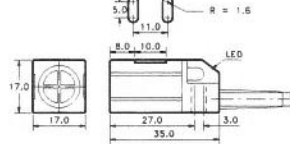
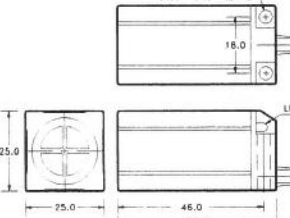
Specification	DC Type	AC Type
Operating Voltage	10~30 VDC	90~250VAC
Power Ripple	< 20% of Peak to Peak	50/60Hz
Output Current	150mA max.	100mA max.
Current Consumption	< 10mA	< 2mA
Residual Voltage	< 0.1V	
Leakage Current	< 0.8mA	< 4.0mA
Hysteresis	<10% of Sensing Distance	
Thermal Drift	< 10 μ m/ C	
Voltage Drift	< 1 μ m/V	
Protection Circuit	Short Circuit & Polarity Reversed Protection	Surge Protection Circuit
Operating Temp./Hum.	-20°C~+80°C ; 35%~95% RH	
Protection Class	IP-67	
Wiring Method	3 Cores / 4.2 ϕ X 2m	2 Cores / 4.2 ϕ X 2m
Color of Sensing Face	NPN : Red ;PNP ;Green	Blue

Application Hints

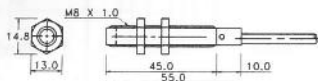
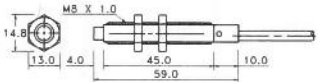
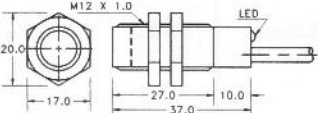
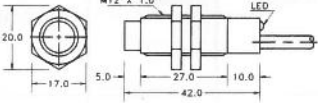
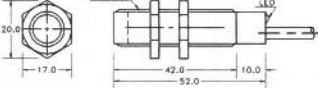
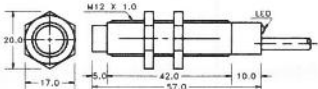
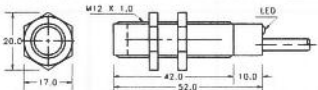
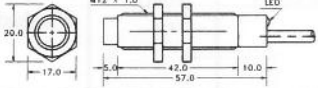
When using a switching regulator , please be sure to ground the FG (Frame Ground) and G (Ground) terminal , If failure to do so , it may result in malfunction of the sensor for the noise of the switching regulator.

The ripple of the DC power supply is required to be less than 20% to avoid resulting malfunction of the sensor.

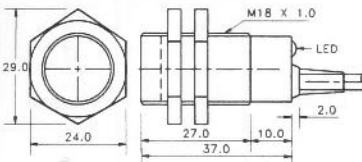
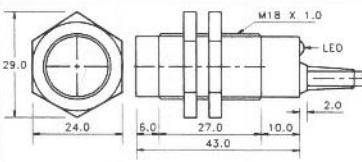
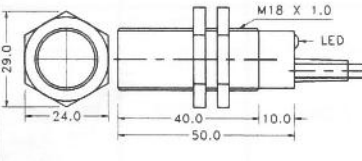
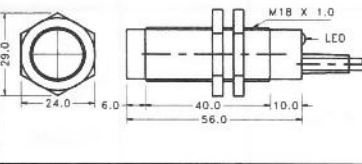
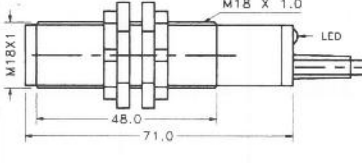
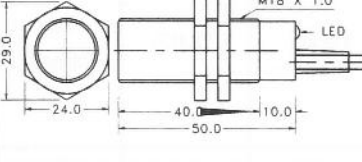
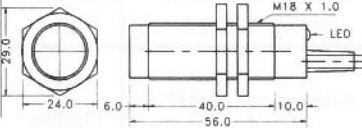
■ **Square Type** 〈Plastic Housing〉

