

## Product Specifications

### Industrial RS232/RS422/RS485 Serial Device Server Series

**ICS-2100T / ICS-2105AT**

**ICS-2102T / ICS-2102TS**

Version 1.1

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Change History:

Revision	Date	Author	Change List
1.0	2020/2/27	Angeline	Initial release
1.1	2020/9/2	Angeline	Add ICS-2102T / ICS-2102TS

Author	Angeline	Editor:	Angeline
Reviewed by:		Approved by:	Kent Kang

## 1. PRODUCT DESCRIPTION

### Cost-effective Solution for RS232/422/485 Serial-to-Industrial Ethernet Application

PLANET ICS-210xT Serial Device Server series is specially designed to convert RS232, RS422 or RS485 serial communication to Industrial Fast Ethernet networking so as to extend the network distance efficiently and inexpensively. There are one 10/100BASE-TX RJ45 port or single-mode/multi-mode media available in the ICS-210xT series and its operating temperature ranges from -40 to 75 degrees C for your network needs. The ICS-210xT series is a time-saving and cost-effective solution for users and system integrators to quickly transform their serial devices into the Ethernet network with no need of replacing the existing serial devices and software system.

### Efficiently Extend Network Distance

The ICS-210xT series especially equips one fiber interface (100BASE-FX, choice of fiber-connector from SC / LC, multi-mode / single-mode fiber) and is able to extend the distance of deploying serial equipment and hosts. Users are able to select fiber-optic cables (based on distance) provided for distance extension from 2 kilometers (via multi-mode fiber) to 120 kilometers (via single-mode fiber) or longer.

### Remote Management

As the ICS-210xT series provides easy serial-to-Ethernet connectivity and connection to a TCP/IP network, the remote network system can thus be managed efficiently via its Web, telnet, and VCOM management interfaces. It supports both application and serial operation modes for alarm or IP address connection, which saves the network administrator's time in detecting and locating network problems without visual inspection of the cabling and devices. Multiple connection options are available for a large networking environment as well.

### Stable Performance under Difficult Environments

The ICS-210xT series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curbside traffic control cabinets. Its operating temperature ranging from -40 to 75 degrees C allows the ICS-210xT series to be placed in almost any difficult environment.

The ICS-210xT series, equipped with compact IP30 standard metal case, allows either DIN-rail or wall mounting for efficient use of cabinet space. The ICS-210xT series also provides an integrated power supply source with a wide range of voltages (9 to 48V DC / 24V AC) ideally suitable for worldwide operation with high availability applications requiring dual or backup power inputs.

### Dual Power Input for High Availability Network System

The ICS-210xT series features a strong dual power input system with wide-ranging voltages (9V~48V DC / 24V AC) incorporated into customer's automation network to enhance system reliability and uptime. In the example below, when Power Supply 1 fails to work, the hardware failover function will be activated automatically to keep powering the ICS-210xT series via Power Supply 2 without any break of operation.

### Effective Alarm Alert for Better Protection

The ICS-210xT series comes with a Fault Alarm feature which can alert the users when there is something wrong with the Serial Device Server. With this ideal feature, the users would not have to waste time finding where the problem is. It will help to save time and human resource. The ICS-210xT series provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, or the rebooting response.

## 2. PRODUCT FEATURES

### ➤ **Serial Interface**

- One DB9 interface that supports RS232,
- One terminal block interface that supports 2-wire RS485 and 4-wire RS422/RS485 operation
- Asynchronous serial data rates up to 921600bps
- Data mode including VCOM, RFC2217, TCP Server, TCP Client, UDP, remote pair, Modbus converter server/client and serial telnet modes

### ➤ **Ethernet Interface**

- 1-port 10/100BASE-TX RJ45 interface with auto MDI/MDI-X function (ICS-2100T)
- Choice of fiber-connector from SC/LC, multi-mode/single mode fiber

