

# ETS Hardware Reference Manual



4CHANNEL **DIGITAL OUTPUT** MODULE

**ETS-DO04R**

FEB 2016  
©2016 COMIZOA, All rights reserved

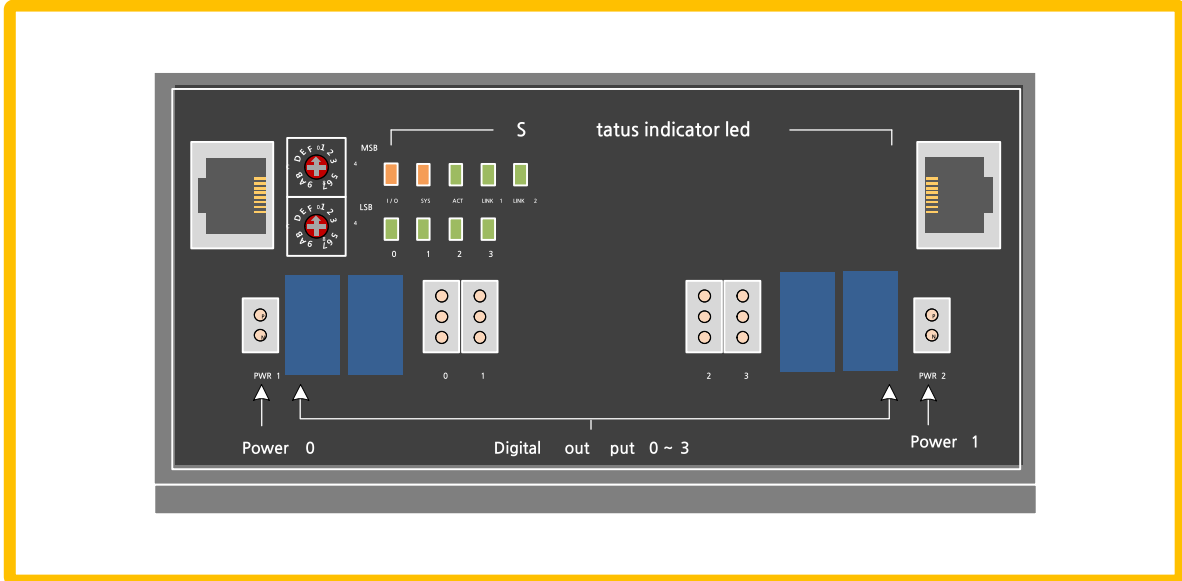
Hardware Manual Revision : 1.0.1  
Revision Data 2016. 02. 26

---

## Table Of Contents

1	개요 .....	1
2	제품사양 .....	2
3	Wiring .....	4
4	Indicators .....	5
5	Interface Connect .....	6
6	Device ID Setting .....	6

## 개요


**ETS Series - ETS-DO04R (Relay Output 4ch)**

ETS-DO04R는 EtherCAT 기반 제어기인 ETS Series의 4채널 Relay 출력 모듈입니다.

각 채널의 내부 제어신호와 외부 입출력 신호는 포토커플러를 사용하여 절연됩니다.

본 매뉴얼은 ETS-DO04R의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

**제품사양**
**Relay Specification**

ITEM		ETS-DO04R
Number of Outputs		4 Output
Insulation resistance(Initial)		Min. 1,000MΩ (at 500V DC)
Rated Load		9.6mA at 24V DC
Min Switching capacity		10uA 10mV DC
Max Switch current		2A
Max Switch voltage		110V DC, 125V AC
Contact Material		AgPd
Initial contact resistance, max.		Max. 100mΩ (By voltage drop 6V DC 1A)
Leakage Current		±10uA
Max. operating speed		20 cpm
Expected life		Mechanical : Min. $5 \times 10^7$ Electrical : Min. $5 \times 10^4$ (2A 30V DC resistive)
Nominal operating power		230mW (24V DC)
Operate time[Set time] at 20°C		Max. 4ms
Release time[Reset time] at 20°C		Max. 4ms
Temperature rise at 20°C		Max. 50°C
Vibration	Functional	10 to 55 Hz at double amplitude of 3.3 mm (Detection time : 10us)
	Destructive	10 to 55Hz at double amplitude of 5 mm
Shock resistance	Functional	Min. 750 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6ms, detection time: 10us)
	Destructive	Min. 1,000 m/s <sup>2</sup> (Half-wave pulse of sine wave :6ms)
Wiring contact		LSF-SMT3.50/16/90 3.5SN BK TU

