

## ◆Characteristics / 特點：


- Small size, 10 mm thickness, can be mounted in a small space. Several amplifiers can be mounted side by side.  
/體積薄，厚度只有10mm，使用空間小，多個併排安裝。
- 20-Turns Sensitivity Adjuster. The optimum sensitivity can be set easily.  
/多迴轉(20 TURNS)靈敏度調整。
- Off-delay timer adjustable for 0ms, 40ms and 400ms.  
/可調整OFF TIMER感應時間(0ms,40ms,400ms)。




**Ultra-Slim**



**L.on/D.on Switch**  
Easy selection to switch the output operation as either Light-ON or Dark-ON.



**Off-delay Timer Switch**  
Three off-delay timers (0ms, 40ms, 400ms) adjustable.



**20-turn Sensitivity Adjuster**  
Users can adjust the sensitivity more optimum according to different objects.



**Fiber Lock Level**  
Special design for fiber cables fixed. Simple operation and easy maintenance.



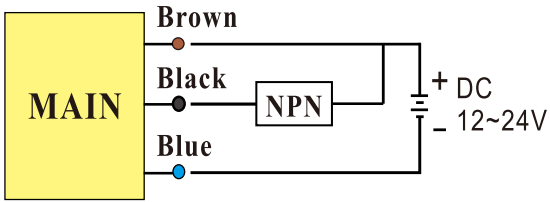
## ◆Specifications / 規格表：

Model / 型號	Pre-wired Ø4.2	FZ1-N	FZ1-P	FZ1-NI	FZ1-PI
	M8 pigtailed type	FZ1-ND	FZ1-PD	-	-
Emitting light / 發光源	Red LED 680 nm			Infrared LED 850nm	
Operating voltage / 工作電壓	DC12~24V ± 5%				
Current Consumption / 消耗電流	40mA Max.				
Load current / 負載電流	100mA Max.at DC24V				
Output type / 輸出模式	NPN L.on / D.on		PNP L.on / D.on		PNP L.on / D.on
Protection circuit / 保護電路	Reversed polarity protection, over-current protection				
Response time / 反應時間	1 ms Max.				
Indicators/指示燈	Output indicator : Red LED, Power indicator : Green LED				
Sensitivity adjusrment/靈敏度功能	20 turns trimmer				
Insulation resistance / 隔離阻抗	20MΩ min. (DC500V)				
Voltage withstandabiligy / 絕緣耐壓	AC500V 60Hz for 60 Sec.				
Operating temperature/工作溫度	- 10 °C ~ + 60 °C				
Ambient humidity / 工作溼度	35% ~ 85% RH				
Protection degree / 防水等級	IP64				
Material / 外觀材質	ABS				
Wiring method / 出線方式	FZ1-□	Pre-wired Ø4.2 x 2 M / 3-wires			
	FZ1-□D	M8 pigtailed type / M8 接頭15cm電線式			
Weight / 重量	FZ1-□	Approx. 65g			
	FZ1-□D	Approx. 35g			

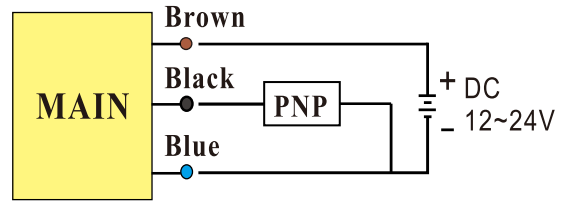
Photo Sensor  
Area Sensor  
Inductive Proximity Sensor  
Capacitive Proximity Sensor  
Timer / Counter  
Others  
Accessories

