DIN W48×H48mm 8 Pin Plug Timer

■ Features

- Wide range of the time selection (0.01sec. to 9999.9 hour)
- Power supply: 100-240VAC 50/60Hz
  12-24VAC 50/60Hz, 12-24VDC universal
- Memory protection: 10 years
  (When using non-volatile semiconductor memory)
- Built-in Microprocessor
- 8-pin plug connection type

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

■ Ordering Information

FS 4 E ☐

Output	No mark	Single preset
	I	Indicator
Timer	E	Timer
Digit	4	9999 (4digit)
	5	99999 (5digit)
Item	FS	8-pin plug timer

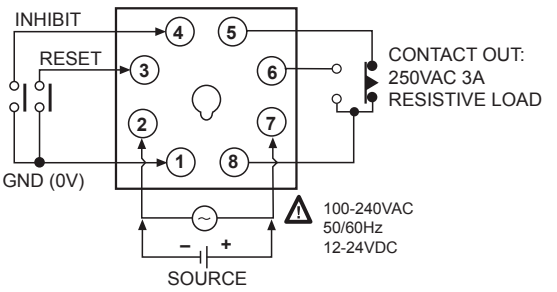
■ Specifications

Model		FS4E	FS5EI
Function		**Single preset Up/Down Timer**	**Up/Down indicator**
Character size		W4×H8mm	
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	Max. 4.5VA (100-240VAC 50/60Hz)	Max. 3.5VA (100-240VAC 50/60Hz)
	AC/DC Power	Max. 4.3VA (12-24VAC 50/60Hz), Max. 2.5W (12-24VDC)	Max. 3.4VA (12-24VAC 50/60Hz), Max. 2.2W (12-24VDC)
Return time		Min. 500ms	
Min. input signal width	RESET	Approx. 20ms	
	INHIBIT		
Input	RESET	No-voltage input - Impedance at short-circuit: Max. 470Ω, Residual voltage at short-circuit: Max. 1VDC Impedance at open circuit: Min. 100kΩ	
	INHIBIT		
Timing operation		Power ON Start	
One-shot output time		0.05 to 5sec.	
Control output	Contact type	Time-limit SPDT (1c)	—
	Contact capacity	250VAC 3A at resistive load	—
Relay life cycle	Mechanical	Min. 10,000,000 operations	—
	Electrical	Min. 100,000 operations (250VAC 3A resisitive load)	—
Memory protection		10 years (When using non-volatile semiconductor memory)	
Repeat error		Max. ±0.01% ±0.05sec.	
SET error			
Voltage error			
Temperature error			
Insulation resistance		100MΩ (at 500VDC megger)	
Dielectric strength		2000VAC 50/60Hz for 1 minute	
Noise strength	AC power	±2kV the square wave noise (pulse width: 1μs) by the noise simulator	
	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 (for 1 min.) in each X, Y, Z direction for 1hour	
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction for 10 min.	
Shock	Mechanical	300m/s² (approx. 30G) in each X, Y, Z direction for 3 times	
	Malfunction	100m/s² (approx. 10G) in each X, Y, Z direction for 3 times	
Environ -ment	Ambient temperature	-10 to 55℃, storage: -25 to 65℃	
	Ambient humidity	35 to 85%RH	
Accessory		Bracket	
Unit weight		Approx. 130g	Approx. 120g

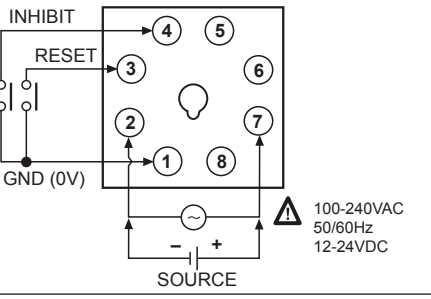
※Environment resistance is rated at no freezing or condensation.

▣ Connections

● **FS4E**

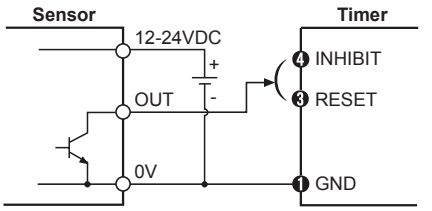


● **FS5EI**



▣ Input Connections

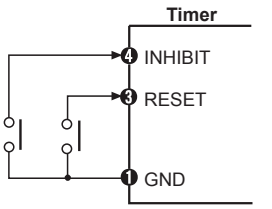
◎ Solid-state input



- Transistor ON → INHIBIT, RESET
- NPN open collector output sensor

※Above numbers are terminal block.

