

# Autonics COUNTER/TIMER FX/FXH/FXL SERIES



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

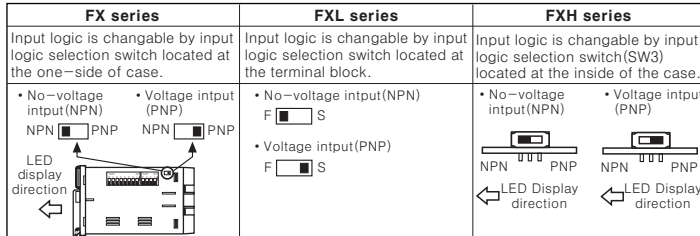
- In case of using this unit with machineries (Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information required. It may result in serious damage, fire or human injury.
- This unit must be mounted on Panel. It may give an electric shock.
- Do not connect terminals when it is power on. It may give an electric shock.
- Do not disassemble and modify this unit, when it requires. If needs, please contact us. It may give an electric shock and cause a fire.

## Caution

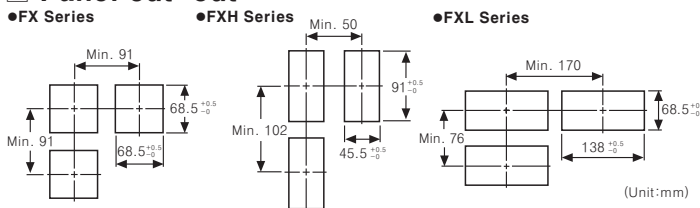
- This unit shall not be used outdoors. It might shorten the life cycle of the product or give an electric shock.
- When wire connection, AWG 20(0.50mm<sup>2</sup>) should be used and screw bolt on terminal block with 0.74N·m to 0.90N·m strength. It may result in malfunction or fire due to contact failure.
- Please observe specification rating. It might shorten the life cycle of the product and cause a fire.
- Do not use the load beyond 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 an organic solvents. It might cause an 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 inside of this unit. It may cause a fire or mechanical trouble.

## Input logic selection

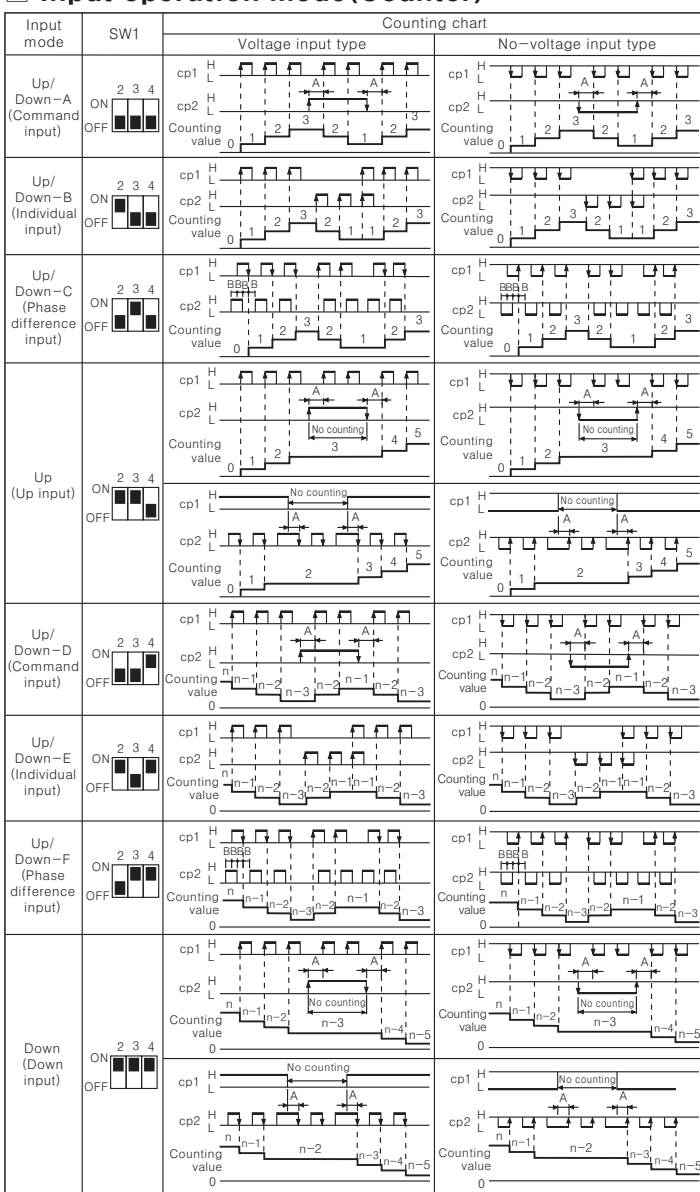
Please be sure to turn power OFF before changing input logic.