### ➤ **Management**

- IPv4 and IPv6 dual stack management
- Remote management interfaces
  - IP-based Web management
  - Telnet console management
  - Windows-based VCOM utility supports searching, monitoring and configuration setting
- IP NTP (Network Time Protocol) and DNS management
- Standard TCP/IP interface and versatile operation modes
- Operation mode supports ARP, ICMP, TCP/IP, UDP, HTTP server, DHCP client, Telnet server/client
- Serial Operation mode selected via management interface
- Pair Connection mode for connecting two serial devices over a network
- Allows a maximum of 4 hosts to be accessed as TCP client mode
- Firmware upgrade via HTTP protocol
- Accessible IP security control to prevent illegal users
- Event notification
  - Remote syslog server
  - SNMP trap
  - Relay output alarm
- DHCP client for IP address assignment
- PLANET Smart Discovery utility automatically finds the client devices on the network

### ➤ **Industrial Case and Installation**

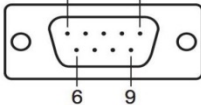
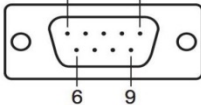
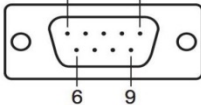
- IP30 metal case
- DIN-rail and wall-mount designs
- Redundant power design
  - 9 to 48V DC / 24V AC, redundant power with reverse polarity protection
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 degrees C operating temperature
- Free fall, shock-proof and vibration-proof for industries
- Supports extensive LED indicators for network diagnosis
- Reset button for resetting to factory default

### 3. PRODUCT SPECIFICATIONS

#### 3.1 MAIN COMPONENTS

Serial Port Server Controller	Confidential information	x 1
CPU	Embedded 32-bit CPU, 150MHz	x 1
RS232 Line Driver	ZT3243E	x 1
RS422/RS485 Line Driver	AZRS3078	x 2
PHY	IP101GRI	x 1
Flash Size	32M bytes	x 1
DRAM Size	64M bytes	x 1

#### 3.2 FUNCTION SPECIFICATIONS

Product	ICS-2100T	ICS-2105AT	ICS-2102T	ICS-2102TS																																																		
Serial Interface																																																						
Serial Ports	1 x DB9 male for RS232 1 x 4-pin Terminal block for RS422 / RS485																																																					
Serial Standards	RS232 / 4-wire RS422 or RS485 / 2-wire RS485																																																					
Baud Rate (Data Rate)	50bps to 921Kbps																																																					
Data Bits	5, 6, 7, 8																																																					
Parity Type	1, 1.5, 2																																																					
Stop Bit	Odd, Even, None, Space, Mark																																																					
Flow Control	RTS/CTS and DTR/DSR (RS232 only) XON/XOFF																																																					
Signals	RS232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS422: Tx+, Tx-, Rx+, Rx-, GND 4-wire RS485: Tx+, Tx-, Rx+, Rx-, GND 2-wire RS485: Data A (+), Data B (-), GND																																																					
Pin Assignment	<div>Serial Port</div> <table><tr><th>Male DB9</th><th>Pin</th><th>RS232</th><th>RS422 RS485-4W</th><th>RS485-2W</th></tr><tr><td rowspan="9"></td><td>1</td><td>DCD</td><td>TxD+</td><td>--</td></tr><tr><td>2</td><td>RxD</td><td>TxD-</td><td>--</td><td></td></tr><tr><td>3</td><td>TxD</td><td>RxD-</td><td>Data-</td><td></td></tr><tr><td>4</td><td>DTR</td><td>RxD+</td><td>Data+</td><td></td></tr><tr><td>5</td><td>GND</td><td>GND</td><td>GND</td><td></td></tr><tr><td>6</td><td>DSR</td><td>--</td><td>--</td><td></td></tr><tr><td>7</td><td>RTS</td><td>--</td><td>--</td><td></td></tr><tr><td>8</td><td>CTS</td><td>--</td><td>--</td><td></td></tr><tr><td>9</td><td>--</td><td>--</td><td>--</td><td></td></tr></table> <div>4-pin Terminal Block</div>				Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W		1	DCD	TxD+	--	2	RxD	TxD-	--		3	TxD	RxD-	Data-		4	DTR	RxD+	Data+		5	GND	GND	GND		6	DSR	--	--		7	RTS	--	--		8	CTS	--	--		9	--	--	--	
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	<table><tr><td><i>Terminal Block</i></td><td><i>Pin</i></td><td><i>RS-422 RS-485-4W</i></td><td><i>RS-485-2W</i></td></tr><tr><td><div><div><input type="checkbox"/></div>1</div></td><td>1</td><td>TxD+(A)</td><td>--</td></tr><tr><td><div><div><input type="checkbox"/></div>2</div></td><td>2</td><td>TxD-(B)</td><td>--</td></tr><tr><td><div><div><input type="checkbox"/></div>3</div></td><td>3</td><td>RxD-(B)</td><td>Data-(B)</td></tr><tr><td><div><div><input type="checkbox"/></div>4</div></td><td>4</td><td>RxD+(A)</td><td>Data+(A)</td></tr></table>				<i>Terminal Block</i>	<i>Pin</i>	<i>RS-422 RS-485-4W</i>	<i>RS-485-2W</i>	<div><div><input type="checkbox"/></div>1</div>	1	TxD+(A)	--	<div><div><input type="checkbox"/></div>2</div>	2	TxD-(B)	--	<div><div><input type="checkbox"/></div>3</div>	3	RxD-(B)	Data-(B)	<div><div><input type="checkbox"/></div>4</div>	4	RxD+(A)	Data+(A)
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	<div><div><input type="checkbox"/></div>4</div>	4	RxD+(A)	Data+(A)																				

