

# ETS Hardware Reference Manual



16CHANNEL **DIGITAL OUTPUT** MODULE

**ETS-DO16N**

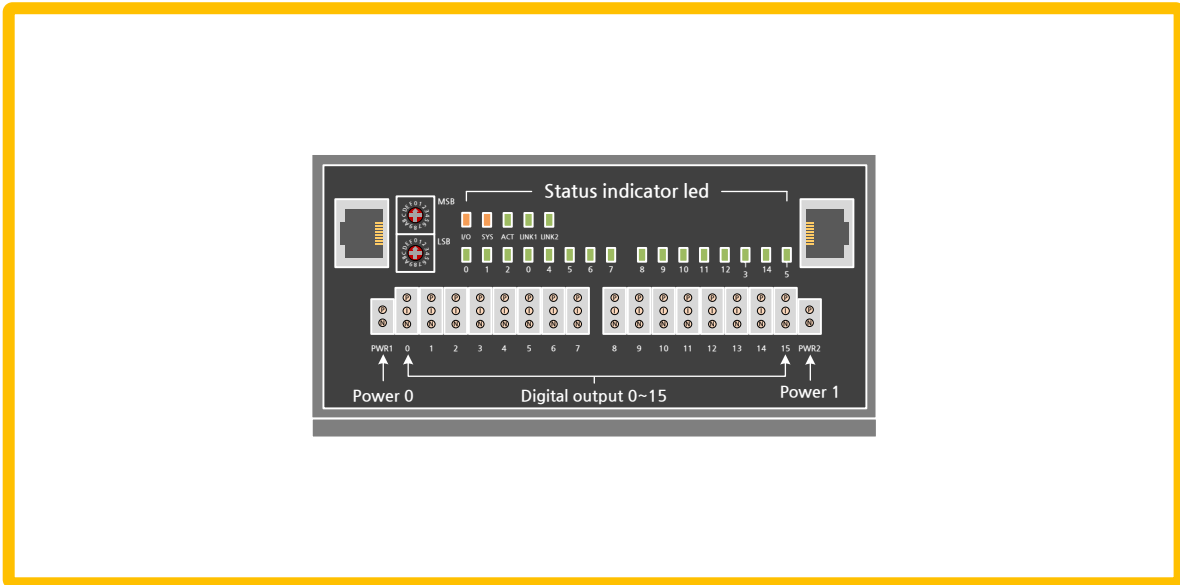
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**개요**

**ETS Series - ETS-DO16N (Digital NPN Output 16ch)**

ETS-DO16N는 EtherCAT 기반 제어기인 ETS Series의 16채널 Digital 출력 모듈입니다.

각 채널의 내부 제어신호와 외부 입출력 신호는 포토커플러를 사용하여 절연됩니다.

본 매뉴얼은 ETS-DO16N의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

**제품사양**
**Power Specification**

ITEM	ETS-DO16N
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	ETS-DO16N
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

