

# Industrial 1-Port RS232/422/485 Serial Device Server with 1-Port 100BASE-FX



## 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 is one 100BASE-FX 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 60 kilometers (via single-mode fiber) or longer.

## Convert Serial Communication to IP Networking



## Serial Interface

- One DB9 interface that supports RS232
- One terminal block interface that supports 2-wire RS485 and 4-wire RS422/RS485 standards
- Asynchronous serial data rates up to 921600bps
- Data modes include VCOM, RFC2217, TCP Server, TCP Client, UDP, Remote Pair, Modbus converter server / client and Serial Telnet modes

## Ethernet Interface

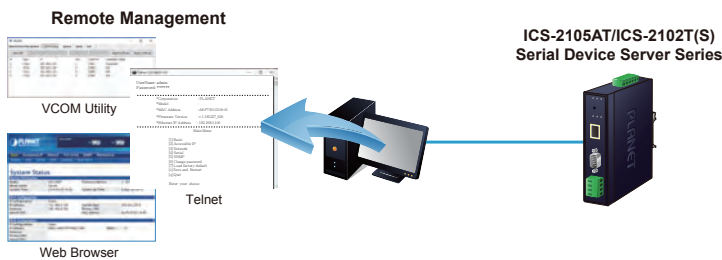
- Choice of fiber-connector from SC/LC, multi-mode/single mode fiber

## 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
- Software Protocol 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

## 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.



## 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

## Stable Performance under Difficult Environments

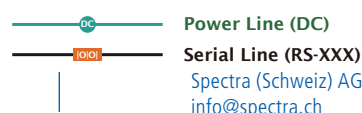
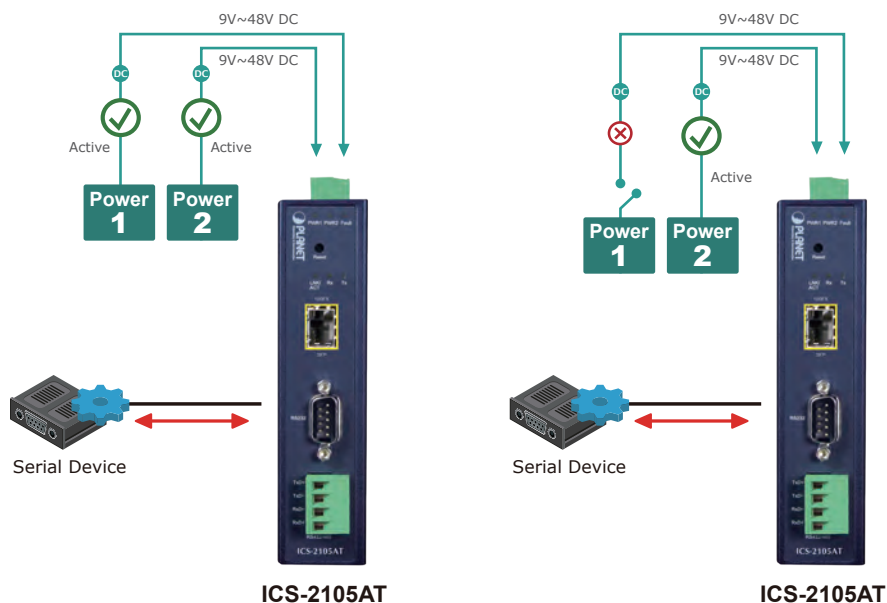
The ICS-210xT series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curbside traffic control cabinets. Its operating temperature ranging from -40 to 75 degrees C allows the ICS-210xT series to be placed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

