

# Industrial RS-232/ RS-422/ RS-485 over Ethernet Media Converter



## Cost-effective Solutions of RS-232 / RS-422 / RS-485 for Industrial Ethernet Applications

PLANET ICS-210x Serial over Ethernet Converter series is specially designed to convert serial RS-232, RS-422 or RS-485 communication into Industrial Fast Ethernet networking and help to extend the network distance efficiently and inexpensively. There are SC and LC connectors with single-mode or multi-mode media available in the ICS-210x series for your network needs. The ICS-210x is a time-saving and cost-effective solution for users and SIs to quickly transform its serial equipment to the Ethernet network with no need of replacing the existing serial equipment and software system.

## Efficiently Extending Network Distance

The ICS-210x series includes models ICS-2102, ICS-2102S15 and ICS-2105A. The ICS-2102 and ICS-2102S15 media converters can extend the deployment distance of serial equipment by 2km and 15km. The ICS-2105A, especially equipped with one SFP fiber slot (mini-GBIC 100Base-FX SFP, Small-Form Factor Pluggable), supports the deployed distance extension from 2km (via multi-mode fiber) up to 120 kilometers (via single-mode fiber) or longer. The ICS-210x series perfectly meets the diverse demands in various industrial network environments and provides reliable network solutions within your budget of installation.

## Remote Management

The ICS-210x series makes the connected serial equipment become IP-based facilities and able to connect to a TCP/IP network immediately. It also provides Web Management Interface for efficient remote network management. The powerful Web Smart Media Converter series supports application mode and serial operation mode for alarm or IP address connection, which saves the network administrator's time by detecting and locating network problems without visual inspection of the cabling and equipment. Multiple connection options are available for large networking environment as well.

## Stable Performance under Difficult Environments

The ICS-210x 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. Its operating temperature range from -10 to 60 degrees C allows the ICS-210x series to be placed in almost any difficult environment.

## Serial Interface

- One RS-232 port and one RS-422/485 port to one 100Base-FX Media Conversion
- Cost effective solutions of RS-232/ RS-422/ RS-485 for Ethernet applications
- Supports RS-232 with DB9 interface, 4-wire RS-422 or 2-wire RS-485 with terminal block operation
- Asynchronous serial data rates up to 921600bps

## Ethernet Interface

- Complies with IEEE 802.3, IEEE 802.3u 100Base-FX standard
- Supports 100Base-FX multi-mode SC connector, distance up to 2km for ICS-2102
- Supports 100Base-FX single-mode SC connector, distance up to 15km for ICS-2102S15
- Supports 100Base-FX single-mode LC connector, distance varies on SFP module for ICS-2105A

## Smart Functions

- Standard TCP/IP interface and versatile operation modes
- Software Protocol supports ARP, ICMP, TCP/IP, UDP, HTTP server, DHCP client, Telnet server/client
- Built-in IP-based Web interface for remote management
- Serial Operation mode selected via Web management
- Pair Connection mode for connecting two serial devices over a network
- PLANET Smart Discovery utility automatically finds the client devices on the network
- Firmware upgrade via HTTP protocol