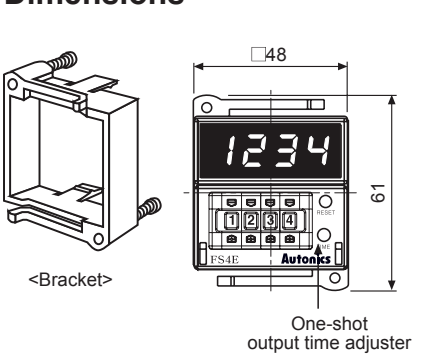
◎ Contact input

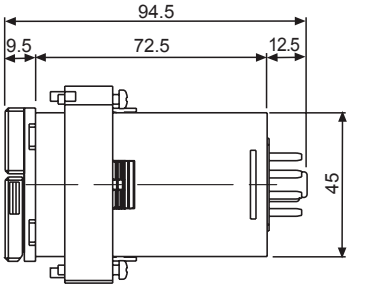


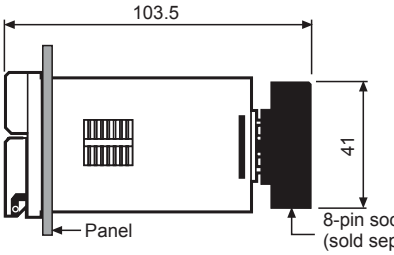
- Contact ON → INHIBIT, RESET
- Limit switch, Micro switch, Relay contact
- Please use reliable contacts enough to flow 5VDC 1mA of current.

▣ Dimensions

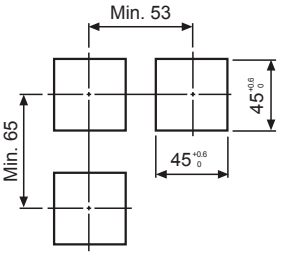
(unit: mm)





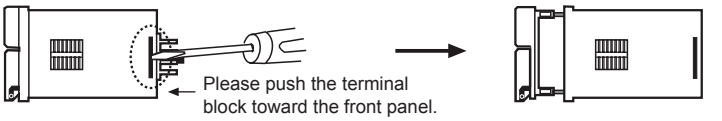


● **Panel cut-out**



▣ Case Detachment

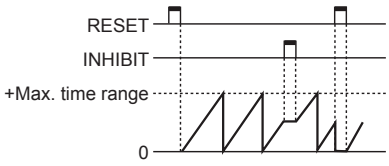
Please cut off the power and detach the case from body.



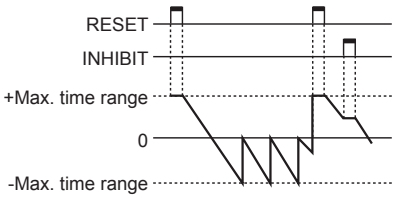
Please widen the Lock of product with driver and push it toward the front panel with, it will be detached.
※Please be careful of the injury cause by tools.

■ Time Operation Of Indication Type

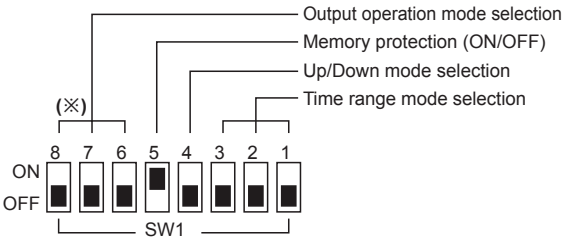
• Up mode

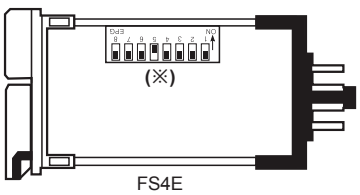


• Down mode



■ Description Of Inner DIP Switches





FS4E

※In case of indicator (FS5EI), 5 Pin DIP switch is included, because there is no output operation mode.