Ethernet Interface				
Ethernet Ports	1 x RJ45	1 x SFP	1 x Duplex SC	1 x Duplex SC
Standard	10/100BASE-TX	100BASE-FX	100BASE-FX	100BASE-FX
Connector	RJ45	LC	Duplex SC	Duplex SC
Fiber Mode	-	Single mode or multi modes (may vary on SFP module)	Multi modes	Single mode
Distance	100m	2km to 120km (may vary on SFP module)	2km	30km
Cable	Twisted-pair	50 or 62.5/125µm multi-mode fiber cable 9/125µm single-mode cable	50/125µm or 62.5/125µm multi-mode fiber cable	9/125µm single-mode cable
ESD Protection	6KV			
Surge Protection	2KV			
Hardware				
Installation	DIN-rail kit and wall-mount ear			
Enclosure	IP 30 metal			
Dimensions (W x D x H)	32 x 87.8 x 135 mm			
Weight	392g	390g	386g	391g
LED Indicators	System: Power 1, Power 2, Fault, SYS TP/SFP Port: Link/ Active Serial Port: Tx and Rx			
Power Requirements	9~48V DC / 24V AC, redundant power with reverse polarity protection			
Power Consumption	Full Loading 9VDC: 0.35A (3.15 watts) 12VDC: 0.28A (3.36 watts) 24VDC: 0.12A (3 watts) 48VDC: 0.08A (3.84 watts)	Full Loading 9VDC: 0.44A (3.96 watts) 12VDC: 0.33A (4 watts) 24VDC: 0.17A (4.08 watts) 48VDC: 0.1A (4.8 watts)	Full Loading 12VDC: 0.42A (5 watts) 24VDC: 0.23A (5.5 watts) 48VDC: 0.13A (6 watts)	Full Loading 12VDC: 0.42A (5 watts) 24VDC: 0.23A (5.5 watts) 48VDC: 0.13A (6 watts)
Connector	Removable 6-pin terminal block for power input			

	Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin 5/6 for Power 2
<b>Alarm</b>	Provides one relay output for power failure Alarm relay current carry ability: 1A @ DC 24V
<b>Reset Button</b>	< 5 sec: System reboot > 5 sec: Factory default
<b>Management</b>	
<b>Management Interfaces</b>	Web management Telnet Console management Windows-based VCOM Utility management SNMPv1, v2c / SNMP Trap UNI-NMS monitoring PLANET Smart Discovery Utility
<b>IP Version</b>	IPv4 and IPv6
<b>Operation Mode</b>	TCP Server TCP Client UDP Client Virtual COM RFC2217 Telnet Server Pair Connection – Remote (Slave) Pair Connection – Local (Master) Modbus converter server / client
<b>Virtual COM Utility Platform Supports</b>	Windows-based only: Windows XP Windows Server 2003 Windows 7 Windows Server 2008 Windows 8 (Must install the latest version of WinPcap) Windows Server 2012 (Must install the latest version of WinPcap) Windows 10
<b>Security</b>	Allow max. 4 accessible IP address hosts/ranges
<b>SNMP MIBs</b>	RFC1213 MIB-II RFC1317 RS232-like MIB
<b>Standards Conformances</b>	
<b>Regulatory Compliance</b>	FCC Part 15 Class A, CE Certification Class A
<b>Stability Testing</b>	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
<b>Standards</b>	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX RFC 768 UDP

	RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 854 Telnet RFC 958 NTP RFC 1591 DNS (client only) RFC 1908 SNMPv2c RFC 2068 HTTP RFC 2131 DHCP Client RFC 2732 Format for Literal IPv6 Addresses in URL's RFC 3315 DHCPv6 Client RFC 3513 IPv6 Addressing Architecture RFC 3596 DNSv6 RFC 4443 ICMPv6 EIA/TIA RS232/422/485
<b>Regulatory Approval</b>	RoHS
<b>Environment</b>	
<b>Operating Temperature</b>	-40 ~ 75 degrees C
<b>Storage Temperature</b>	-40 ~ 85 degrees C
<b>Humidity</b>	5 ~ 95% (non-condensing)

### 3.3 PHYSICAL SPECIFICATIONS:

#### Dimensions:

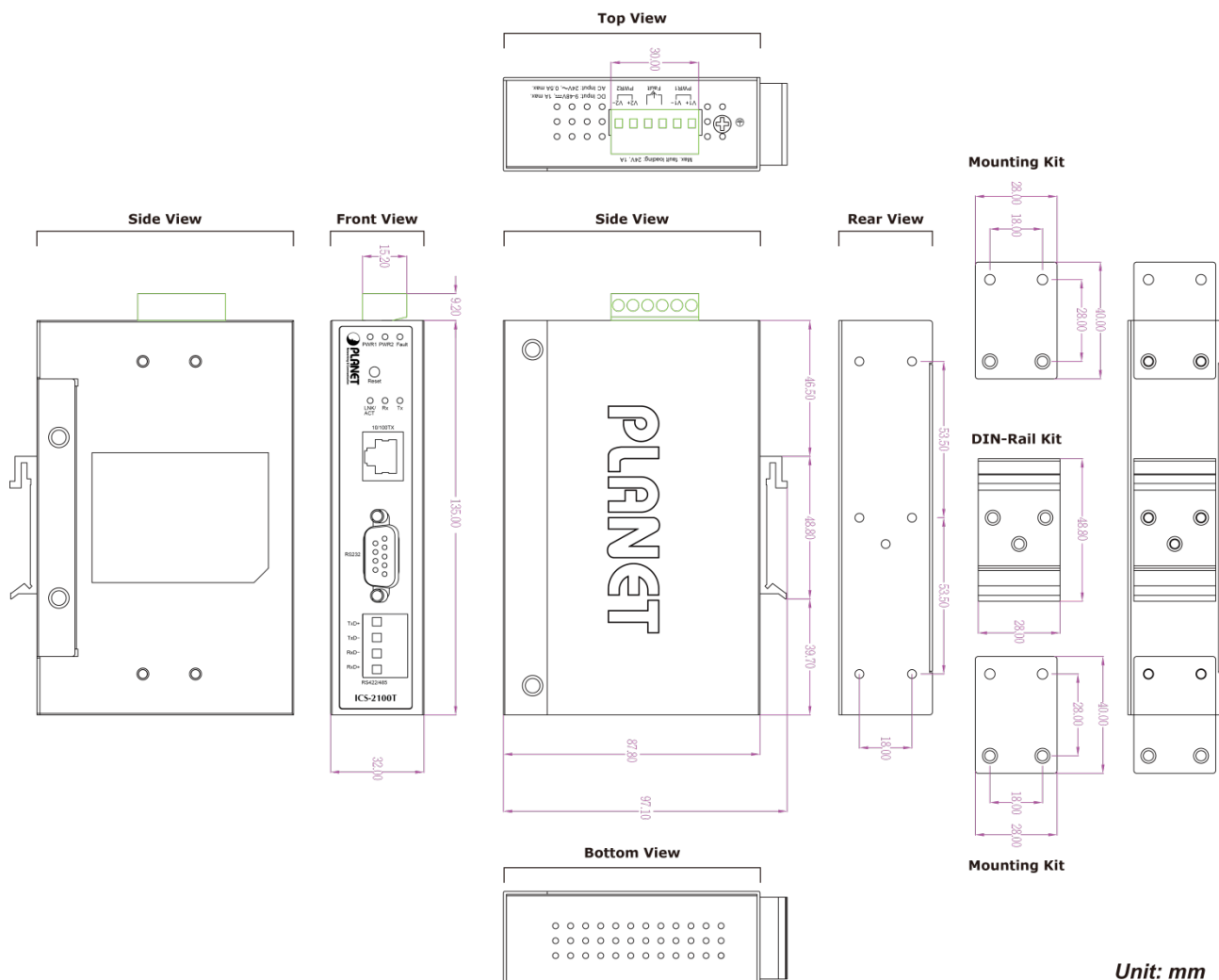
- 32 x 87 x 135 mm (W x D x H)

