Product Specifications

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

IECS-1116-DI

Release 1.0

Change History:

Revision	Date	Author	Change List
Version 1.0	2019/04/29	Simon	Initial release

Author	Simon	Editor:	Mark
Reviewed by:	Reyo	Approved by:	Kent

1. PRODUCT DESCRIPTION

Powering the Digital Transformation with EtherCAT

PLANET IECS-1116-DI is an industrial EtherCAT slave I/O module equipped with the EtherCAT protocol for today's distributed industrial applications. The IECS-1116-DI provides high-density digital input channels and is protected with 3750 V DC 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-DI 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.

Convenient and Reliable Power System

The IECS-1116-DI 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.

Environmentally Hardened Design

With the IP30 metal industrial case, the IECS-1116-DI 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-DI can be placed in almost any difficult environment.

2. PRODUCT FEATURES

- Built-in isolated 16 digital inputs
- 2 x RJ45 bus interface
- LED indicators for the input status
- Removable terminal block connector
- 9 ~ 48V DC wide input voltage range
- Supports EtherCAT Distributed Clock (DC) mode and SyncManager mode
- EtherCAT conformance test tool verified

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3. PRODUCT SPECIFICATIONS

3.1 Component Specifications

Controller	Microchip LAN9252
EEPROM	AT24C512C-SSHM-T

3.2 Functional Specifications

Product		IECS-1116-DI
Digital Input		
Channels		16
Input Type		Wet (sink/source) / Dry (source)
Wet Contact	On Voltage Level	3.5~50V
	OFF Voltage Level	4V max.
Dry Contact	ON Voltage Level	Close to GND
	OFF Voltage Level	Open
Photo Isolation		3750 VDC
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		9~48V DC
Power Consumption		4W max.
Mechanical		
Dimensions (W x D x H)		32 x 87 x 135 mm
Installation		DIN-rail and wall mounting
Case Material		IP30 metal
Environment		
Operating Temperature		-40~75℃
Storage Temperature		-40~75℃
Relative Humidity		5~95% (non-condensing)

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3.3 Physical Specifications

Dimensions (W x D x H)	32 x 87 x 135 mm
Weight	390g (gross weight)

➢ **Front View**

System Power and System Initialization

RJ45 Bus Interface LNK/ACT

Digital Input Port Status
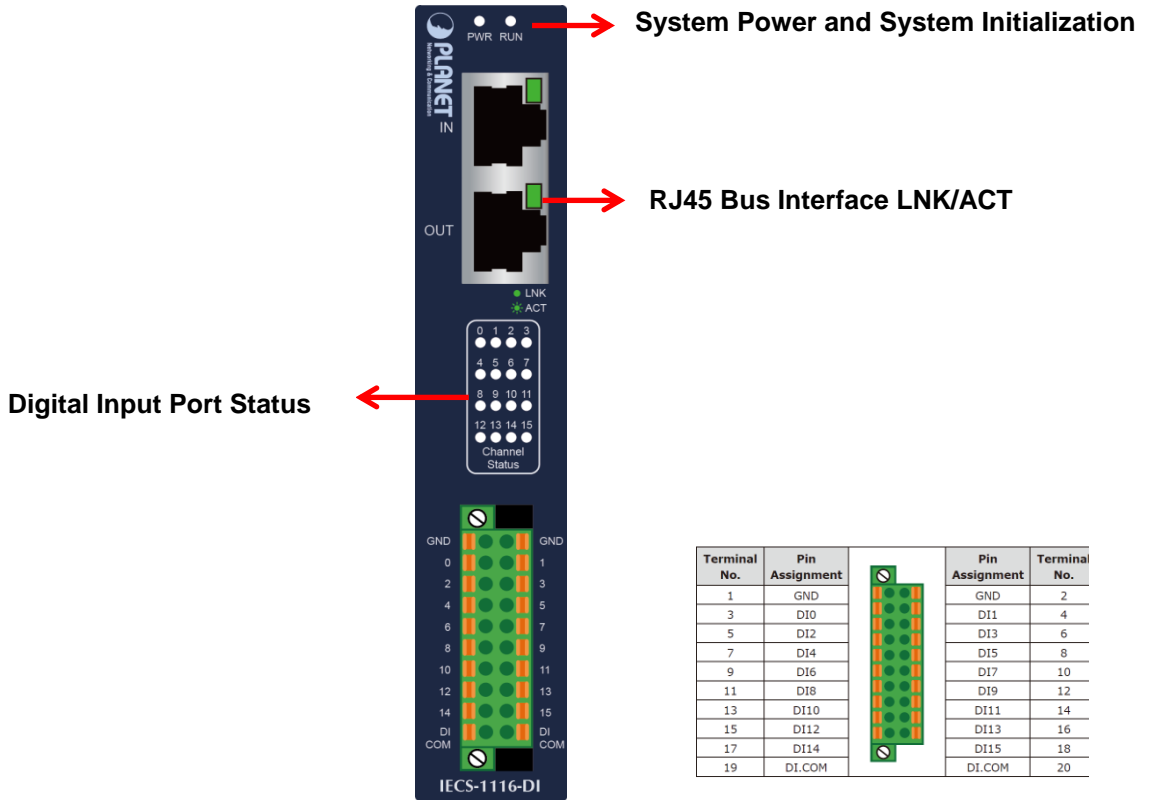
Terminal No.	Pin Assignment		Pin Assignment	Terminal No.
1	GND		GND	2
3	DI0		DI1	4
5	DI2		DI3	6
7	DI4		DI5	8
9	DI6		DI7	10
11	DI8		DI9	12
13	DI10		DI11	14
15	DI12		DI13	16
17	DI14		DI15	18
19	DI.COM		DI.COM	20

