DIN size W72×H36mm, Indication only Counter/Timer

▣Features

- ●Upgraded count speed : 5kps
- ●Wide range of input power supply : 100-240VAC 50/60Hz, 12-24VDC(Option)
- ●Microprocessor controlled
- ●Selectable Counter or Timer function by internal DIP switch
- ●Selectable timing ranges

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

FX 4 Y - I

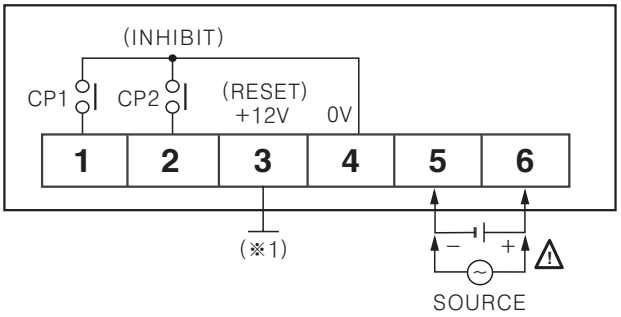
I	Indicator
Y	DIN Size W72×H36mm
4	9999(Digit)
6	999999(Digit)
FX	Counter/Timer type

▣Specifications

※A blacked( ) item is upgraded function.

Model		FX4Y-I	FX6Y-I
Digit		4	6
Digit size		W8×H14mm	W4×H8mm
Power supply		100-240VAC 50/60Hz, 12-24VDC(Option)	
Allowable voltage range		90 ~ 110% of rated voltage	
Power consumption		Approx. 4.5VA(240VAC 60Hz), Approx. 2.5W(24VDC)	
Max. counting speed		**Selectable 30cps/5kcps by internal DIP switch**	
Min. input signal width	INHIBIT input	Min. 20ms	
	RESET input		
Input	CP1, CP2 input	No voltage input☞ Impedance at short-circuit : Max. 470Ω, Residual voltage at short-circuit : Max. 1VDC, Impedance at open-circuit : Min. 100kΩ	
	RESET input		
Memory retention		10years(When using non-volatile semiconductor memory)	
Power for external sensor		12VDC±10% 50mA Max.	
Insulation resistance		Min. 100MΩ(at 500VDC)	
Dielectric strength		2000VAC 50/60Hz for 1 minute	
Noise strength	AC Type	±2kV the square wave noise(pulse width:1㎲) by the noise simulator	
	DC Type	±500V the square wave noise(pulse width:1㎲) by the noise simulator	
Vibration	Mechanical	0.75mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 1hour	
	Malfunction	0.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 10 minutes	
Shock	Mechanical	300m/s² (Approx. 30G) in X, Y, Z directions for 3 times	
	Malfunction	100m/s² (Approx. 10G) in X, Y, Z directions for 3 times	
Ambient temperature		-10 ~ +55℃(at non-freezing status)	
Storage temperature		-25 ~ +65℃(at non-freezing status)	
Ambient humidity		35 ~ 85%RH	
Life cycle		semi-permament	
Weight		AC type:Approx. 126g, DC type:Approx. 130g	AC type:Approx. 128g, DC type:Approx. 132g
Approval		c UL us	

▣Connections

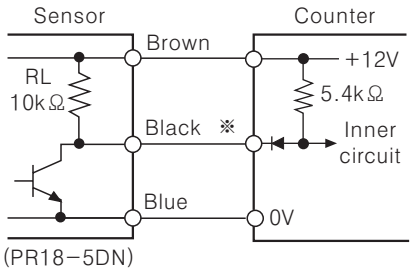


(※1) It can be selected reset or sensor power(+12VDC 50mA) by controlling internal jump pin.
(※2) CP1, CP2 : When using for counter
(※3) INHIBIT(CP2) : Time Hold terminal when using for timer(Connect S/W to ❷+❹ in exterior)
(※4) Operated by a Power ON Start method when it is used as a timer.

