DIN W72×H36mm Of Counter/Timer With Indication Only

▣ Features

Upgrade

- Counting speed: 1cps/30cps/2kcps/5kcps
- Selectable voltage input (PNP) method or no-voltage input (NPN) method
- Input mode: Up, Down, Up/Down
- Dot for Decimal Point / Hour. Min. Second by RESET key
- Wide range of input power supply
  : 100-240VAC 50/60Hz,
  24VAC 50/60Hz, 24-48VDC universal
- Selectable Counter or Timer function by internal DIP switch
- Changed case color (ivory → black)
- [Counter]
  20 input modes
- [Timer]
  Various time setting range-6-digit model: 0.01 sec to 99999.9 hour /
  4-digit model: 0.01 sec to 9999 hour
- Output: Indicator

Shaded parts(▬) are changed and added functions from previous FXY Series.

Please read "Safety considerations" in operation manual before using.

▣ Model

Model	Display digit	Size	Output	Power supply
FX4Y-I2	9999 (4-digit)	DIN W72×H36mm	1-stage setting	24VAC 50/60Hz, 24-48VDC
FX4Y-I4				100-240VAC 50/60Hz
FX6Y-I2	999999 (6-digit)		Indicator	24VAC 50/60Hz, 24-48VDC
FX6Y-I4				100-240VAC 50/60Hz

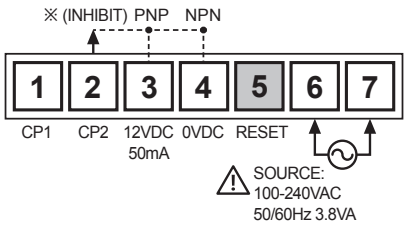
▣ Specifications

Model	Indicator	FX4Y-I2	FX4Y-I4	FX6Y-I2	FX6Y-I4
Display digit		4-digit		6-digit	
Character size (W×H)		8×14mm		4×8mm	
Power supply		24VAC~ 50/60Hz, 24-48VDC⎓	100-240VAC~ 50/60Hz	24VAC~ 50/60Hz, 24-48VDC⎓	100-240VAC~ 50/60Hz
Permissible voltage range		90 to 110% of rated voltage			
Power consumption		Max. 2.8VA (24VAC~ 50/60Hz), Max. 1.8W (24-48VDC⎓)	Max. 3.8VA (240VAC~ 50/60Hz)	Max. 2.8VA (24VAC~ 50/60Hz), Max. 1.8W (24-48VDC⎓)	Max. 3.8VA (240VAC~ 50/60Hz)
Max. counting speed of CP1/CP2		Selectable 1cps/30cps/2kcps/5kcps (DIP switch)			
Return time		Max. 500ms			
Min. signal width		INHIBIT, RESET: approx. 20ms			
Input method		Selectable voltage input (PNP) method or no-voltage input (NPN) method [Voltage input (PNP) method]-input impedance: max. 10.8kΩ, [H]: 5-30VDC⎓, [L]: 0-2VDC [No-voltage input (NPN) method]-short-circuit impedance: max. 470Ω, short-circuit residual voltage: max. 1VDC, open-circuit impedance: min. 100kΩ			
Repeat/Set/Voltage/Temp. error		Max. ±0.01% ±0.05 sec			
Insulation resistance		Over 100MΩ (at 500VDC megger)			
External power supply		Max. 12VDC⎓ ±10% 50mA			
Memory retention		Approx. 10 years (non-volatile memory)			
Dielectric strength		2,000VAC 50/60Hz for 1 min (between all terminals and case)			
Noise immunity	AC voltage	±2kV the square wave noise (pulse width 1μs) by noise simulator			
	AC/DC voltage	±500V the square wave noise (pulse width 1μs) by noise simulator			
Vibration	Mechanical	0.75mm amplitude at frequency 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour			
	Malfunction	0.5mm amplitude at frequency 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes			
Shock	Mechanical	300m/s^2 (approx. 30G) in each X, Y, Z direction for 3 times			
	Malfunction	100m/s^2 (approx. 10G) in each X, Y, Z direction for 3 times			
Environment	Ambient temp.	-10 to 55℃, storage: -25 to 65℃			
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH			
Protection structure		IP40 (front part, IEC standard)			
Approval					
Weight※1		Approx. 175g (approx. 120g)			