## Panel cut-out



## Input operation mode (Counter)

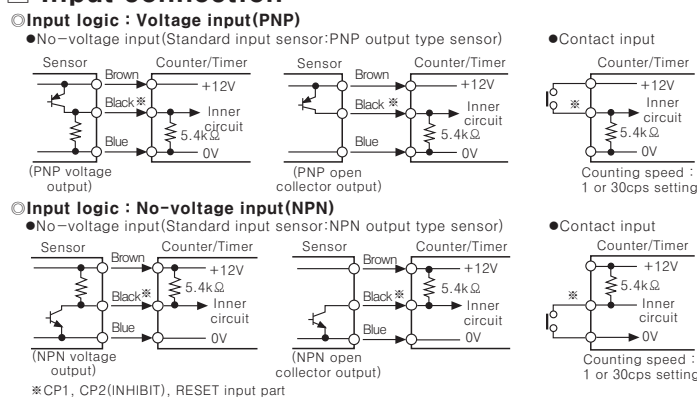


\*A: Over Min. signal width, B: Over 1/2 of Min. signal width.  
Counting miss by one(±1) is occurred if the signal width of A or B is less than min. signal width.  
\*The above specification are subject to change without notice.

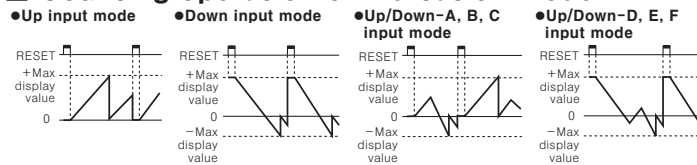
## Specifications

Series	FX	FXH	FXL
Digit	4	6	4
Model	FX4-2P FX4-1	FX6-2P FX6-1	FX4H-2P FX4L-1
Power supply	100-240VAC 50/60Hz, 12-24VDC		
AC power consumption	Indication: Approx. 6VA, Single preset: Approx. 7VA, Dual preset: Approx. 8VA(240VAC 50/60Hz)		
AC/DC power consumption	Indication: Approx. 5.8VA, Single preset: Approx. 6.8VA, Dual preset: Approx. 7.6VA(24VDC 50/60Hz) Indication: Approx. 2.7W, Single preset: Approx. 3.3W, Dual preset: Approx. 3.8W(24VDC)		
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	Input logic is selectable (Voltage input) Input impedance: 5.4kΩ, "H" level: 5-30VDC, "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 ~ 55°C, Storage temperature: -25 ~ 65°C Ambient humidity: 35 ~ 85%RH, Storage humidity: 35 ~ 85%RH		

