

# ETS Hardware Reference Manual



32CHANNEL DIGITAL NPN TYPE OUTPUT MODULE

ETS-DO32N-T (v1.00)

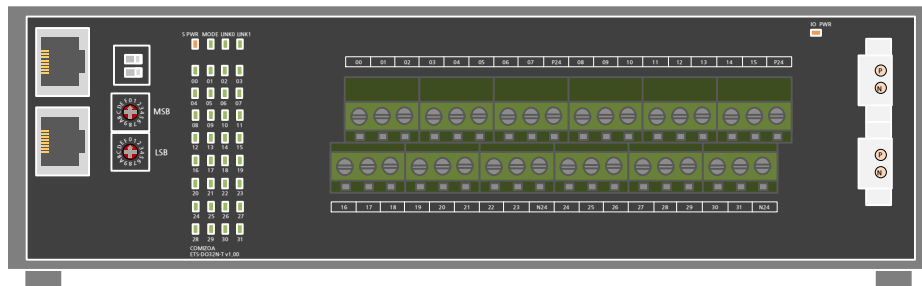
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## 개요



## ETS - DO32N - T (Digital NPN Output 32ch)

ETS-DO32N-T는 커미조아의 EtherCAT 기반 제어기의 32채널 Digital 출력 모듈입니다.

각 채널의 내부 제어신호와 외부 입출력 신호는 포토커플러를 사용하여 절연됩니다.

본 매뉴얼은 ETS-DO32N-T의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

- ▣ EtherCAT Slave Module
- ▣ CiA Standard 401 and ETG.5001 Modular Device Profile
- ▣ Supports Terminal Device ID
- ▣ Digital I/O Power Over Current Protection
- ▣ Digital Output 32(NPN)
- ▣ Independent System Power

