# Industrial EtherCAT Slave I/O Module with Isolated 16-ch Digital Input/Output

- Built-in isolated 16 digital inputs  (IECS-1116-DI)

- Built-in isolated 16 digital outputs (IECS-1116-DO)

- 2 RJ45 bus interfaces

- LED indicators for the input status

- Removable terminal block connector

- 9 ~ 48V DC wide input voltage range

- 700mA/ch high output current (IECS-1116-DO)

- Supports EtherCAT distributed clock (DC) mode and SyncManager mode

- EtherCAT conformance test tool verified

## Powering the Digital Transformation with EtherCAT

PLANET IECS-1116 series is an industrial EtherCAT slave I/O module equipped with the EtherCAT protocol for today's distributed industrial applications. The module provide high-density digital input or output channels and is protected with 3750 VDC isolation. Its compact size and DIN-rail mounting make installation in a cabinet easy. Pluggable terminal blocks and LED indicator help users to maintain and set up their system.
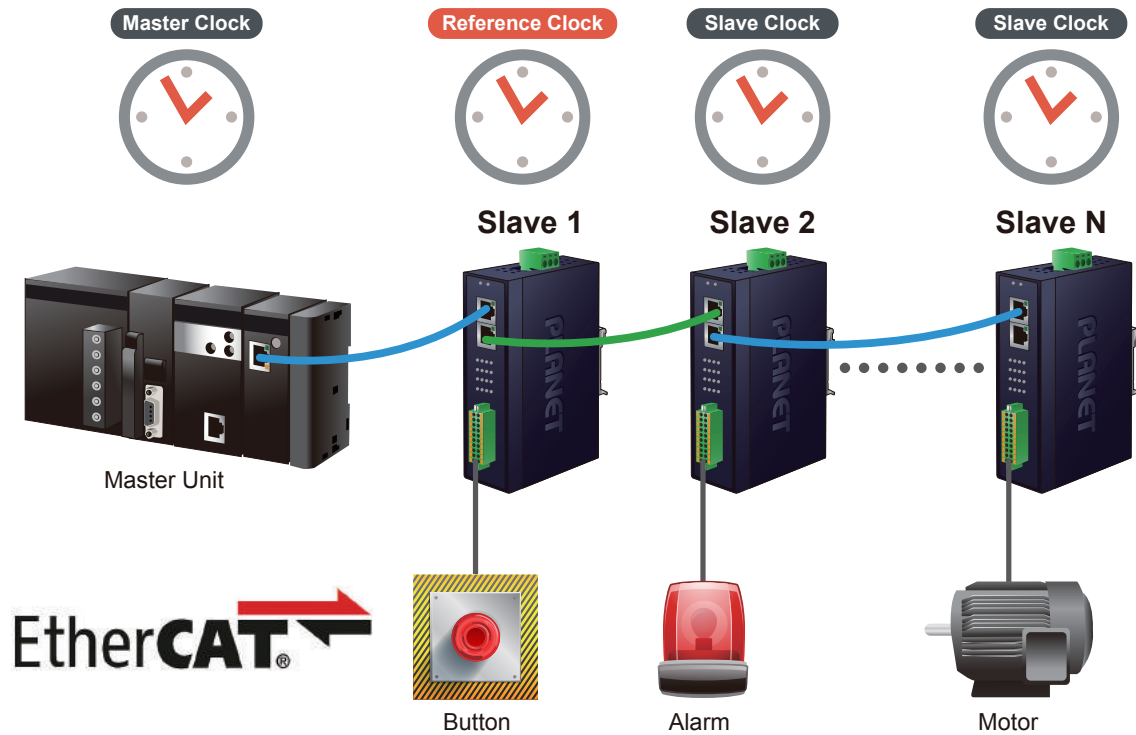
## Flexible Installation