▣Input connections

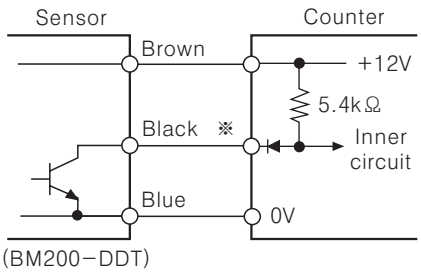
◎Solid-state input

●Standard input sensor : NPN universal output type sensor



(PR18-5DN)

●Transistor ON → Counting
●NPN universal output type sensor

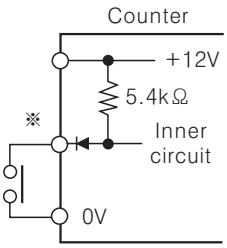


(BM200-DDT)

●Transistor ON → Counting
●NPN open collector output type sensor

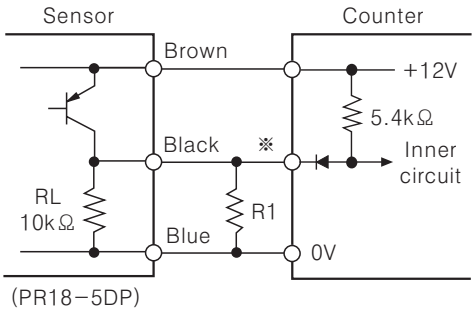
※CP1, CP2(INHIBIT), RESET input

◎Contact input



●Contact ON → Counting
●Limit S/W, Micro S/W
●Please use a reliable contacts

●Using PNP universal output type sensor

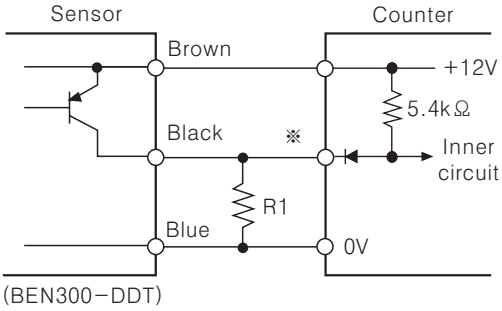


(PR18-5DP)

●Since PNP universal output type of sensors has high output impedance, please make sure to keep under condition.
: Please set R1 value to make the composed resistance of RL + R1 is Max. 470kΩ

※CP1, CP2(INHIBIT), RESET input

●Using PNP open collector output type sensor



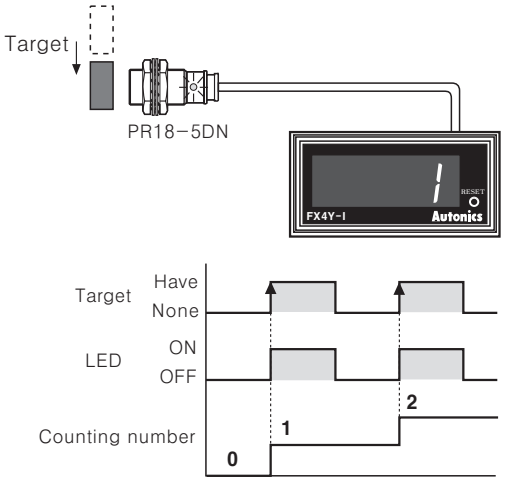
(BEN300-DDT)

●In case of PNP open collector output type sensor, please connect lower than 470Ω of R1 to input terminal before using.