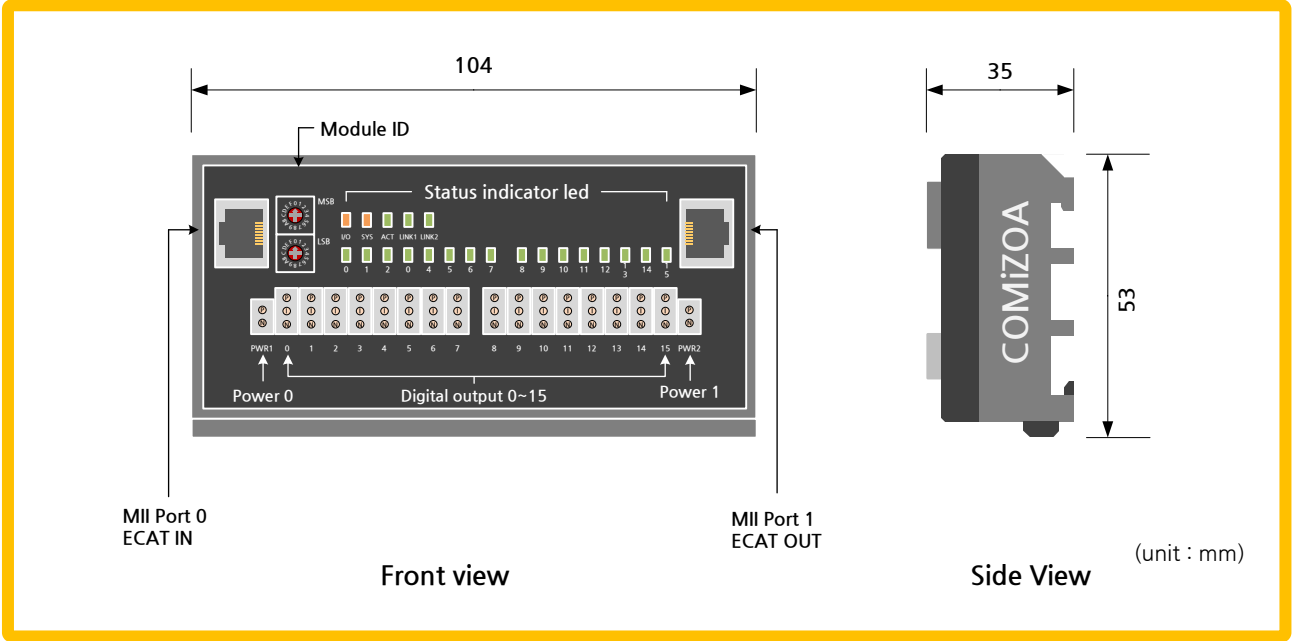
**Digital Specification**

ITEM	ETS-DO16N
Number of Inputs	16 output ( 1 Wire )
Output type	MOSFET with Common Ground ( NPN )
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	5264-03(DO 3Pin), 5264-02(PWR 2Pin)