※As upgraded model do not have unnecessary functions (5: Timer, 6: N.C.), inner DIP switch is changed as 8 Pin.

• Up/Down mode

SW1		Function
4	ON / OFF	Down mode
	ON / OFF	Up mode

• Memory protection

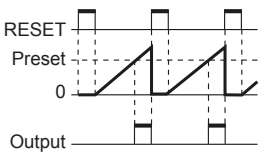
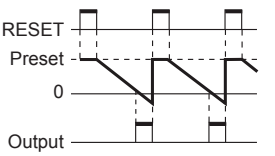
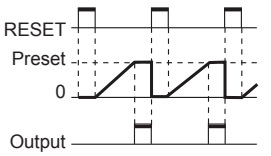
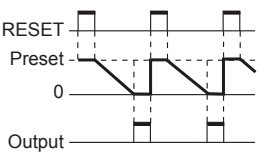
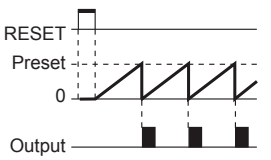
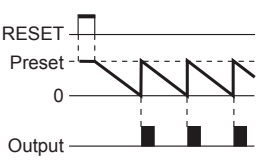
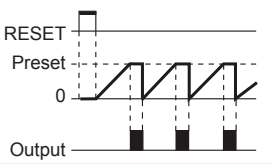
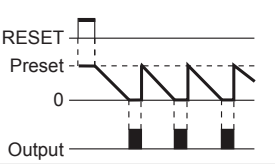
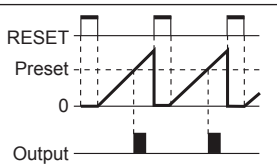
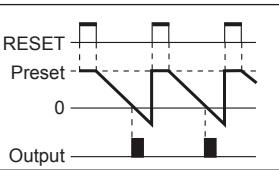
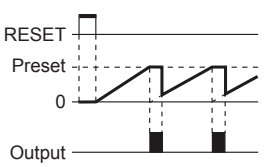
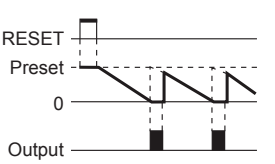
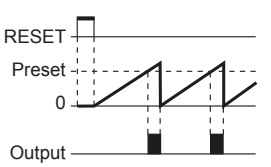
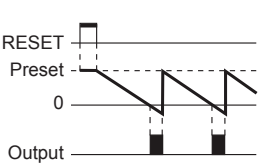
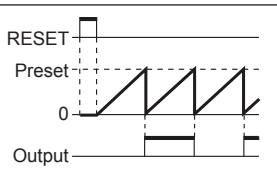
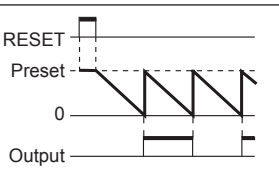
SW1		Function
5	ON / OFF	Disable the memory protection
	ON / OFF	Enable the memory protection

■ Time Range Mode

SW1 \ Model	**FS4E**	**FS5EI**
1 2 3 ON OFF	99.99sec.	9999.9sec.
1 2 3 ON OFF	999.9sec.	99999sec.
1 2 3 ON OFF	9999sec.	9min. 59.99sec.
1 2 3 ON OFF	99min. 59sec.	99min. 59.9sec.
1 2 3 ON OFF	999.9min.	9999.9min.
1 2 3 ON OFF	99hour 59min.	9hour 59min. 59sec.
1 2 3 ON OFF	999.9hour	999hour 59min.
1 2 3 ON OFF	9999hour	9999.9hour

▣ FS4E Output Operation Mode

← One-shot output (0.05 to 5sec.) ← Retained output

Output mode (SW1)	ON / OFF 4 Up mode	ON / OFF 4 Down mode	Operation after time up
F (6 7 8: ON OFF OFF)			The display value continues until Reset signal applied and the output will be held.
N (6 7 8: ON OFF OFF)			The display value and output will be held until Reset signal.
C (6 7 8: ON ON OFF)			The processing time restarts at the same time when reset automatically regardless of output. The output is One-shot.
R (6 7 8: ON ON OFF)			The process time will be held until output is OFF and restarts at the same time when reset automatically. The output is One-shot.
K (6 7 8: ON ON ON)			The time continues until Reset signal is applied. The output is One-shot.
P (6 7 8: ON OFF ON)			The processing time will be held until output is OFF and restarts at the same time when reset automatically. It progresses displaying One-shot output when restarting.
Q (6 7 8: ON ON ON)			The processing time will be held until output is OFF and restarts at the same time when reset automatically. The output is One-shot.
S (6 7 8: ON OFF OFF)			The output will be OFF and ON for setting time and repeats (flashing) this cycle.