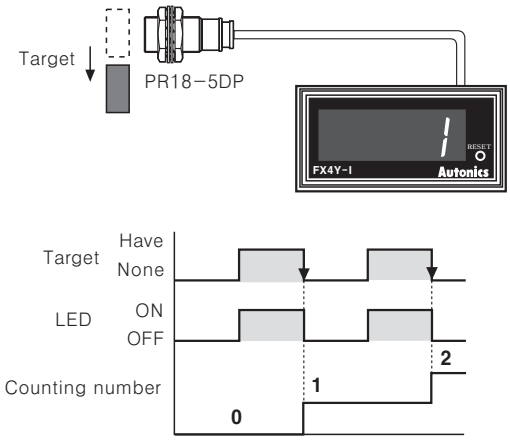
◎Counting method

Please take care of the selection of sensor because the counting method of NPN output type sensor is different from PNP output type sensor.

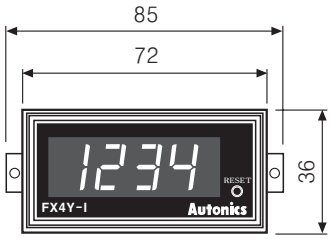
●NPN universal output type
: When the sensor changes OFF to ON, it is counting

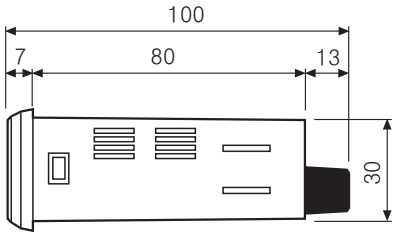


●PNP universal output type
: When the sensor changes ON to OFF, it is counting

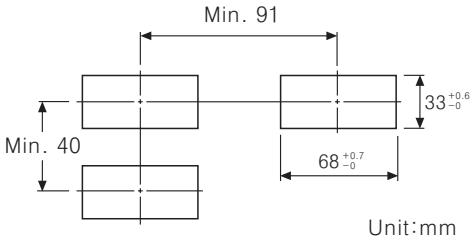


▣Dimensions





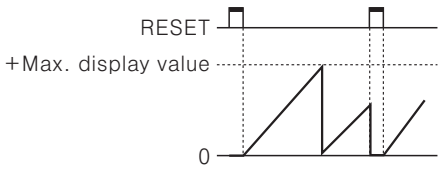
●Panel cut-out



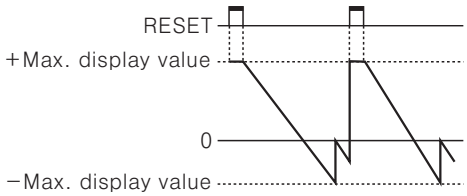
Unit:mm

▣Counting function

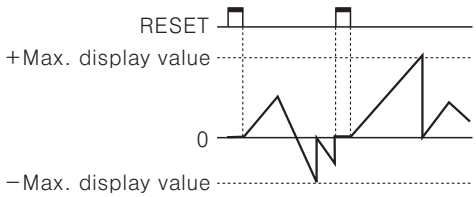
●**Up mode**



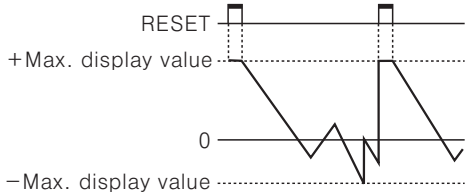
●**Down mode**



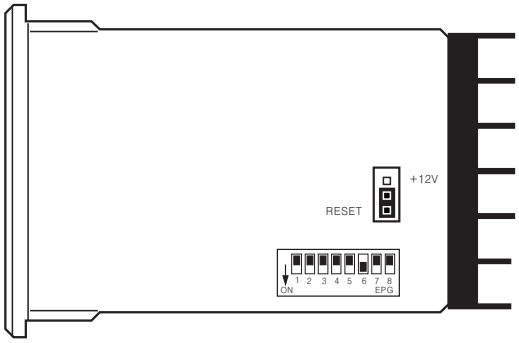
●**Up/Down-A, B, C Mode**

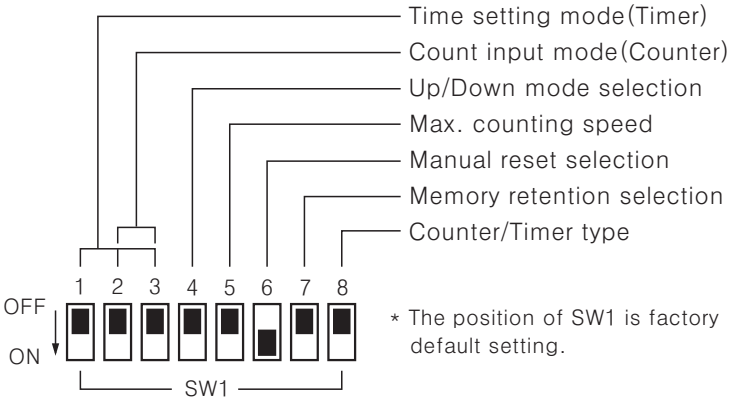