#### Weight:

- **ICS-2100T**: 392g
- **ICS-2105AT**: 390g
- **ICS-2102T**: 386g
- **ICS-2102TS**: 391g

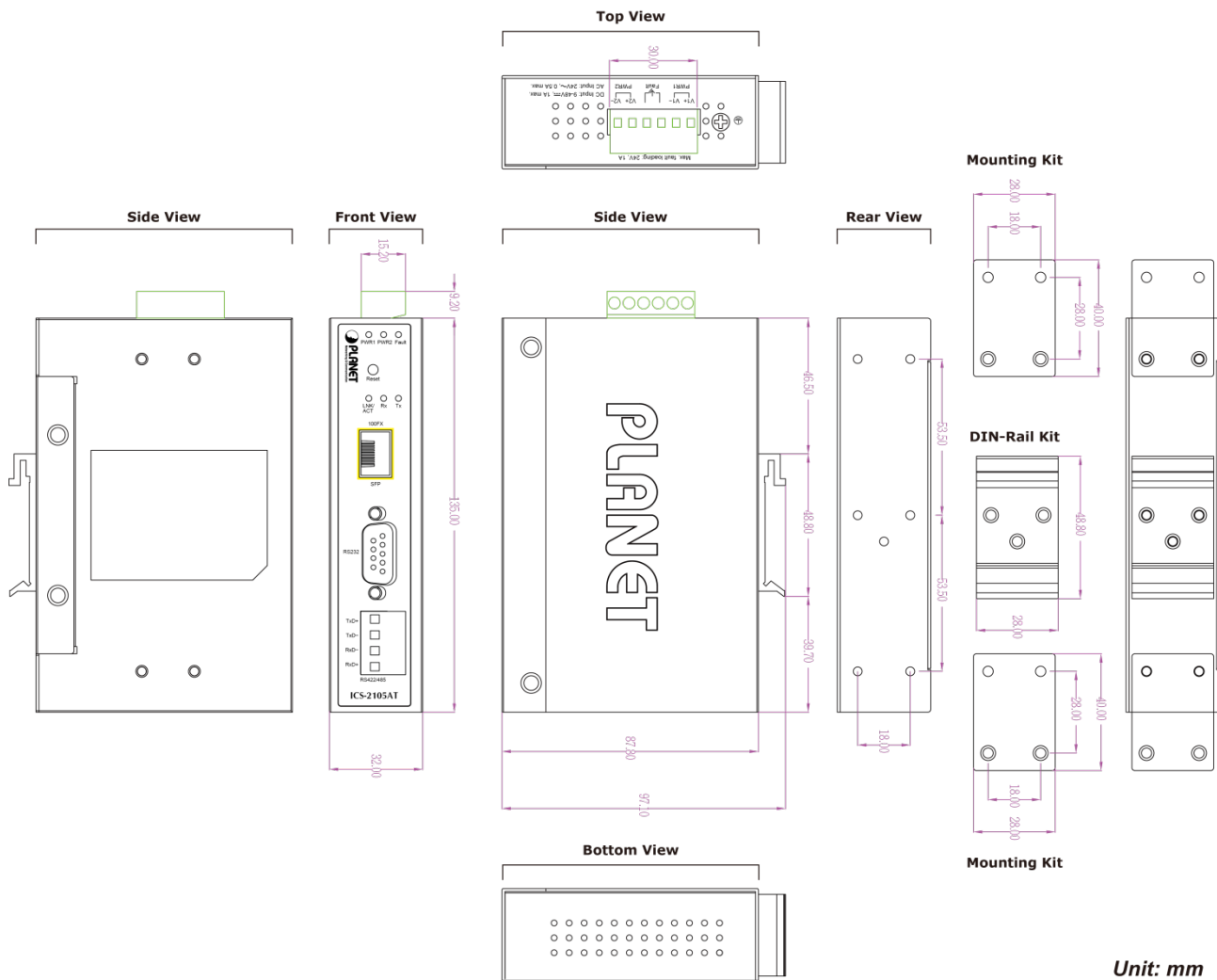
#### Dimensions:

