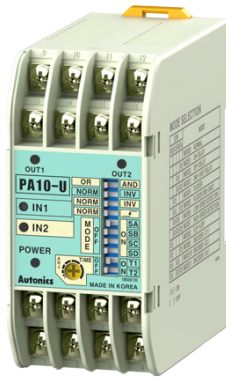


TCD210081AA_MOD1

Autonics

Sensor Controllers



PA10 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

- High-speed output response
- DIN rail or panel mount installation
- Various models
 - PA10-V : general-purpose controllers
 - PA10-W : 2-channel controllers
 - PA10-U : high performance controllers
- PA10-U features
 - 13 operation modes (DIP switches)
 - Flip-flop mode for level control
 - Timer operation mode
- Wide range power supply : 100 - 240 VAC ~ 50 / 60 Hz

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 or DIN rail 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. When connecting the power / sensor input and relay output, use AWG 24 (0.20 mm²) to AWG 15 (1.65 mm²) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18 N m.**
Failure to follow this instruction may result in fire or malfunction due to contact failure.
- 02. Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- 03. 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.
- 04. 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.
- Use the product, 0.1 sec after supplying power.
- 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.
- 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.
- 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

EAC

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

PA 10 - ① ②

① Function

U: High-function

V: General

W: 2 CH

② Input

No mark: NPN input

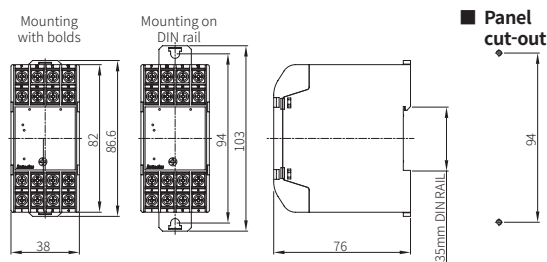
P: PNP input

Product Components

- Product
- Instruction manual

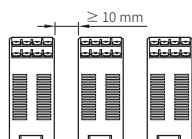
Dimensions

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



Cautions during Installation

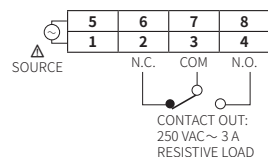
When installing multiple sensor controllers, keep space between units at least 10 mm for heat radiation.



Connections

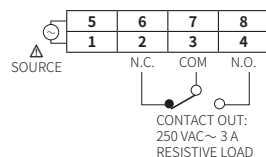
■ PA10-U

+ 12 V	GND	IN 1	O.C. OUT 1
9	10	11	12
13	14	15	16
+ 12 V	GND	IN 2	O.C. OUT 2

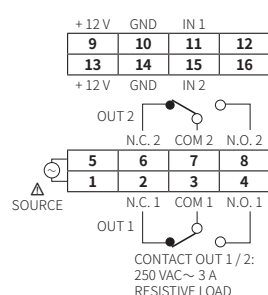


■ PA10-V□

+ 12 V	GND	IN 1	O.C. OUT 1
9	10	11	12
13	14	15	16
+ 12 V	GND	IN 2	

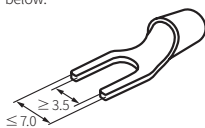


■ PA10-W□



■ Cautions during Wiring

- Unit: mm, Use terminals of size specified below.

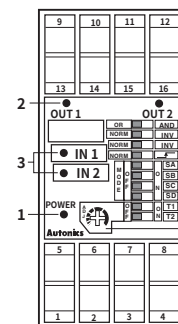


Specifications

Model	PA10-U	PA10-V□	PA10-W□
Power supply	100 - 240 VAC ~ ± 10 % 50 / 60 Hz		
Power consumption	≤ 10 VA (12 VDC = / 200 mA load)		
Sensor supply power	12 VDC = ± 10 % ≈ 200 mA ⁽⁴⁾		
Input logic	AND, OR (switch)	AND	Individual
Input method	NPN input	NPN / PNP input model	
No-voltage input	Short-circuit impedance: ≤ 680 Ω Short-circuit residual voltage: ≤ 0.8 V Open-circuit impedance: ≥ 100 kΩ	Short-circuit impedance: ≤ 300 Ω Short-circuit residual voltage: ≤ 2 V Open-circuit impedance: ≥ 100 kΩ	
Voltage input	-	Input impedance: 5.6 kΩ [H]: 5 - 30 VDC = [L]: 0 - 2 VDC =	
Output	O.C. OUT1 / 2	O.C. OUT1	OUT1, OUT2
Contact output	250 VAC ~ 3 A resistance load		
Solid-state output	NPN open collector output ≤ 30 VDC = , ≤ 100 mA	-	
Output response time	Relay output: ≤ 10 ms, Transistor output: ≤ 0.05 ms		
Function	Operation mode (1 to 12, DIP switch)	-	-
Relay life cycle	Mechanical: Min. 10,000,000 times Electrical: Min. 100,000 times (250 VAC ~ 3 A resistance load)		
Dielectric strength	2000 VAC ~ 50 / 60 Hz for 1 min		
Insulation resistance	≥ 100 MΩ (500 VDC = megger)		
Ambient temperature	-10 to 55 °C, storage: -25 to 60 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		
Approval	EAC		
Unit weight	≈ 150 g		≈ 160 g

①) If the load is connected over 200 mA at the sensor output, it may cause mechanical trouble.

Unit Descriptions



1. Power indicator

2. Output 1 / 2 indicator

3. Sensor input 1 / 2 indicator

Turns ON when sensor input signal is low.

4. Input logic switch

Input logic (AND / OR) selection

5. Sensor input signal switch

NORM: When input signal is low, valid signal (↕).

INV: When input signal is high, valid signal (↗).

6. IN 2 AND logic operation switch

NORM: IN 2 input signal reverse turn function

↗: IN 2 input signal derivative action

7. Operation mode setting switch

Switch functions are different varied by operation mode setting.

8. Timer / Frequency selection switch

9. Timer time setting volume

- Based on PA10-U.

In case of PA10-V / W□ model, indicators and sensor input signal switch are only available.

Factory default

Switch	PA10-U	PA10-V□	PA10-W□
Input logic switch	OR	-	-
Sensor input signal switch	NORM	NORM	NORM
IN2 AND logic operation switch	NORM	-	-
Operation mode setting switch	MODE 1	-	-
Timer / Frequency selection switch	OFF / OFF	-	-



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PRODUCT: PA10-W / Two-Channel Sensor Controller

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