●**Up/Down-D, E, F Mode**



▣Selection by DIP switches





* The position of SW1 is factory default setting.

●Up/Down mode

SW1		Function
4	OFF ON	Up mode
	OFF ON	Down mode

●Memory retention

SW1		Function
7	OFF ON	Memory
	OFF ON	Power reset(No memory)

●Max. counting speed

SW1		CP1, CP2
5	OFF ON	30cps
	OFF ON	**5kcps**

●Counter/Timer selection

SW1		Function
8	OFF ON	Timer
	OFF ON	Counter

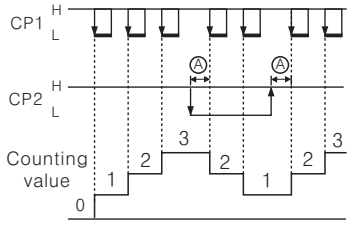
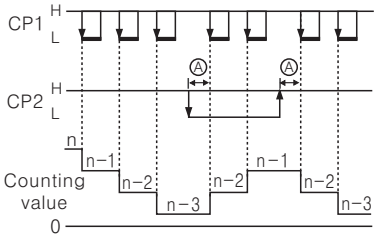
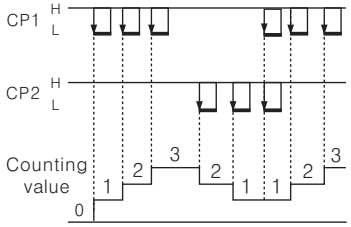
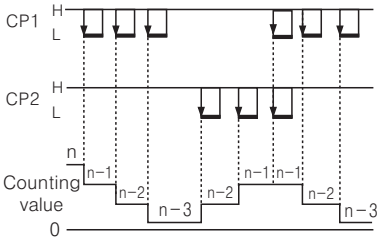
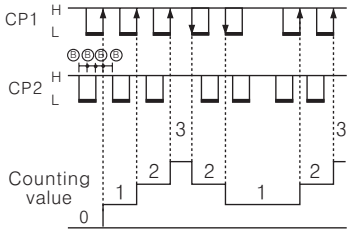
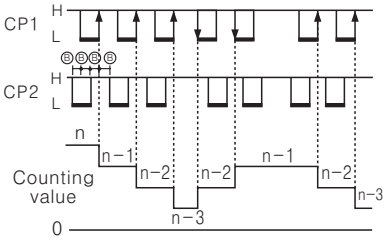
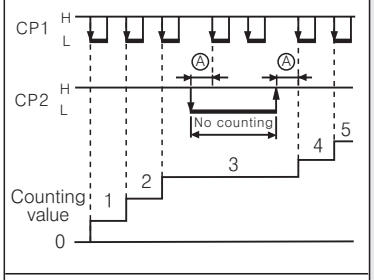
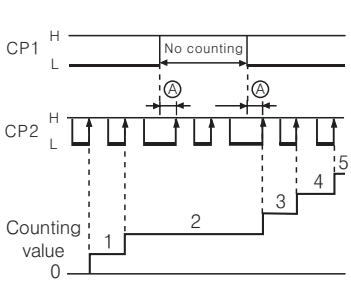
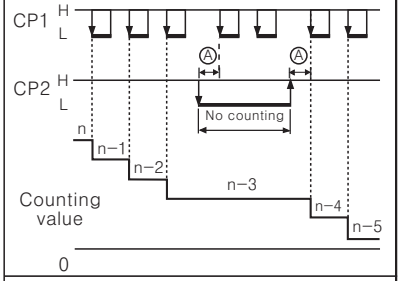
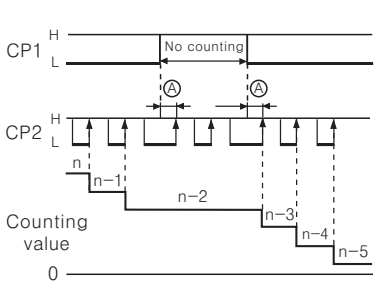
●Manual reset selection

