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32CHANNEL DIGITAL NPN TYPE OUTPUT MODULE

ETS-DO32N-E (v1.00)

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개요
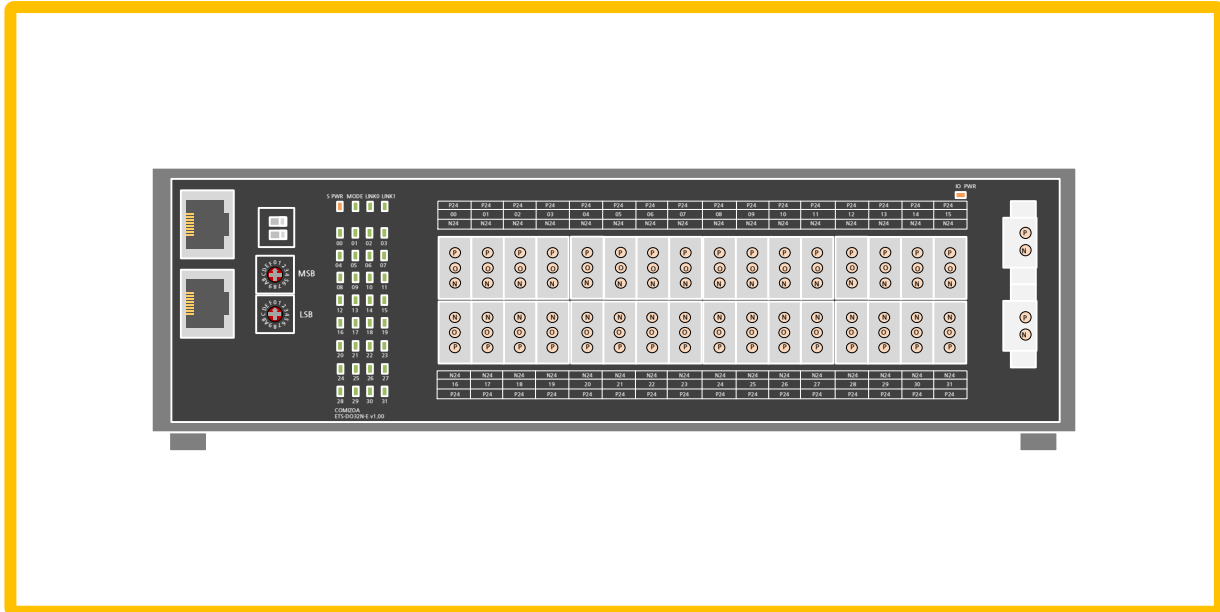
ETS - DO32N - E (Digital NPN Output 32ch)

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

각 채널의 내부 제어신호와 외부 입출력 신호는 포토커플러를 사용하여 절연됩니다.

본 매뉴얼은 ETS-DO32N-E의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼 입니다.

