

# ECS Hardware Reference Manual



4CHANNEL ANALOG OUTPUT MODULE

ECS-AO04IH

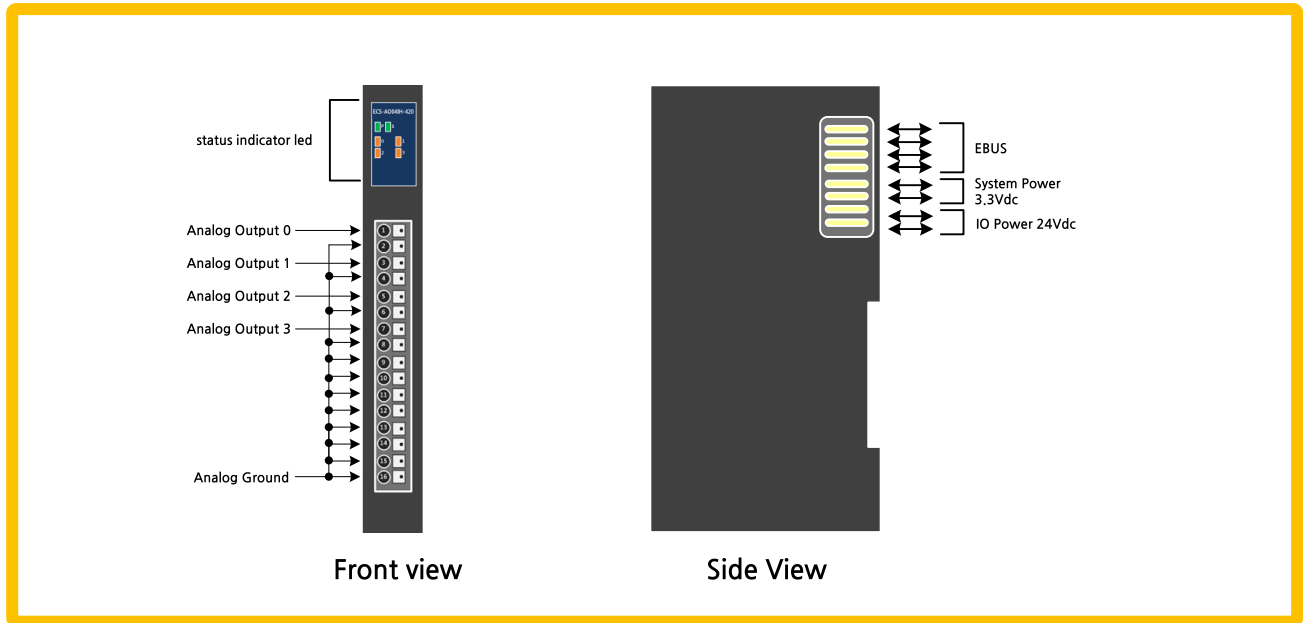
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**개요**

**ECS Series - ECS-AO04IH (Analog Output 4ch)**

ECS-AO04IH는 EtherCAT 기반 제어기인 ECS Series의 4채널 Analog 출력 모듈입니다.

각 채널의 내부 제어신호와 외부 입출력 신호는 포토커플러를 사용하여 절연됩니다.

본 매뉴얼은 ECS-AO04IH의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

**제품사양**
**■ Analog Specification**

| Contents             | Details   |
|----------------------|---|
| Number of Outputs    | 4 Output  |
| Output type          | Single-ended  |
| Resolution           | 16bit(2's Compliment)   |
| Voltage Output Range | 4mA ~ 20mA  |
| Isolation            | Non-isolated Between Channels<br>I/O to Logic : Photo-coupler isolation ( 3KV ) |
| Error                | Offset Error : $\pm 0.25\%$<br>Gain Error : $\pm 0.25\%$                        |
| Load Resistance      | Typ. 50M $\Omega$   |
| Conversion Time      | Min. 100us / All Channels   |
| Wiring contact       | LSF-SMT3,5-16P (Weidmuller)   |

