ETS-DO04R | 4 Digital Output, 24V DC, 0.5A, Current Sourcing

Specification

▣ Power Specification

ITEM	Details
Power Dissipation(System)	Max. 40mA @ 24.0V DC
Power Dissipation(I/O)	Max. 30mA @ 24.0V DC
Rated Input Voltage	24V DC (-15%/+20%, ripple ratio within 5%) EN 61131-2

▣ Comm. Specification

ITEM	Details
Transmission speed for EtherCAT	100 Mbit/s with Full Duplex
MDI/MDI-X	MDI/MDI-X auto-crossover.
ESD Protection	Contact Discharge (Typ.) 4kV
	Air Discharge (Typ.) 8kV

▣ Digital Specification

ITEM	ETS-DO04R
Number of Inputs	4 output (1 Wire)
Output type	MOSFET with Common Ground (PNP)
Isolation	Photo-coupler(Viso=3,000Vrms)
OFF State Current	Max. 100uA / Point
On State Max Sink Current	Max. 500mA / Point
Rds(On state resistance)	Max. 1.4Ω (±5%)
Over-Temperature Shutdown	160°C
Over-Current Shutdown	0.7A (Min.) ~ 2A (Max.)
Wiring contact	Ribbon Cable connector(HIF3B-20PA-2.54DS)

▣ Environmental Specification

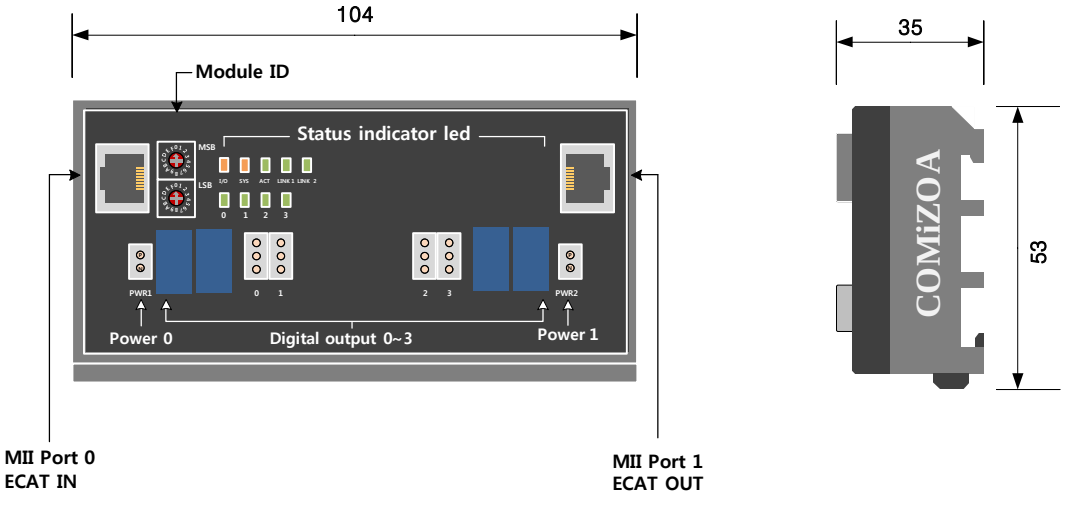
ITEM	Details
Dimension	104 * 53 * 35 (mm)
Install	Industrial DIN rail
Operating Temperature Range	0℃ ~ 50℃
Storage Temperature Range	-20℃ ~ 80℃
Operating Humidity Range	5% ~ 90%RH, non-condensing
Storage Humidity Range	5% ~ 90%RH, non-condensing

