

MA4SD

Star-Delta timer

- Star-delta timer
- 8 Pins plug type
- High capacity MOTOR start timer
- Instantaneous contact output, start contact output, DELTA contact output.
- Various power supply voltage
(100 – 240 V AC 50/60 Hz, 24 – 240 V DC Dual usage)



C

Counter /
Timer

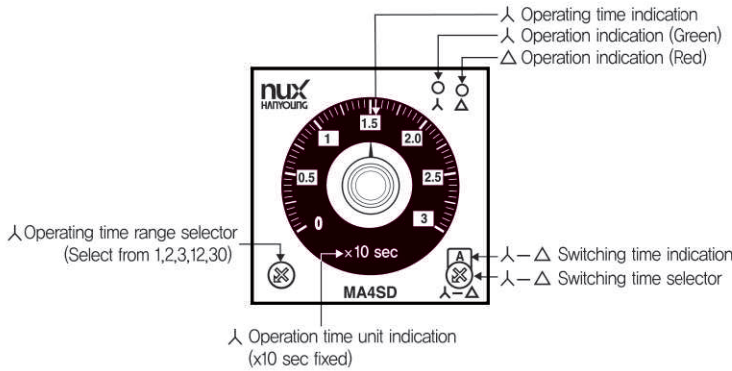
Suffix code

Model	Code	Description
MA4	<input type="checkbox"/>	Analog multi timer (STAR-DELTA Timer), 48 (W) × 48 (H) mm
Control output	SD	\wedge output, Δ output
	SDI	Instantaneous output, \wedge output, Δ output

Specification

Model	MA4SD	MA4SDI
Power supply voltage	100 – 240 V AC 50/60 Hz, 24 – 240 V DC	
Allowable voltage	Power supply voltage $\pm 10\%$	
Power consumption	Approx. 3.8 VA (100 – 240 V AC 60 Hz), Approx. 1.9 W (24 – 240 V DC)	
Resetting time	100 ms max	
Operating time range	1 ~ 300 sec	
\wedge Operating time difference	Repeated error : $\pm 0.3\%$ max, Setting error : $\pm 5\%$ max, Voltage error : $\pm 0.5\%$ max, Temperature tolerance : $\pm 2\%$ max (Percentage of full scale)	
Δ Conversion time error	$\pm 25\%$ max	
Control output	Output mode	Power ON Start
	Contact composition	\wedge Contact : 1 a, Δ Contact : 1 a Instantaneous contact : 1 a
	Contact capacity	250 V AC 5 A resistive load
Relay Life span	Mechanical : 5 million times min, Electrical : 100 thousand times min (250 V AC 5 A resistive load)	
Insulation resistance	100 M Ω min (at 500 V DC Between current-carrying terminals and exposed noncurrent-carrying metal parts.)	
Dielectric strength	2000 V AC 50/60 Hz 2 minute (Between current-carrying terminal and exposed noncurrent-carrying metal parts.)	
Noise immunity	± 2 kV (Between power terminal, pulse width ± 1 μ s, square wave noise by noise simulator)	
Vibration resistance	10 – 55 Hz (For 1 min), Double amplitude 0.75 mm, X,Y,Z each direction for 1 hour	
Shock resistance	300 $\%$ (30G) X, Y, Z each direction for 3 times	
Ambient temperature	-10 ~ 55 $^{\circ}$ C (icing or dew condensation not allowed)	
Storage temperature	-25 ~ 65 $^{\circ}$ C (icing or dew condensation not allowed)	
Ambient humidity	35 ~ 85 % RH	
Weight	Approx. 95g (Including fixing bracket)	

●● Name of each part



λ-Δ Switching time	
A	50 ms
B	100 ms
C	200 ms
D	300 ms
E	400 ms
F	500 ms

C
Counter /
Timer

●● Time

■ λ Operation time specification

Operation time range	Operation time
1,2	1 ~ 12 sec
3	2.5 ~ 30 sec
12	10 ~ 120 sec
30	25 ~ 300 sec

※ λ Select operation time by operation time range selector.

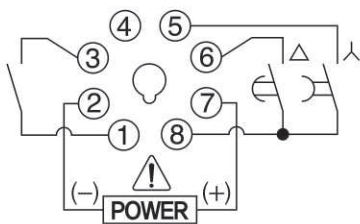
■ λ-Δ Switching time specification

Switching time indication letter	Switching time
A	50 ms
B	100 ms
C	200 ms
D	300 ms
E	400 ms
F	500 ms

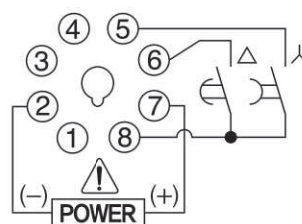
※ λ-Δ Select switching time by switching time selector.

●● Connection diagram

■ MA4SDI



■ MA4SD



●● Operation specification

Power	②-⑦		<p>When power is ON, Instantaneous contact and \wedge contact will be ON. When reaching to t1 setting time, \wedge contact will be OFF. And after t2 switching time, Δ contact will be ON. Δ contact will be ON until Power is OFF.</p>
Instantaneous contact	①-③		
\wedge Contact	⑤-⑧		
Δ Contact	⑥-⑧		
\wedge Operation indicate	\wedge LED		
Δ Operate indicate	Δ LED		

※ t1 : \wedge Operating time

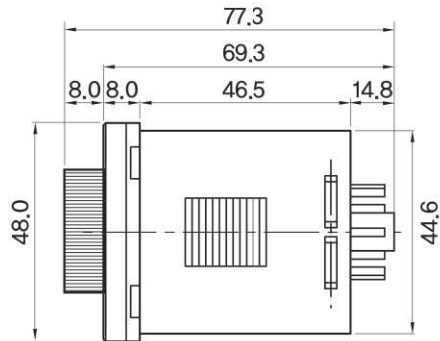
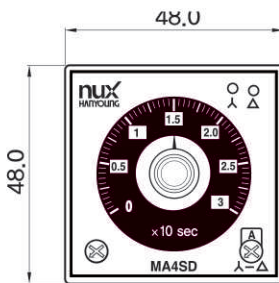
※ t2 : \wedge - Δ Conversion time

※ t3 : Δ Operating time

Caution) MA4SD does not have Instantaneous contact .

●● Dimension and panel cutout (unit : mm)

● Dimension



● Panel cutout

