

# FOTEK

## PR series / Three Phase Detector

### 三相欠逆相偵測器



### RoHS

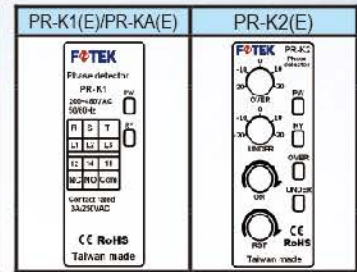
- Slim compact outline 17.8mm
- High resistance to inverter noise
- PR-K1 & PR-KA for phase loss or reversed detection
- PR-K2 for phase loss or reversed or voltage abnormal detection
- Conformity with IEC/EN 50178 & IEC/EN 61000-6-2 & IEC/EN 61000-6-3

- 堅固超薄外形17.8mm
- 超高抗變頻器高頻干擾
- PR-K1 & PR-KA 可偵測欠相及反相
- PR-K2可偵測欠相及反相及電壓異常
- 符合IEC/EN 50178 & IEC/EN 61000-6-2 & IEC/EN 61000-6-3



## Model guiding / 型號索引

EX. <b>PR-K1 E</b>	
1 2 3	
1 Series(系列名稱)	「PR」: Phase detector (相位&電壓偵測器)
2 Model(形式)	「K1」: Phase detector / Power 200~480VAC (相位偵測 / 電源 200~480VAC) 「KA」: Phase detector / Power 200~550VAC (相位偵測 / 電源 200~550VAC) 「K2」: Phase & Voltage detector / Power 200~550VAC (相位&電壓偵測/電源 200~550VAC)
3 Output rated current (輸出接點額定電流)	「E」: 10A/250 VAC SPDT 「non」: 3A/250 VAC SPDT



## Specification / 規格

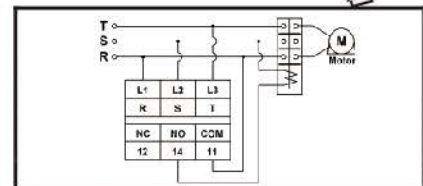
Product	產品	Phase Detector				Phase & Voltage Detector	
Detecting function	偵測功能	Phase reversed & loss				Phase reversed & loss & Hi/Lo voltage	
Model	型號	PR-K1	PR-K1E	PR-KA	PR-KAE	PR-K2	PR-K2E
Contact Rated	接點容量	3A/250VAC	10A/250VAC	3A/250VAC	10A/250VAC	3A/250VAC	10A/250VAC
Power Supply	工作電壓	200~ 480VAC / 50/60Hz		200~ 550VAC / 50/60Hz (Switching power)			
Over voltage detecting	高電壓偵測	Non				±20% of operating voltage(adjustable)	
Under voltage detection	低電壓偵測	non				±20% of operating voltage(adjustable)	
ON Delay Time	動作延遲時間	100ms max.(fixed)				0.1~ 10s (adjustable)	
OFF Delay Time	復歸延遲時間	100ms max.(fixed)				0.1~ 10s(adjustable)	
Power ON delay time	送電延遲時間					300ms max	
Wattage	消耗功率					2VA max.	
Output Method	輸出方式					Relay	
Output Status	輸出狀態					Normal ON <RY>	
Dielectric Strength	電介強度					2.5KV / 1 min.	
Insulation Strength	絕緣強度					100 MΩ / 500VDC	
Life of Relay	接點壽命					20 X 10 <sup>6</sup> Times	
Circumstance	工作環境					- 25°C ~ + 80°C ; 35% ~ 85% RH	
Weight	重量					68g approximated	

## Operating voltage selection for PR-K2 (E) / PR-K2 (E) 工作電壓選擇

Rotary switch	Operating voltage 工作電壓	Rotary switch	Operating voltage 工作電壓	Rotary switch	Operating voltage 工作電壓
「0」	200VAC 50/60 Hz	「3」	240VAC 50/60 Hz	「6」	415VAC 50/60 Hz
「1」	220VAC 50/60 Hz	「4」	380VAC 50/60 Hz	「7」	440VAC 50/60 Hz
「2」	230VAC 50/60 Hz	「5」	400VAC 50/60 Hz	「8」	480VAC 50/60 Hz