### ◆Wiring diagrams :

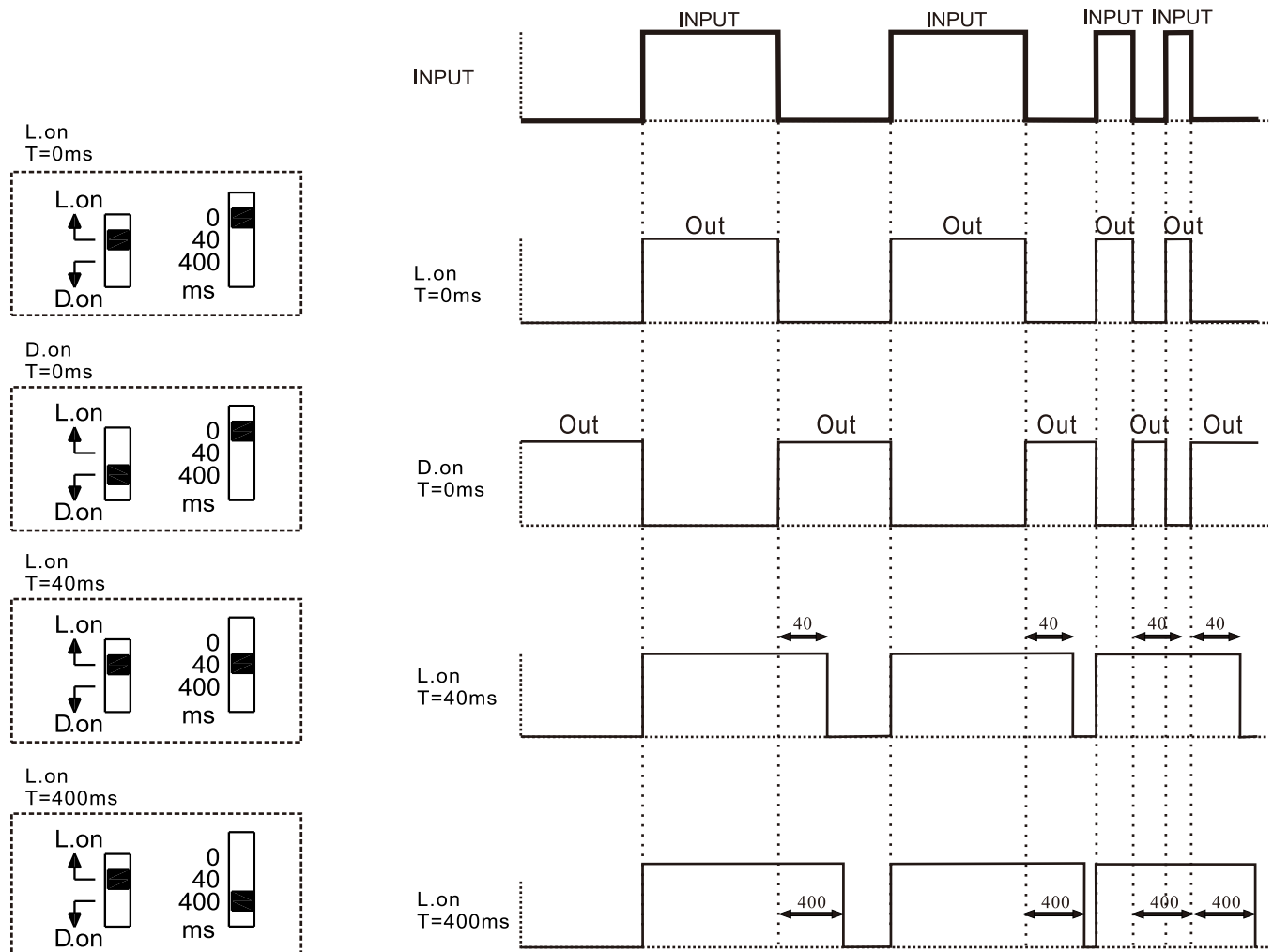
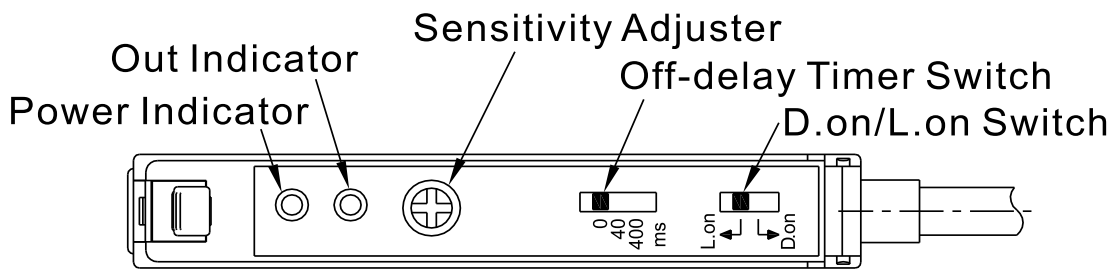
FZ1-N