Specification

▣ Relay Specification

Characteristic	ITEM		ETS-DO04R
Contact	Arrangement		2 Form C
	Initial contact resistance, max.		Max. 100 mΩ (By voltage drop 6 V DC 1A)
	Contact material		Standard contact: Ag+Au clad, AgPd contact (low level load): AgPd+Au clad (stationary), AgPd (movable)
Rating	Nominal switching capacity		Standard contact: 2 A 30 V DC, AgPd contact: 1 A 30 V DC (resistive load)
	Max. switching power		Standard contact: 60 W (DC), AgPd contact: 30 W (DC) (resistive load)
	Max. switching voltage		220V DC
	Max. switching current		Standard contact: 2 A, AgPd contact: 1 A
	Min. switching capacity (Reference value)[1]		10μA 10mV DC
	Nominal operating power	Single side stable	140 mW (1.5 to 24 V DC), 270 mW (48 V DC)
		1 coil latching	100 mW (1.5 to 24 V DC)
		2 coil latching	200 mW (1.5 to 24 V DC)
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as "Initial breakdown voltage" section.
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA)
		Between contact and coil	2,000 Vrms for 1min. (Detection current: 10mA)
		Between contact sets	1,000 Vrms for 1min. (Detection current: 10mA)
	Surge breakdown voltage (Initial)	Between open contacts	1,500 V (10×160μs) (FCC Part 68)
		Between contacts and coil	2,500 V (2×10μs) (Telcordia)
	Temperature rise (at 20°C 68°F)		Max. 50°C (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 2A.)
	Operate time [Set time] (at 20°C 68°F)		Max. 4 ms [Max. 4 ms] (Nominal coil voltage applied to the coil, excluding contact bounce time.)
	Release time [Reset time] (at 20°C 68°F)		Max. 4 ms [Max. 4 ms] (Nominal coil voltage applied to the coil, excluding contact bounce time.) (without diode)
Mechanical characteristics	Shock resistance	Functional	Min. 750 m/s² (Half-wave pulse of sine wave: 6 ms; detection time: 10μs.)
		Destructive	Min. 1,000 m/s² (Half-wave pulse of sine wave: 6 ms.)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 3.3 mm (Detection time: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 5 mm
Expected life	Mechanical		Min. 10^8 (at 180 cpm)
	Electrical		Min. 10^5 (2 A 30 V DC resistive), 5×10^5 (1 A 30 V DC resistive) (at 20 cpm)
Conditions	Conditions for operation, transport and storage[2]		Ambient temperature: –40°C to +85°C (up to 24 V coil) –40°F to +185°F (up to 24 V coil) [–40°C to +70°C (48 V coil) –40°F to +158°F (48 V coil)]; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)
	Max. operating speed (at rated load)		20 cpm
Unit weight			Approx. 2 g .071 oz

Dimension



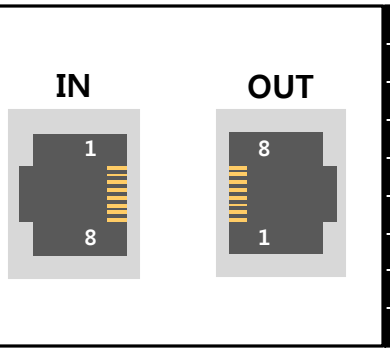
Front view

Side View

(unit : mm)