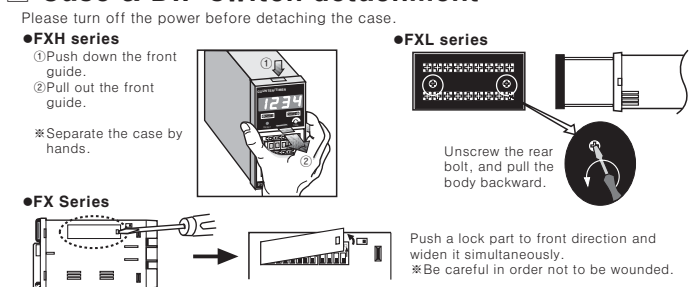
## Input connection



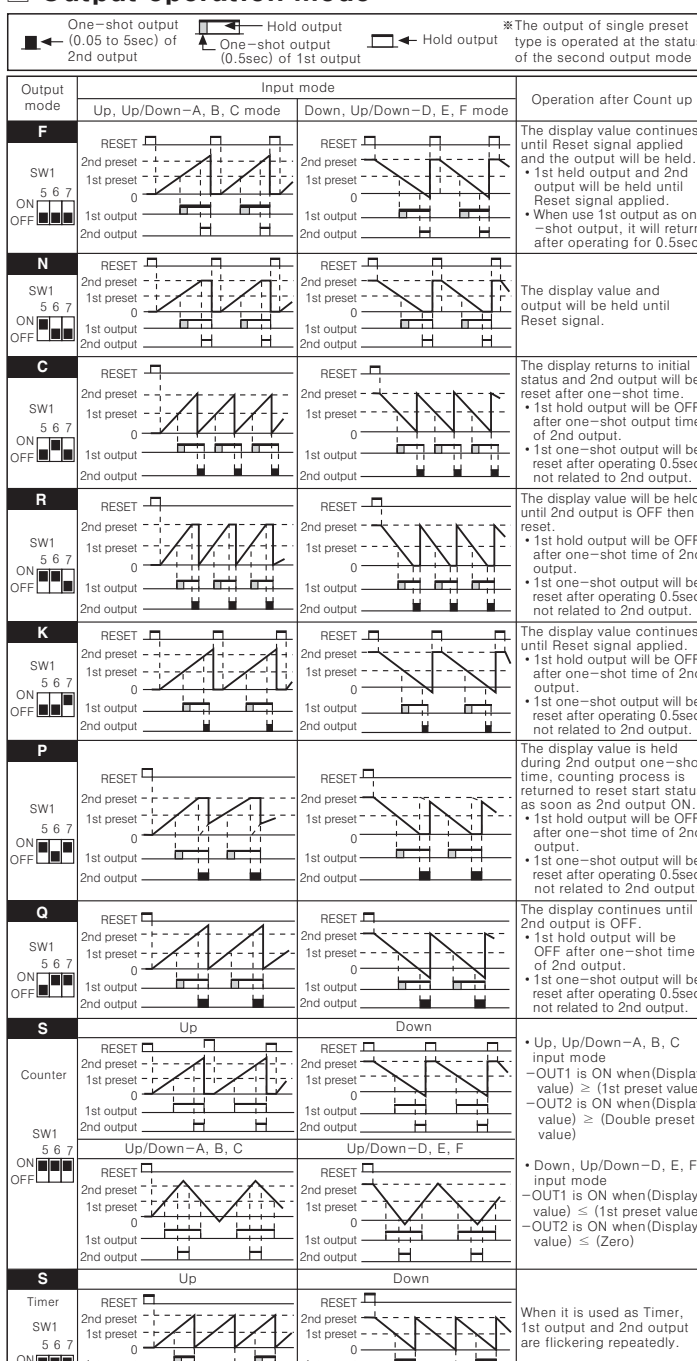
## Counting operation of indication mode



