

INSTRUCTION MANUAL

Autonics

Follow Autonics website for the latest information.

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 5 VDC = 12 - 24 VDC = power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- For using the unit with the equipment which generates noise (switching regulator, inverter, servo motor, etc.), ground the shield wire to the F.G. terminal.
- Ground the shield wire to the F.G. terminal.
- When supplying power with SMPS, ground the F.G. terminal and connect the noise canceling capacitor between the 0 V and F.G. terminals.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise.
- Check the wire type and response frequency when extending wire because of distortion of waveform or residual voltage increment etc. by line resistance or capacity between lines.
- This unit may be used in the following environments.
 - Indoors (UL Type I Enclosure)
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II

- Unused wires must be insulated.
- The metal case and shield cable of encoders must be grounded (F.G.).
- F.G. (Frame Ground) must be grounded separately.
- Since exclusive driver IC is used for output circuit, be aware of short circuits when wiring each output wires.
- N : C: not connected

Color	Function	Refer
White	+V	Power
Black	GND	
Brown	2 ^a	
Red	2 ¹	
Orange	2 ²	
Yellow	2 ³	
Blue	2 ⁴	
Purple	2 ⁵	
Gray	2 ⁶	
White / Brown	2 ⁷	
White / Red	2 ⁸	
White / Orange	2 ⁹	
White / Yellow	N-C	TP1 (≤ 40 division)
White / Blue	N-C	TP2 (≤ 40 division)
White / Purple	N-C	EP (≤ 40 division)
Shield	F.G.	Signal shield

01) UL approved ambient temperature: 65 °C

24	TP1: 8° ± 60° (1 bit) TP2: 3° ± 60° (1 bit) TS: 15° ± 60° (6 bit) EP: 15° ± 60° (1 bit)	TP1: 8° ± 60° (1 bit) TP2: 3° ± 60° (1 bit) TS: 15° ± 60° (5 bit) EP: 15° ± 60° (1 bit)	TP1: 8° ± 60° (1 bit) TP2: 3° ± 60° (1 bit) TS: 30° ± 60° (5 bit) EP: 15° ± 60° (1 bit)
20	TP1: 12° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 18° ± 60° (5 bit) EP: 18° ± 60° (1 bit)	TP1: 12° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 18° ± 60° (5 bit) EP: 18° ± 60° (1 bit)	TP1: 12° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 36° ± 60° (5 bit) EP: 18° ± 60° (1 bit)
16	TP1: 15° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 22.5° ± 60° (5 bit) EP: 22.5° ± 60° (1 bit)	TP1: 15° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 22.5° ± 60° (4 bit) EP: 22.5° ± 60° (1 bit)	TP1: 15° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 45° ± 60° (4 bit) EP: 22.5° ± 60° (1 bit)
12	TP1: 15° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 30° ± 60° (5 bit) EP: 30° ± 60° (1 bit)	TP1: 15° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 30° ± 60° (4 bit) EP: 30° ± 60° (1 bit)	TP1: 15° ± 60° (1 bit) TP2: 2° ± 60° (1 bit) TS: 60° ± 60° (4 bit) EP: 30° ± 60° (1 bit)
10	TP1: 30° ± 60° (1 bit) TP2: 12° ± 60° (1 bit) TS: 30° ± 60° (4 bit) EP: 30° ± 60° (1 bit)	TP1: 30° ± 60° (1 bit) TP2: 12° ± 60° (1 bit) TS: 30° ± 60° (4 bit) EP: 30° ± 60° (1 bit)	TP1: 30° ± 60° (1 bit) TP2: 12° ± 60° (1 bit) TS: 72° ± 60° (4 bit) EP: 30° ± 60° (1 bit)
8	TP1: 35° ± 60° (1 bit) TP2: 15° ± 60° (1 bit) TS: 45° ± 60° (3 bit) EP: 45° ± 60° (1 bit)	TP1: 35° ± 60° (1 bit) TP2: 15° ± 60° (1 bit) TS: 45° ± 60° (3 bit) EP: 45° ± 60° (1 bit)	TP1: 39° ± 60° (1 bit) TP2: 15° ± 60° (1 bit) TS: 90° ± 60° (3 bit) EP: 45° ± 60° (1 bit)
6	TP1: 53° ± 60° (1 bit) TP2: 15° ± 60° (1 bit) TS: 60° ± 60° (3 bit) EP: 60° ± 60° (1 bit)	TP1: 53° ± 60° (1 bit) TP2: 15° ± 60° (1 bit) TS: 60° ± 60° (3 bit) EP: 60° ± 60° (1 bit)	TP1: 53° ± 60° (1 bit) TP2: 15° ± 60° (1 bit) TS: 120° ± 60° (3 bit) EP: 60° ± 60° (1 bit)

- Parallel misalignment:
- Angular misalignment:
- End-play: $\leq 0.5 \text{ mm}$