- **ICS-2100T**:



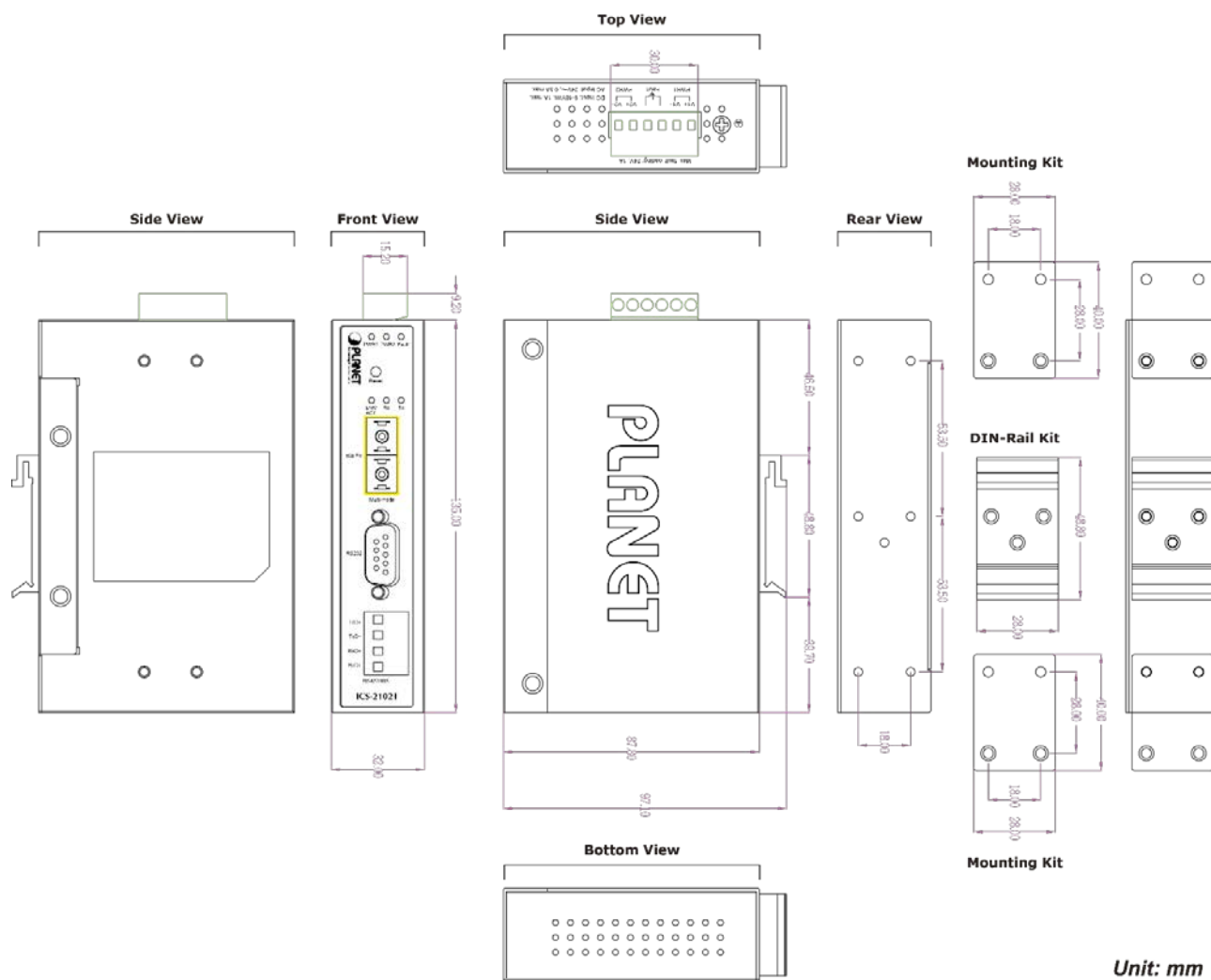


**ICS-2105AT:**

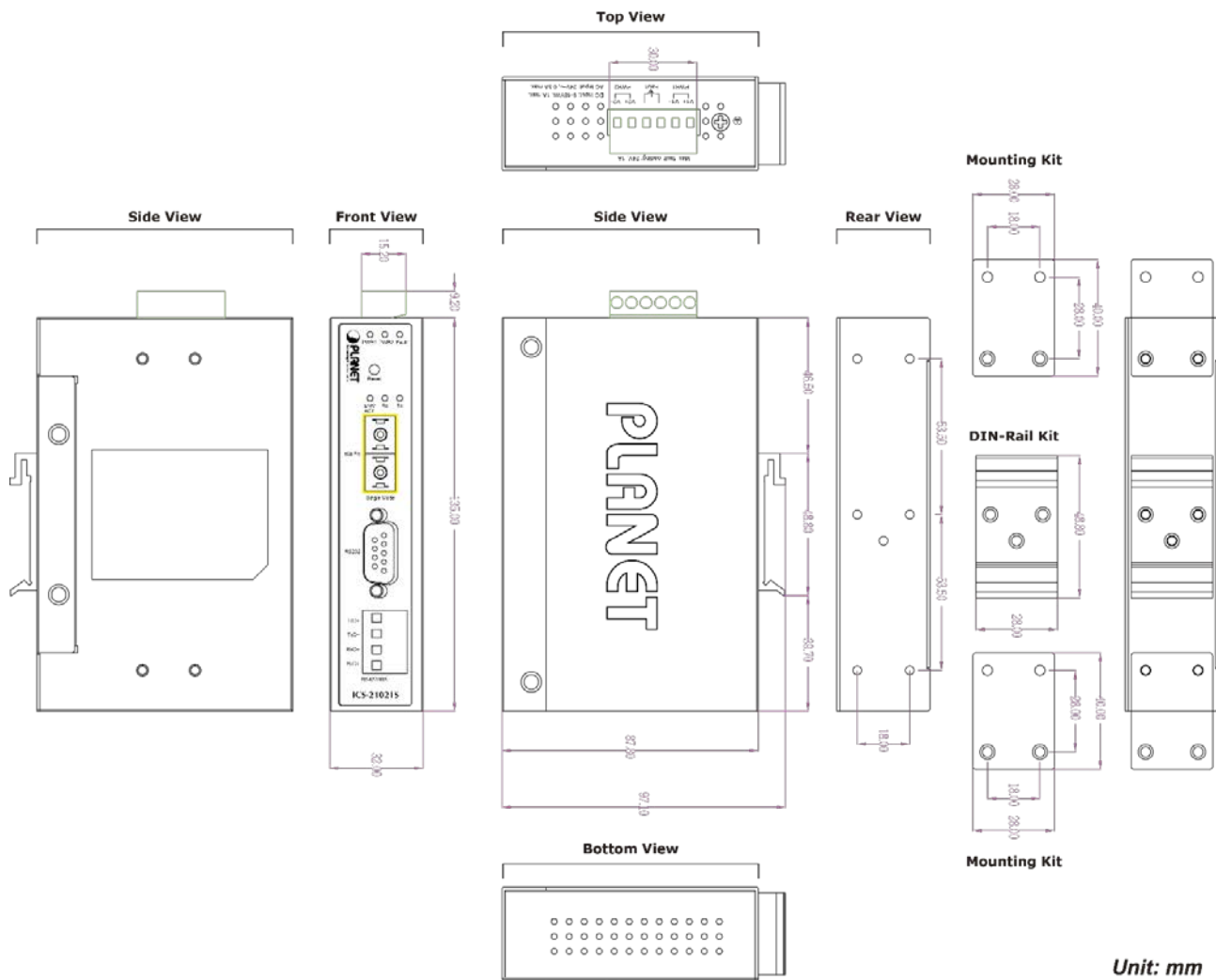


Unit: mm

■ **ICS-2102T:**



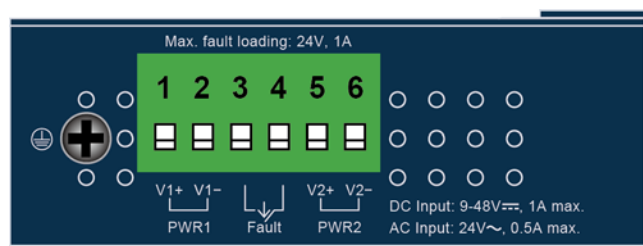
- **ICS-2102TS:**



Unit: mm

### 3.4 Panel view:

■ **Top view**



### ICS-2100T/ICS-2105AT/ICS-2102T/ICS-2102TS Top Panel

#### ■ Front View



#### ■ Serial Port PIN Assignment

Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W
	1	DCD	TxD+	--
	2	RxD	TxD-	--
	3	TxD	RxD-	Data-
	4	DTR	RxD+	Data+
	5	GND	GND	GND
	6	DSR	--	--
	7	RTS	--	--
	8	CTS	--	--
	9	--	--	--

#### ■ 4-pin Terminal Block PIN Assignment

Terminal Block	Pin	RS-422 RS-485-4W	RS-485-2W
	1	TxD+(A)	--
	2	TxD-(B)	--
	3	RxD-(B)	Data-(B)
	4	RxD+(A)	Data+(A)

**LED Definition:**

LED	Color	Function	
PWR1	Green	Light	Indicates power 1 has power.
PWR2	Green	Light	Indicates power 2 has power.
Fault	Red	Light	Indicates either power 1 or power 2 has no power.