The IECS-1116 series is an ideal high-speed distributed system solution which provides quick installation, real-time connection status monitoring, and wide-ranging power input and operating temperature to improve work efficiency, making them suitable for the harsh environment. Besides, the module comes with 2 10/100BASE-TX RJ45 ports. Through the EtherCAT technology, a network of up to 65,535 devices can be supported without the limitation of the type of topology -- line, bus, tree, star or any arrangement -- being used.
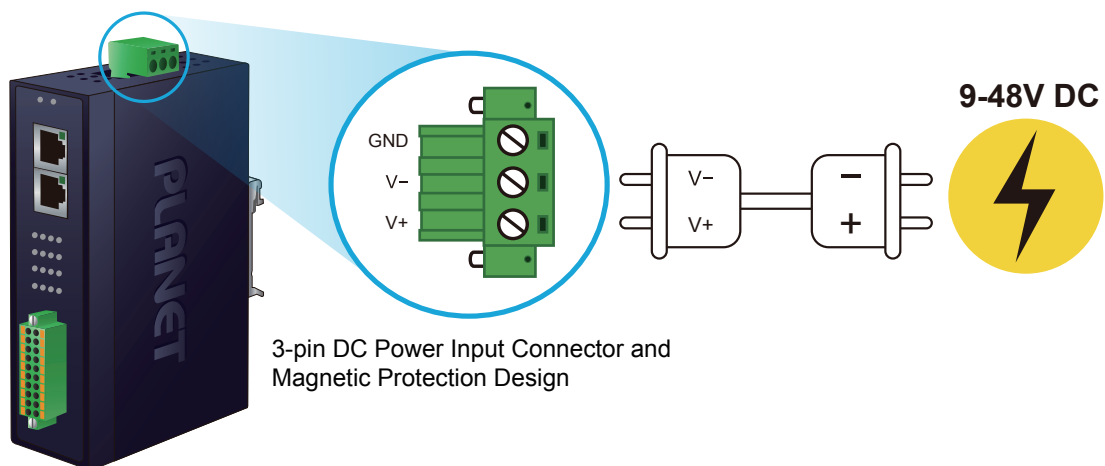
## Synchronization

An EtherCAT slave is an electronic device that carries out cyclical sequences of calculations and/or data copying tasks at a certain interval (cycle). The EtherCAT slave working cycle (e.g. in the range of a few µs up to several ms) can be derived from different sources. EtherCAT node can measure time difference between leaving and returning frame. With distributed clocks, EtherCAT can realize a precise synchronization time of <1us between each slave module.

| Master Clock | Reference Clock | Slave Clock | Slave Clock |
|---|---|---|---|

**Slave 1** **Slave 2** **Slave N**

Master Unit

EtherCAT

Button          Alarm          Motor

## Convenient and Reliable Power System

The IECS-1116 series is equipped with one 3-pin DC power input connector with screws for power supply installation. With power magnetic protection design, it can avoid the device burnout due to wrong wiring. In addition, it also possesses an integrated power supply source with wide-ranging voltages (9 to 48V DC) for worldwide high availability applications.

**9-48V DC**

GND
V−
V+

V−
V+

3-pin DC Power Input Connector and
Magnetic Protection Design
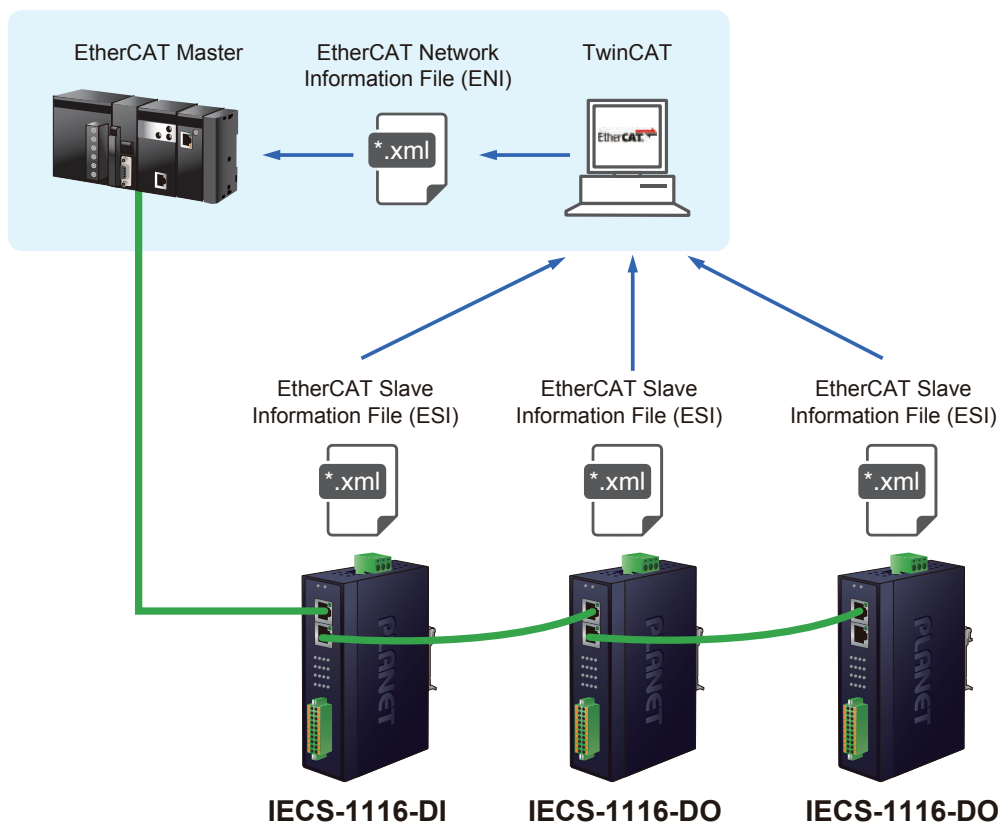
### Environmentally Hardened Design

With the IP30 metal industrial case, the IECS-1116 series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets without air conditioning. It features a ventilated construction in which a cooling fan is not necessary, thereby making its operation noiseless. Being able to operate under the temperature range from -40 to 75 degrees C, the IECS-1116 series can be placed in almost any difficult environment.