Note: 選擇開關出廠設定位置: 「1」; 「9」 = 220VAC 50/60 Hz

## Connection diagram/接線圖

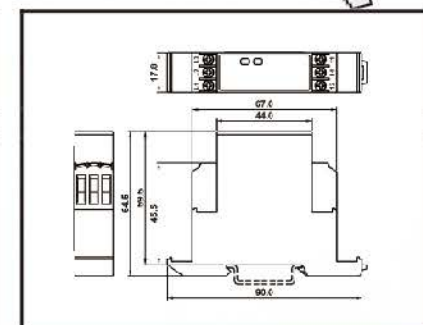


## Operating Status / 動作燈號

Product	PR-K1(E) / PR-KA(E)			PR-K2(E)				
	Normal	Phase loss	Phase reversed	Normal	Phase loss	Phase reversed	Over Voltage	Under voltage
LED								
PW	ON	*	ON	ON	*	ON	ON	ON
RY	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
Over	x	x	x	OFF	OFF	OFF	**	OFF
Under	x	x	x	OFF	**	Flicked	OFF	**

Note: \* Loss phase R → PW pilot ON, Loss phase S or T → PW pilot OFF  
欠 R 相 → PW 指示燈 ON, 欠 S 或 T 相 → PW 指示燈 OFF  
\*\* On abnormal status, Over or Under pilot will be flicked till delay time up. Then to be turned on.  
在異常狀態, Over 或 Under 指示燈會先閃爍直到延遲時間到才會持續 ON 著。

## Outline dimension/外形尺寸



## Notice of use / 使用注意事項

- Power line is 「L2 (phase S) & 「L3 (phase T)」, If lost either one, the power pilot will be turned off.  
「L2 (S 相)」 & 「L3 (T 相)」 是偵測器的電源, 欠任何一相時電源燈(PW)就會不亮!
- May use either a solid wire of 2.5 mm<sup>2</sup> maximum or a ferrule insulating sleeve pin for the terminal connection.  
The length of the exposed lead wire inserted into the terminal must be less than 8 mm to get dielectric strength enough after connection.  
可以用線頭吃錫線 (2.5 mm<sup>2</sup> 內) 或針型端子附絕緣套鎖在偵測器的端子座上, 長度不要超過 8mm 才有足夠的電介強度!
- Tightening torque: 0.6 N·m max.  
端子鎖緊力度: 0.6 N·m max.





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Specification may be modified without notice in advance. 規格變更恕不事先通知

# VOLTAGE & PHASE RELAY

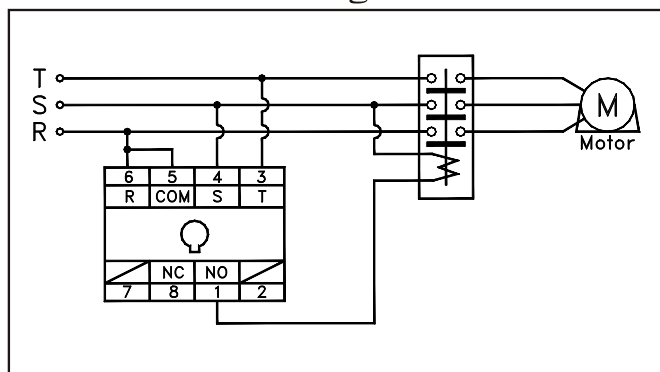
PVR/PR  
series

Product	Phase & Voltage Relay	Phase Relay
Model	PVR - 3 - <input type="text"/> <input type="text"/> <input type="text"/> V	PR - 1 - <input type="text"/> <input type="text"/> <input type="text"/> V
Figure		
Power Supply	230V or 380V or 440VAC or 480VAC,	50/60Hz
High Voltage Limit	±20%	
Low Voltage Limit	±20%	
ON Delay Time	1.0~10.0 Sec Adjustable	
Reset Delay Time	1.0~10.0 Sec Adjustable	2 Sec < Fixed >
Output Method	Relay	
Contact Rated	5A/250VAC	
Output Status	Normal ON < RUN >	
Dielectric Strength	2.5KV / 1 min	
Insulation Strength	100MΩ / 500 VDC.	
Life of Relay	20 X 10 <sup>6</sup> Times	
Circumstance	-20°~+60°C ; 35~85% RH	
Weight	155g	140g