LNK/ACT	Green	Light	To indicate that the Fast Ethernet port is successfully connecting to the network at 10Mbps or 100Mbps (Fiber port only 100Mbps)
		Blinks	To indicate the Fast Ethernet Port is receiving or sending data
Tx	Green	Light	Serial Port is transmitting data
Rx	Amber	Light	Serial Port is receiving data

### 3.5 ENVIRONMENTAL SPECIFICATIONS

**Operating:**

**Temperature:** -40 ~75 degrees C

**Relative Humidity:** 5% ~ 95% (non-condensing)

**Storage:**

**Temperature:** -40 ~85 degrees C

**Relative Humidity:** 5% ~ 95% (non-condensing)

### 3.6 ELECTRICAL SPECIFICATIONS

**Power Requirements:**

9-48V DC / 24V AC, redundant power with reverse polarity protection

**Power Consumption:**

LOADING DC INPUT	ICS-2100T Full Loading	ICS-2105AT Full Loading	ICS-2102T Full Loading	ICS-2102TS Full Loading
9V	3.15 watts	3.96 watts	-	-
12V	3.36 watts	4 watts	5 watts	5 watts
24V	3 watts	4.08 watts	5.5 watts	5.5 watts
48V	3.84 watts	4.8 watts	6 watts	6 watts

### 3.7 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

#### Stability Testing:

- IEC60068-2-32 (Free Fall)
- IEC60068-2-27 (Shock)
- IEC60068-2-6 (Vibration)

### 3.8 RELIABILITY

MTBF > 100,000hrs @ 25 degrees C

### 3.9 BASIC PACKAGING

- |  |     |
|--|-----|
| <input checked="" type="checkbox"/> The Industrial Serial Server | x 1 |
| <input checked="" type="checkbox"/> Quick Installation Guide     | x 1 |
| <input checked="" type="checkbox"/> DIN-rail Kit                 | x 1 |
| <input checked="" type="checkbox"/> Wall Mounting Kit            | x 1 |
| <input checked="" type="checkbox"/> Dust Cap (RJ45 or SFP)       | x 1 |

### 3.10 PACKING INFORMATION

	ICS-2100T	ICS-2105AT	ICS-2102T	ICS-2102TS
<b>Box Dimensions (W x D x H):</b>	205 x 144 x 46 mm			
<b>Gross Weight:</b>	562 g			
<b>Carton Dimensions (W x D x H):</b>	435 x 325 x 280 mm			
<b>Total Weight:</b>	11.7 kg			
<b>Quantity:</b>	20pcs in one carton			