## Hardware

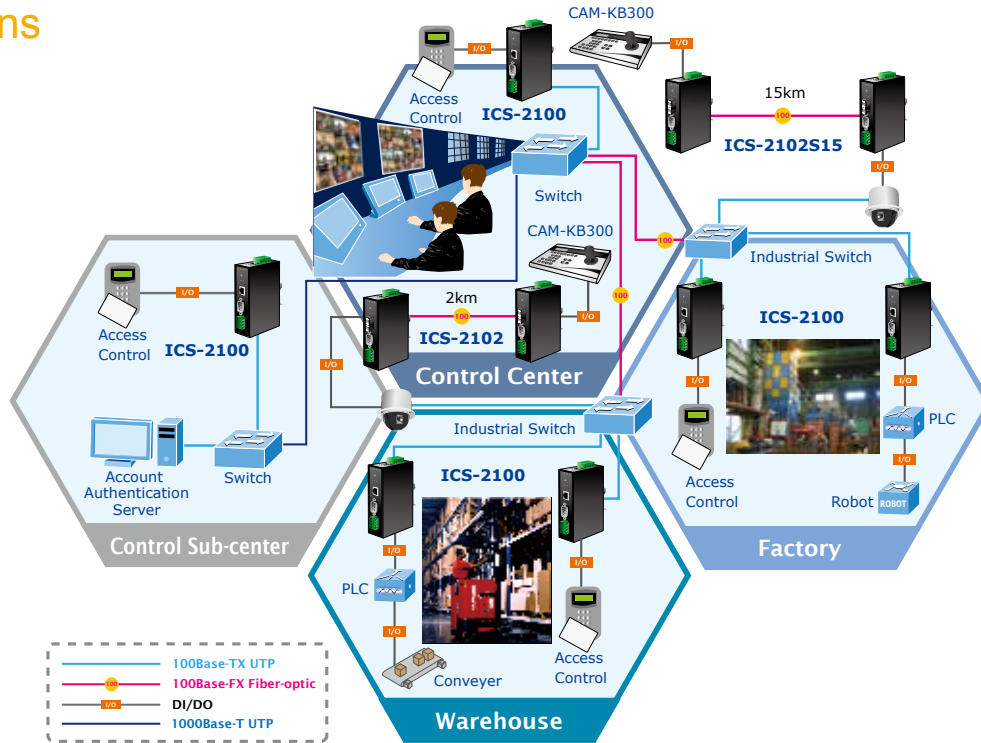
- LED indicators for easy network diagnostics
- Reset Button on the front panel for resetting to factory default

## Industrial Case / Installation

- IP30 metal case protection
- DIN rail and wall mount design
- 12 to 48V DC, redundant power with polarity reverse protect function and connective removable terminal block for master and slave power
- Supports EFT protection 6000V DC for power line
- Supports 6000V DC Ethernet ESD protection
- -10 to 60 degrees C operating temperature

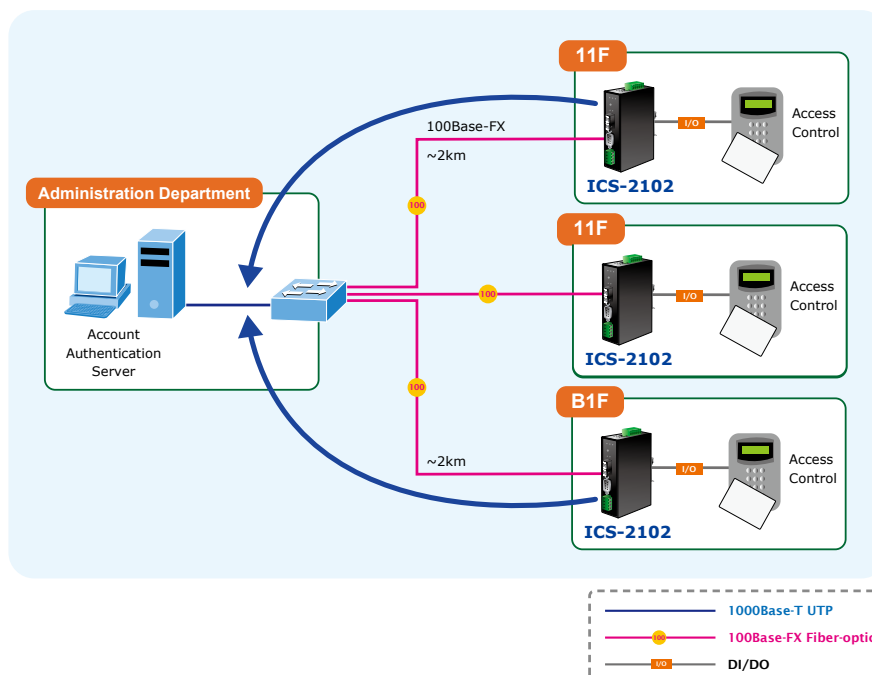
The ICS-210x series is equipped with compact IP30 standard metal case that allows either DIN rail or wall mounting for efficient use of cabinet space. The ICS-210x series also provides an integrated power supply source with wide range of voltages (12 to 48V DC) ideally suitable for worldwide operation with high availability applications requiring dual or backup power inputs.