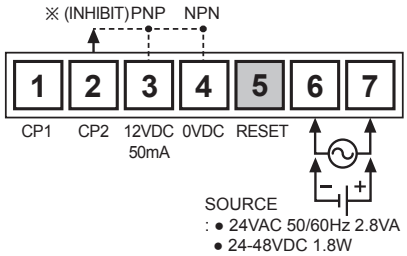
※1: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

▣ Connections

● **FX□Y-I4**



● **FX□Y-I2**

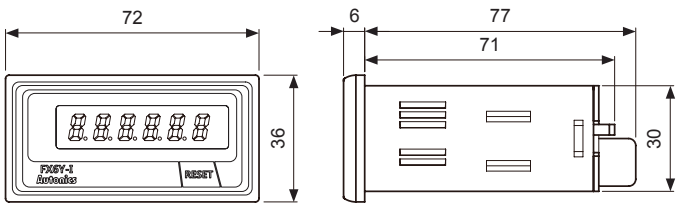


※INHIBIT: In case of timer mode, this terminal is for time hold.
(voltage input (PNP): connect with 12VDC, no-voltage input (NPN): connect with 0VDC)

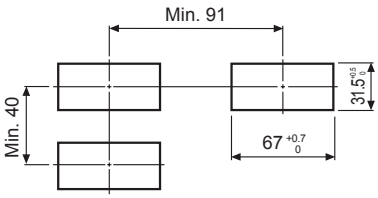
▣ Dimensions

(unit: mm)

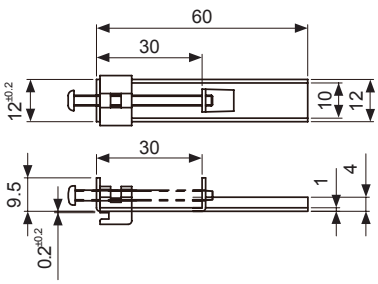
※Nameplate design is changed and rear length is shorten than previous.



● **Panel cut-out**



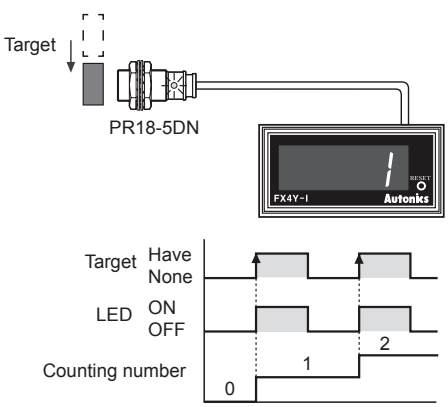
● **Bracket**



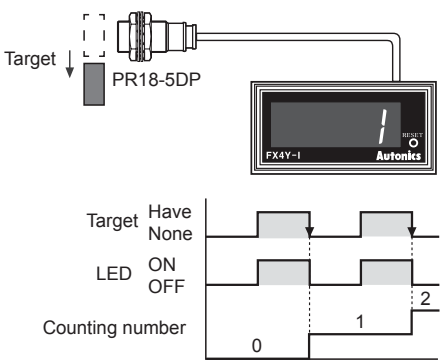
▣ Counting Method

Be careful to select sensor because the counting method of NPN output type sensor is different from PNP output type sensor.

● **NPN output type Proximity sensor**
: When the sensor is changed from OFF to ON, it counts.



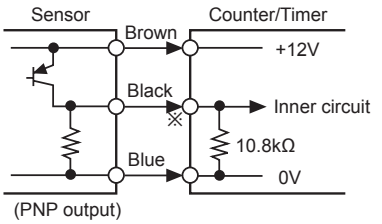
● **PNP output type Proximity sensor**
: When the sensor is changed from ON to OFF, it counts.



