

Autonics

COUNTER/TIMER

FX/FXH/FXL SERIES

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

Please keep these instructions and review them before using this unit.

Please observe the cautions that follow;

Warning Serious injury may result if instructions are not followed.

Caution Product may be damaged, or injury may result if instructions are not followed.

The following is an explanation of the symbols used in the operation manual.

Caution: Injury or danger may occur under special conditions.

Warning

- In case of using this unit with machinery (ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device, contact us for information required. It may cause a fire or human injury or damage to property.
- This unit must be mounted on panel. It may cause electric shock.
- Do not connect terminals when it is power ON. It may cause electric shock.
- Do not disassemble and modify this unit. Please contact us, if it is required. It may cause electric shock and a fire.

Caution

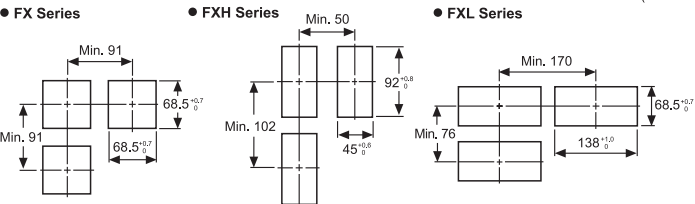
- This unit shall not be used outdoors. It might shorten the life cycle of the product or cause electric shock.
- When wiring connection, AWG20(0.50mm²) should be used and screw bolt on terminal block with 0.74N-m to 0.90N-m strength. It may cause malfunction or fire due to contact failure.
- Please observe the rated specifications. It might shorten the life cycle of the product and cause a fire.
- Do not use the load beyond the rated switching capacity of Relay contact. It may cause insulation failure, contact melt, contact failure, relay broken, fire, etc.
- In cleaning the unit, do not use water or organic solvents. It might cause electric shock or fire that will result in damage to the product.
- Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray of the sun, radiant heat, vibration, impact, etc. It may cause explosion.
- Do not inflow dust or wire dregs into this unit. It may cause a fire or mechanical trouble.

Input logic selection

Turn OFF the power of this unit before changing input logic.

FX Series	FXL Series	FXH Series
Input logic is changeable by input logic selection switch located at the one-side of case.	Input logic is changeable by input logic selection switch located at the terminal block.	Input logic is changeable by input logic selection switch(SW3) located at the inside of the case.
- No-voltage input(NPN) - Voltage input (PNP)	- No-voltage input(NPN) - Voltage input(PNP)	- No-voltage input(NPN) - Voltage input (PNP)

Panel cut-out



Input operation mode(Counter)

Input mode	SW1	Counting chart
Up/Down-A (Command input)	ON	Voltage input type, No-voltage input type
Up/Down-B (Individual input)	ON	Voltage input type, No-voltage input type
Up/Down-C (Phase difference input)	ON	Voltage input type, No-voltage input type
Up (Up input)	ON	Voltage input type, No-voltage input type
Up/Down-D (Command input)	ON	Voltage input type, No-voltage input type
Up/Down-E (Individual input)	ON	Voltage input type, No-voltage input type
Up/Down-F (Phase difference input)	ON	Voltage input type, No-voltage input type
Down (Down input)	ON	Voltage input type, No-voltage input type

A: Over Min, signal width, B: Over 1/2 of Min, signal width. Counting miss by one(± 1) occurs if the signal width of A or B is less than min. signal width.
The above specifications are subject to change and some models may be discontinued without notice.