The ICS-210xT series 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

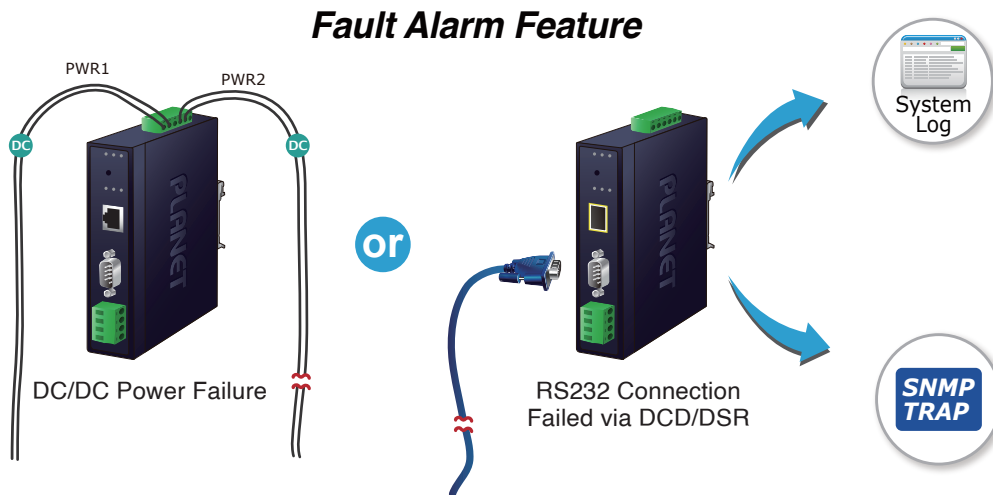
The ICS-210xT series features a strong dual power input system with wide-ranging voltages (9V~48V DC/24V AC) incorporated into customer's automation network to enhance system reliability and uptime. In the example below, when Power Supply 1 fails to work, the hardware failover function will be activated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

## Non-stop Ethernet Service with Dual Power Input & Auto Failover



*Effective Alarm Alert for Better Protection*

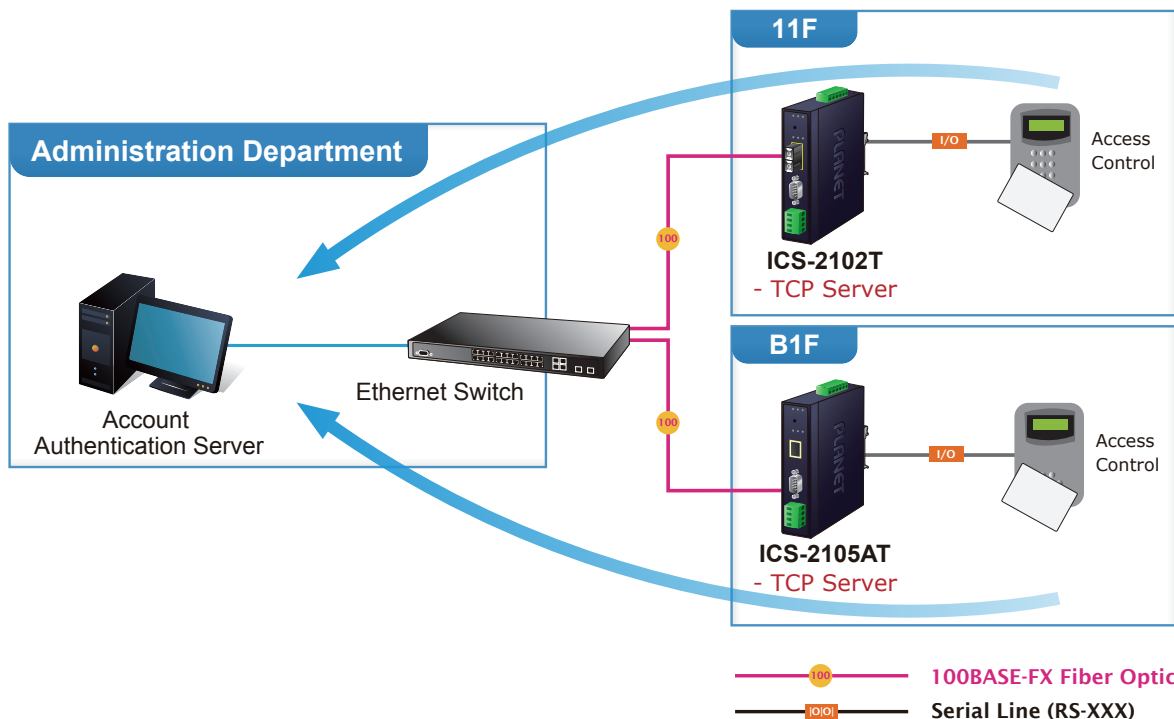
The ICS-210xT series comes with a Fault Alarm feature which can alert the users when there is something wrong with the Serial Device Server. With this ideal feature, the users would not have to waste time finding where the problem is. It will help to save time and human resource. The ICS-210xT series 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.