## Applications



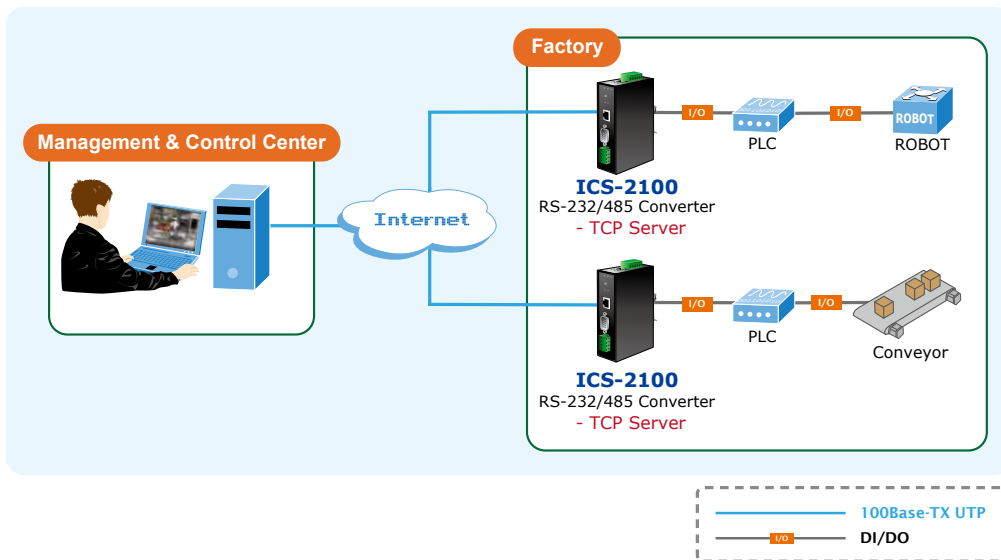
### Access Control System – Traditional System Application

Most of the enterprises and government use access control plate and Mifare or RFID to authorize entrance identity. Traditionally, the access control machines use RS-232 or RS-485 serial interface with their cables connecting to login server. By applying the ICS-210x Serial over Ethernet Converter series, the access control machine is able to extend the network over longer distances via fiber optic interface. The distance can be up to 15km in a local range. In another way, the ICS-210x 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.