SW1		Function
6	OFF ON	Reset switch disabled
	OFF ON	Reset switch enabled

▣Time setting mode(Timer)

SW1	4Digit	6Digit	SW1	4Digit	6Digit
A (1 2 3: OFF / ON)	**99.99sec**	**99999.9sec**	**E** (1 2 3: OFF / ON)	**999.9min**	**99999.9min**
B (1 2 3: OFF / ON)	**999.9sec**	**999999sec**	**F** (1 2 3: OFF / ON)	**99hour 59min**	**99hour 59min 59sec**
C (1 2 3: OFF / ON)	**9999sec**	**99min 59.99sec**	**G** (1 2 3: OFF / ON)	**999.9hour**	**9999hour 59min**
D (1 2 3: OFF / ON)	**99min 59sec**	**999min 59.9sec**	**H** (1 2 3: OFF / ON)	**9999hour**	**99999.9hour**

▣Input mode(Counter)

Input mode(SW1)		4 OFF ON Up mode	Input mode(SW1)		4 OFF ON Down mode
Up/Down−A Command input	2 3 OFF ON		Up/Down−D Command input	2 3 OFF ON	
Up/Down−B Individual 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/Down−F Phase difference input	2 3 OFF ON	
Up input	2 3 OFF ON	 	**Down input**	2 3 OFF ON	 

※ Ⓐ: Over Min. signal width, Ⓑ: Over 1/2 of Min. signal width.
Counting miss by one(±) is occurred if the signal width of Ⓐ or Ⓑ is less than Min. signal width.
※n : + Max.display value(FX4Y−I : 9999, FX6Y−I : 999999)

▣Proper usage

◎Reset

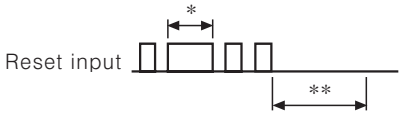
●Reset

When select a reset input/output mode again, after applying power, please reset or reset manually.

Otherwise it previous mode will be operating.

●The reset signal width

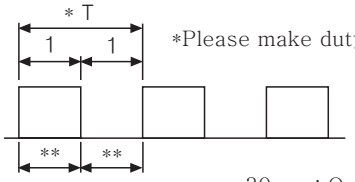
It is reset perfectly when the reset signal is applied for **max. 20ms** regardless of the contact input & solied-state input.



*In case of a contact reset, it is reset perfectly if the ON time of reset signal is applied for max. 20ms even though a chattering is occured.

**Signal input(Cp1, Cp2)is possible if there is no reset input for min. 50ms after reset input.

◎Min.signal width



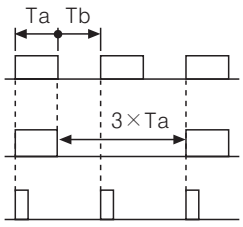
*Please make duty rate of 1 cycle 1:1.