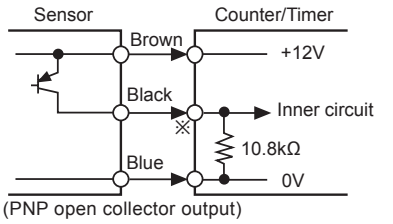
▣ Input Connections

◎ Voltage input (PNP)

● Solid-state input (standard sensor: PNP output type sensor)



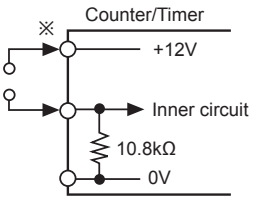
(PNP output)



(PNP open collector output)

※CP1, CP2 (INHIBIT), RESET input part

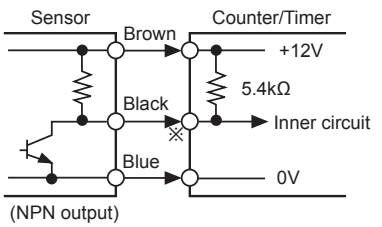
● Contact input



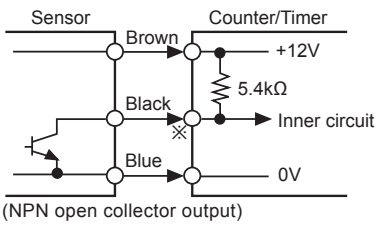
※Counting speed
: Set as 1 or 30cps

◎ No-voltage input (NPN)

● Solid-state input (standard sensor: NPN output type sensor)



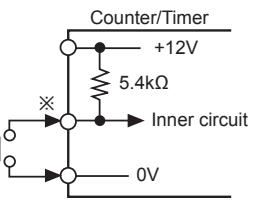
(NPN output)



(NPN open collector output)