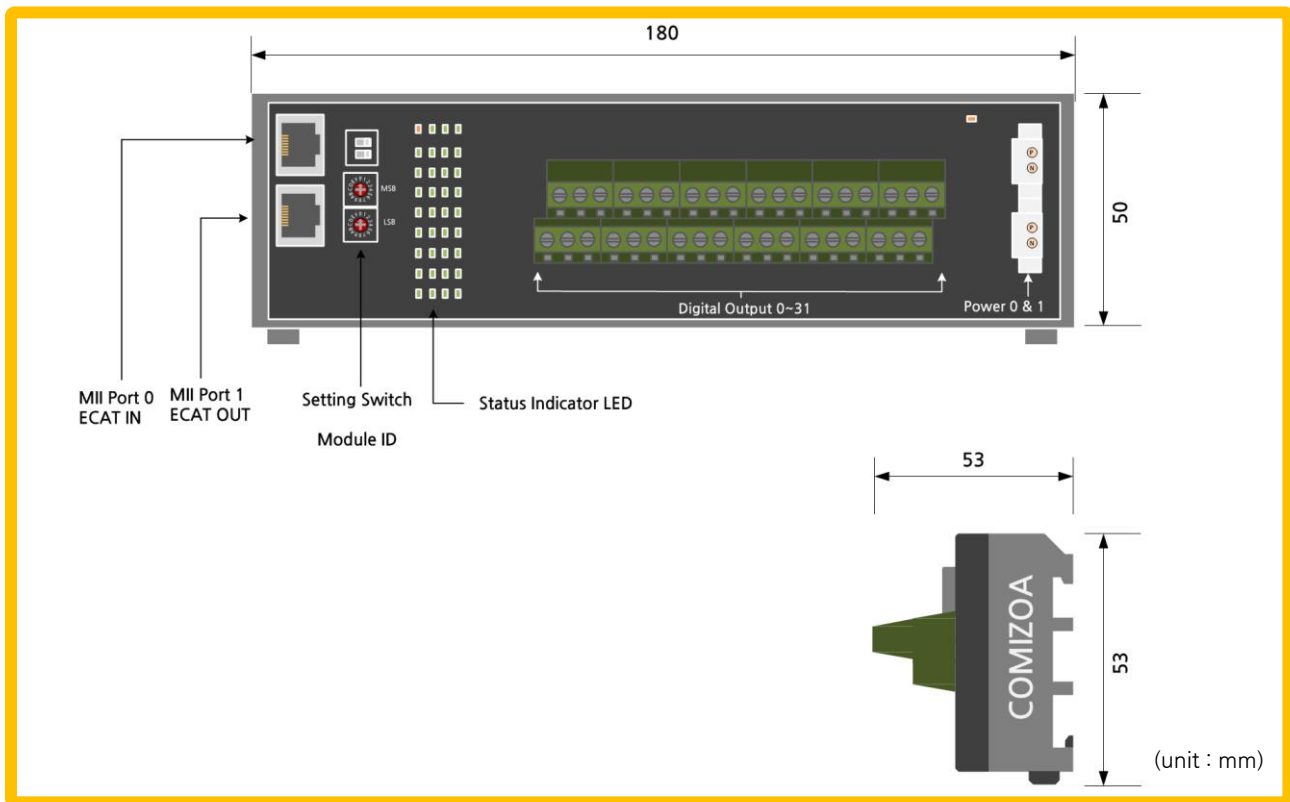
Specification

Contents	Details
Dimension	180 * 53 * 53 (mm)
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 80°C
Humidity	5% ~ 90%, non-condensing
Power consumption	System Power : 47mA @ DC 24V ± 5% I/O Power : Max. 45mA @ DC 24V ± 5%

Environmental Specification

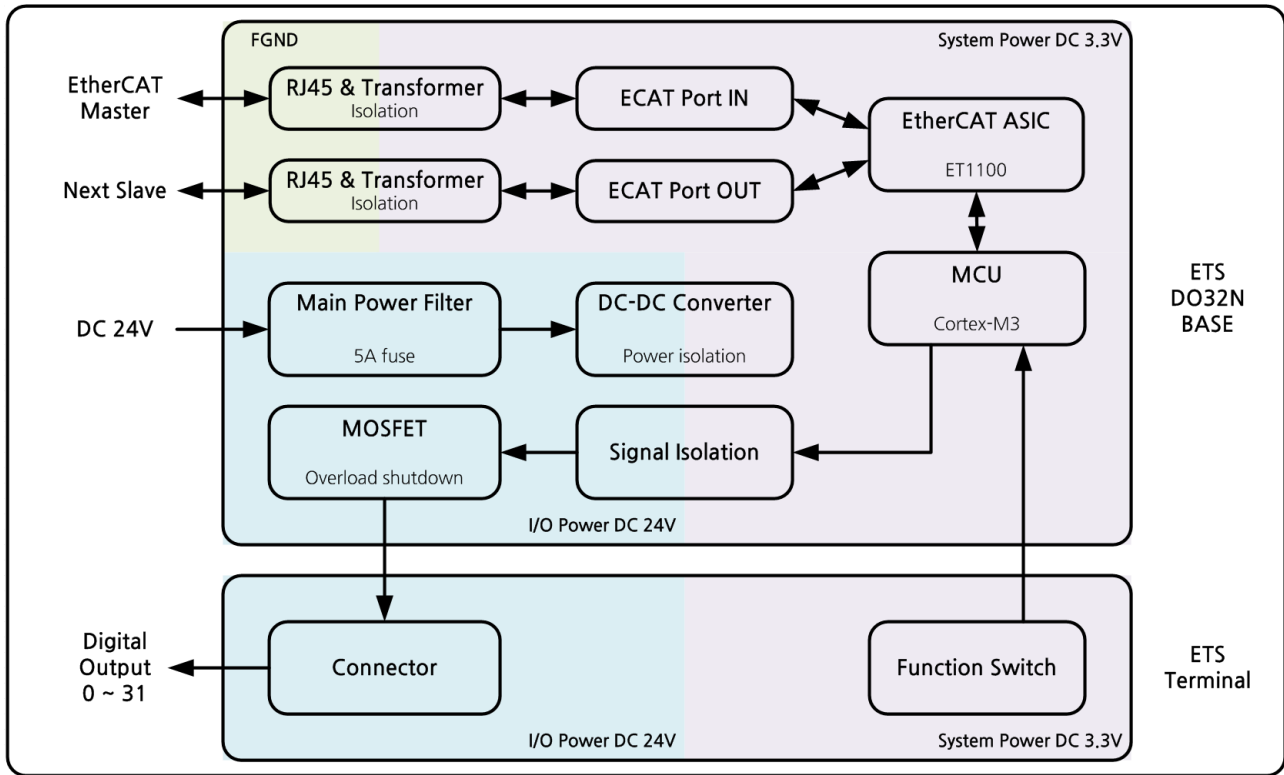
ITEM	Details
Number of Outputs	32 Output
Output type	MOSFET with common ground (NPN)
Isolation	Photo-coupler ( $V_{iso} = 3,000V_{rms}$ )
OFF State Current	Max. 100uA / Point
ON State Max Sink Current	Max. 500mA / Point
Rds (On state resistance)	Max. 1.4Ω (±5%)
Over-Temperature Shutdown	160°C
Over-Current Shutdown	Min. 0.7A ~ Max. 2A
Wiring Contact	I/O : Screw type Terminal / Power : USL-3FBS-2P
State Hold Mode On/Off Function	Selectable for using the function by a switch

