DRW161278AB

Autonics

8-PIN PLUG TYPE TIMER
FSE SERIES

INSTRUCTION MANUAL

Thank you for choosing our Autonics product.
Plea se read the following safety considerations before use.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.

※Safety considerations are categorized as follows.
⚠**Warning** Failure to follow these instructions may result in serious injury or death.
⚠**Caution** Failure to follow these instructions may result in personal injury or product damage.

※The symbols used on the product and instruction manual represent the following
⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ Warning

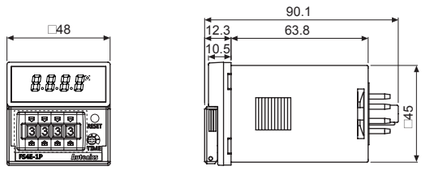
1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in fire, personal injury, or economic loss.
2. **Install on a device panel to use.**
   Failure to follow this instruction may result in electric shock or fire.
3. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in electric shock or fire.
4. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in fire.
5. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in electric shock or fire.

⚠ Caution

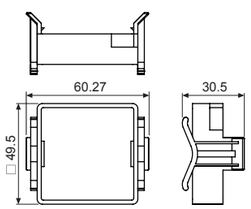
1. **When connecting the power/sensor input and relay output, use AWG 20(0.50mm²) cable or over and tighten the terminal screw with a tightening torque of 0.74 to 0.90N·m.**
   Failure to follow this instruction may result in fire or malfunction due to contact failure.
2. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
3. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in electric shock or fire.
4. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in fire or explosion.
5. **Keep metal chip, dust, and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in fire or product damage.

■ Dimensions

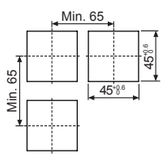
(unit: mm)



● **Bracket**



● **Panel cut-out**



※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).**

■ Model

Model	Display digit	Size	Output	Power supply
FS4E-1P2	9999 (4-digit)	DIN W48×H48mm	1-stage setting	24VAC 50/60Hz, 24-48VDC
FS4E-1P4				100-240VAC 50/60Hz
FS5E-I4	99999 (5-digit)		Indicator	100-240VAC 50/60Hz

※Sockets (PG-08, PS-08(N)) are sold separately.

■ Specifications

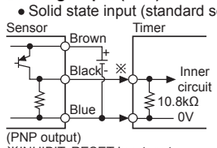
Model	1-stage setting	**FS4E-1P2**	**FS4E-1P4**	**—**
	Indicator	**—**	**—**	**FS5E-I4**
Display digit		4-digit		5-digit
Character size (W×H)		3.8×7.6mm		4×8mm
Power supply		24VAC~ 50/60Hz, 24-48VDC⎓	100-240VAC~ 50/60Hz	
Permissible voltage range		90 to 110% of rated voltage		
Power consumption		Max. 3.5VA (24VAC~ 50/60Hz), Max. 2.3W (24-48VDC⎓)	Max. 4.6VA (100-240VAC~ 50/60Hz)	Max. 3.8VA (100-240VAC~ 50/60Hz)
Return time		Max. 500ms		
Time operation		Power ON Start		
Min. signal width		RESET, INHIBIT: approx. 20ms		
Input method		Selectable voltage input (PNP) method or no-voltage input (NPN) method [Voltage input (PNP) method]-input impedance: max. 10.8kΩ, [H]: 5-30VDC⎓, [L]: 0-2VDC [No-voltage input (NPN) method]-short-circuit impedance: max. 470Ω, short-circuit residual voltage: max. 1VDC, open-circuit impedance: min. 100kΩ		
One-shot output time		0.05 to 5 sec		
Control output	Contact: Type	Time-limit SPDT (1c)		—
	Contact: Capacity	250VAC~ 3A resistive load		
Relay life cycle	Mechanical	Min. 5,000,000 operations		
	Electrical	Min. 100,000 operations (250VAC 3A resistive load)		
Memory retention		Approx. 10 years (non-volatile memory)		
Repeat error		Max. ±0.01% ±0.05 sec		
Set error				
Voltage error				
Temp. error				
Insulation resistance		Over 100MΩ (at 500VDC megger)		
Dielectric strength		2,000VAC 50/60Hz for 1 min (between all terminals and case)		
Noise immunity	AC voltage	±2kV the square wave noise (pulse width 1μs) by noise simulator		
	AC/DC voltage	±500V the square wave noise (pulse width 1μs) by noise simulator		
Vibration	Mechanical	0.75mm amplitude at frequency 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour		
	Malfunction	0.5mm amplitude at frequency 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes		
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		
Environment	Ambient temp.	-10 to 55℃, storage: -25 to 65℃		
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH		
Protection structure		IP20 (front part, IEC standard)		
Approval		CE c UL us		
Weight※1		Approx. 130g (approx. 90g)		Approx. 120g (approx. 80g)