## Applications

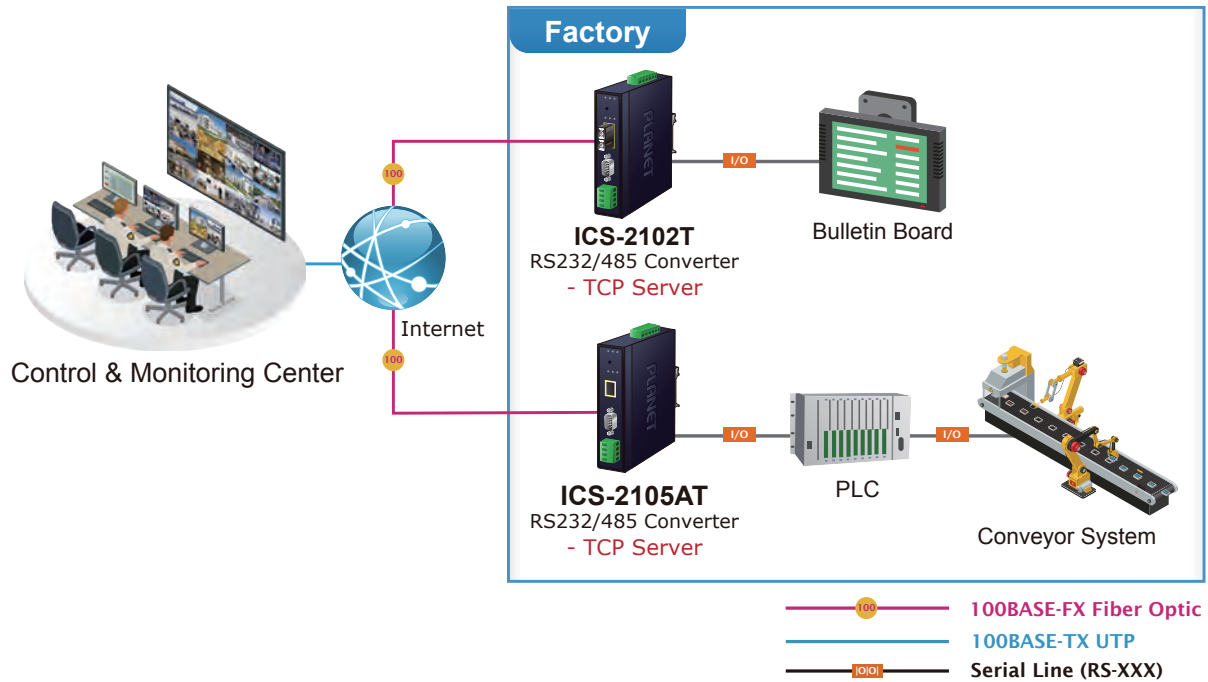
*Access Control System – Traditional System Application*

Most of the enterprises and government use access control plate and Mifare or RFID to authorize entrance identity. Traditionally, the access control machines use RS232 or RS485 serial interface with their cables connecting to login server. By applying the ICS-210xT series Serial Device Server, the access control machine is able to extend the network over longer distances via Ethernet interfaces. In addition, the ICS-210xT series can be linked to an xDSL router to get the internet access capability so that the access control can be set and monitored over the internet.