Digital Output Specification



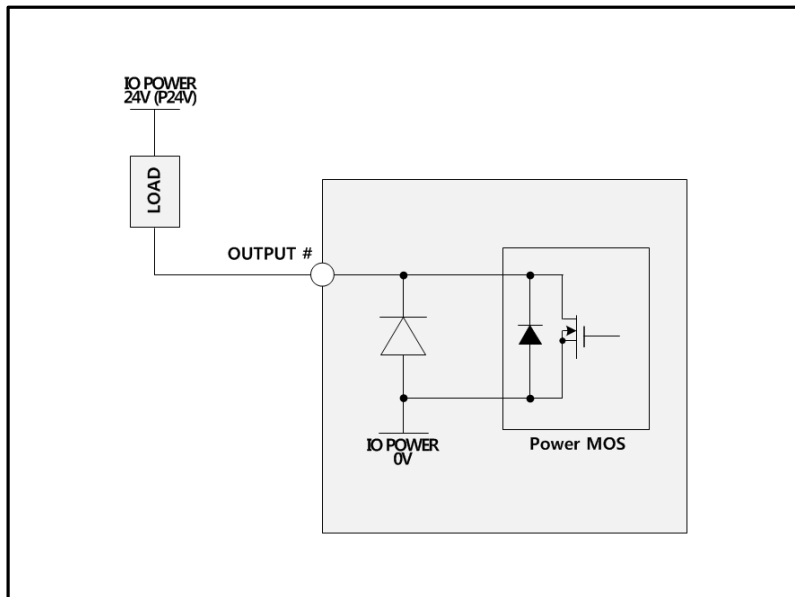
Dimension

Block Diagram

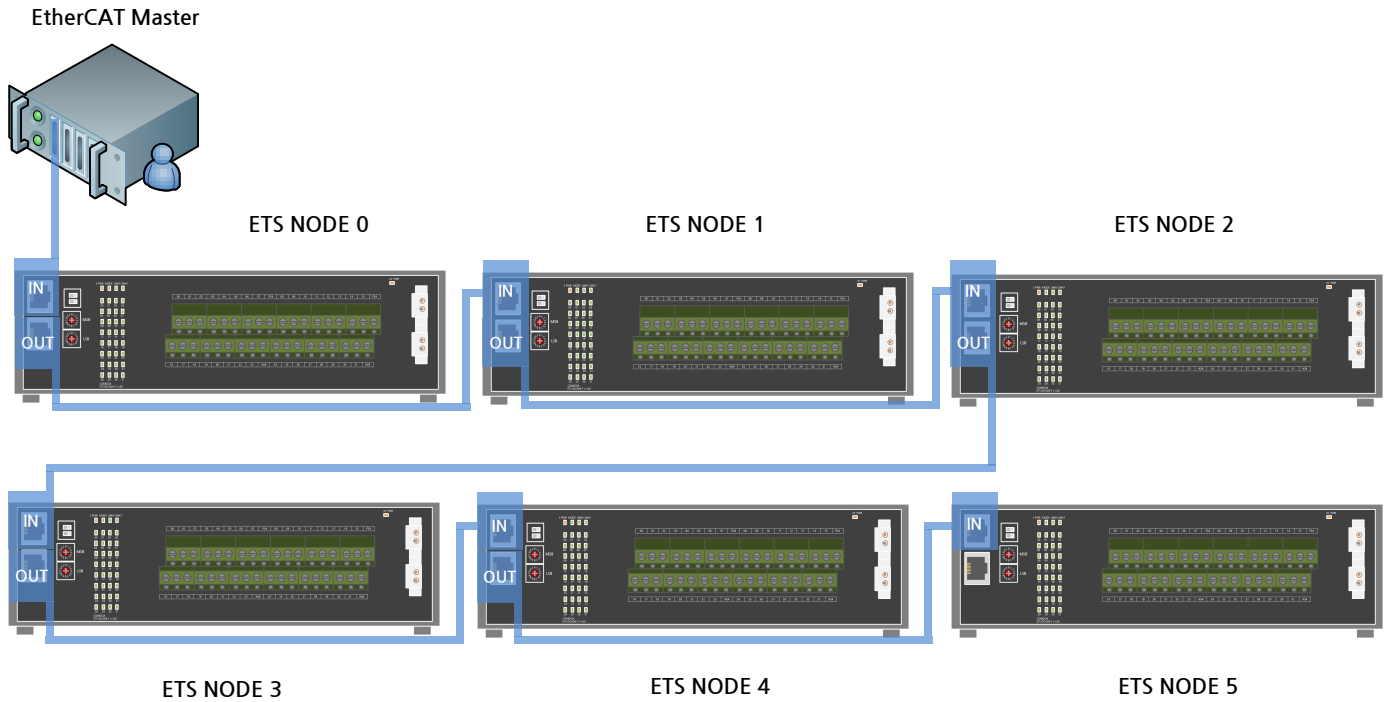


ETS-DO32N-T Block Diagram

Circuit Diagram (Digital Output)



Interface Connect



Function Setting

	No. 2 ON	통신 끊어지면 출력 값 리셋 ( Ch. 0 ~ 15 )