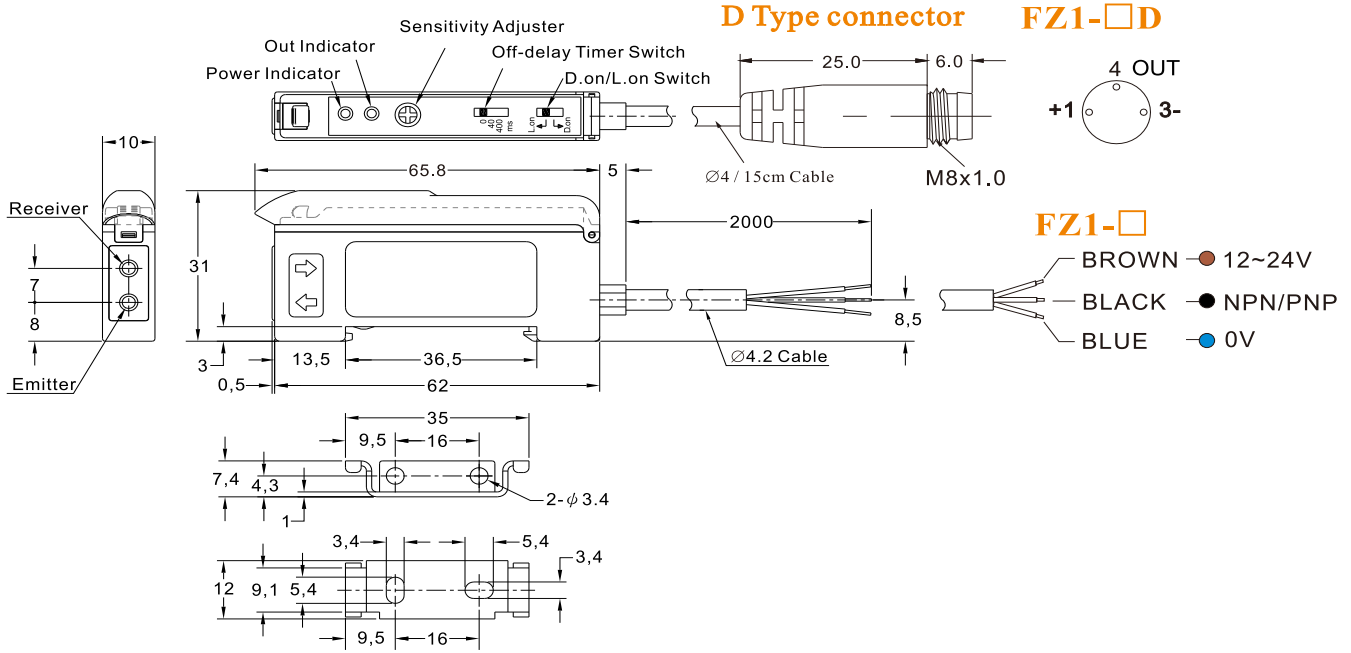
FZ1-P



### ◆Operation chart :



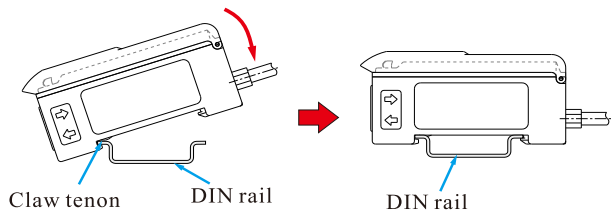
## ◆Dimensions/外型尺寸圖：



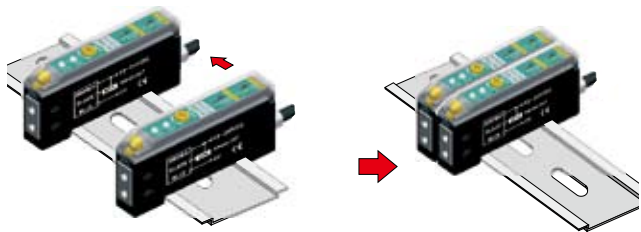
## ◆Fiber amplifier mounting/detaching operation :