Specifications

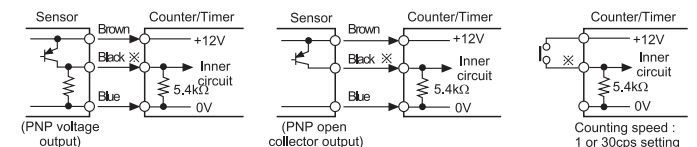
Series	FX	FXH	FXL
Digit	4 digit	6 digit	4 digit
Model	Single preset: FX4 Dual preset: FX4-2P Indication: FX4-I	Single preset: FX6 Dual preset: FX6-2P Indication: FX6-I	Single preset: FX4H Dual preset: FX4H-2P Indication: FX4H-I
Power supply	AC power: 100-240VAC 50/60Hz AC/DC power: 12-24VAC 50/60Hz, 12-24VDC		
Allowable voltage range	90 to 110% of rated voltage		
Power consumption	AC power: Single preset: Approx. 7VA, Dual preset: Approx. 8VA(240VAC 50/60Hz), Indiction: Approx. 6VA AC/DC power: Single preset: Approx. 6.8VA, Dual preset: Approx. 7.6VA(24VAC 50/60Hz), Single preset: Approx. 3.3W, Dual preset: Approx. 3.8W(24VDC), Indiction: Approx. 2.7W		
Max. counting speed for CP1, CP2	Selectable 1cps/30cps/2kcps/5kcps by inner DIP switch		
Min. input signal width	RESET input, INHIBIT input: Approx. 20ms		
Input method	CP1, CP2 (INHIBIT) input logic is selectable (Voltage input) Input impedance: 5.4kΩ, "H" level: 0-30VDC, "L" level: 0-2VDC (No-voltage input) Short-circuit impedance: Max. 1kΩ, Residual voltage: Max. 2VDC, Open-circuit impedance: Min. 100kΩ		
One-shot output time	1st output: 0.5sec., 2nd output: 0.05 to 5sec.		
Control output	Single preset type: SPDT(1c) Dual preset type: 1st output SPDT(1c), 2nd output: SPDT(1c)		
Memory retention	10 years (EEPROM)		
External power supply	12VDC ± 10% 50mA Max.		
Environment	Ambient temperature: -10 to 55°C, Storage: -25 to 65°C Ambient humidity: 35 to 85%RH, Storage: 35 to 85%RH		
Approval	UL (Except for AC/DC power type)		
Weight	FX4: Approx. 385g (Approx. 249g) FX4-2P: Approx. 396g (Approx. 258g) FX4H: Approx. 353g (Approx. 216g) FX6: Approx. 395g (Approx. 259g) FX6-2P: Approx. 398g (Approx. 262g) FX6H: Approx. 351g (Approx. 216g) FX4H: Approx. 349g (Approx. 234g) FX4H-2P: Approx. 375g (Approx. 261g) FX4H-I: Approx. 321g (Approx. 206g) FX4L-2P: Approx. 651g (Approx. 467g) FX4L-I: Approx. 593g (Approx. 400g) FX6L-2P: Approx. 678g (Approx. 494g) FX6L-I: Approx. 586g (Approx. 404g)		

Environment resistance is rated at no freezing or condensation.
1: This weight is with packaging and the weight in parentheses is only unit weight.

Input connection

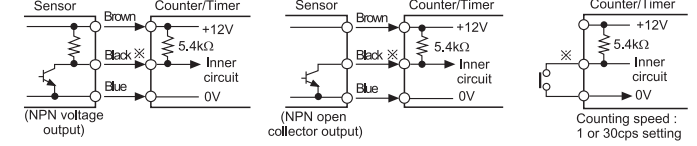
Input logic: Voltage input(PNP)

No-voltage input(Standard input sensor: PNP output type sensor)



Input logic: No-voltage input(NPN)

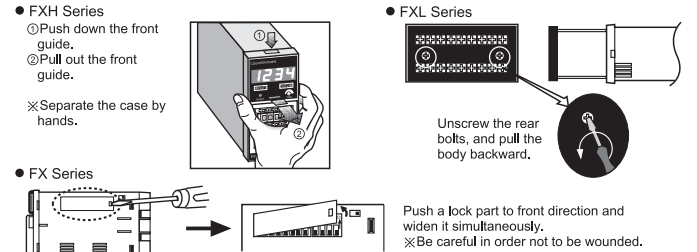
No-voltage input(Standard input sensor: NPN output type sensor)



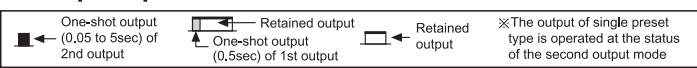
CP1, CP2(INHIBIT), RESET input part

Case & DIP switch detachment

Please turn off the power before detaching the case.



Output operation mode



Output mode	Input mode	Operation after Count up
Up, Up/Down-A, B, C mode	Down, Up/Down-D, E, F mode	The display value continues until Reset signal applied and the output will be held.
Reset	Reset	1st retained output and 2nd output will be held until Reset signal applied.
1st output	1st output	When using 1st output as one-shot output, it will return after operating for 0.5sec.
2nd output	2nd output	
Reset	Reset	The display returns to initial status and 2nd output will be reset after one-shot time.
1st output	1st output	1st retained output will be OFF after one-shot output time of 2nd output.
2nd output	2nd output	1st one-shot output will be reset after operating 0.5sec. not related to 2nd output.
Reset	Reset	The display value will be held until 2nd output is OFF then reset.
1st output	1st output	1st retained output will be OFF after one-shot time of 2nd output.
2nd output	2nd output	1st one-shot output will be reset after operating 0.5sec. not related to 2nd output.
Reset	Reset	The display value continues until Reset signal applied.
1st output	1st output	1st retained output will be OFF after one-shot time of 2nd output.
2nd output	2nd output	1st one-shot output will be reset after operating 0.5sec. not related to 2nd output.
Reset	Reset	The display value is held during 2nd output one-shot time, counting process is returned to reset start status as soon as 2nd output ON.
1st output	1st output	1st retained output will be OFF after one-shot time of 2nd output.
2nd output	2nd output	1st one-shot output will be reset after operating 0.5sec. not related to 2nd output.
Reset	Reset	The display continues until 2nd output is OFF.
1st output	1st output	1st retained output will be OFF after one-shot time of 2nd output.
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