	No. 2 OFF	통신 끊어지면 출력 값 유지 ( Ch. 0 ~ 15 )
	No. 1 ON	통신 끊어지면 출력 값 리셋 ( Ch. 16 ~ 31 )
	No. 1 OFF	통신 끊어지면 출력 값 유지 ( Ch. 16 ~ 31 )

Device ID Setting

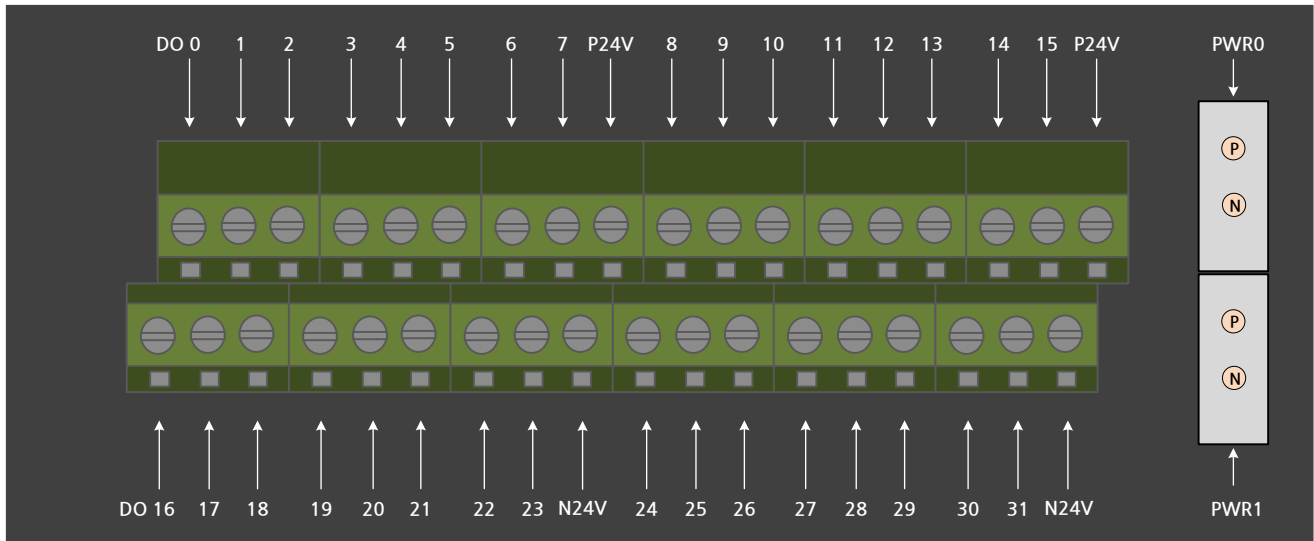
	NODE ID setting	$I.P = MSB * 16 + LSB$
	NODE ID range	1 ~ 256