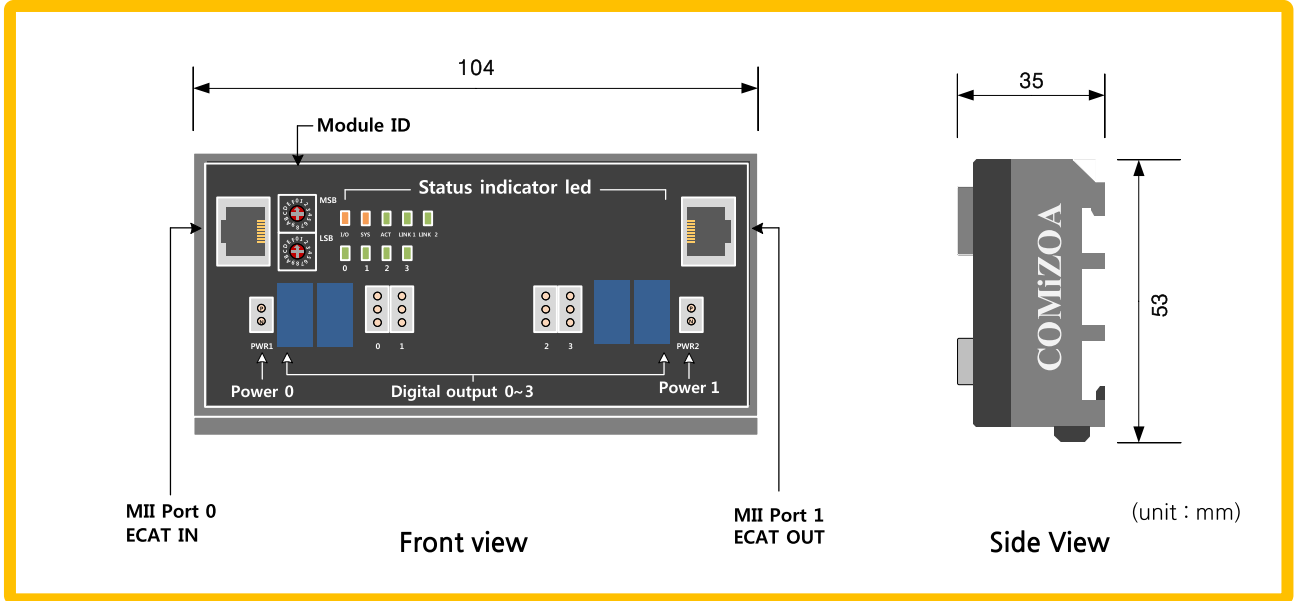
**Power Specification**

ITEM		ETS-DO04R
Power Dissipation(System)		40mA @ 24.0V DC
Power Dissipation(I/O)		Min. 24mA @ 24.0V DC
Rated Input Voltage		24V DC (-15%/+20%, ripple ratio within 5%) EN 61131-2

**Environmental Specification**

ITEM		ETS-DO04R
Dimension		104 * 53 * 35 (mm)
Install		Industrial DIN rail
Operating Temperature Range		0°C ~ 50°C
Storage Temperature Range		-20°C ~ 80°C
Operating Humidity Range		5% ~ 90%RH, non-condensing
Storage Humidity Range		5% ~ 90%RH, non-condensing