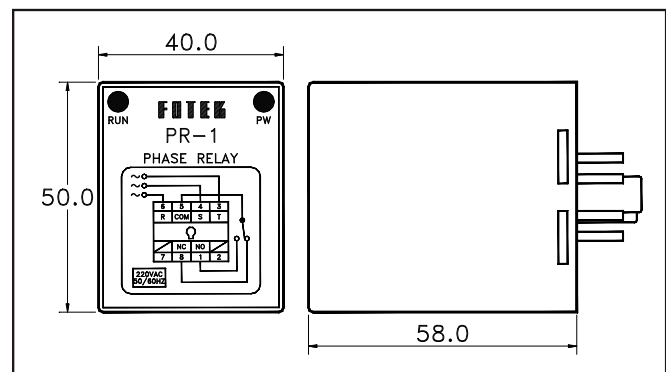
## Operating Status ( PVR-3 )

Status \ LED	Norm.	High Voltage	Low Voltage	R/T Loss	S Loss	Phase Rev
Run	○	×	×	×	×	×
Over	×	○	×	×	×	×
Under	×	×	○	×	○	○

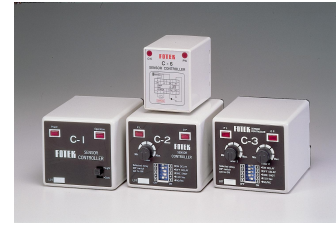
## Connection Diagram



## Dimension



- ※ Synchronized Control Suitable
- ※ Time Delay:  
ONE Shot, ON Delay Or OFF Delay Selectable.
- ※ Two Timer Controller < C-3 >  
ON + OFF Delay



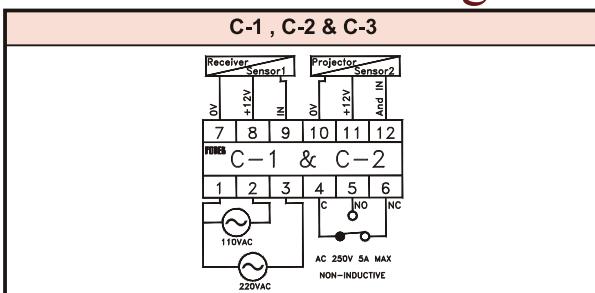
## Specification

Model	C - 1	C - 2	C - 3
Operating Voltage	110V/220VAC $\pm$ 20%, 50/60 Hz		
DC Power Output	150mA/12VDCmax.		
Output Control	Non	One Shot ON Delay & OFF Delay Selectable Range : 0.01s~10.0s	Timer 1: ON Delay Timer 2: One Shot ON Delay & OFF Delay
Output Method	Relay		
Output Status	NO/NC Selectable		
Response Time	15ms	1ms	
Current Consumption	3VA max.		
Operating Temp./Hum.	-20°C ~ +60°C ; 35% ~ 85% RH		
Housing Material	Intensive ABS		

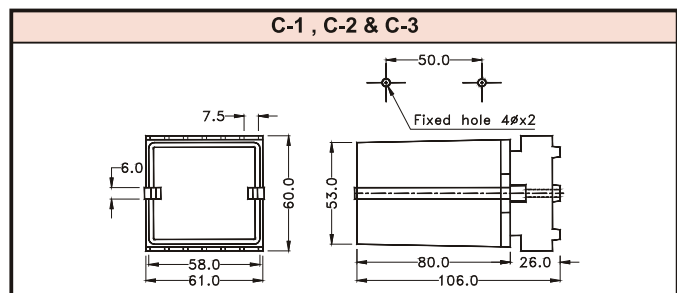
## Function of Timer < C-2/C-3 >

Timer	Output Timing Chart T : < Adjustable >	Remarks
Input<Hi → Lo>		<b>t</b> : Delay Time Range : 0.01s ~ 1s 0.1s ~ 10s Selectable Input : Hi → Lo Enable And Input : Hi → Lo Disable
Non Delay Output		
ON Delay Output		
OFF Delay Output		
ONE Shot Output		
AND Input		
AND Output		

