

**Autonics**

**DIGITAL COUNTER  
FS 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 "Caution for your safety" to avoid accidents or damages as using it correctly.
- ※ The meaning of 'Warning' and 'Caution' is as follows:  
**Warning** In case a serious injury or dead may be occurred.  
**Caution** In case a little injury or a damage of this unit may be occurred.
- ※ The meaning of the mark on the product and manual is as follows:  
 is a caution mark for danger in special condition.

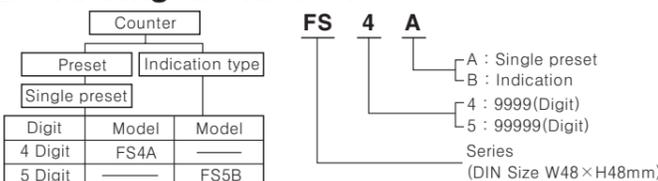
**Warning**

- Please use it with double safety devices when it is used at the equipments which may cause damages to human life or assets(Ex:Nuclear power control, Medical equipment, Vehicle, Train, Air plane, Combustion apparatus, Entertainment or Safety device etc.)**  
It may cause a fire, human life or assets.
- This unit must be mounted on Panel.**  
It may give an electric shock.
- Do not repair or checkup when 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.

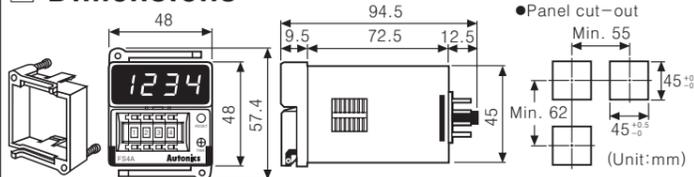
**Caution**

- This unit shall not be used outdoors.**  
It might shorten the life cycle of the product or give an electric shock.
- 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.

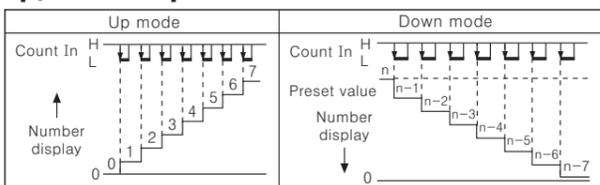
**Ordering information**



**Dimensions**



**Up/Down operation mode**

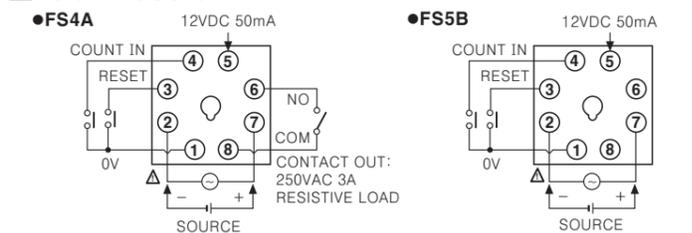


※ The above specification are changeable without notice anytime.