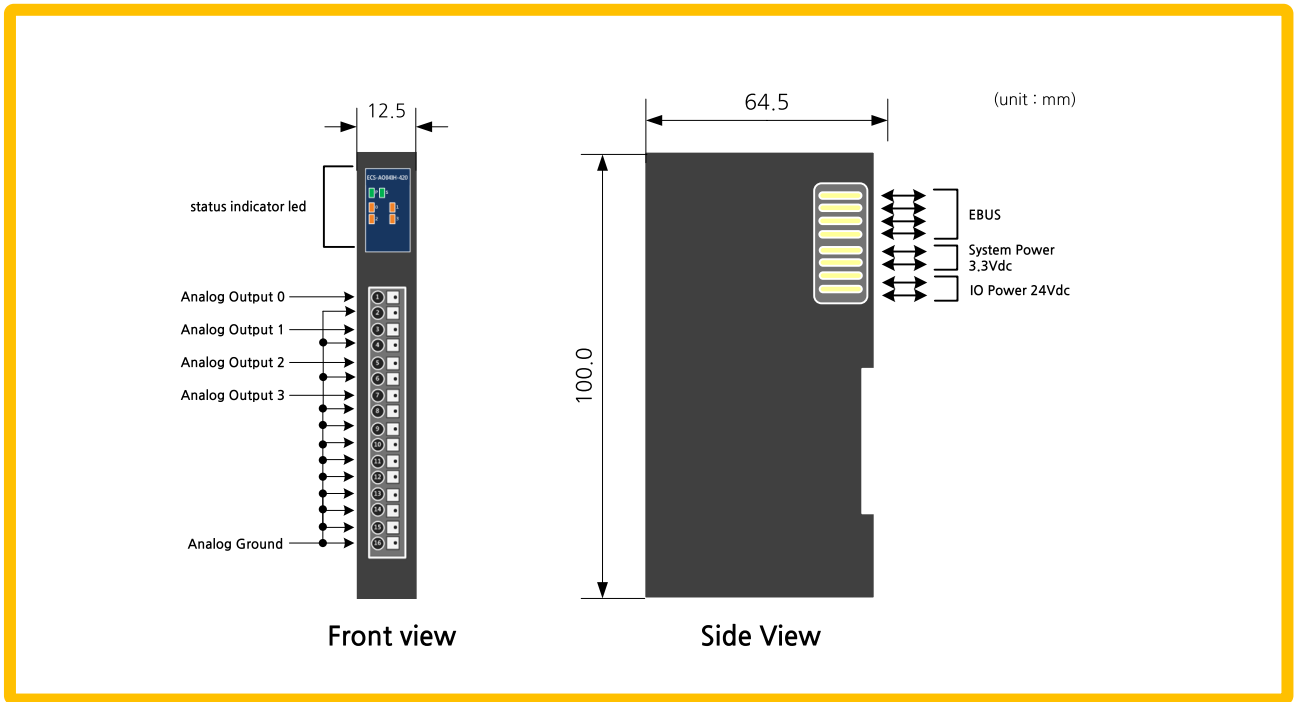
**■ Power Specification**

| ITEM                      | Details   |
|---------------------------|---|
| Power Dissipation(System) | Max. 100mA @ 5.0V DC  |
| Power Dissipation(I/O)    | Max. 80mA @ 24.0V DC  |
| Rated Input Voltage       | 24V DC<br>(-15%/+20%, ripple ratio within 5%)<br>EN 61131-2 |

**■ Environmental Specification**

| ITEM                        | Details                            |
|-----------------------------|------------------------------------|
| Dimension                   | 65 * 100 * 12.5 (mm)               |
| Install                     | Industrial DIN rail                |
| Operating Temperature Range | 0 $^{\circ}$ C ~ 50 $^{\circ}$ C   |
| Storage Temperature Range   | -20 $^{\circ}$ C ~ 80 $^{\circ}$ C |
| Operating Humidity Range    | 5% ~ 90%RH, non-condensing         |
| Storage Humidity Range      | 5% ~ 90%RH, non-condensing         |