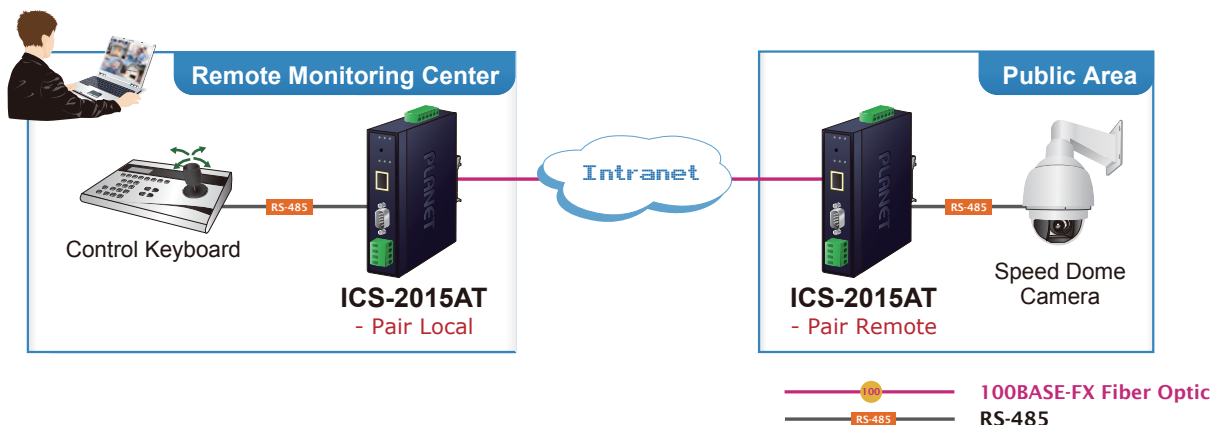
## Process Control

To monitor, configure and manage the robotic conveyer including other production machines, PLC (Programmable Logical Control) is required to drive the above manufacturing process. The ICS-210xT series can be set to the TCP Server mode and connected to the PLC. Thus, the administrator can configure and set command settings through Fast Ethernet intranet to remotely control the PLC, without having to stand by the I/O machine.



## Surveillance Motion Control – Pair Connection Mode

Using pair connection mode via the fiber optic patch cord, the ICS-210xT series can extend the distance of the deployed devices via RS232, RS422 and RS485 interfaces, making the remote management of these devices from the monitoring center easier and efficient.