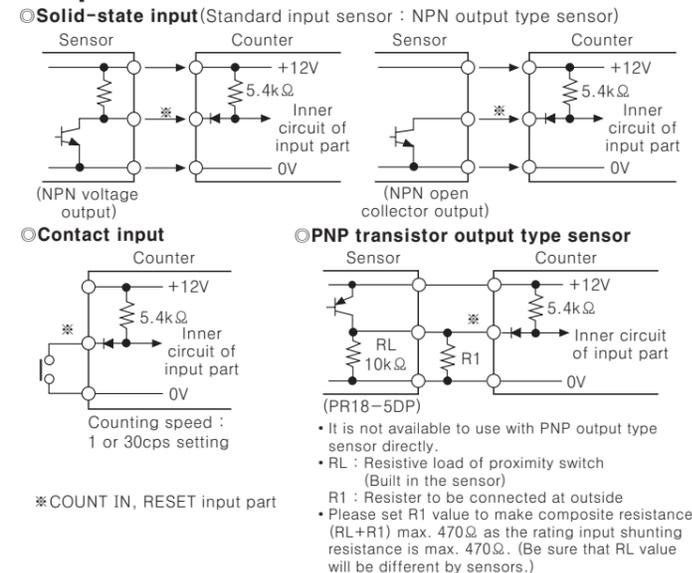
**Specifications**

Series	FS	
Digit	4	5
Model	Single preset	FS4A
	Double preset	—
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	Indication: Approx. 4.7VA, Single preset: Approx. 5.7VA(240VAC 50/60Hz)
	AC/DC power	Indication: Approx. 4.5VA, Single preset: Approx. 5.5VA(24VAC 50/60Hz) Indication: Approx. 2.8W, Single preset: Approx. 3W(24VDC)
Max. counting speed	1cps/30cps/2kcps/5kcps selectable by DIP switch	
Min. RESET input width	Approx. 20ms	
Input method	COUNT IN	• No-voltage input • Short-circuit impedance : Max. 470Ω, Residual voltage : Max. 1VDC, Open-circuit impedance : Min. 100kΩ
	RESET	—
One-shot output time	0.05 to 5sec.	
Control output	Type	SPDT(1a)
State	Capacity	250VAC 3A resistive load
Memory retention	10 years(EEPROM)	
Power for external sensor	12VDC ±10% 50mA max.	
Ambient temperature	-10 to 55°C(at non-freezing status)	
Storage temperature	-25 to 65°C(at non-freezing status)	
Ambient humidity	35 to 85%RH	
Insulation resistance	Min. 100MΩ(at 500VDC)	
Dielectric strength	2000VAC 50/60Hz for 1 minute	
Noise immunity	AC power	±2kV the square wave noise(pulse width:1μs) by the noise simulator
	AC/DC power	±500V the square wave noise(pulse width:1μs) by the noise simulator
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1 hour
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical	300m/s <sup>2</sup> (30G) 3 times at X, Y, Z direction
	Malfunction	100m/s <sup>2</sup> (10G) 3 times at X, Y, Z direction
Relay life cycle	Mechanical	Min. 10,000,000 times
	Electrical	Min. 100,000 times(250VAC 3A resistive load)
Weight	Approx. 130g	Approx. 120g

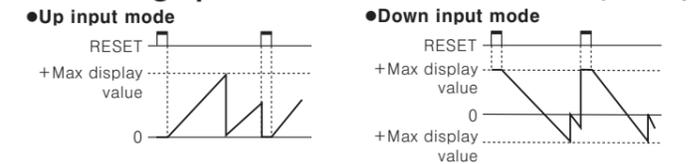
**Connections**



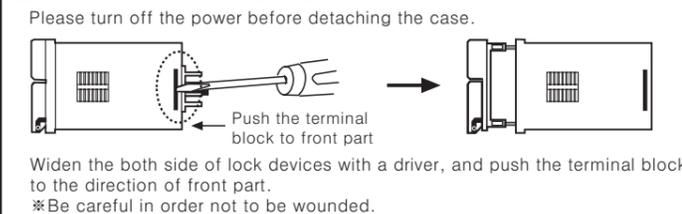
**Input connections**



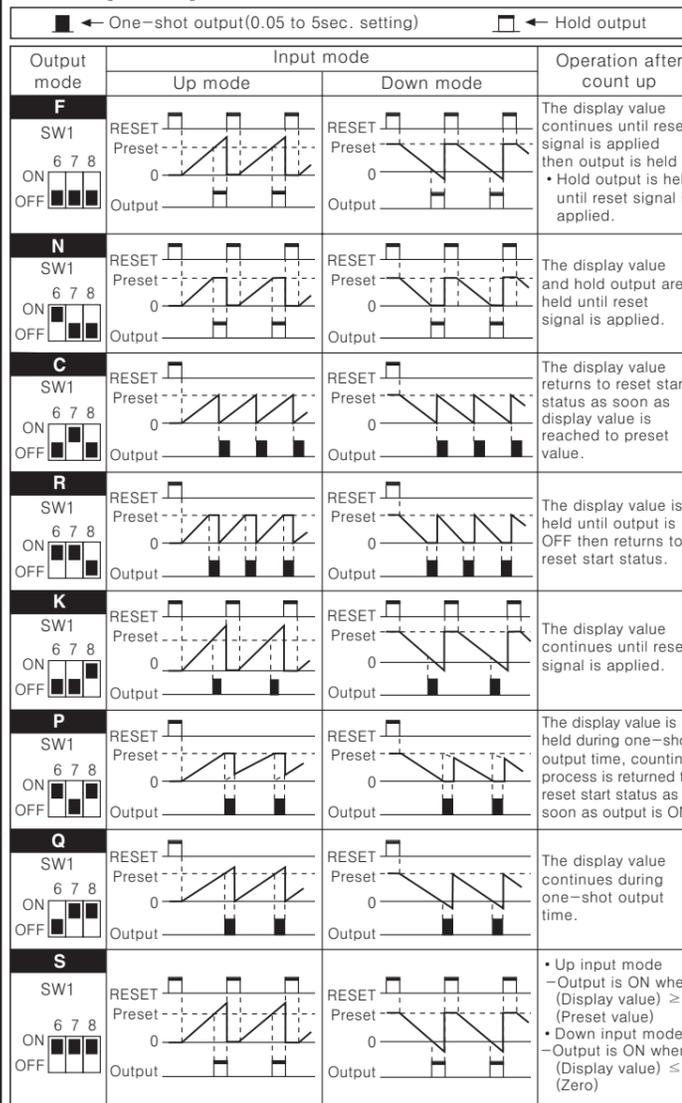
**Counting operation of indication mode(FS5B)**