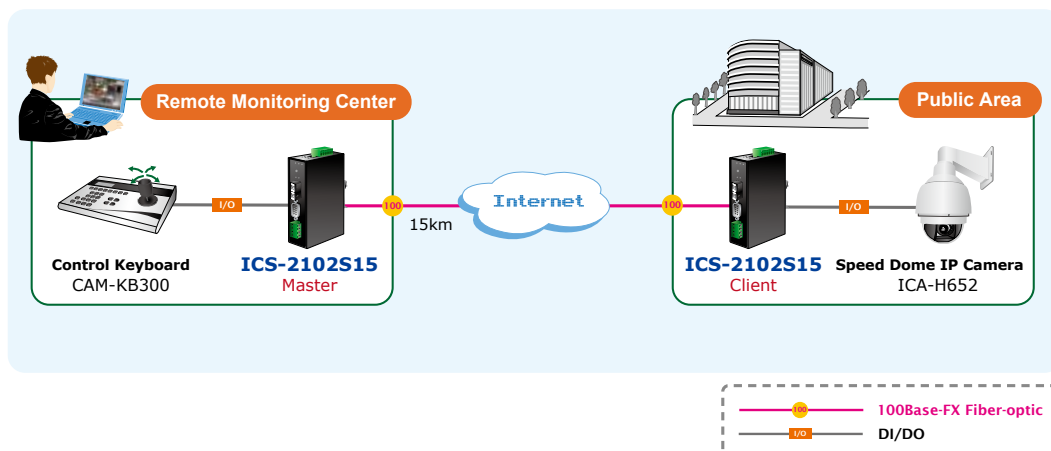
**Process Control**

To monitor, configure and manage the Robot conveyer including other machines in manufacturing, PLC (Programmable Logical Control) is required to drive the above manufacturing process. The ICS-210x can be set to the TCP Server mode and connect to the PLC. Thus, the administrator can configure and set command settings through Fast Ethernet intranet to remotely control the PLC, the administrator and workstation. It is not necessary to stand by the I/O machine.



**Surveillance Motion Control – Pair Connection Mode**

Using pair connection along with fiber optic patch cord, the ICS-210x extends RS-232 / RS-422 / RS-485 interface distance from surveillance and scanner to the control keyboard/ joystick installed in the remote monitoring center.