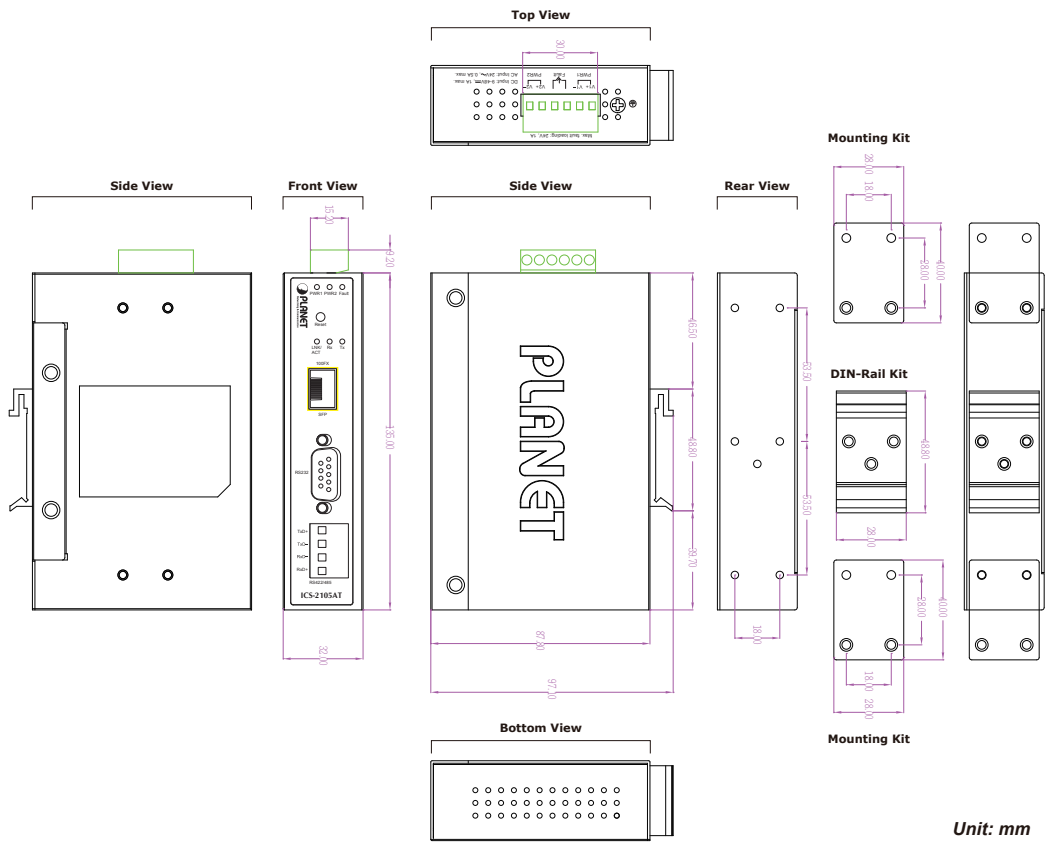
## Specifications

Product	ICS-2105AT	ICS-2102T	ICS-2102TS																																																																						
<b>Serial Interface</b>																																																																									
Serial Ports	1 x DB9 male for RS232 1 x 4-Pin Terminal block for RS422 / RS485	1 x DB9 male for RS232 1 x 4-Pin Terminal block for RS422 / RS485	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	<p>Serial Port</p> <table border="1"> <thead> <tr> <th>Male DB9</th> <th>Pin</th> <th>RS232</th> <th>RS422 RS485-4W</th> <th>RS485-2W</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>DCD</td> <td>TxD+</td> <td>--</td> </tr> <tr> <td>2</td> <td>2</td> <td>RxD</td> <td>TxD-</td> <td>--</td> </tr> <tr> <td>3</td> <td>3</td> <td>TxD</td> <td>RxD-</td> <td>Data-</td> </tr> <tr> <td>4</td> <td>4</td> <td>DTR</td> <td>RxD+</td> <td>Data+</td> </tr> <tr> <td>5</td> <td>5</td> <td>GND</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>6</td> <td>6</td> <td>DSR</td> <td>--</td> <td>--</td> </tr> <tr> <td>7</td> <td>7</td> <td>RTS</td> <td>--</td> <td>--</td> </tr> <tr> <td>8</td> <td>8</td> <td>CTS</td> <td>--</td> <td>--</td> </tr> <tr> <td>9</td> <td>9</td> <td>--</td> <td>--</td> <td>--</td> </tr> </tbody> </table> <p>4-pin Terminal Block</p> <table border="1"> <thead> <tr> <th>Terminal Block</th> <th>Pin</th> <th>RS-422 RS-485-4W</th> <th>RS-485-2W</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> 1</td> <td>1</td> <td>TxD+(A)</td> <td>--</td> </tr> <tr> <td><input type="checkbox"/> 2</td> <td>2</td> <td>TxD-(B)</td> <td>--</td> </tr> <tr> <td><input type="checkbox"/> 3</td> <td>3</td> <td>RxD-(B)</td> <td>Data-(B)</td> </tr> <tr> <td><input type="checkbox"/> 4</td> <td>4</td> <td>RxD+(A)</td> <td>Data+(A)</td> </tr> </tbody> </table>			Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W	1	1	DCD	TxD+	--	2	2	RxD	TxD-	--	3	3	TxD	RxD-	Data-	4	4	DTR	RxD+	Data+	5	5	GND	GND	GND	6	6	DSR	--	--	7	7	RTS	--	--	8	8	CTS	--	--	9	9	--	--	--	Terminal Block	Pin	RS-422 RS-485-4W	RS-485-2W	<input type="checkbox"/> 1	1	TxD+(A)	--	<input type="checkbox"/> 2	2	TxD-(B)	--	<input type="checkbox"/> 3	3	RxD-(B)	Data-(B)	<input type="checkbox"/> 4	4	RxD+(A)	Data+(A)
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<b>Ethernet Interface</b>																																																																									
Ethernet Ports	1 x SFP	1 x Duplex SC	1 x Duplex SC																																																																						
Standard	100BASE-FX	100BASE-FX	100BASE-FX																																																																						
Connector	LC	Duplex SC	Duplex SC																																																																						
Fiber Mode	Single mode or multi-mode (may vary on SFP module)	Multi-mode	Single mode																																																																						
Transmission Mode	Full duplex																																																																								
Distance	2km to 120km (may vary on SFP module)	2km	30km																																																																						
Cable	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																																																																								
<b>Hardware</b>																																																																									
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	390g	386g	391g																																																																						
LED Indicators	System: Power 1, Power 2, Fault, SYS SFP: 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: 0.44A (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																																																																								