※Time Up: When processing time reaches to setting time.

※Applying reset signal after time up, it will display zero for up mode and time range for down mode (displaying max. value in case of indication type).

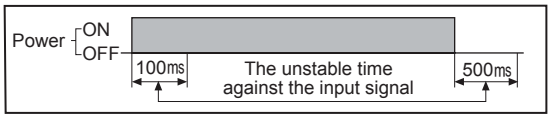
▣ Proper Usage

◎ Preset value

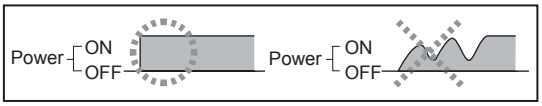
Able to change setting value while it is running but setting value should be higher than previous setting value.

◎ 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.

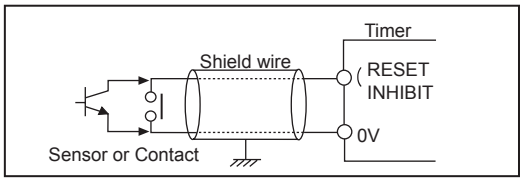


- Even though the power is applied, and the display does not turn on, please check the reset terminal.
- Please supply the power within rated power and apply or cut the power quickly to prevent chattering.



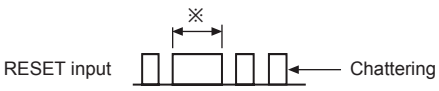
◎ Input signal line

- Shorten the cable distance between the sensor and this product.
- Please use shield wire for input signal.
- Please wire input signal line separated from power line.



◎ 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.



※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 occurs.

◎ Error display

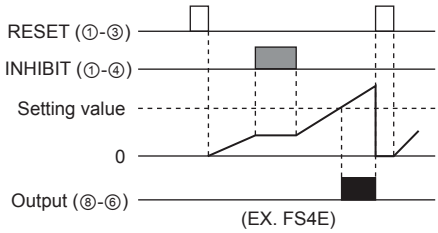
If setting value is "0000", "Err0" will be displayed.
If setting value is changed to non-zero, this function is cancelled.
However, the output in the status of Error signal will be OFF.
※The indicator does not have Error display function.

◎ RESET

RESET has two function, which are memorizing DATA function and resetting output function.
When changing an inner selection switch, manual RESET or external RESET must be held after applying the power by all means. Otherwise, it will operate as previous mode.
Selecting a RESET input/output mode again after applying power, please reset or reset manually, otherwise the previous mode will be operating.

◎ INHIBIT

- When you need to check the real operating time, please use INHIBIT function.
- If you need to stop the time progressing, please use INHIBIT function.



(EX. FS4E)

◎ Environment

Please avoid the following places:

- Place where the unit may be damaged by strong impact or vibration.
- Place where there is corrosive gas or flammable gas and water, oil, dust.
- Place where magnetic and electrical noise occurs.
- Place where there is high temperature and humidity beyond the rated specification.
- Place where there is strong alkalis and acids.
- Place where there is direct ray of sun.

◎ Noise

- We test 2kV, Pulse width 1μs against Impulse voltage between power terminals and 1kV, pulse width 1μs at noise simulator against external noise voltage. Please install MP condenser (0.1 to 1μF) or oil condenser between power terminals when over Impulse noise voltage occurs.
- When testing dielectric voltage and insulation resistance of the control panel with this unit installed.
  ① Please isolate this unit from the circuit of control panel.
  ② Please make all terminals of this unit short-circuited.
- Sudden function stop while it is running
  (When displaying wrong numbers or nothing)
  In this case, please power off and turn on again. This is due to strong noise flows into this product therefore please try to separate inductive load from input signal line of this product or install surge absorber between inductive loads.