## Applications

### Industrial-grade EtherCAT Slave Module for Factory Automation

The IECS-1116 series is an EtherCAT slave I/O module with isolated16-ch input or output for distributed industrial applications. Each module is equipped with high density I/O (up to 16 points) and powerful features in a compact size. DIN-rail design and daisy-chain wiring powered by EtherCAT technology make it easy to install the modules in the field. Besides, the IECS-1116 series is able to provide a wide variety of I/O combinations.  With the standard ESI file, users can always find suitable I/O modules for their high-speed EtherCAT-based applications.

# Specifications

| Model | | IECS-1116-DI | IECS-1116-DO |
|---|---|---|---|
| Digital Input | | | |
| Channels | | 16 | -- |
| Input Type | | Wet (sink/source) / Dry (source) | -- |
| Wet Contact | ON Voltage Level | +3.5 V ~ +50 V | -- |
| | OFF Voltage Level | +4 V max. | -- |
| Dry Contact | ON Voltage Level | Close to GND | -- |
| | OFF Voltage Level | Open | -- |
| Photo Isolation | | 3750 VDC | -- |
| Digital Output | | | |
| Channels | | -- | 16 |
| Output Type | | -- | Open collector (sink) |
| Load Voltage | | -- | +3.5 V ~ +50 V |
| Max. Load Current | | -- | 700 mA per channel |
| Photo Isolation | | -- | 3750 vrms |
| Communication Interface | | | |
| Connector | | 2 x RJ45 | |
| Protocol | | EtherCAT | |
| Distance between Stations | | Max. 100m (100BASE-TX) | |
| Data Transfer Medium | | Ethernet/EtherCAT cable (min. cat5), shielded | |
| Power | | | |
| Input Voltage Range | | 9V~48V DC | |
| Power Consumption | | 4W max. | |
| Mechanical | | | |
| Dimensions (H x W x D) | | 135 x 87 x 32mm | |
| Installation | | DIN-rail mounting | |
| Case Material | | IP30 metal | |
| Environment | | | |
| Operating Temperature | | -40 ~ 75 degrees C | |
| Storage Temperature | | -40 ~ 75 degrees C | |
| Humidity | | 5 ~ 95% (non-condensing) | |

# Ordering Information

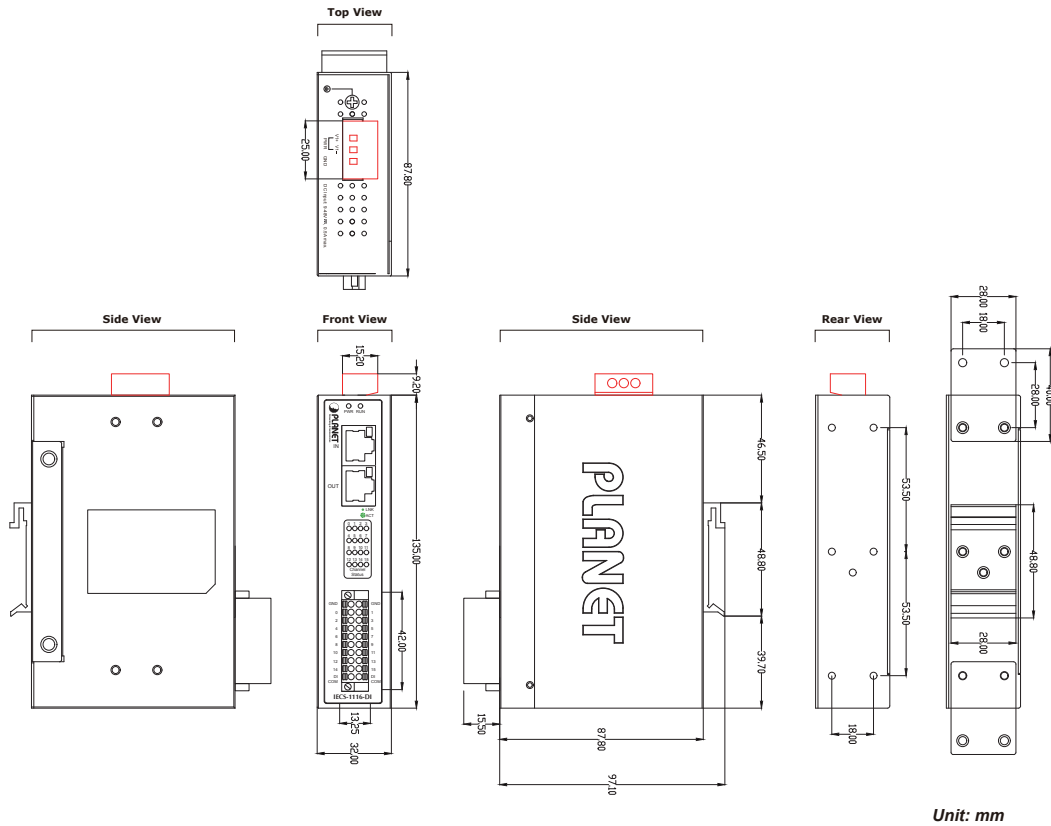| IECS-1116-DI | Industrial EtherCAT Slave I/O Module with Isolated 16-ch Digital Input |
|---|---|
| IECS-1116-DO | Industrial EtherCAT Slave I/O Module with Isolated 16-ch Digital Output |