◉ 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

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Specification

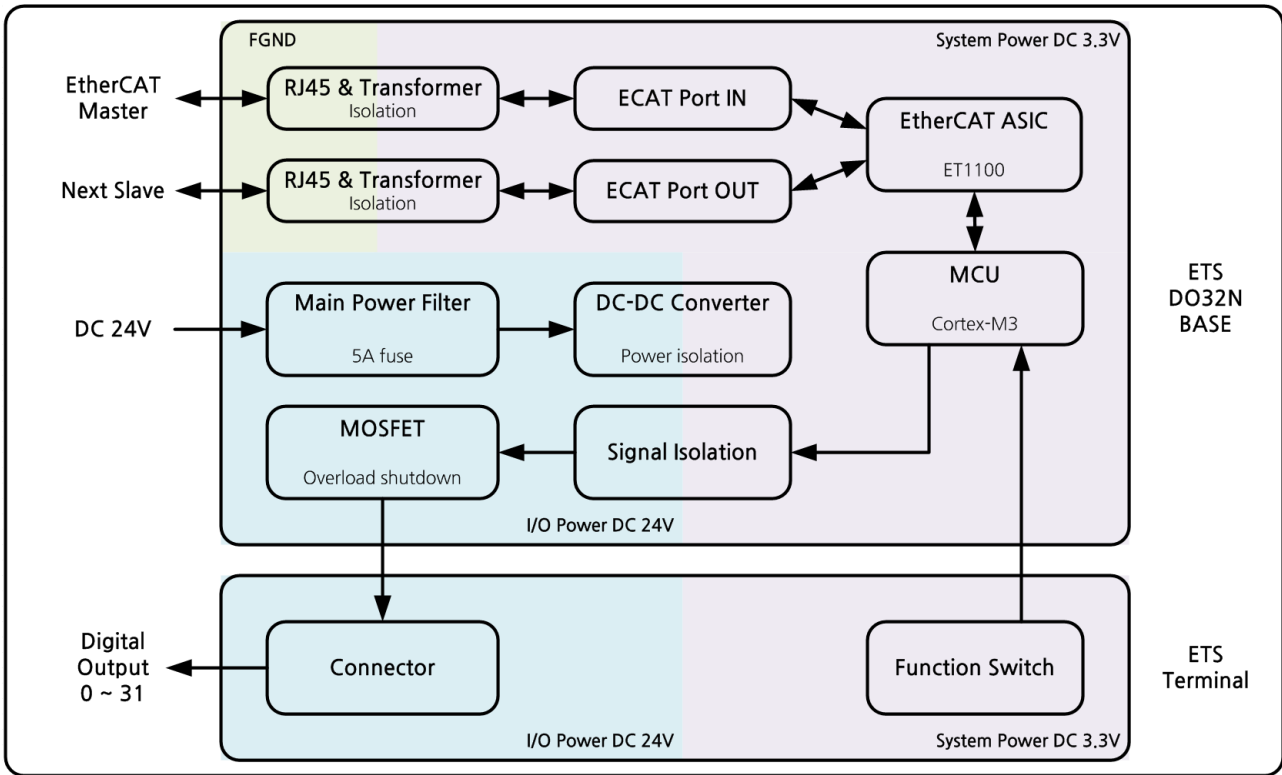| Contents	Details
Dimension	180 * 53 * 41 (mm)
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 80°C
Humidity	5% ~ 90%, non-condensing
Power consumption	System Power : 47mA @ DC 24V ± 5% I/O Power : Max. 45mA @ DC 24V ± 5%

Environmental Specification

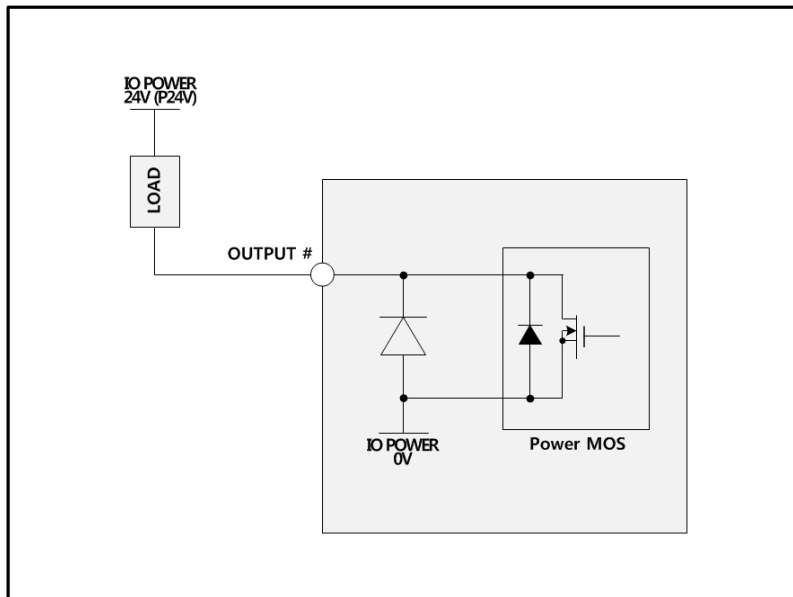| ITEM	Details
Number of Outputs	32 Output
Output type	MOSFET with common ground (NPN)
Isolation	Photo-coupler (V_{iso} = 3,000V_{rms})
OFF State Current	Max. 100uA / Point
ON State Max Sink Current	Max. 500mA / Point
Rds (On state resistance)	Max. 1.4Ω (±5%)
Over-Temperature Shutdown	160°C
Over-Current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