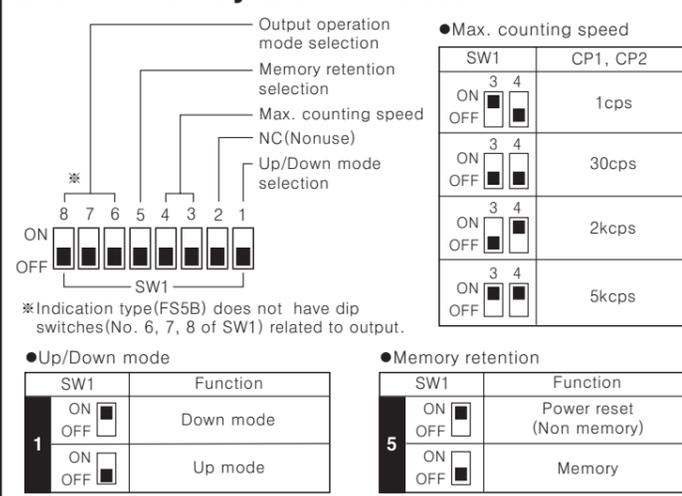
**Case detachment**



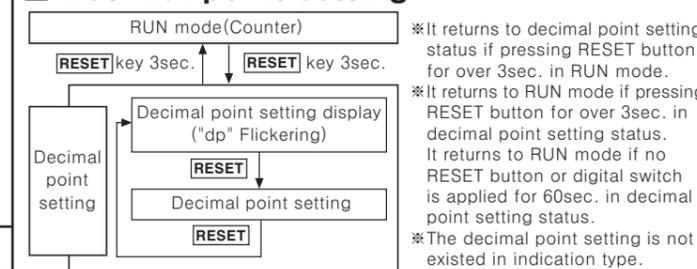
**Output operation mode**



**Selection by DIP switches**



**Decimal point setting**



**Decimal point setting**

- Existing decimal point setting is displayed when entering into decimal point setting mode.
- If pressing one of digital switch Up(+) buttons in decimal point setting mode, decimal point will be moved to Up(+) direction. If pressing one of digital switch Down(-) buttons, decimal point will be moved to Down(-) direction.

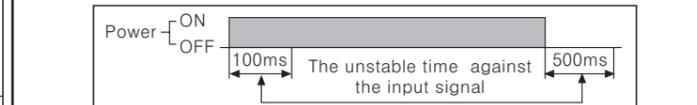


**Caution for using**

- DIP switch setting  
Please be sure to turn power OFF before changing Counter DIP switches setting. If DIP switches setting is changed in power OFF, Counter 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.
  - ※ No Error display is appeared in indication type.
- 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.



- Power  
  - Please use the power within rating power and apply or cut 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.

※ It may cause malfunction if above instructions are not followed.

**Main products**

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHO/LINE SPEED/PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM (CO<sub>2</sub>, Nd:YAG)

**Autonics Corporation**  
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**Satisfiable Partner For Factory Automation**  
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