### 1. Mounting / 安裝

(1) To mount each amplifier to the attached mounting bracket or DIN rail in sequence.



(2) To connect two amplifiers close together by sliding the amplifier bodies.



### 2. Detaching / 卸下

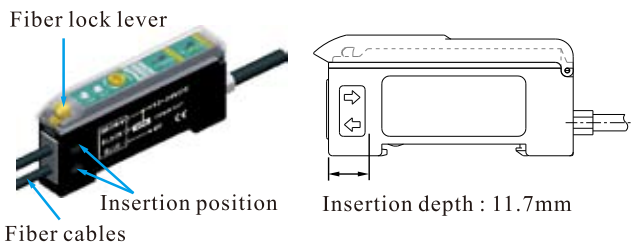
To detach the amplifiers in sequence by sliding the amplifier bodies. Don't detach two amplifiers at a time.

**⚠** Be sure to switch off the power supply when mounting or detaching the amplifier.

## ◆Fiber cables fixing operation :

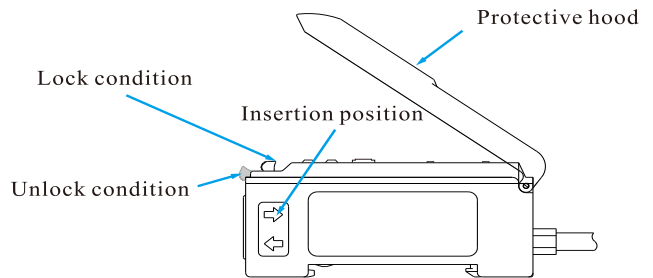
### 1. Insert the fiber cables / 插入光纖

Open the protective hood and tilt the fiber lock lever to release the lock condition. Referring to the side seal of insertion position, fully insert the fiber cables into the mounting holes until the limit. Pull the fiber lock lever back to lock the cables.



### 2. Pull out the fiber cables / 拔出光纖

Open the protective hood and tilt the fiber lock lever to release the lock condition. Pull the fiber cables straight out from the mounting holes.



**⚠** To protect the fiber cables from incorrect operation, be sure to tilt the fiber lock lever to release the lock condition before pulling out the fiber cables.

- Photo Sensor
- Area Sensor
- Inductive Proximity Sensor
- Capacitive Proximity Sensor
- Timer / Counter
- Others
- Accessories