Outline Dimension	Model	Output Method	Sensing Distance	Mounting Method	Sensing Direction	Operating Voltage	Response Frequency		
	LS-04N-V	NPN	4.0mm	Non-Flushed	Vertical	10 ~ 30 VDC	2KHZ		
	LS-04P-V	PNP			Horizontal				
	LS-04N	NPN							
	LS-04P	PNP							
	SP-05N	NPN	5.0mm	Non-Flushed	Vertical	10 ~ 30 VDC	800HZ		
	SP-05P	PNP							
	BS-02N	NPN	2.0mm	Flushed	Vertical	10 ~ 30 VDC	2KHZ		
	BS-02P	PNP	4.0mm	Non-Flushed					
	BS-04N	NPN							
	BS-04P	PNP							
	PP-05N	NPN	5.0mm	Flushed	Vertical	10 ~ 30 VDC	800HZ		
	PP-05P	PNP	8.0mm	Non-Flushed					
	PP-08N	NPN							
	PP-08P	PNP							
	PS-04N-V	NPN	4.0mm	Non-Flushed	Vertical	10 ~ 30 VDC	2KHZ		
	PS-04P-V	PNP	4.0mm		Horizontal				
	PS-04N	NPN							
	PS-04P	PNP							
	PS-05N	NPN	5.0mm	Flushed	Horizontal	10 ~ 30 VDC	800HZ		
	PS-05P	PNP	8.0mm	Non-Flushed					
	PS-08N	NPN							
	PS-08P	PNP							
	PL-05N	NPN	5.0mm	Flushed	Horizontal	10 ~ 30 VDC	800HZ		
	PL-05P	PNP	8.0mm	Non-Flushed					
	PL-08N	NPN							
	PL-08P	PNP							
	PS-10N	NPN	10.0mm	Flushed	Horizontal	10 ~ 30 VDC	500HZ		
	PS-10P	PNP	15.0mm	Non-Flushed					
	PS-15N	NPN							
	PS-15P	PNP	15.0mm	Non-Flushed	Horizontal	90 ~ 250 VAC	20HZ		
	PS-10S	SCR							
	PS-15S	SCR							

M8/M12 Tubular Type

Outline Dimension	Model	Output Status	Output Method	Operating Voltage	Sensing Direction	Response Frequency	Mounting Method
	PM08-01N	NO	NPN	10 ~ 30 VDC	1.0mm	2.5KHZ	Flushed
	PM08-01NB	NC					
	PM08-01P	NO	PNP				
	PM08-01PB	NC					
	PM08-02N	NO	NPN	10 ~ 30 VDC	2.0mm	2.5KHZ	Non-Flushed
	PM08-02NB	NC					
	PM08-02P	NO	PNP				
	PM08-02PB	NC					
	PM12-02N-S	NO	NPN	10 ~ 30 VDC	2.0mm	2.5KHZ	Flushed
	PM12-02NB-S	NC					
	PM12-02P-S	NO	PNP				
	PM12-02PB-S	NC					
	PM12-04N-S	NO	NPN	10 ~ 30 VDC	4.0mm	2.5KHZ	Non-Flushed
	PM12-04NB-S	NC					
	PM12-04P-S	NO	PNP				
	PM12-04PB-S	NC					
	PM12-02N	NO	NPN	10 ~ 30 VDC	2.0mm	2.5KHZ	Flushed
	PM12-02NB	NC					
	PM12-02P	NO	PNP				
	PM12-02PB	NC					
	PM12-04N	NO	NPN	10 ~ 30 VDC	4.0mm	2.5KHZ	Non-Flushed
	PM12-04NB	NC					
	PM12-04P	NO	PNP				
	PM12-04PB	NC					
	PM12-02S	NO	SCR	90 ~ 250 VAC	2.0mm	20HZ	Flushed
	PM12-02SB	NC					
	PM12-04S	NO	SCR	90 ~ 250 VAC	4.0mm	20HZ	Non-Flushed
	PM12-04SB	NC					

