# W 38 × H 42 mm Star-Delta Analog Timers


## ATS8SD-4 Series

PRODUCT MANUAL

**For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.**

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

## Features

- Wide power supply range
  : 100 - 240 VAC~ 50 / 60 Hz, 24 - 240 VDC⎓
- Wide time setting range and switching time
  - T1 (setting time): selectable 0.5 to 100 sec
  - T2 (switching time): selectable 0.05, 0.1, 0.2, 0.3, 0.4, 0.5 sec
- Close and DIN rail mounting with the dedicated socket (PS-M8) width 41 mm
- Easy installation / maintenance with the dedicated bracket for DIN 48 × 48 mm
- Application: Starting large capacity motors

## Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

**⚠ Warning** Failure to follow instructions may result in serious injury or death.

**01. 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 personal injury, economic loss or fire.

**02. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.

**03. Install on a device panel to use.**
Failure to follow this instruction may result in fire or electric shock.

**04. Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire or electric shock.

**05. Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.

**06. Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire or electric shock.

**⚠ Caution** Failure to follow instructions may result in injury or product damage.

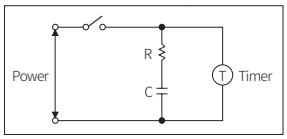
**01. Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.

**02. Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire or electric shock.

**03. Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
Failure to follow this instruction may result in fire or product damage.

## Cautions during Use

- Follow instructions in 'Cautions during Use'.
  Otherwise, it may cause unexpected accidents.
- When supplying or turning off the power, use a switch or etc. to avoid chattering.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- In order to avoid leakage current flowing, connect resistance and condenser like below. Otherwise, it may cause malfunction.




- After turning off the power, change the time range, etc.
- 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.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

## Product Components

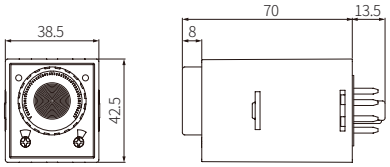
- Product (+ bracket)
- Instruction manual

## Sold Separately

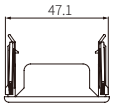
- 8-pin socket: PG-08, PS-08(N), PS-M8

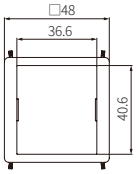
## Dimensions

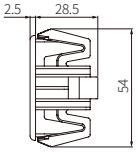
- Unit: mm, For the detailed drawings, follow the Autonics website.



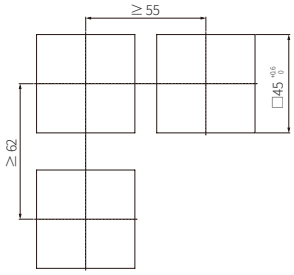

### ■ Bracket



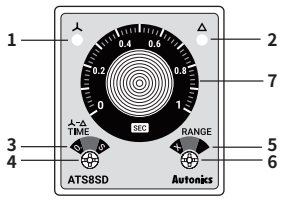




### ■ Panel cut-out




## Unit Descriptions




| No. | Name |
|---|---|
| 1 | Y operation indicator |
| 2 | Δ operation indicator |
| 3 | Y - Δ switching time display part |
| 4 | Y - Δ switching time setting switch |
| 5 | Time range display part |
| 6 | Time range setting switch |
| 7 | Dial for the time setting |

## Y - Δ Switching Time

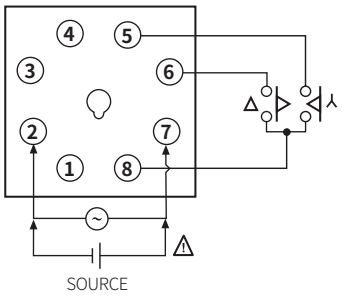
| Display part | Time unit | Switching time |
|---|---|---|
| **0.05S** | SEC | 0.05 |
| **0.1S** | | 0.1 |
| **0.2S** | | 0.2 |
| **0.3S** | | 0.3 |
| **0.4S** | | 0.4 |
| **0.5S** | | 0.5 |

## Time Range

| Display part | Unit | Range |
|---|---|---|
| **5** | SEC | 0.5 to 5 |
| **10** | | 1 to 10 |
| **50** | | 5 to 50 |
| **100** | | 10 to 100 |

## Connections

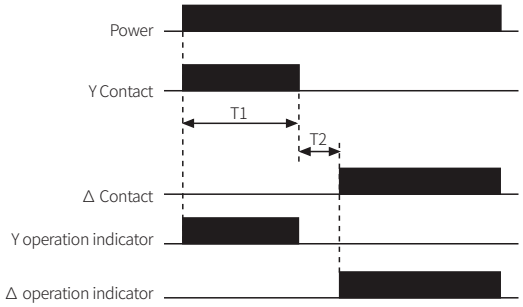
**⚠ Caution**
**: Refer to the 'specifications' for checking the power supply and control output.**




## Operation Timing Chart

When power is applied, Y Contact will be ON simultaneously. And when reaching to T1, Y Contact will be OFF and after T2 is passed, Δ Contact will be ON. If the power is OFF under the status that Δ Contact is ON, the contact will be OFF.

- T1: Y contact operation time,
  T2: Y - Δ switching time (power: ON → Y, Δ contacts OFF simultaneously)



## Specifications

| Model | ATS8SD-4 |
|---|---|
| **Function** | Star-Delta Timer |
| **Return time** | ≤ 100 ms |
| **Time operation** | Power ON Start |
| **Control output** | Relay |
| Contact type | Y Contact: Time limit SPST (1a), Δ Contact: Time limit SPST (1a) |
| Contact capacity | 250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load |
| **Error** | Repeat: ≤ ± 0.2% ± 10 ms<br>Voltage: ≤ ± 0.5%<br>Temp.: ≤ ± 2%<br>Y setting time : ≤ ± 5% ± 50 ms<br>Y - Δ switching time: ≤ ± 25% |
| **Approval** | CE cULus EAC |
| **Unit weight** | ≈ 72 g |

| | |
|---|---|
| **Power supply** | 100 - 240 VAC~ ± 10% 50 / 60 Hz, 24 - 240 VDC⎓ ± 10% |
| **Power consumption** | AC: ≤ 3 VA, DC: ≤ 1.5 W |
| **Insulation resistive** | ≥ 100 MΩ (500 VDC⎓ megger) |
| **Dielectric strength** | 2,000 VAC~ at 50 / 60 Hz for 1 min |
| **Noise immunity** | ± 2 kV square-wave noise by noise simulator (pulse width 1 μs) |
| **Vibration** | 0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 1 hour |
| **Vibration (malfunction)** | 0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min |
| **Shock** | 300 m/s$^2$ (≈ 30 G) in each X, Y, Z direction for 3 times |
| **Shock (malfunction)** | 100 m/s$^2$ (≈ 10 G) In each X, Y, Z direction for 3 times |
| **Relay life cycle** | Mechanical: ≥ 10,000,000 operations<br>Electrical: ≥ 100,000 operations (250 VAC~ 3 A resistive load) |
| **Ambient temperature** | -10 to 55 °C, storage: -25 to 65 °C (no freezing or condensation) |
| **Ambient humidity** | 35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation) |