Connector

RJ45 Connector

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

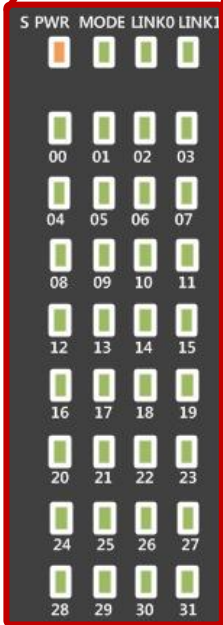
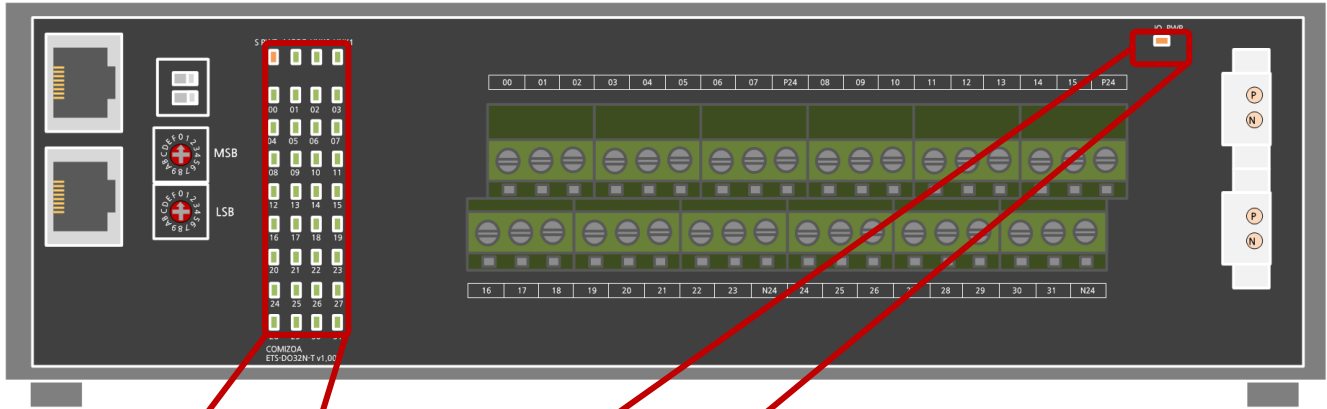
Contact Number



PIN MAP

PWR 0, 1	
P	PWR DC P24V
N	PWR DC N24V

Status LED



IO PWR	I/O POWER LED	ON	DIGITAL I/O POWER(24V DC) ON
		OFF	DIGITAL I/O POWER(24V DC) OFF
S PWR	SYSTEM POWER LED	ON	SYSTEM POWER(3.3V DC) ON
		OFF	SYSTEM POWER(3.3V DC) OFF
MODE	EtherCAT AL STATE LED	OFF	INIT
		Blinking(slow)	PRE-OP
		Single Flash	SAFE-OP
		ON	OP
LINK 0(1)	LINK 0(1) STATE LED	Flickering(fast)	BOOTSTRAP
		Blinking(slow)	MII Port 0(1) OPEN
DO 0-31	OUTPUT STATE LED	OFF	MII Port 0(1) Closed
		ON	OUTPUT ON STATE (LOGIC '1')
		OFF	OUTPUT OFF STATE (LOGIC '0')



## Hardware Reference Manual Update List

No.	Version	Date	Changes in
1	1.00	2016.03.08	First Edition

# ETS Reference Manual

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