※1: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

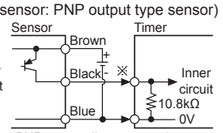
■ Input Connection

◎ **Voltage input (PNP)**

● Solid state input (standard sensor: PNP output type sensor)

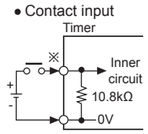


(PNP output)
※INHIBIT, RESET input part



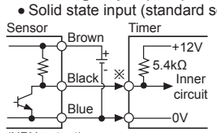
(PNP open collector output)

● Contact input

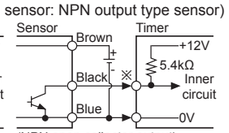


◎ **No-voltage input (NPN)**

● Solid state input (standard sensor: NPN output type sensor)

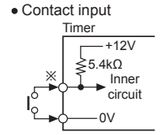


(NPN output)
※INHIBIT, RESET input part



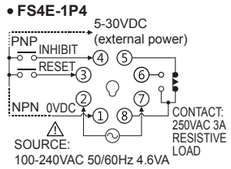
(NPN open collector output)

● Contact input

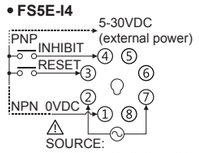


■ Connections

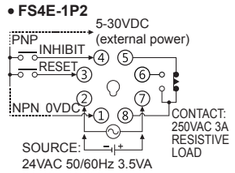
● **FS4E-1P4**



● **FS5E-I4**

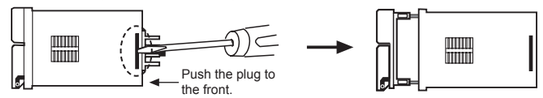


● **FS4E-1P2**



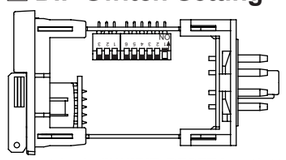
■ Detaching Case

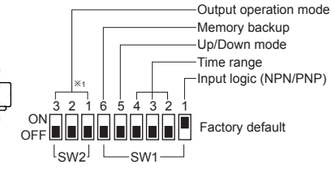
※Turn OFF the power before detaching the case.



Push the grooves at both side of the unit with a flat head driver to the outside and push the plug part to the front. The plug is detached.
⚠ Be sure not to be wounded when using a tool.

■ DIP Switch Setting





● **Input logic (INHIBIT, RESET input)**

SW1		Function
1	ON / OFF	NPN (no-voltage input)
	ON / OFF	PNP (voltage input)

● **Up/Down mode**

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

● **Memory backup**

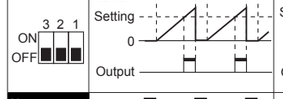
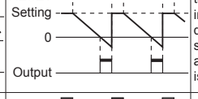
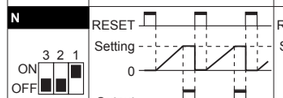
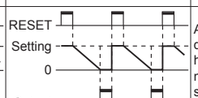
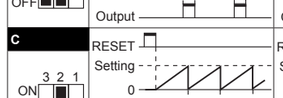
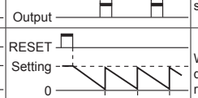
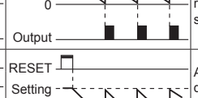
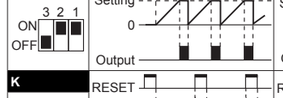
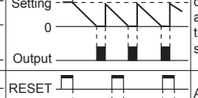
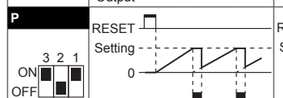
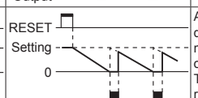
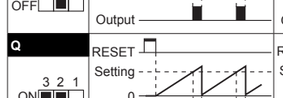
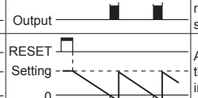
SW1		Function
6	ON / OFF	No memory backup
	ON / OFF	Memory backup