LED Status:

System

| LED	Color		Function
PWR	**Green**	Light	Power is activated.
		Off	Power is not activated.
RUN	**Green**	Light	The device is in the state of operation.
		Single Flash	The device is in the state of operation without risk.
		Blinking	The device is ready to be operated.
		Off	The device is in the sleep mode

Per 10/100TX RJ45 Port (Port Input/Port Output)

| LED	Color		Function
LNK/ACT	**Green**	**Light**	Indicating that the port is linked up.
		Blinking	Indicating that the module is actively sending or receiving data over that port.
		Off	Indicating that the port is linked down.

Per Digital Input LED

LED	Color	Function	
DI (0~15)	**Green**	**Light**	Input voltage is higher than the upper switching threshold voltage.
		Blinking	Indicating network packet delivery.
		Off	Input voltage is below the lower switching threshold voltage.

Top View
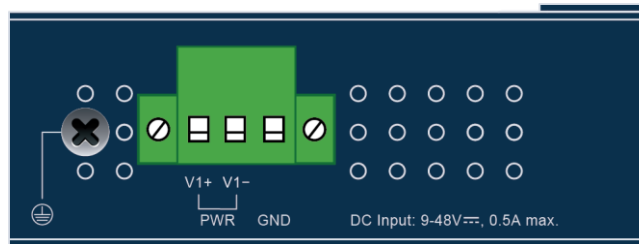
Three-view Diagram
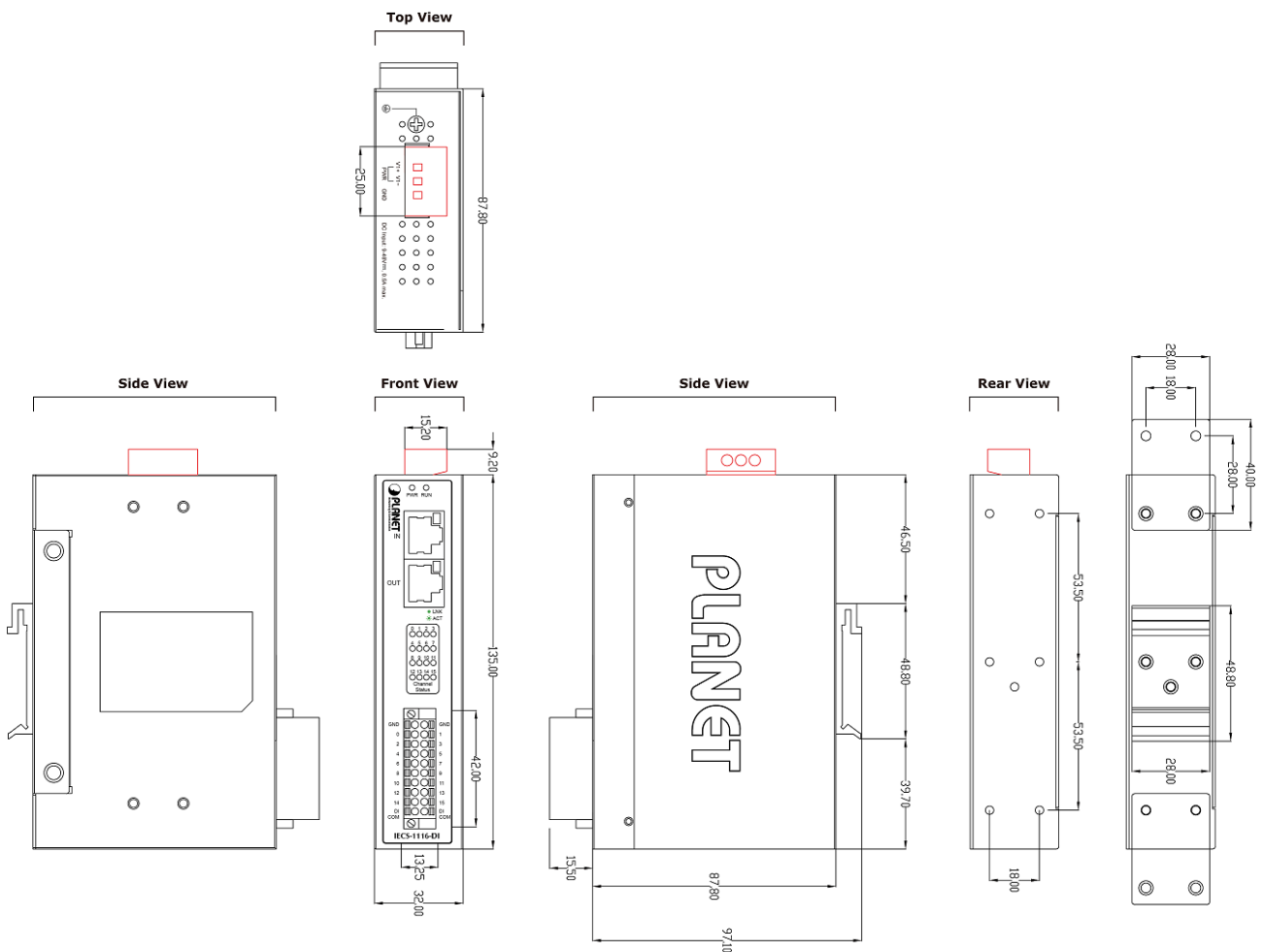
Unit: mm

3.4 Environmental Specifications

Temperature

Cold Boot	-40 ~ 75 degrees C
Operating	-40 ~ 75 degrees C

Operating Humidity

Operating	5 ~ 95% (non-condensing)
Storage	5 ~ 95% (non-condensing)

3.5 Electrical Specification

Device Input Voltage	9-48V DC, 0.5A max.

3.6 Regulatory Compliance

CE, FCC, RoHS, WEEE

3.7 Reliability

MTBF> 50,000hrs @ 25 degrees C

3.8 Basic Packaging

- 1 x IECS-1116-DI Unit
- 1 x User Manual
- 1 x Wall-mount Kit

3.9 Package Information

Dimensions (W x D x H)	205 x 144 x 46 mm
Weight	490g
Carton Dimensions (W x D x H)	430 x 310 x 260 mm
Carton Weight	9.8kg
Carton Unit	20pcs in one carton