※CP1, CP2 (INHIBIT), RESET input part

● Contact input

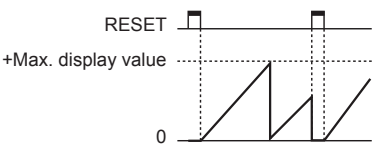


※Counting speed
: Set as 1 or 30cps

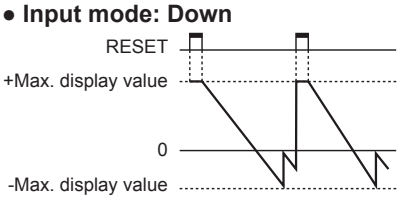
▣ Counting & Time Operation

◎ Counting operation

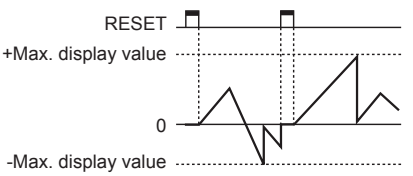
● Input mode: Up



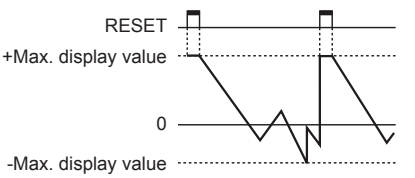
● Input mode: Down



● Input mode: Up/Down-A, B, C

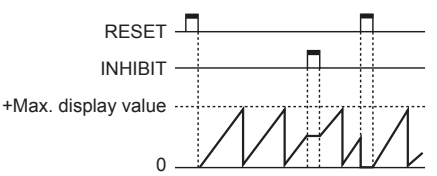


● Input mode: Up/Down-D, E, F

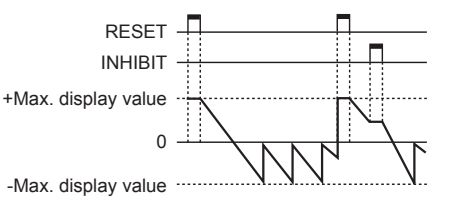


◎ Time operation

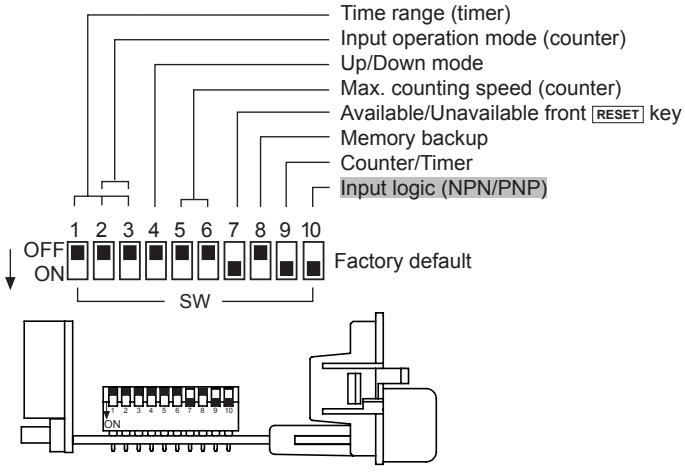
● Up mode



● Down mode



■ DIP Switch Setting



• Up/Down mode

SW		Function
4	OFF / ON	Up mode
	OFF / ON	Down mode

• Available/Unavailable front RESET key

SW		Function
7	OFF / ON	Unavailable front RESET key
	OFF / ON	Available front RESET key

• Max. counting speed (counter)

SW	Function
5 6 OFF / ON	1cps
5 6 OFF / ON	30cps
5 6 OFF / ON	2kcps
5 6 OFF / ON	5kcps

• Memory backup

SW		Function
8	OFF / ON	Memory backup
	OFF / ON	No memory backup

• Counter/Timer

SW		Function
9	OFF / ON	Timer mode
	OFF / ON	Counter mode

• Input logic (CP1, CP2, INHIBIT, RESET input)

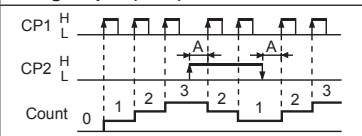
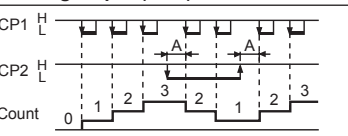
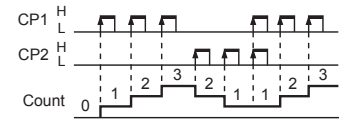
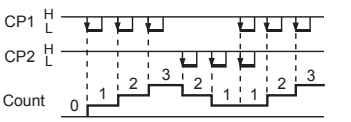
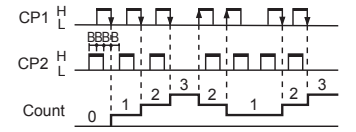
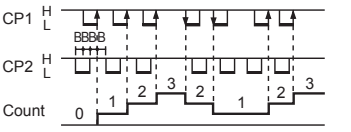
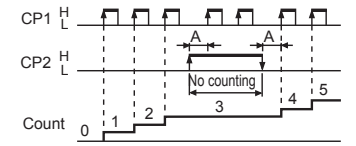
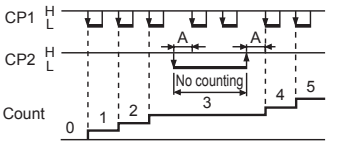
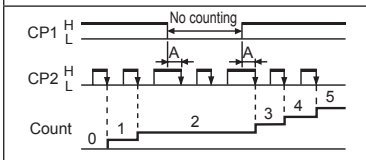
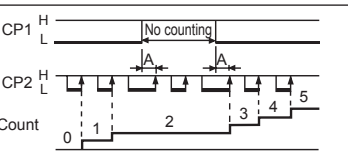
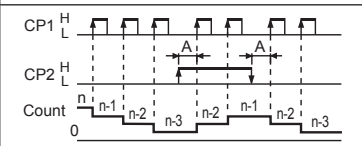
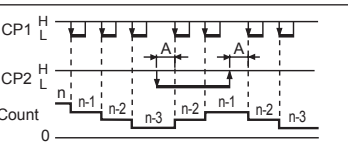
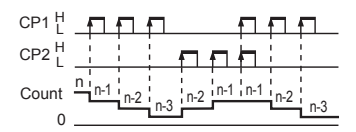
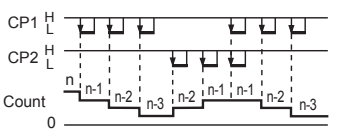
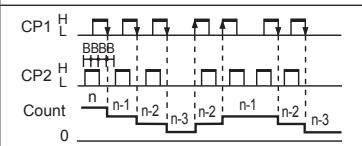
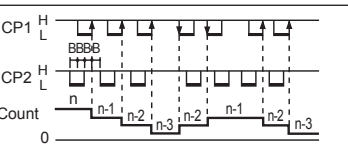
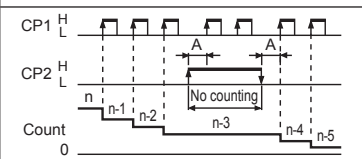
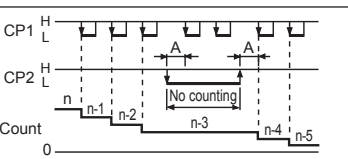
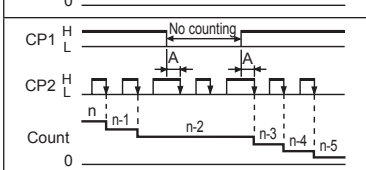
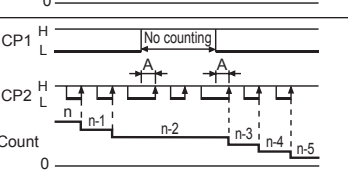
SW		Function
10	OFF / ON	PNP (voltage input)
	OFF / ON	NPN (no-voltage input)