Digital Output Specification
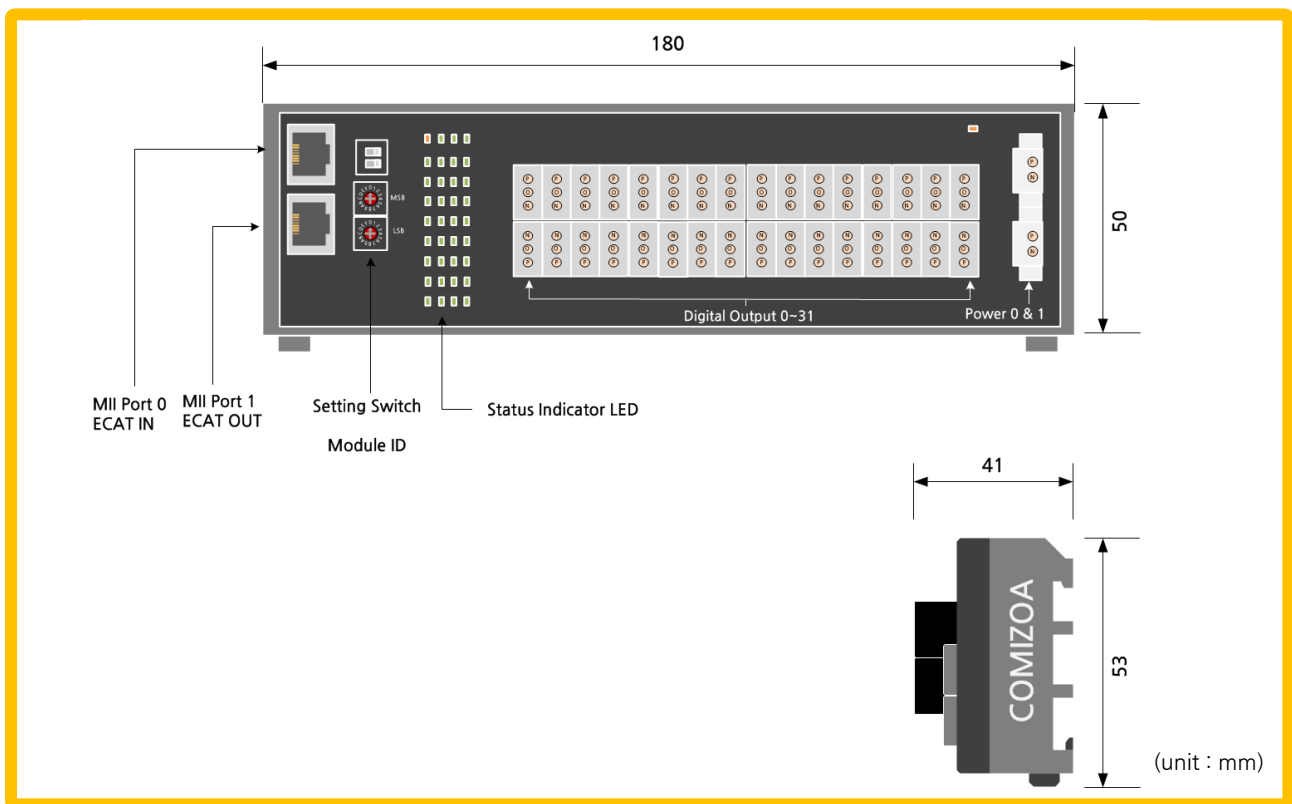
Dimension

Block Diagram

ETS-DO32N-E Block Diagram

Circuit Diagram (Digital Output)