# Related Products

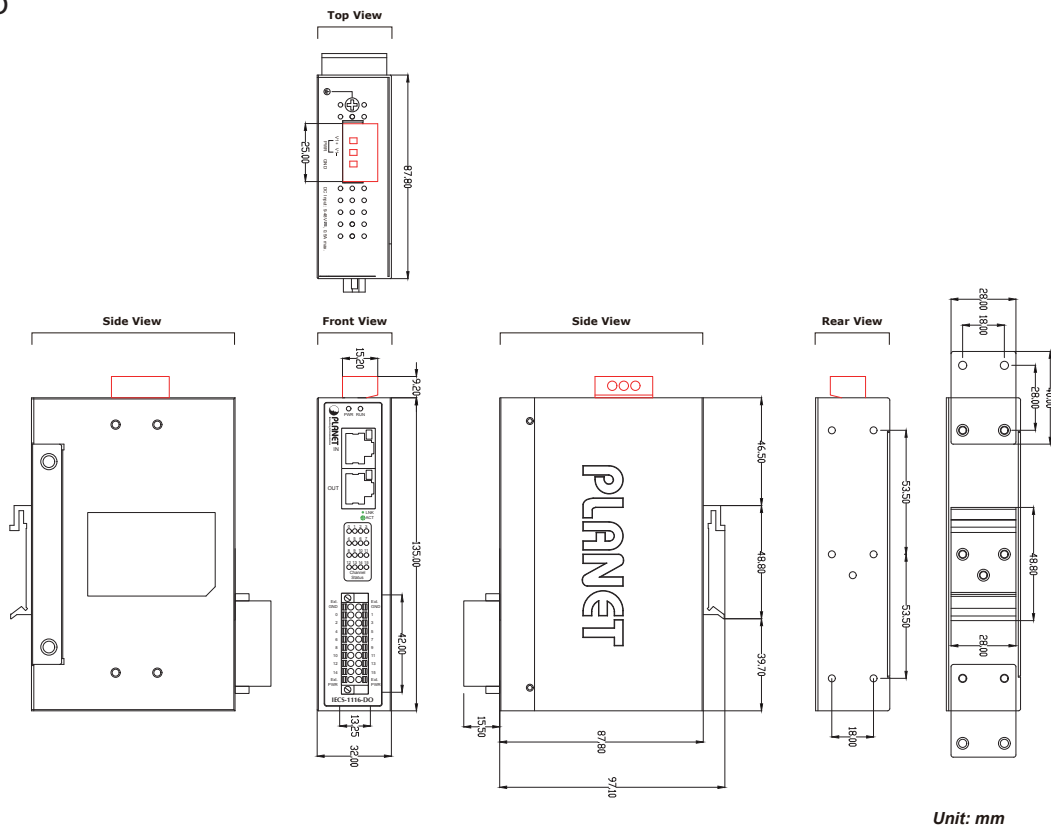| IMG-110T | Industrial 1-port RS422/485 Modbus Gateway |
|---|---|
| ICS-2400T | Industrial 4-Port  RS232/RS422/RS485 Serial Device Server |
| ICG-2420G-LTE | Industrial 4G LTE Cellular Gateway with 4-Port 10/100TX |

# Accessories

| PWR-240-48 | 240W 48V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 degrees C) |
|---|---|
| PWR-480-48 | 480W 48V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 degrees C) |

# Drawing

## IECS-1116-DI

**Top View**

**Side View**

**Front View**

**Side View**

**Rear View**

IECS-1116-DI

*Unit: mm*

## IECS-1116-DO

**Top View**

**Side View**

**Front View**

**Side View**

**Rear View**

IECS-1116-DO

*Unit: mm*

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**IECS-1116-DI/IECS-1116-DO**