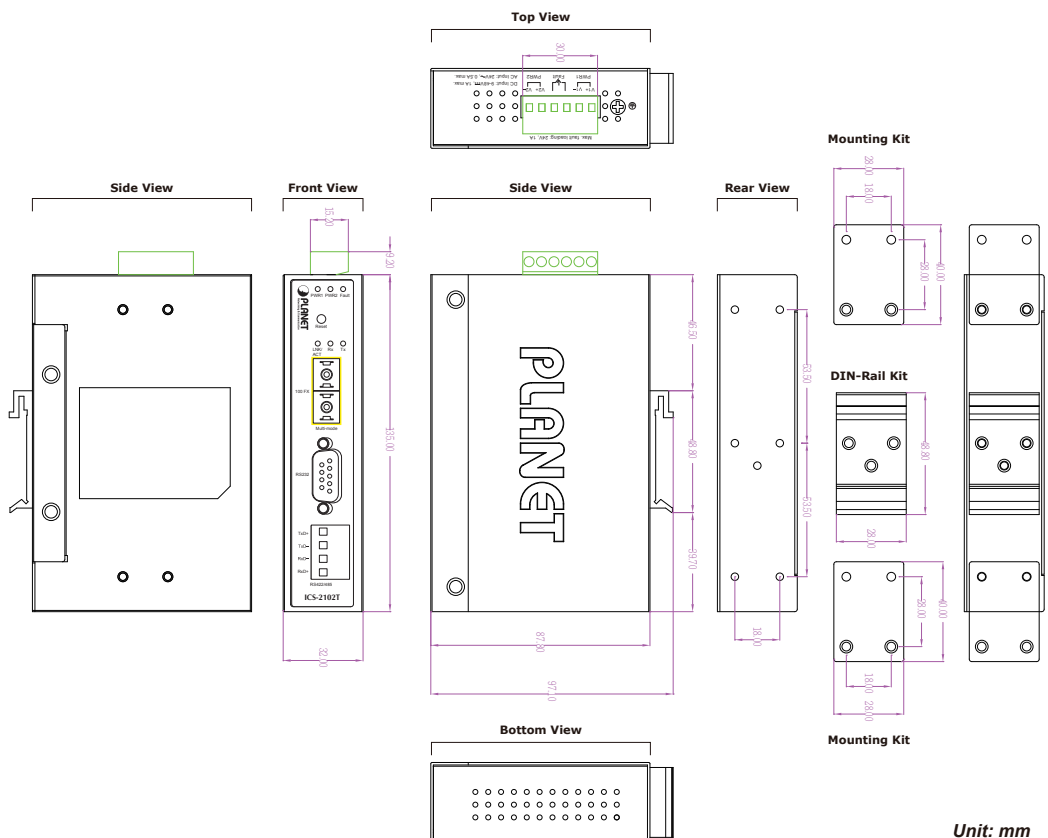
Alarm	Provides one relay output for power failure Alarm relay current carry ability: 1A @ DC 24V
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
<b>Management</b>	
Management Interfaces	Web management Telnet Console management Windows-based VCOM Utility management SNMPv1, v2c / SNMP Trap UNI-NMS monitoring PLANET Smart Discovery Utility
IP Version	IPv4 and IPv6
Operation Mode	TCP Server TCP Client UDP Client Virtual COM RFC2217 Telnet Server Pair Connection – Remote (Slave) Pair Connection – Local (Master) Modbus converter server / client
Virtual COM Utility Platform Supports	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
Security	Allows maximum 4 accessible IP address hosts/ranges
SNMP MIBs	RFC1213 MIB-II RFC1317 RS232-like MIB
<b>Standards Conformances</b>	
Regulatory Compliance	FCC Part 15 Class A, CE Certification Class A RoHS
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Standards	IEEE 802.3u 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>Environment</b>	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