Interface Connect

EtherCAT Master

ETS NODE 0   ETS NODE 1   ETS NODE 2

ETS NODE 3   ETS NODE 4   ETS NODE 5
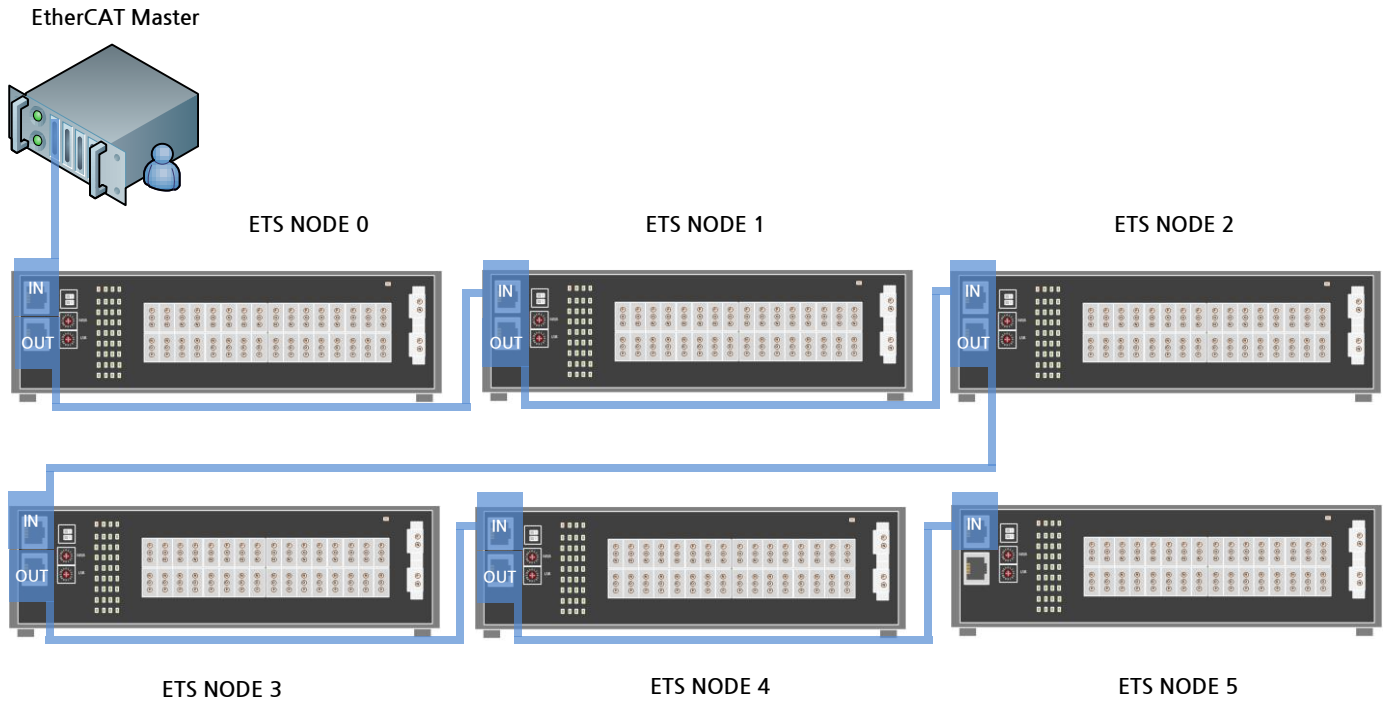
Function Setting

ON OFF	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

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

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Connector

◼ RJ45 Connector

<table>
<tr><td rowspan="2"></td><td colspan="2">RJ45 IN</td><td colspan="2">RJ45 OUT</td></tr>
<tr><td>1</td><td>TX+</td><td>1</td><td>TX+</td></tr>
<tr><td>IN</td><td>2</td><td>TX-</td><td>2</td><td>TX-</td></tr>
<tr><td></td><td>3</td><td>RX+</td><td>3</td><td>RX+</td></tr>
<tr><td></td><td>4</td><td>NC</td><td>4</td><td>NC</td></tr>
<tr><td></td><td>5</td><td>NC</td><td>5</td><td>NC</td></tr>
<tr><td>OUT</td><td>6</td><td>RX-</td><td>6</td><td>RX-</td></tr>
<tr><td></td><td>7</td><td>NC</td><td>7</td><td>NC</td></tr>
<tr><td></td><td>8</td><td>NC</td><td>8</td><td>NC</td></tr>
</table>