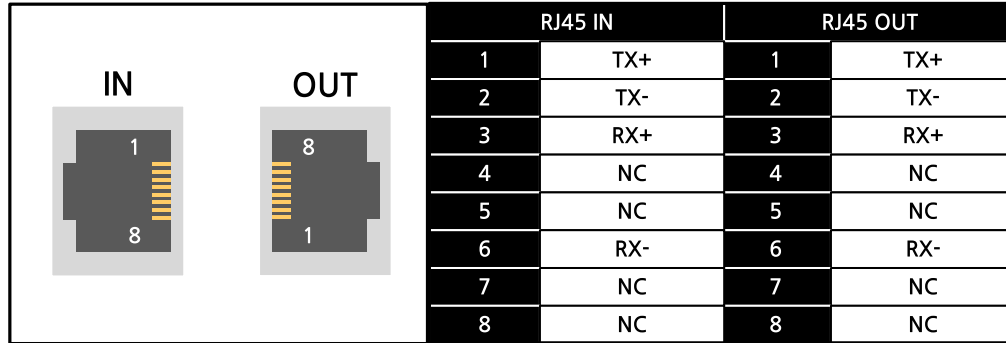
제품사양



Dimension

Wiring

▣ RJ45 Connector

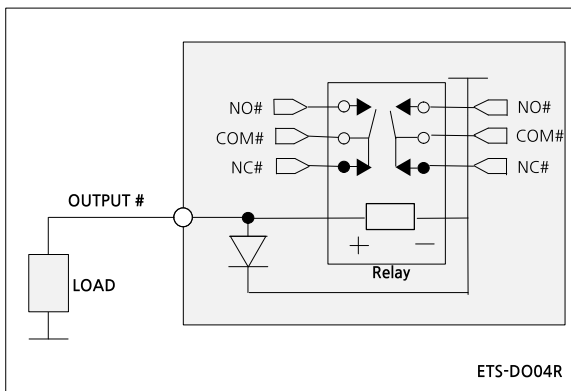


▣ Contact Number

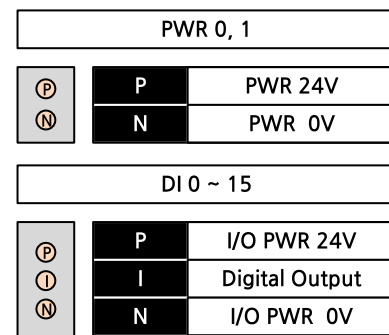



※ All numberings are zero based

▣ Circuit Diagram



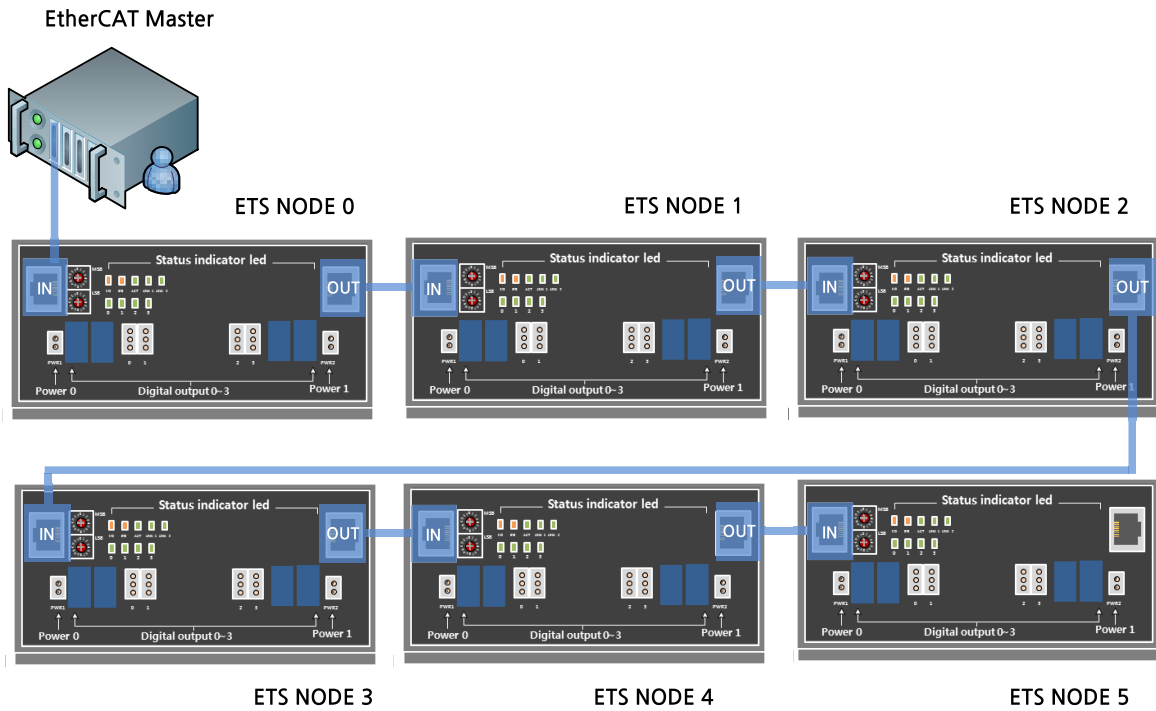
▣ PIN MAP



**Indicators**


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



## Hardware Reference Manual Update List

No.	Version	Date	Changes in
1			First Edition
2	1.01	2016.02.26	글꼴변경 (나눔고딕, 굴림)

# ETS Reference Manual

Copyright holder : COMIZOA CO.,LTD  
Copyright (c) by COMIZOA CO.,LTD. All right reserved.  
2016. 02. 26.



COMIZOA CO.,LTD  
<http://www.comizoa.com>  
Tel) +82 - 42 - 936 - 6500  
Fax) +82 - 42 - 936 - 6507

All the details including figures and programs included in this manual is protected by Korean Copyright.  
Any parts of this manual can be copied or distributed without COMIZOA's permission.