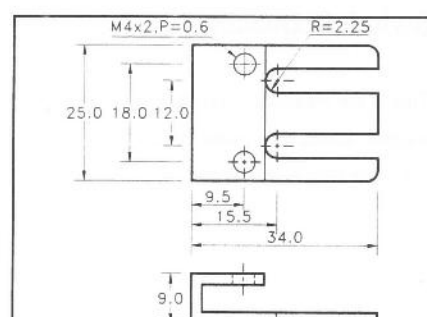
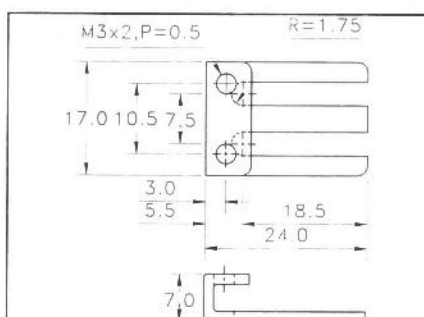
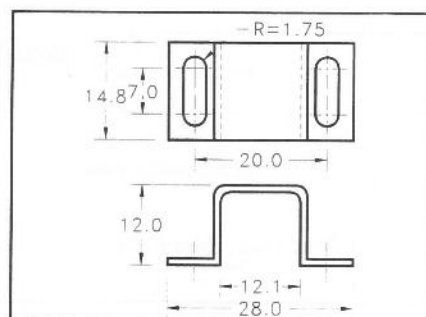
M18 Tubular Type

Outline Dimension	Model	Output Status	Output Method	Operating Voltage	Sensing Direction	Response Frequency	Mounting Method
	PM18-05N-S	NO	NPN	10 ~ 30 VDC	5.0mm	800HZ	Flushed
	PM18-05NB-S	NC					
	PM18-05P-S	NO	PNP				
	PM18-05PB-S	NC					
	PM18-08N-S	NO	NPN	10 ~ 30 VDC	8.0mm	800HZ	Non-Flushed
	PM18-08NB-S	NC					
	PM18-08P-S	NO	PNP				
	PM18-08PB-S	NC					
	PM18-05N	NO	NPN	10 ~ 30 VDC	5.0mm	800HZ	Flushed
	PM18-05NB	NC					
	PM18-05P	NO	PNP				
	PM18-05PB	NC					
	PM18-08N	NO	NPN	10 ~ 30 VDC	8.0mm	800HZ	Non-Flushed
	PM18-08NB	NC					
	PM18-08P	NO	PNP				
	PM18-08PB	NC					
Polymid Housing 	PM18-08N-P	NO	NPN	10 ~ 30 VDC	8.0mm	800HZ	Non-Flushed
	PM18-08NB-P	NC					
	PM18-08P-P	NO	PNP	10 ~ 30 VDC	8.0mm	800HZ	Non-Flushed
	PM18-08PB-P	NC					
	PM18-08S-P	NO	SCR	90 ~ 250 VAC	8.0mm	20HZ	Non-Flushed
	PM18-08SB-P	NC					
	PM18-05S	NO	SCR	90 ~ 250 VAC	5.0mm	20HZ	Flushed
	PM18-05SB	NC					
	PM18-08S	NO	SCR	90 ~ 250 VAC	8.0mm	20HZ	Non-Flushed
	PM18-08SB	NC					