** Min. signal width [30cps : Over 16.7ms
2kcps : Over 0.25ms

◎Maximum counting speed

This is rspond speed per 1 sec. when the duty rate (ON/OFF) of input signal is 1:1 if duty rate is not 1:1, the respond speed will be getting slow against input signal and also the width between ON and OFF should be over min. signal width.

And one of ON width and OFF width is under min. signal width, this product may not response.



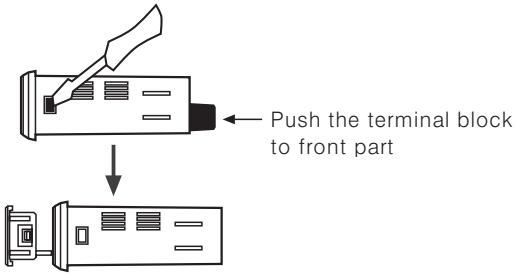
Therefore Ta(ON width) and Tb (OFF width) needed to be over min. signal width.

When duty rate is 1:3, the max. counting speed will be 1/2 from the our catalogue.

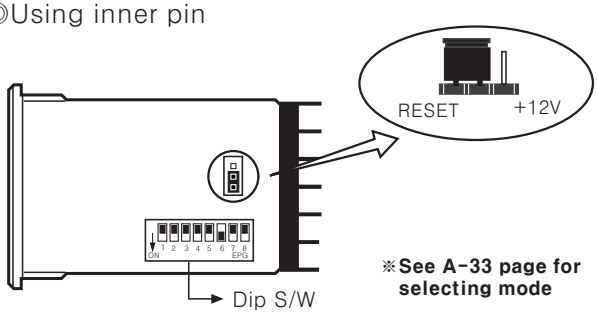
This product does not response.

◎Detach the case from body

While pushing the lock eguipment with with driver to the way of front, push the terminal block.

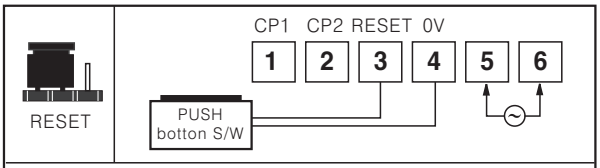


◎Using inner pin



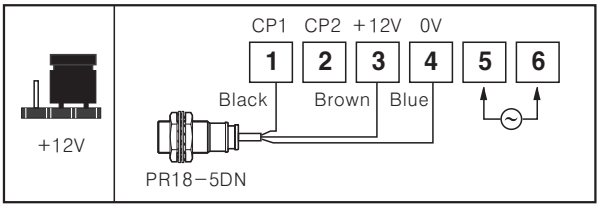
※See A-33 page for selecting mode

●When using terminal 3 for external reset terminal

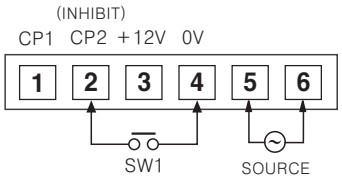


Please provide a sensor power from external part when using sensor. Pease connect 0V terminal 4 of counter to GND(0V) of external power.

●When using terminal 3 for sensor power terminal



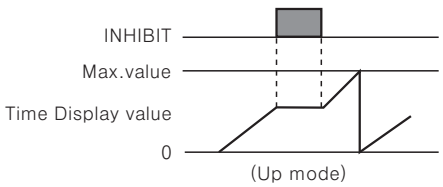
◎INHIBIT Only timer



●It becomes the INHIBIT mode when SW1 turns on. (Time Hold)

●In case of stopping time at a moment while the timer is progressing, the Inhibit mode can be used.

●When the Inhibit input is cut off, time is progro-ssing again.



◎Power

The inner circuit voltage starts to rise up for the first 100ms after power on, the input may not work at this time. And also the inner circuit voltage drops down for the last 500ms after power off, the input may not work at this time.