■ Time Range (Timer)

SW	4-digit	6-digit	SW	4-digit	6-digit
1 2 3 OFF / ON	99.99sec	99999.9sec	1 2 3 OFF / ON	999.9min	99999.9min
1 2 3 OFF / ON	999.9sec	999999sec	1 2 3 OFF / ON	99hour 59min	99hour 59min 59sec
1 2 3 OFF / ON	9999sec	99min 59.99sec	1 2 3 OFF / ON	999.9hour	9999hour 59min
1 2 3 OFF / ON	99min 59sec	999min 59.9sec	1 2 3 OFF / ON	9999hour	99999.9hour

■ Input Operation Mode (Counter)

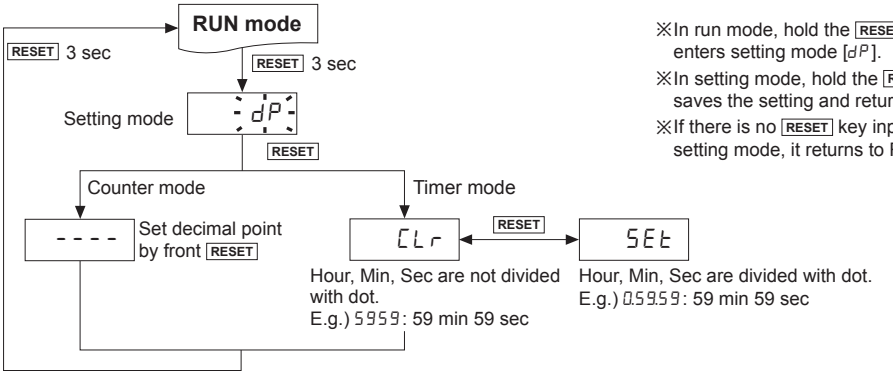
※CP: Clock Pulse

Input mode		SW	Voltage input (PNP) method	No-voltage input (PNP) method
Up mode (4 OFF / ON)	Up/ Down-A (command input)	2 3 OFF / ON		
	Up/ Down-B (individual input)	2 3 OFF / ON		
	Up/ Down-C (phase difference input)	2 3 OFF / ON		
	Up (adding input)	2 3 OFF / ON		
				
Down mode (4 OFF / ON)	Up/ Down-D (command input)	2 3 OFF / ON		
	Up/ Down-E (individual input)	2 3 OFF / ON		
	Up/ Down-F (phase difference input)	2 3 OFF / ON		
	Down (subtracting input)	2 3 OFF / ON		
				

※A: over min. signal width, B: over than 1/2 of min. signal width. If the signal is smaller than these width, it may cause counting error (±1).