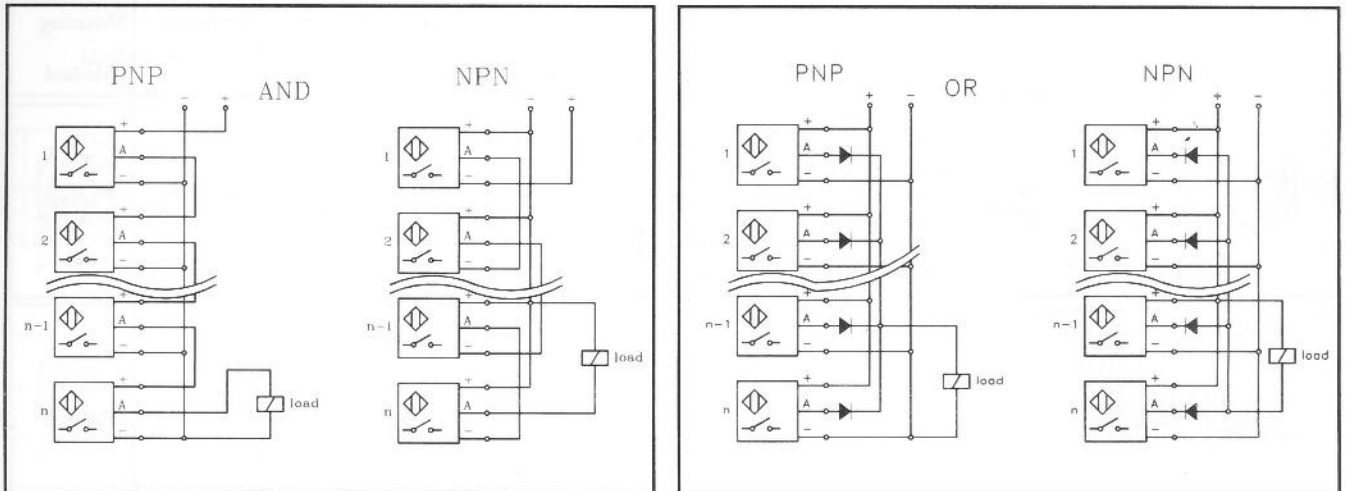
M30 Tubular Type

Outline Dimension	Model	Output Status	Output Method	Operating Voltage	Sensing Direction	Response Frequency	Mounting Method
	PM30-10N-S	NO	NPN	10 ~ 30 VDC	10.0mm	500HZ	Flushed
	PM30-10NB-S	NC					
	PM30-10P-S	NO	PNP				
	PM30-10PB-S	NC					
	PM30-15N-S	NO	NPN	10 ~ 30 VDC	15.0mm	500HZ	Non-Flushed
	PM30-15NB-S	NC					
	PM30-15P-S	NO	PNP				
	PM30-15PB-S	NC					
	PM30-10N	NO	NPN	10 ~ 30 VDC	10.0mm	500HZ	Flushed
	PM30-10NB	NC					
	PM30-10P	NO	PNP				
	PM30-10PB	NC					
	PM30-15N	NO	NPN	10 ~ 30 VDC	15.0mm	500HZ	Non-Flushed
	PM30-15NB	NC					
	PM30-15P	NO	PNP				
	PM30-15PB	NC					
	PM30-10S	NO	SCR	90 ~ 250 VAC	10.0mm	20HZ	Flushed
	PM30-10SB	NO					
	PM30-15S	NO	SCR	90 ~ 250 VAC	15.0mm	20HZ	Non-Flushed
	PM30-15SB	NO					

Fixed Bracket



Connecting Method of AND & OR



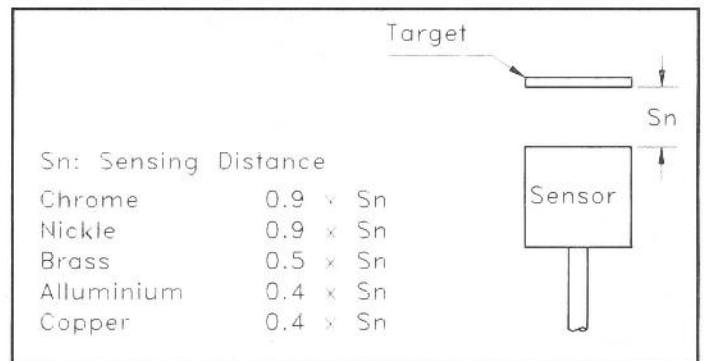
Basic Definition of Inductive Proximity Sensor

Target

Which is steel, 1 mm thick ness, square form with width lengths equal to the diameter of the sensing surface, if the target is made of a different material, the sensing distance must be multiplied by the Correction Factors.

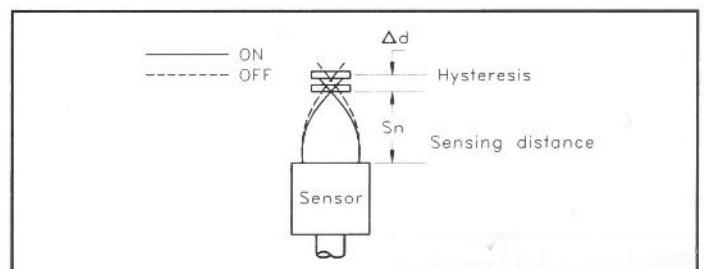
Accuracy < Repetition >

Tolerance of operating position that sensor is certainly operated under the same conditions.