**Environmental Specification**

ITEM	ETS-DO16N
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

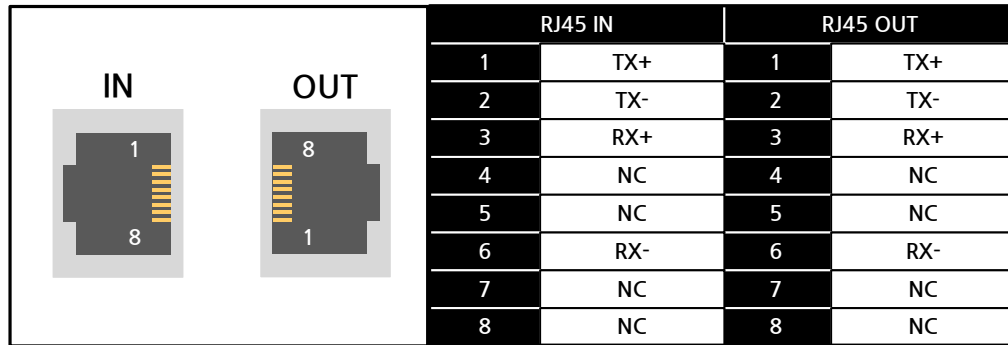
**제품사양**



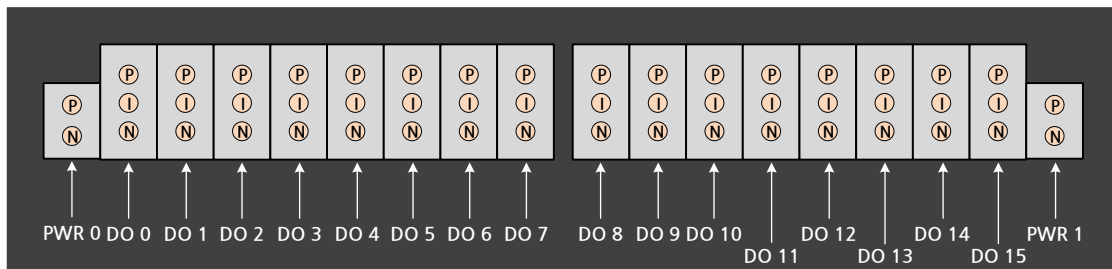
Dimension

Wiring

■ RJ45 Connector

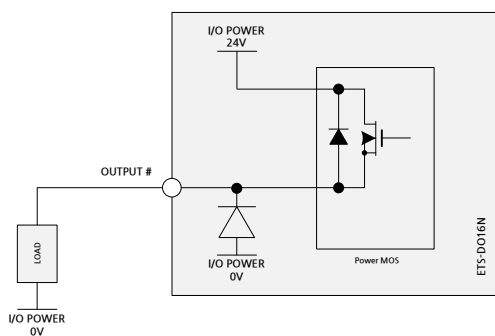


■ Contact Number

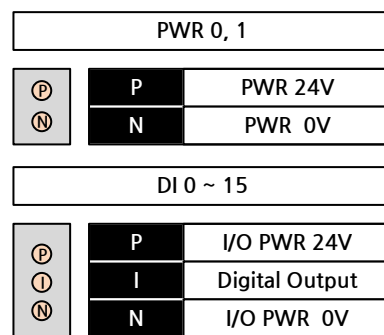


※ All numberings are zero based

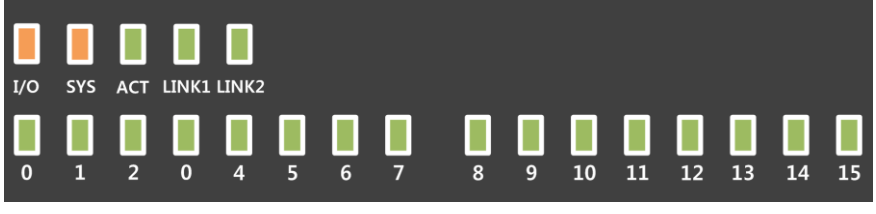
■ Circuit Diagram



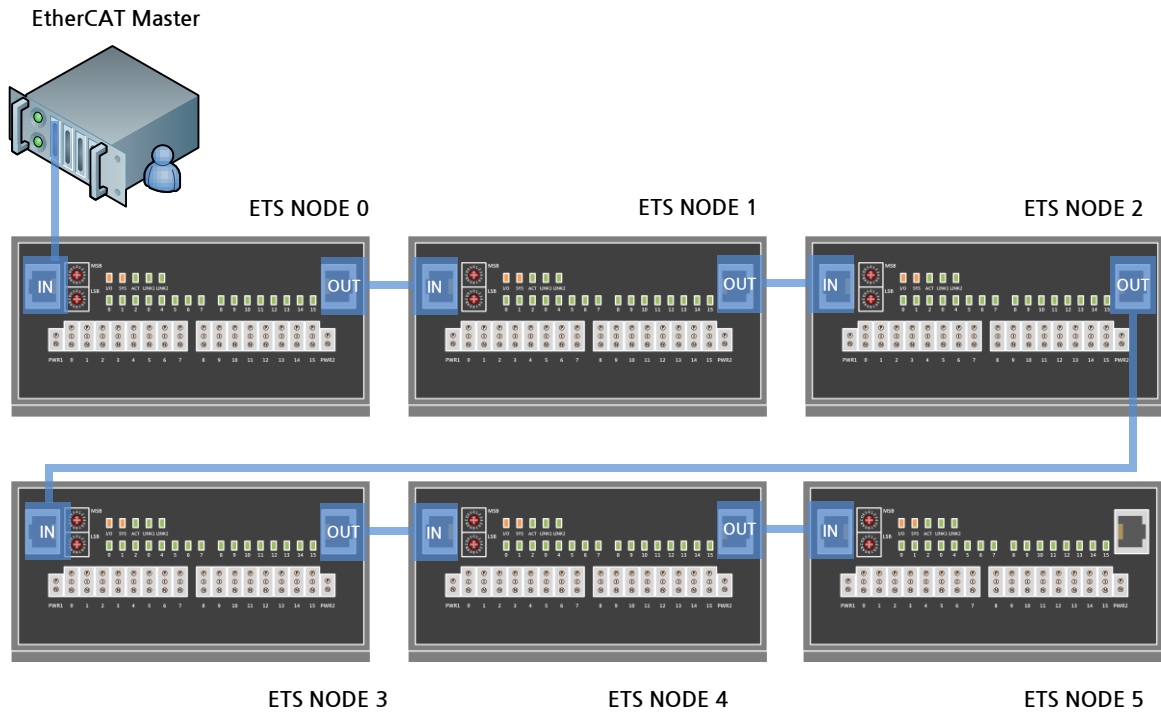
■ PIN MAP



**Indicators**

			
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 0-15	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)

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

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