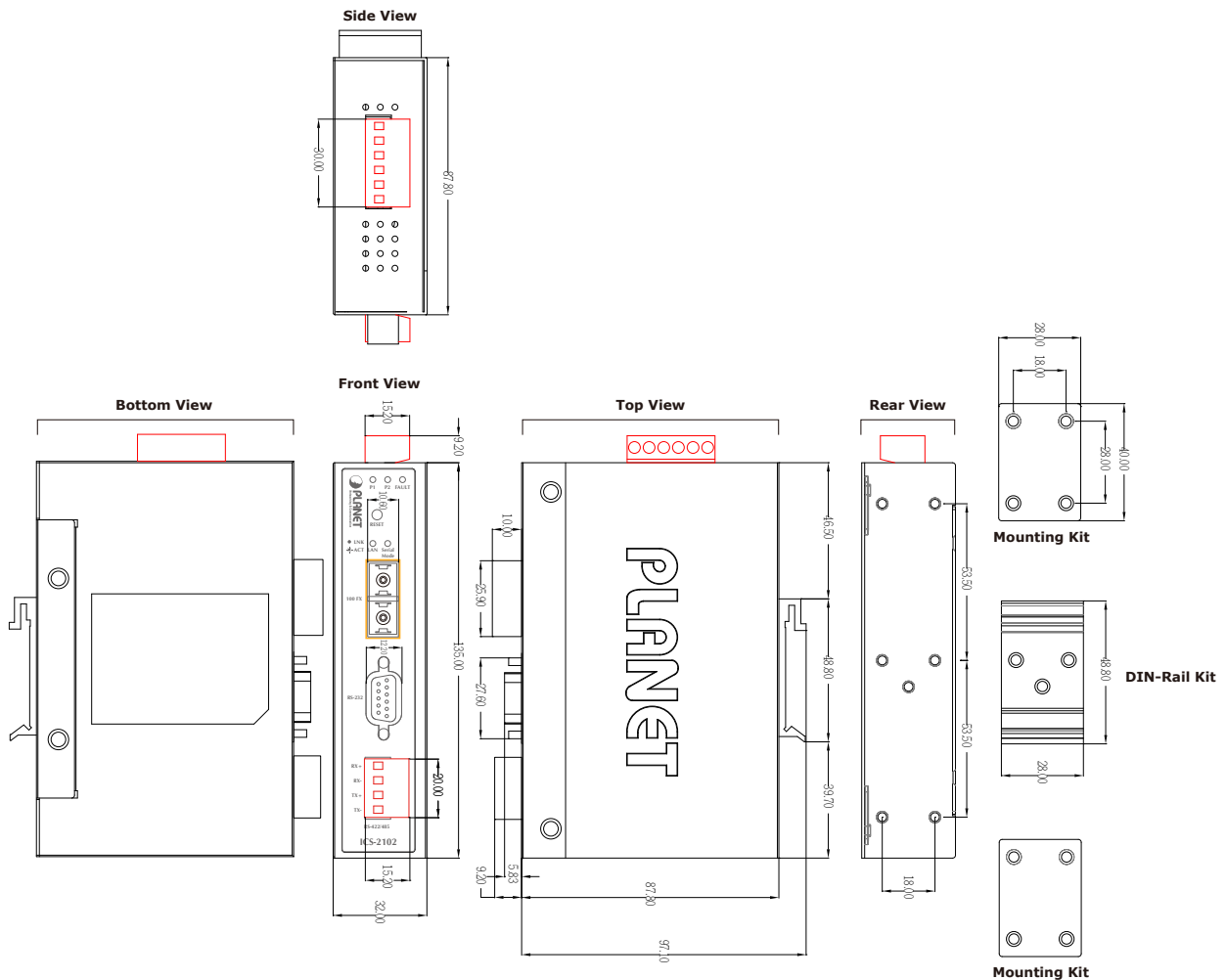
## Specifications

Model	ICS-2102 / ICS-2102S15 / ICS-2105A
<b>Serial Port</b>	
Interface	RS-232 x 1 RS-422 / RS-485 x 1
Connector	DB9 for RS-232 Terminal block for RS-422 / RS-485
Baud Rate (Data Rate)	300bps to 921600bps
Data Bits	5,6,7,8
Parity Type	1, 1.5/2
Stop Bit	Odd, Even, None, Space, Mark
Flow Control	Hardware, None
Signals	RS-232: DCD, RxD, TxD, GND, RI RS-422: Tx+, Tx-, Rx+, Rx- RS-485: Data A (+), Data B (-)
<b>Fast Ethernet Port</b>	
Connector	ICS-2102 / ICS-2102S15: SC ICS-2105A: LC (SFP)
Mode	ICS-2102: Multi-Mode ICS-2102S15: Single Mode ICS-2105A: Multi-Mode / Single-Mode (Vary on SFP module)
Distance	ICS-2102: 2km ICS-2102S15: 15km ICS-2105A: 2km up to 120km (Vary on SFP module)
Optical Wavelength	ICS-2102: 1300nm ICS-2102S15: 1310nm ICS-2105A: (Vary on SFP module)
Cable	ICS-2102: 50/125µm or 62.5/125µm multi-mode fiber cable ICS-2102S15: 9/125µm single-mode fiber cable ICS-2105A: 50 or 62.5/125µm multi-mode fiber cable 9/125µm single-mode fiber cable
<b>Hardware</b>	
LED Indicators	System: Power 1, Power 2, Fault TP or Fiber Port: Link / Active Serial Port: Serial port mode, RS-232, RS-422 or RS-485
Management	Web Management PLANET Smart Discovery Utility
Virtual COM Utility Platform Supports	Windows Base 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)
Operation Mode	TCP Server TCP Client UDP Client Virtual COM Telnet Server Pair Connection – Remote (Slave) Pair Connection – Local (Master)
Dimensions (W x D x H)	135 x 97 x 32 mm
Weight	ICS-2102 / ICS-2102S15 : 431g ICS-2105A: 428g
Power Supply	12~48 VDC, Redundant power with polarity reverse protection function
Power Consumption	10.1 watts / 34.44 BTU (max)
Installation	DIN rail kit and wall mount ear
Alarm	Provides one relay output for power failure Alarm relay current carry ability: 1A @ DC 24V
Enclosure	IP30 metal case

Environment	Operating Temperature: -10~60 degrees C Storage Temperature: -20~75 degrees C Operating Humidity: 10~90% RH Storage Humidity: 5~90% RH
Regulation Compliance	FCC Class A, CE Certification Class A
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX / 100Base-FX EIA/TIA RS-232/422/485
Regulatory Approval	RoHS
Stability Testing	IEC60068-2-32 (Free Fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)