## Dimensions

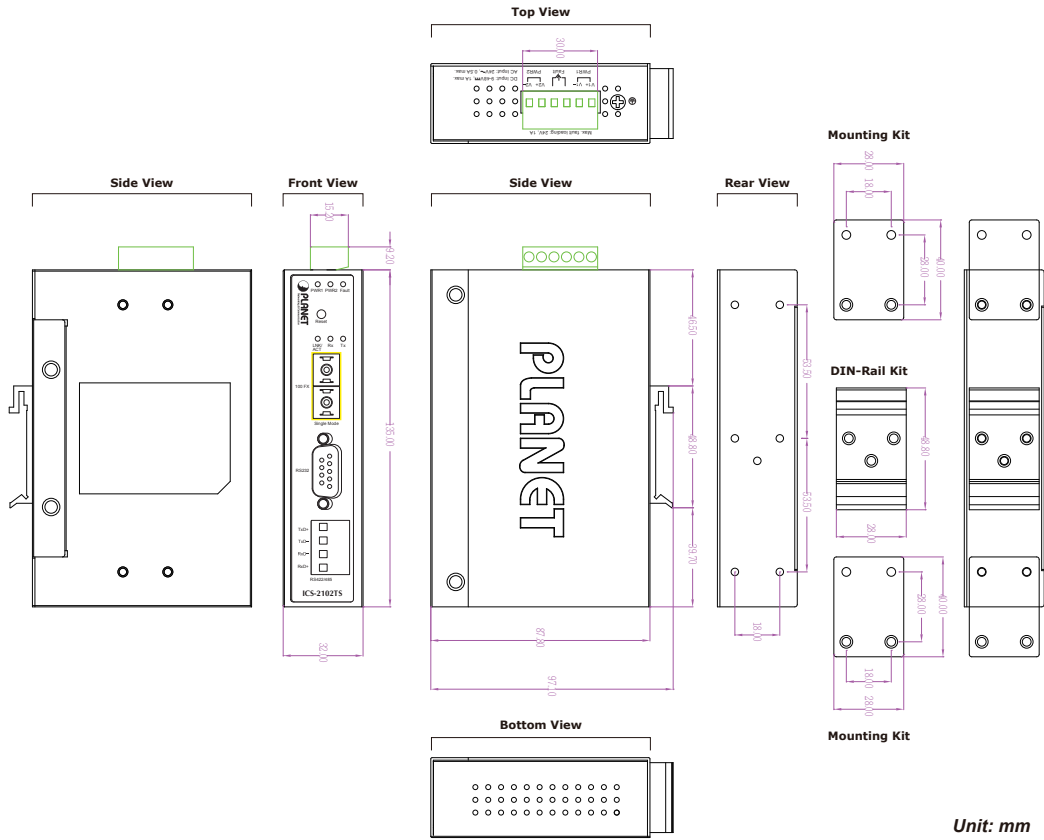
### ■ ICS-2105AT



### ■ ICS-2102T



■ ICS-2102TS



## Ordering Information

ICS-2105AT	Art.N° 162053	Industrial 1-Port RS232/422/485 Serial Device Server with 1-Port 100BASE-FX SFP (-40~75 degrees C)
ICS-2102T	Art.N° 163390	Industrial 1-Port RS232/RS422/RS485 Serial Device Server (1 x 100FX SC, MM/2km, -40~75 degrees C)
ICS-2102TS	Art.N° 163391	Industrial 1-Port RS232/RS422/RS485 Serial Device Server (1 x 100FX SC, SM/30km, -40~75 degrees C)

## Related Products

ICS-2100	Industrial RS-232/RS-422/RS-485 over 10/100BASE-TX Media Converter (Copper, RJ45)
ICS-2100T	Industrial 1-Port RS232/RS422/RS485 Serial Device Server (1 x 10/100TX, -40~75 degrees C)
ICS-2105A	Industrial RS-232/RS-422/RS-485 over 100BASE-FX SFP Media Converter
ICS-2200T	Industrial 2-Port RS232/RS422/RS485 Serial Device Server (2 x 10/100TX, -40~75 degrees C, 2KV isolation)
ICS-2400T	Industrial 4-Port RS232/RS422/RS485 Serial Device Server (2 x 10/100TX, -40~75 degrees C, 2KV isolation, 2 x DI + 2 x DO)