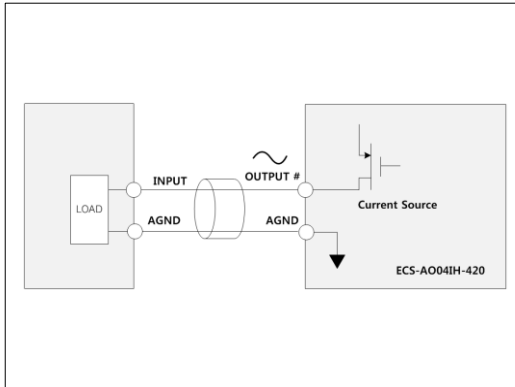
제품사양



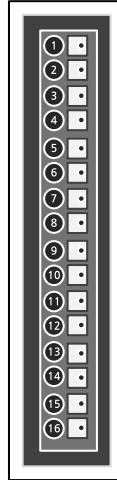
Dimension

Wiring

■ Circuit Diagram

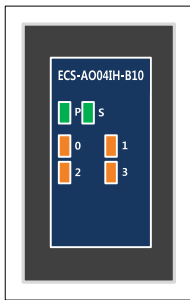


■ PIN MAP



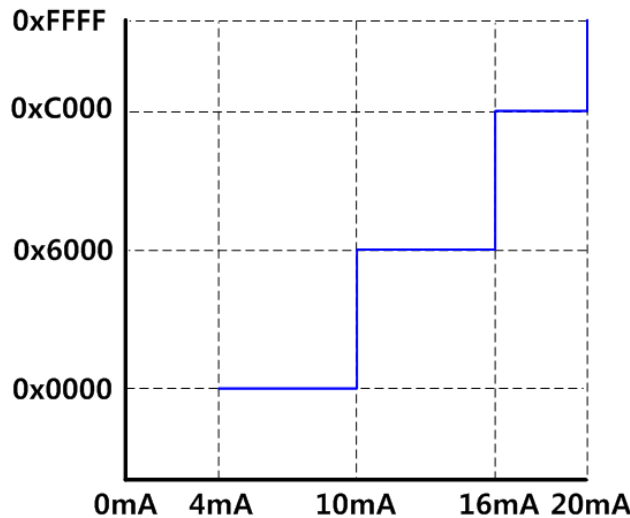
|    |         |
|----|---------|
| 1  | OUTPUT0 |
| 2  | AGND    |
| 3  | OUTPUT1 |
| 4  | AGND    |
| 5  | OUTPUT2 |
| 6  | AGND    |
| 7  | OUTPUT3 |
| 8  | AGND    |
| 9  | AGND    |
| 10 | AGND    |
| 11 | AGND    |
| 12 | AGND    |
| 13 | AGND    |
| 14 | AGND    |
| 15 | AGND    |
| 16 | AGND    |

Indicators



|     |                       |                  |                         |
|-----|-----------------------|------------------|-------------------------|
| P   | SYSTEM POWER LED      | ON               | SYSTEM POWER(5V DC) ON  |
|     |                       | OFF              | SYSTEM POWER(5V DC) OFF |
| S   | EtherCAT AL STATE LED | OFF              | INIT                    |
|     |                       | Blinking(slow)   | PRE-OP                  |
|     |                       | Single Flash     | SAFE-OP                 |
|     |                       | ON               | OP                      |
|     |                       | Flickering(fast) | BOOTSTRAP               |
| 0-3 | INPUT STATE LED       | ON               | Analog Out State        |
|     |                       | OFF              | Power-Down State        |

Analog Data



## Hardware Reference Manual Update List

| No. | Version | Date       | Changes in      |
|-----|---------|------------|-----------------|
| 1   |         |            | First Edition   |
| 2   | 1.01    | 2016.02.29 | 글꼴변경 (나눔고딕, 굴림) |

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