### ◆ Characteristics / 特點 :

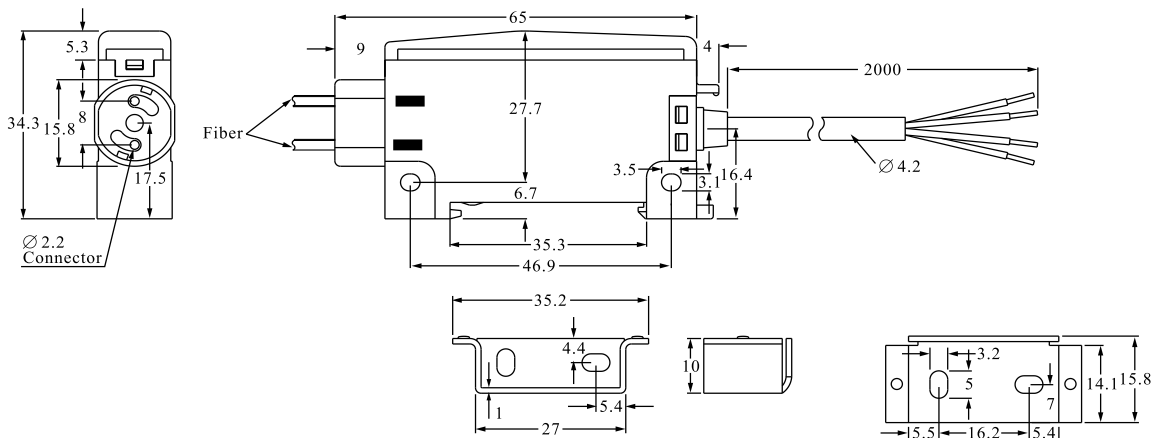
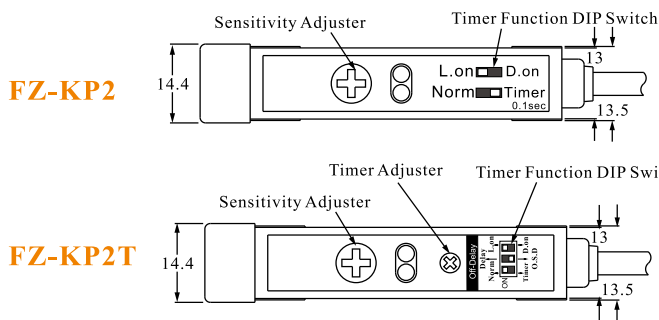
- With PNP and NPN two output types, NO/NC switching available.  
/含有PNP與NPN兩種輸出型態，且能夠作NO/NC切換。
- 4-turn sensitivity adjuster. Users can adjust the sensitivity more optimum according to different objects.  
/可調式旋鈕(4轉)，可依據感測物不同而作細微調整。
- Timer attached series can adjust O.S.D. and Off-delay functions.  
/附Timer機種，可調整O.S.D延遲和Off-delay功能。



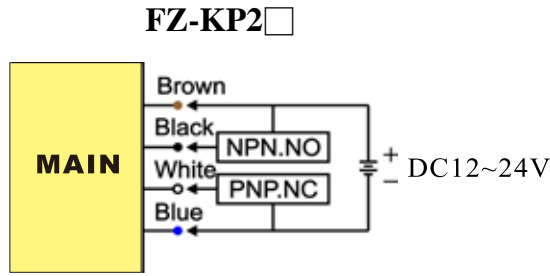
### ◆ Specifications / 規格表 :

Model / 型號	FZ-KP2	FZ-KP2T
Emitting light / 發光源	Red LED 680nm	Red LED 680nm
Operating voltage / 工作電壓	DC12 to 24 ± 10%	
Current Consumption / 消耗電流	35mA Max.	40mA Max.
Load current / 負載電流	100mA Max at DC 24V in, Residual voltage :1V Max	
Output type / 輸出模式	NPN N.O. / N.C.	PNP N.O./N.C.
Protection circuit / 保護電路	Reversed polarity protection, over-current protection, surge absorber	
Response time / 反應時間	0.5 ms	1 ms
Indicators / 指示燈	Output indicator : Red LED, Power indicator : Green LED	
Sensitivity adjustment/靈敏度功能	4-turns trimmer	
Timer function / 計時器功能	-	One shot / Off-delay 0~7 sec.
Protection degree / 防水等級	IP64	
Material / 外觀材質	ABS Resin	
Wiring method / 出線方式	Pre-wired Ø4.2 x 2M / 4-wires	
Weight / 重量	Approx.85 g	