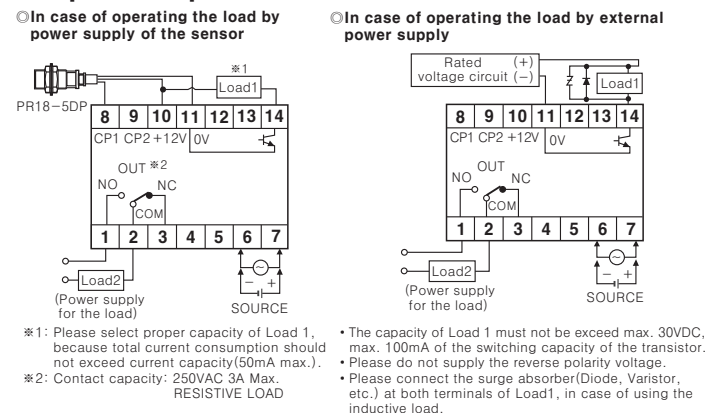
## Case & DIP switch detachment



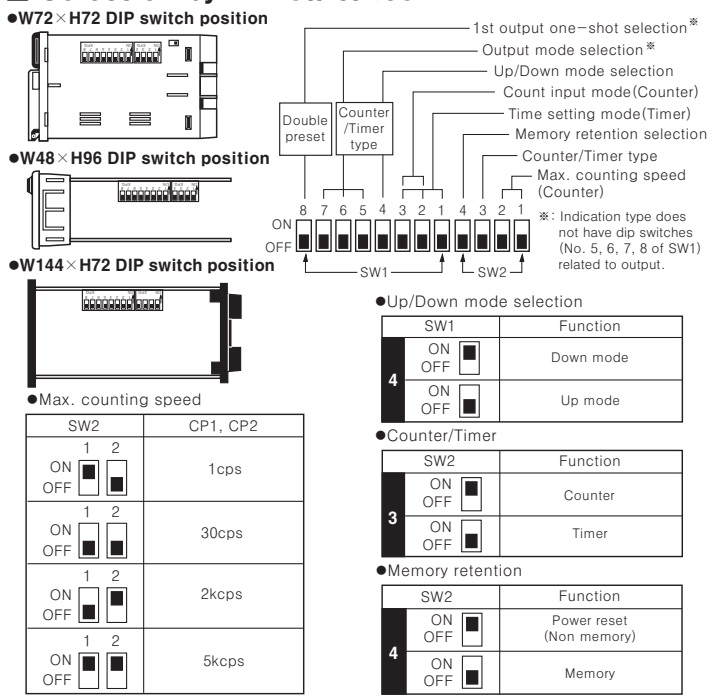
## Output operation mode



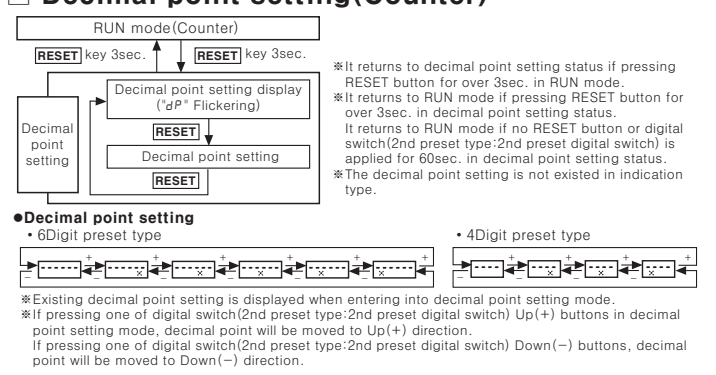
## Input · output connection



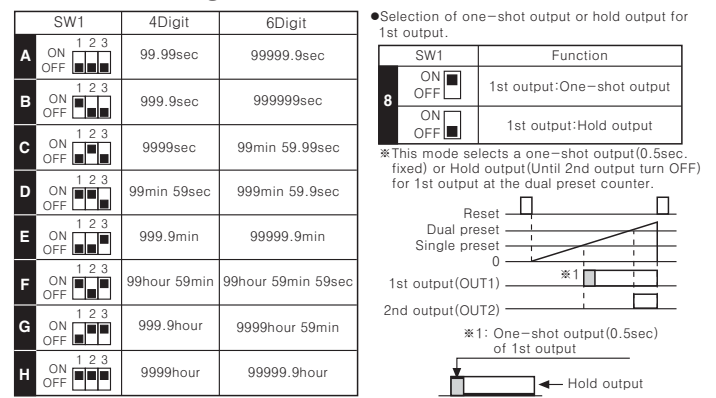
## Selection by DIP switches



## Decimal point setting (Counter)



## Time setting mode (Timer)



## Caution for using

- DIP switch setting**: Please be sure to turn power OFF before changing Counter/Timer DIP switches setting. If DIP switches setting is changed in power OFF, Counter/Timer must be reset by manual reset or external reset after power ON.
- Error**:
 

Error display	Error contents	Return method
Err0	Zero setting value status	Change setting value which is not zero

  - Output is OFF when error is displayed.
  - If 1st preset value is changed to zero("0"), 1st output keeps OFF status.
  - If 2nd preset value is lower than 1st preset value, 2nd preset value operates only.
  - If 1st preset value is not valid.
  - No Error display is appeared in indication type.
- Unit sticker**: The unit sticker is found at the inner box of FX/FXL series. According to the usage, the unit sticker can be used.
- 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.
  - Please use the power within rating power and apply or cut the power at once to prevent from chattering.
- Input signal line**:
  - Shorten the cable distance between the sensor and this product.
  - Please shielded wire for input signal needed to be long.
  - Please wire input signal line separated from power line.
- When test dielectric voltage and insulation resistance of the control panel with this unit installed.**
  - Please isolate this unit from the circuit of control panel.
  - Please make all terminals of this unit short-circuited.
- Do not use this unit at below places.**
  - Place where there are severe vibration or impact.
  - Place where strong alkalis or acids are used.
  - Place where there are direct ray of the sun.
  - Place where strong magnetic field or electric noise are generated.
- Installation environment**:
  - It shall be used indoor. (Altitude Max. 2000m) (Pollution Degree 2) (Installation Category II).

## Main products

- Proximity sensors
- Area sensors
- Door/Door side sensors
- Counters
- Rotary encoders
- Power controllers
- Panel meters
- Graphic/Logic panels
- Temperature controllers
- Tachometer/Pulse(Rate) meters
- Temperature/Humidity transducers
- Stepping motors/drivers/motion controllers
- Laser marking system (CO<sub>2</sub>, Nd:YAG)
- Laser welding/soldering system
- Photoelectric sensors
- Fiber optic sensors
- Pressure sensors
- Timers
- Display units
- Sensor controllers

**Autonics Corporation**  
http://www.autonics.com

**Satisfiable Partner For Factory Automation**

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