◼ Contact Number

DO 0	DO 1	DO 2	DO 3	DO 4	DO 5	DO 6	DO 7	DO 8	DO 9	DO 10	DO 11	DO 12	DO 13	DO 14	DO 15	PWR0

(P / O / N contacts top row, N / O / P contacts bottom row)

DO 16	DO 17	DO 18	DO 19	DO 20	DO 21	DO 22	DO 23	DO 24	DO 25	DO 26	DO 27	DO 28	DO 29	DO 30	DO 31	PWR1

◼ PIN MAP

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

DO 0 ~ 31		
P	I/O PWR P24V OUTPUT	
O	DIGITAL OUTPUT	
N	I/O PWR N24V OUTPUT	
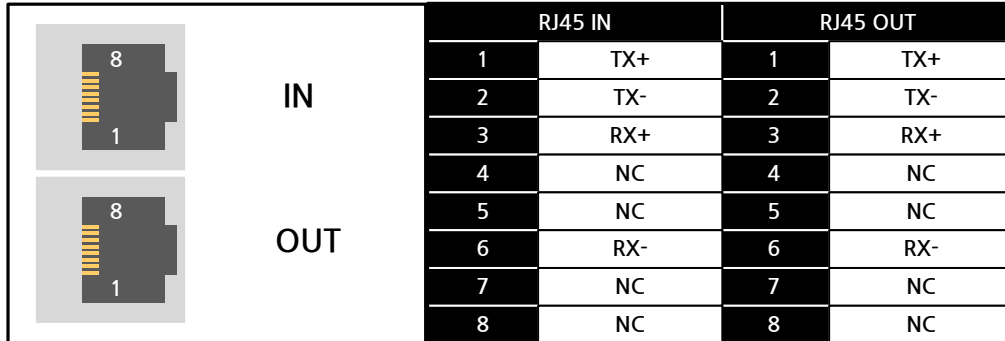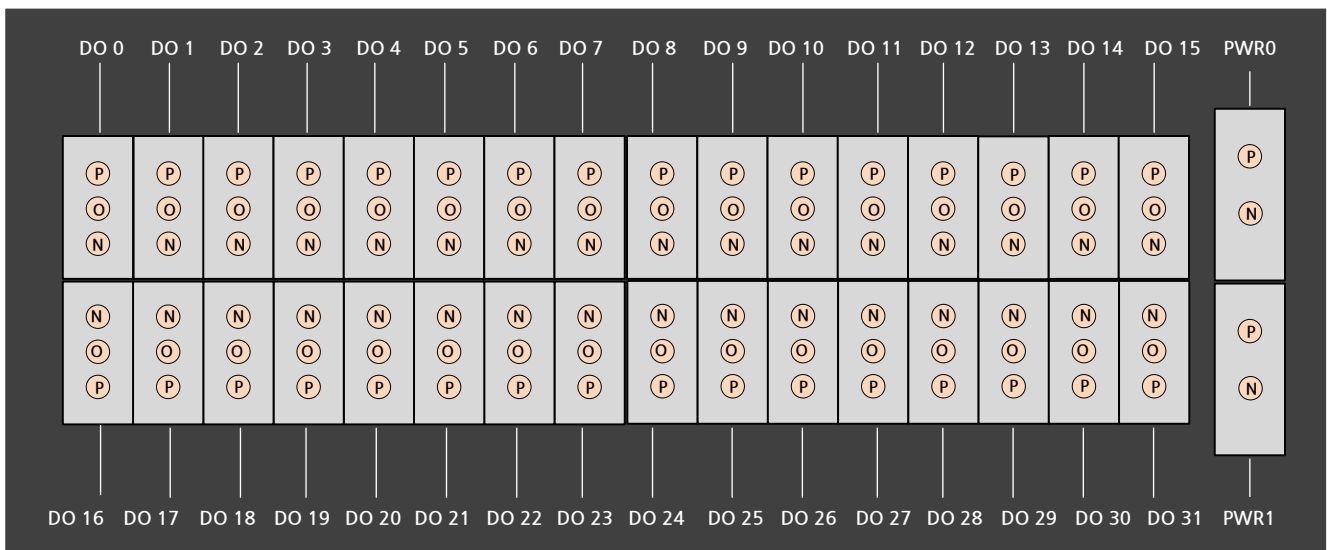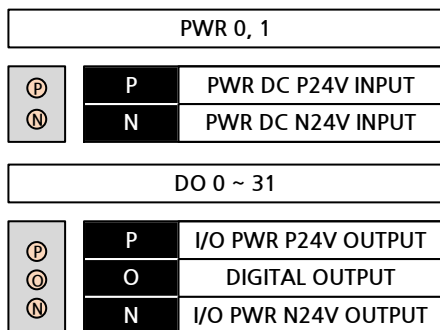
Status LED
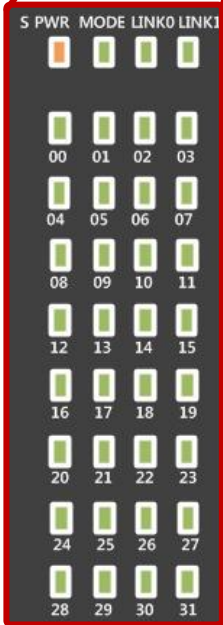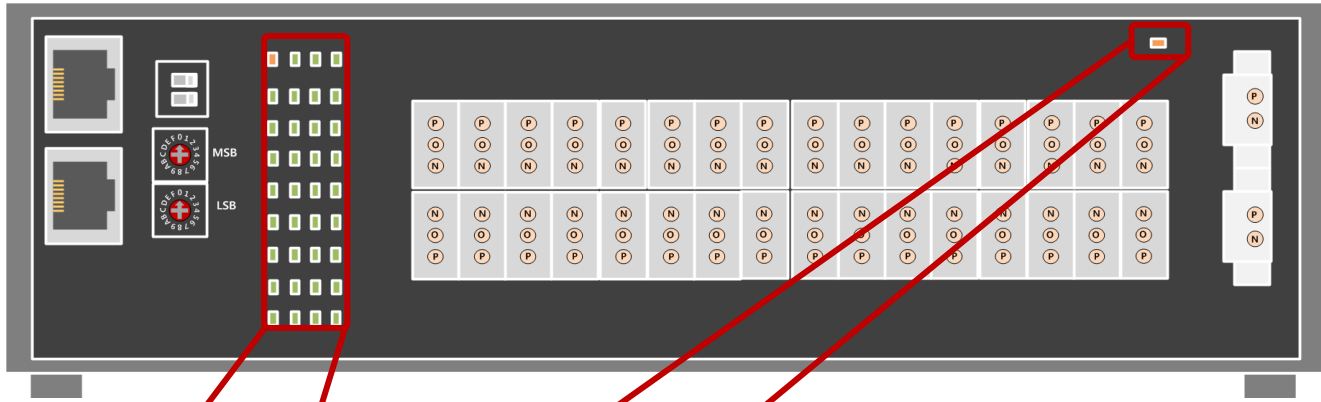
IO PWR	I/O POWER LED	ON	DIGITAL I/O POWER(24V DC) ON
		OFF	DIGITAL I/O POWER(24V DC) OFF
S PWR	SYSTEM POWER LED	ON	SYSTEM POWER(3.3V DC) ON
		OFF	SYSTEM POWER(3.3V DC) OFF
MODE	EtherCAT AL STATE LED	OFF	INIT
		Blinking(slow)	PRE-OP
		Single Flash	SAFE-OP
		ON	OP
		Flickering(fast)	BOOTSTRAP
LINK 0(1)	LINK 0(1) STATE LED	Blinking(slow)	MII Port 0(1) OPEN
		OFF	MII Port 0(1) Closed
DO 0-31	OUTPUT STATE LED	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	2016.03.02	First Edition
2	1.01	2017.10.24	RJ-45 Connector Update

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