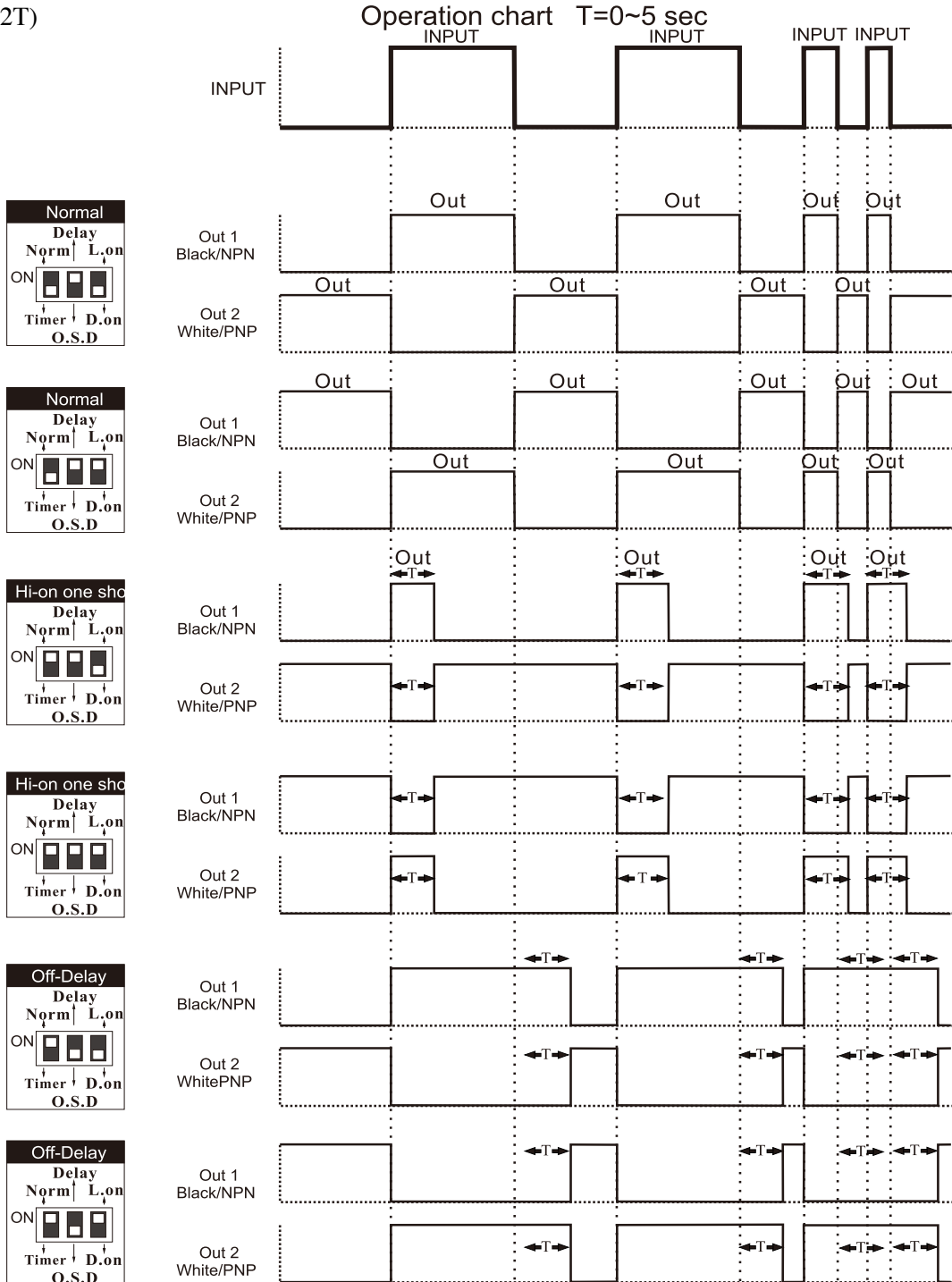
### ◆ Dimensions/尺寸圖 :























