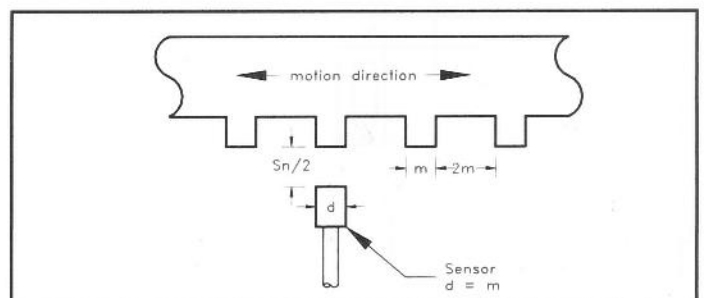
Hysteresis

Hysteresis is the different distance between the operating points that the target is approaching and leaving the sensing area of the sensor, The value is expressed as a percentage of the sensing distance, $< \Delta d / S_n \% >$.



Switch frequency

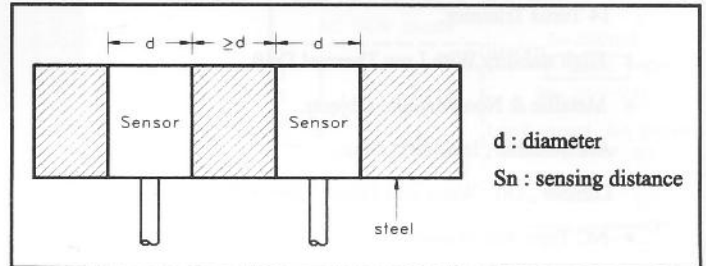
This is the maximum response frequency per second, based on a pulse / pause ratio of 1:2. The sketch shows the condition of test.



How To Install Induction Proximity Sensor

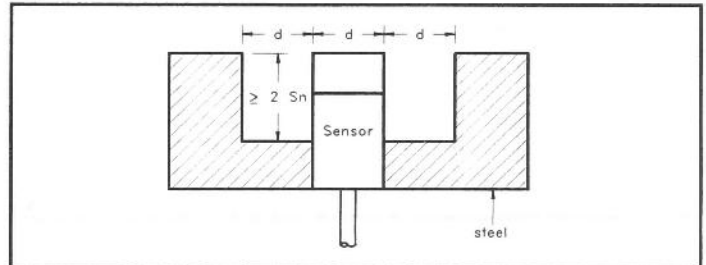
Flushed type

A proximity sensor can be flushed mounted in metal and surrounded by metal up to the level of the active face.



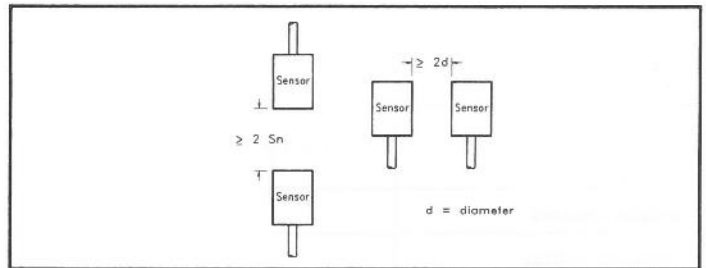
Non-flushed

A proximity sensor cannot be flushed in metal, a clear zone of 3 times of the diameter of the sensing surface must be kept.



Mutual Interference

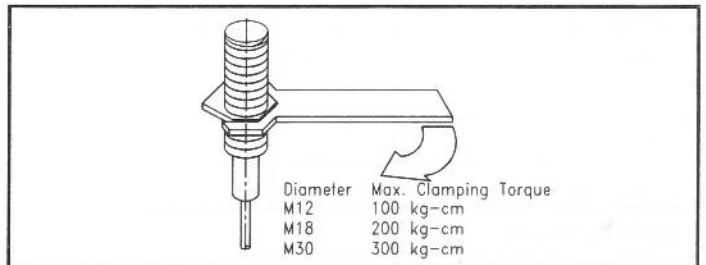
Installing inductive proximity sensors of the same model face to face or side by side, please set the minimum distance between the sensors larger than the diameter of sensor, to avoid the malfunction.



Clamping torque

Be sure to set a spring washer when fixing the sensor.

Don't tighten the sensor's mounting screw of PM series, with a clamping torque higher the right values.