※How to change settings
Power OFF → change settings → power ON → press [RESET] key or input signal (min. 20ms)

※1: Indicator model (FS5E-I4) does not have no. 1, 2, 3 of SW2 for output operation mode setting.

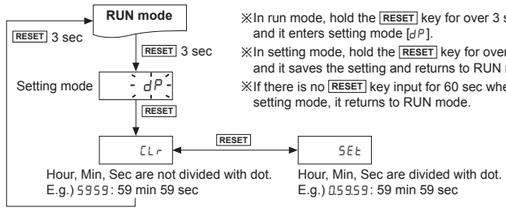
■ Output Operation Mode

■ ← One-shot output (0.05 to 5 sec) ▭ ← Self-holding output

Output mode (SW2)	ON/OFF 5 Up mode	ON/OFF 5 Down mode	Operation
F			After time-up, the display value increases or decreases until reset signal input is applied and self-holding output is maintained.
N			After time-up, the display value and self-holding output are maintained until reset signal input is applied.
C			When time-up, the display value is reset and it operates simultaneously.
R			After time-up, the display value is reset after one-shot output time and it operates simultaneously.
K			After time-up, the display value increases or decreases until reset signal input is applied.
P			After time-up, the display value is maintained while output is ON. The value is internally reset and it operates simultaneously.
Q			After time-up, the display value increases or decreases during one-shot output time.
S			Output turns OFF → ON → OFF repeatedly (flicker).

※Set one-shot output time by front TIME volume switch.

■ Dot for Hour. Min. Second



※In run mode, hold the [RESET] key for over 3 sec, and it enters setting mode [dP].
※In setting mode, hold the [RESET] key for over 3 sec, and it saves the setting and returns to RUN mode.
※If there is no [RESET] key input for 60 sec when entering setting mode, it returns to RUN mode.

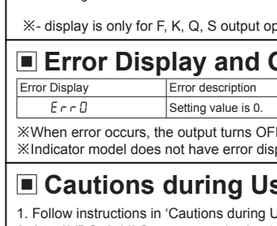
■ Time Range

SW1	4-digit	5-digit
4 3 2 ON/OFF	99.99sec	9999.9sec
4 3 2 ON/OFF	999.9sec	99999sec
4 3 2 ON/OFF	9999sec	9min 59.99sec
4 3 2 ON/OFF	99min 59sec	99min 59.9sec

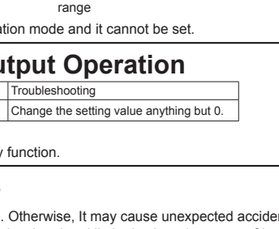
SW1	4-digit	5-digit
4 3 2 ON/OFF	999.9min	9999.9min
4 3 2 ON/OFF	99hour 59min	9hour 59min 59sec
4 3 2 ON/OFF	999.9hour	999hour 59min
4 3 2 ON/OFF	9999hour	9999.9hour

■ Time Operation for Indicator (FS5E-I4)

● **Up mode**



● **Down mode**



※- display is only for F, K, Q, S output operation mode and it cannot be set.

■ Error Display and Output Operation

Error Display	Error description	Troubleshooting
Err0	Setting value is 0.	Change the setting value anything but 0.

※When error occurs, the output turns OFF.
※Indicator model does not have error display function.

■ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
2. 24-48VDC, 24VAC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Use the product, 0.1 sec after supplying power.
4. When supplying or turning off the power, use a switch or etc. to avoid chattering.
5. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
6. Keep away from high voltage lines or power lines to prevent inductive noise.
   In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.
   Do not use near the equipment which generates strong magnetic force or high frequency noise.
7. Change setting time(T1), Y-Δ switching time or etc. after turning off the power of the timer.
8. This product may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④Installation category II

■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co_2, Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

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