※n: +Max. display value (FX4Y-I: 9999, FX6Y-I: 999999)

■ Dot for Decimal Point / Hour. Min. Second



※In run mode, hold the RESET key for over 3 sec, and it enters setting mode [dP].
※In setting mode, hold the RESET key for over 3 sec, and it saves the setting and returns to RUN mode.
※If there is no RESET key input for 60 sec when entering setting mode, it returns to RUN mode.

■ Proper Usage

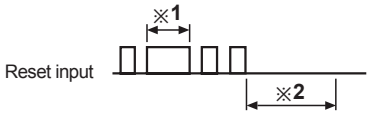
◎ Reset

● Reset

After DIP switch setting when cutting off the power, press the front RESET key or supplying the external reset.
If reset is not executed, the counter will be working as previous mode.

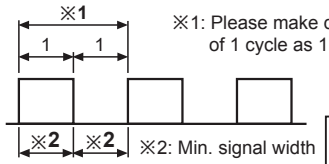
● The Reset signal width

It is reset perfectly when the reset signal is applied for max. 20ms regardless of the contact input & solid-state input.



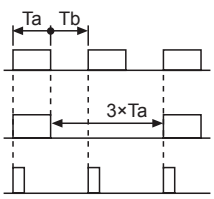
※1: In case of a contact reset, it is reset perfectly if the ON time of reset signal is applied for min. 20ms even though a chattering occurs.
※2: Signal input (CP1, CP2)is possible if there is no reset input for min. 50ms after reset input.

◎ Min. signal width



◎ Max. counting speed

This is a response speed per 1 sec when the duty ratio (ON:OFF) of input signal is 1:1.
If the duty ratio is not 1:1, the width between ON and OFF should be over min. signal width and the response speed will getting slower against input signal. And one of ON width and OFF width is under min. signal width, this product may not response.



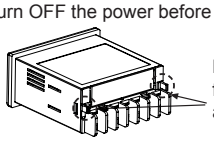
Ta (ON width) and Tb (OFF width)need to be over min. signal width.

When duty ratio is 1:3, the max.counting speed will be 1/2 from the rated spec.

It can not respond if it is smaller than min. signal width (Ta).

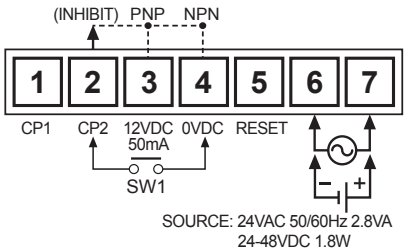
◎ Detaching Case

※Turn OFF the power before detaching the case.

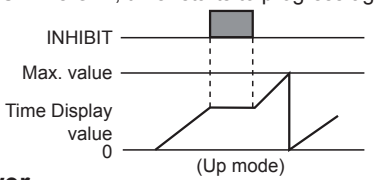


Press the both levers and pull them from the front to detach the case and the terminal.

◎ INHIBIT [For timer]

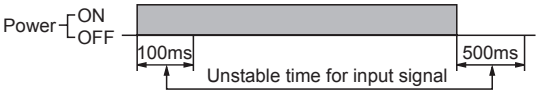


- It becomes the INHIBIT mode when SW1 turns on. (Time Hold)
- When power is applied, it starts to progress and INHIBIT mode is used to stop the time is under the progress at the moment.
- When SW1 is OFF, timer starts to progress again.



◎ Power

- In case of 24VAC, 24-48VDC model, power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- The inner circuit voltage rises within 100ms after supplying the power to the unit. The input may be unavailable at this period. Be sure that the inner circuit voltage drops within 500ms after turning OFF the power.



- Use the unit within the rated power supply. When supplying or cutting the power, use a switch not to occur chattering.