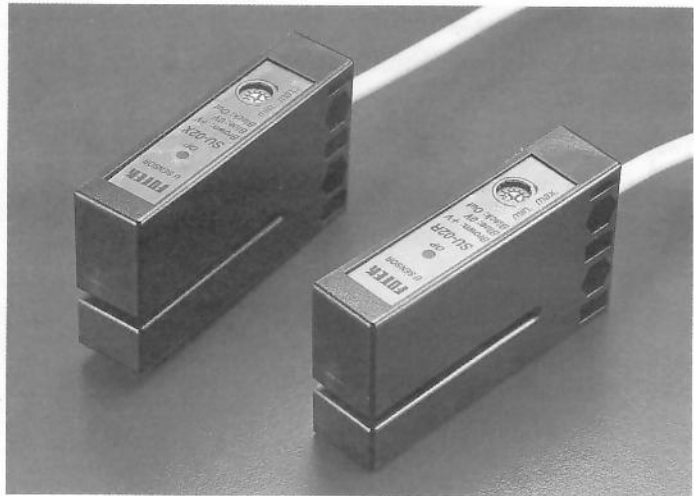
Wiring

To avoid being influenced by noised. Try best to separate the cable of the sensor from power lines and high

If extend the sensor cable, use a cable which diameter as same as that.

SU-02 HIGH SPEED Series U TYPE LABEL SENSOR

- * High Speed Response : 10 KHZ
- * Label ON Non - Transparent Tape Detectable.
< SU-02X >
- * Mark ON Transparent Tape Detectable.
< SU-02R >
- * Suiting For Label Machine or Packing Machine.



Specification

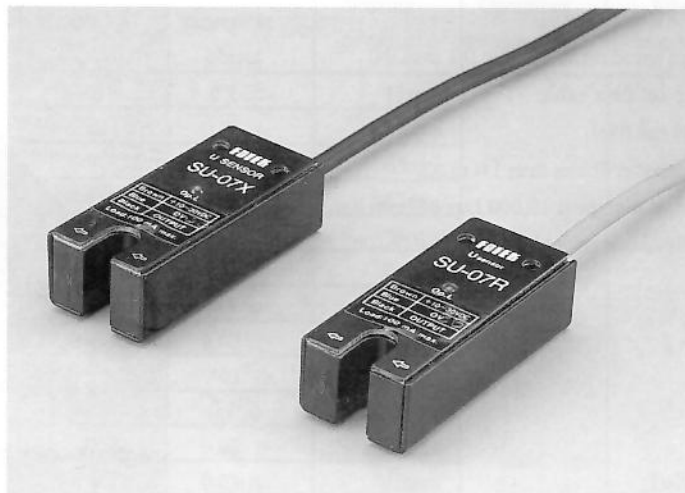
Model	SU-02X	SU-02XP	SU-02R	SU-02RP
Output Method	NPN	PNP	NPN	PNP
Emitter	Infrared LED		Red LED	
Operating Voltage	10~30 VDC ; Current Consumption 40mA max.			
Output Current	150mA max.			
Output Status	NO			
Sensible Object	Non - Transparent Object		Transparent Object	
Response Frequency	10KHZ			
Illumination	Lamplight < 3,000 Lux ; Sunlight < 5,000 Lux.			
Connection Method	3 Cores / 4.0 ϕ X 2m			
Housing Material	PC Plastics			
Operating Temp./Hum.	-20℃~+70℃ ; 35%~85% RH			
Sensitivity Adjuster	270° Trimmer			
Output Circuit & Connection Diagram	<p>NPN</p>		<p>PNP</p>	
Dimension				
Weight : 65g				

Weight : 65g

High Speed U Type Gear Sensor

SU-07 Series

- * High Speed Response Frequency : 5 KHZ
- * High Stability & Reliability.
- * Low Cost & High Quality.



Specification

Model	SU-07X	SU-07XP	SU-07XB	SU-02XPB
Output Method	NPN	PNP	NPN	PNP
Output Status	NO		NC	
Operating Voltage	10~30 VDC ; Ripple < 20% of Peak to Peak			
Output Current	150 mA max.			
Emitter	Infrared LED			
Min. Sensible Object	2.0 ϕ			
Response Frequency	5KHZ			
Illumination	Lamplight < 3,000 Lux ; Sunlight < 5,000 Lux.			
Connection Method	3 Cores / 4.0 ϕ X 2m			
Housing Material	Fe Plated Ni			
Operating Temp./Hum.	-20 $^{\circ}$ C ~ +70 $^{\circ}$ C ; 35%~85% RH			
Weight	Appr. 90g			
Output Circuit & Connection Diagram	<p>NPN</p>		<p>PNP</p>	
Dimension				