## Connection Diagram



## 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)



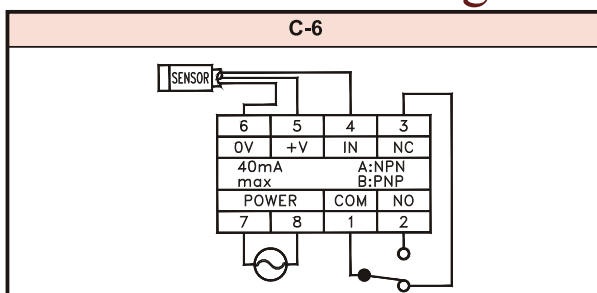
## Specification

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 Secretary Adjustable			
Power Supply	110V or 220V or 380VAC±20% 50/60Hz			
Input Method	NPN or PNP Selectable			
Ouput Method	Realay(5A/250 VAC)			
Response Time	15ms	1ms		
DC Power Output	12 VDC / 40 mA max.			
Current Consumption	3 VA max			
Insulation Resistance	100MΩ /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				

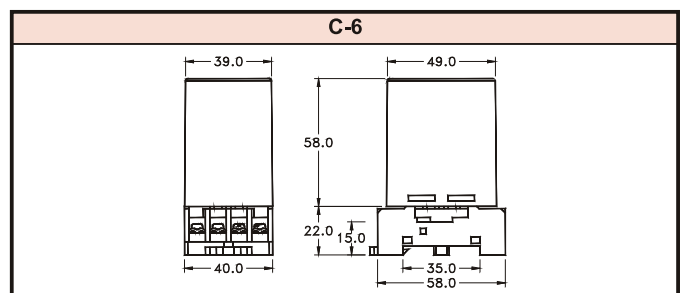
## Function of Timer<C-10/C-11/C-12>

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

## Connection Diagram



## Dimension

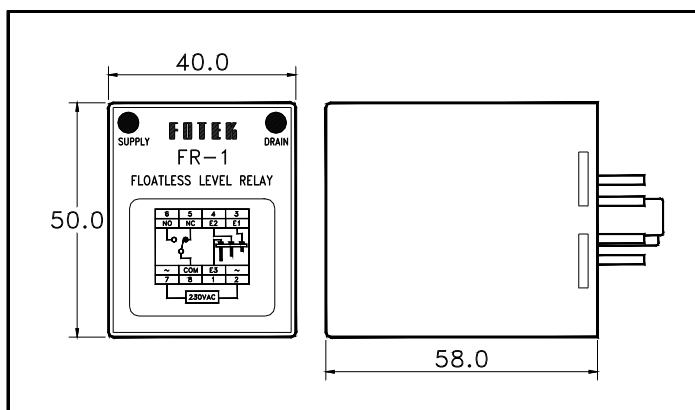


Type	Standard	Long Distance	High Sensitivity	Two Wires
Model	<b>FR-1</b>	<b>FR-1L</b>	<b>FR-1H</b>	<b>FR-2</b>
Figure				
ON Resistance	< 30K Ω	< 4K Ω	< 70K Ω	< 30K Ω
OFF Resistance	> 60K Ω	> 15K Ω	> 300K Ω	> 60K Ω
Length of Cable	< 1000M	< 4000M	< 50M	< 800M
Weight < Appr. >	130g	130g	130g	145g

### Specification

Power Supply	AC 110V or 230V or 380V ±20%, 50/60Hz
Electrode Voltage	14 VAC
Current Consumption	3VA max.
Output Method	Relay, 5A/250VAC
Response Time	ON<80ms, OFF<160ms
Insulation Resistance	100M Ω /500VDC
Dielectric Strength	2.5KV/1min.
Life of Relay	Mechanical > 2X10 <sup>7</sup> Times Electrical > 5X10 <sup>6</sup> Times
Circumstance	-20° C~+60°C,35%~85%RH

### Dimension



### Connection & Diagram