## ◆Wiring diagrams :



## ◆Operation chart : (FZ-KP2T)



### FZ1-N

Features	Shape	Detecting Distance (mm)	*FZ1-N	Smallest detectable object(metal wire)	Minimum bend radius	Weight(g)	Model			
Photo Sensor	 M6		90	Ø0.2	R25	43	PR-610			
	 M4					40	FRB-410			
	 Ø3					40	FRB-310-Q			
Area Sensor	 M6		120	Ø0.5	R40	43	FRX-610			
	 M6		70	Ø0.1	R25	40	FRC-610			
Inductive Proximity Sensor	 M4		30	Ø0.05	R15	35	FRC-410			
	 M3					33	FRC-310			
	 Ø3					33	FRC-310-Q			
	 Ø1					30	FRC7-110-Q20			
Capacitive Proximity Sensor	 Ø1		7	Ø0.05	R15	30	FRC4-110			
	 M6		80	Ø0.02	R25	40	FRH-610			
	 Ø5	40				FRH-510				
Timer / Counter	 M4		70	Ø0.2	R2	40	FRZ-410			
	 Ø3		20	Ø0.1	R1	40	FRZ-310-Q			
	 M4					40	FRW-410			
Others	 Square		20	Ø0.1	R1	40	FRW-11			
	 M6		70	Ø0.2	R2	35	FRY-67TZ			
Accessories	 M3		5	Ø0.05	R10	33	FTE-410			
	 M3					35	FRA-410			
	 M4					33	FRE-310			
	 M4					33	FRE-310Q			
	 Ø2					35	FRQ-310			
	 M4					33	FRE-210			
	 M4					33	FRS-410			
	 M4					33	FRD-410			
	 M3					25	Ø0.1	R15	33	FRS-310
	 Ø2					35	FRD-310			
Accessories	 M4		60	Ø0.05	R15	40	FRJ-410			
	 M3					40	FRJ-310			
Accessories	 10x10		25	Ø1.0	R25	40	FR-10ML			
	 15x15		20	Ø1.0	R25	45	FR-15MLD			
	 25 x 19		70	Ø1.0	R25	60	FR-20ML			
	 38 x 19		70	Ø1.0	R25	36	FR-30ML			
	 58 x 23		60	Ø2.0	R25	40	FR-50ML			



## FZ1-N

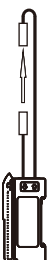
















































Features	Shape	Detecting Distance (mm)	*FZ1-N	Smallest detectable object(metal wire)	Minimum bend radius	Weight(g)	Model				
	 M6		500	Ø0.5	R25	52	PT-610				
	 M4					45	FT-410				
	 M3					45	FT-310				
	 M4					35	FTB-410				
	 M3					35	FTB-310				
	 Ø2					35	FTB-210				
	 M4						250	Ø0.2	R15	40	FTJ-410
	 N4						700	Ø1.0	R40	42	FTX-410
	 N4						600	Ø0.5	R25	40	FTH-410
	 M3						30	Ø0.03	R10	35	FTA-310
	 Ø2									33	FTA-210
	 Ø1									32	FTE-110
	 M6		300	Ø0.5	R2	47	FTY-610				
	 M4					45	FTY-410				
	 M3					40	FTY-310				
	 M4					Ø0.5	R2	40	FTZ-410		
	 M3							40	FTZ-310		
	 M4							80	Ø0.05	R1	35
	 Square	80	Ø0.05	R1	40	FTW2-11					
	 M6		250	Ø0.5	R2	40	FTY-67TZ				
	 M4		250	Ø0.5	R2	42	FTY-77TZ				
	 Ø1.5		80	Ø0.05	R1	50	FTW2-475D				
	 M4		130	Ø0.05	R15	35	FTS-410				
	 M3					35	FTS2-310				
	 M3					35	FTD-310				
	 Ø2					33	FTS-210				
	 Ø2					33	FTD-210				
	 Ø1						100	Ø0.1	R15	30	FTC4-110
	 Ø2									33	FTC4-210
	 10x10						500	Ø1.0	R15	35	FT-10ML
 15x15		400	Ø1.0	R25	55	FT-15MLD					
 19x25		500	Ø1.0	R60	95	FT-20ML					
 38x19		300	Ø1.0	R60	62	FT-30ML					
 58x23		300	Ø2.0	R60	65	FT-50ML					

Photo Sensor

Area Sensor

Inductive Proximity Sensor

Capacitive Proximity Sensor

Timer / Counter

Others

Accessories

### ◆ Order Information :

Photo Sensor  
Area Sensor  
Inductive Proximity Sensor  
Capacitive Proximity Sensor  
Timer / Counter  
Others  
Accessories

**FR - A - 6 - 10 - M - Q**