Wiring

▣ RJ45 Connector

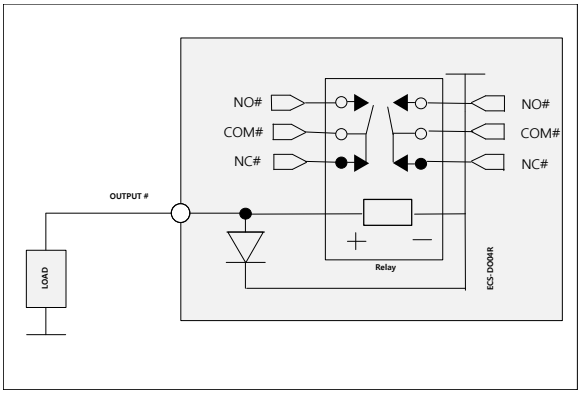


RJ45 IN		RJ45 OUT	
1	TX+	1	TX+
2	TX-	2	TX-
3	RX+	3	RX+
4	NC	4	NC
5	NC	5	NC
6	RX-	6	RX-
7	NC	7	NC
8	NC	8	NC

▣ Contact Number

※ All numberings are zero based

▣ Circuit Diagram



▣ PIN MAP

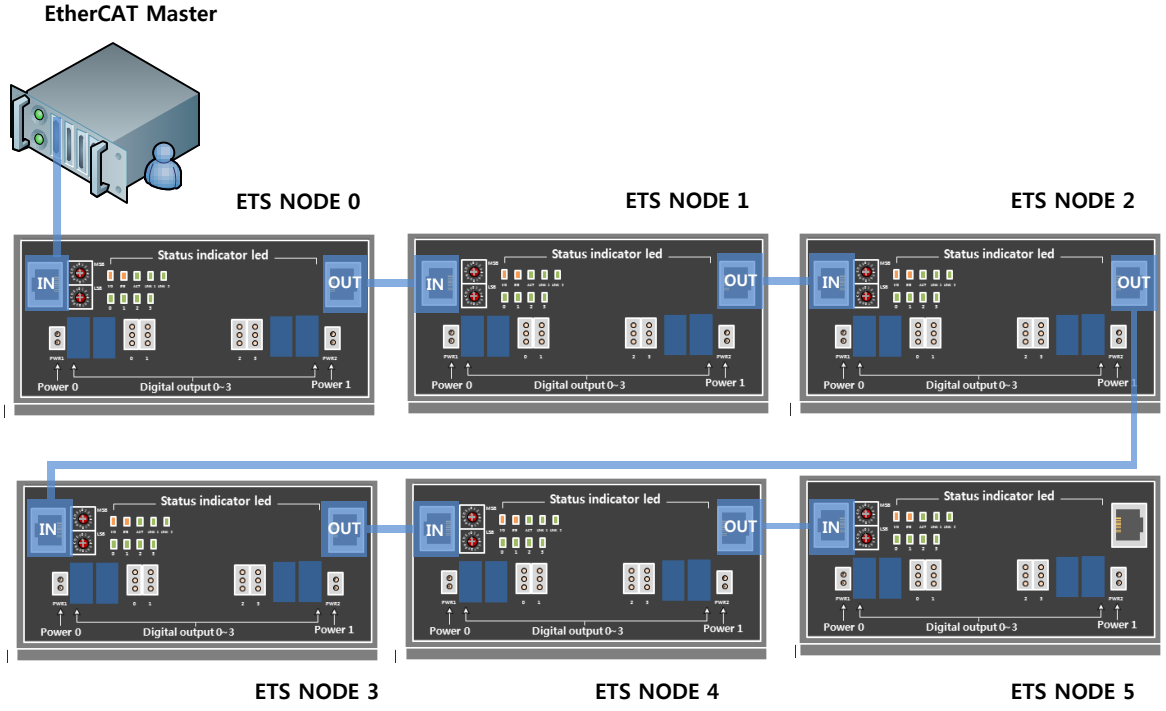
PWR 0, 1		
Ⓟ Ⓝ	P	PWR 24V
	N	PWR 0V

DI 0 ~ 15		
Ⓟ Ⓘ Ⓝ	P	I/O PWR 24V
	I	Digital Output
	N	I/O PWR 0V

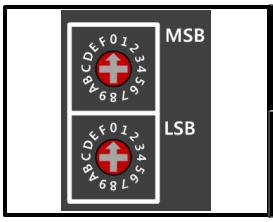
Indicators

I/O	I/O POWER LED	ON	DIGITAL I/O POWER(24V DC) ON
		OFF	DIGITAL I/O POWER(24V DC) OFF
SYS	SYSTEM POWER LED	ON	SYSTEM POWER(3.3V DC) ON
		OFF	SYSTEM POWER(3.3V DC) OFF
ACT	EtherCAT AL STATE LED	OFF	INIT
		Blinking(slow)	PRE-OP
		Single Flash	SAFE-OP
		ON	OP
		Flickering(fast)	BOOTSTRAP
LINK 0(1)	LINK 0(1) STATE LED	Blinking(slow)	MII Port 0(1) OPEN
		OFF	MII Port 0(1) Closed
DO 0-3	OUTPUT STATE LED	ON	OUTPUT ON STATE (LOGIC ' 1')
		OFF	OUTPUT ON STATE (LOGIC ' 0')

Interface Connect



Device ID Setting



NODE ID setting	I.P = MSB *16 + LSB
NODE ID range	1 ~ 256

▣ CAUTION