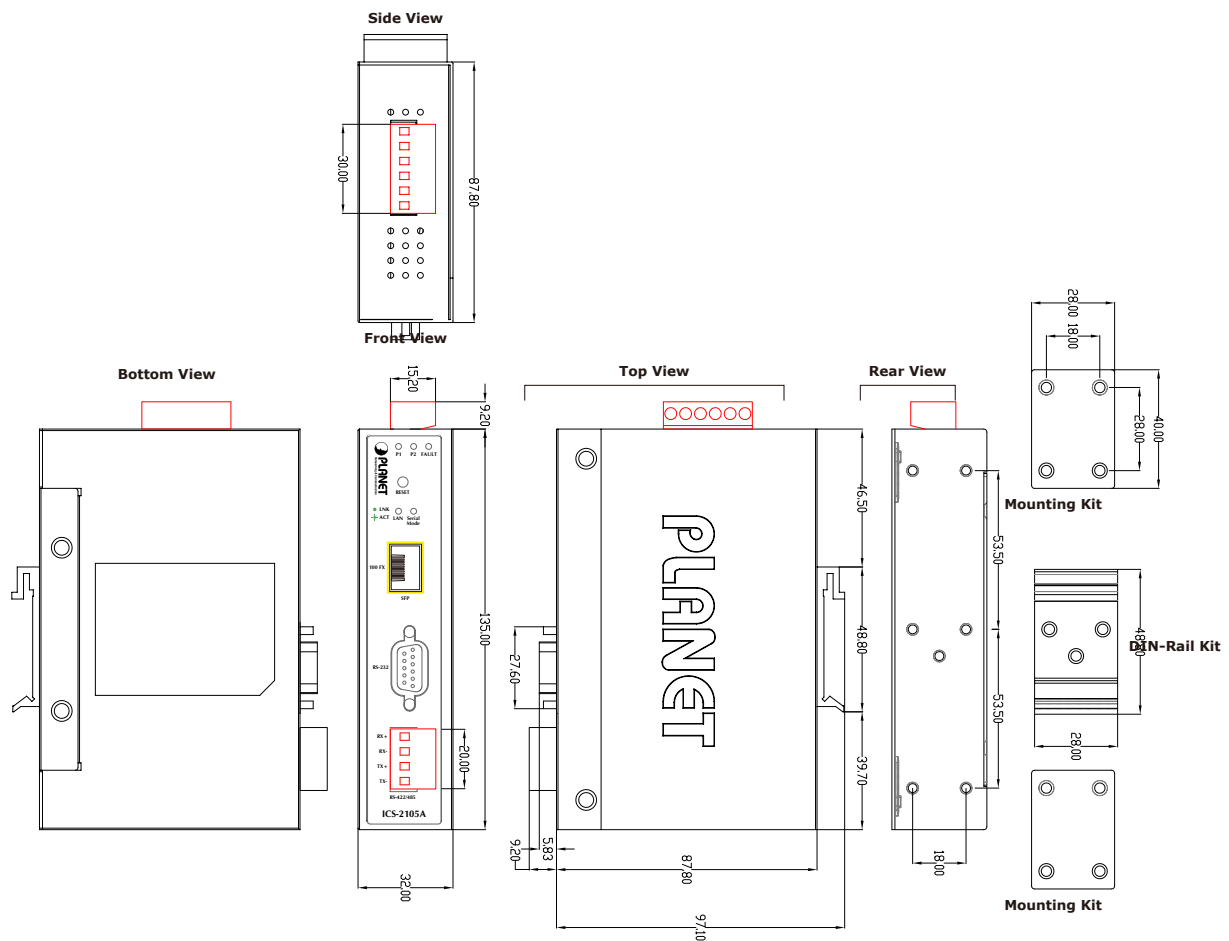
\*Note: Reset Button on the front panel for resetting to factory default

### ICS-2102 / ICS-2102S15 Diagram:



Dimensions ( unit = mm )

## ICS-2105A Diagram:



Dimensions ( unit = mm )

## Related Information

ICS-2102	Industrial RS-232/RS-422/RS-485 over 100Base-FX Media Converter (Fiber, MM/2km)
ICS-2102S15	Industrial RS-232/RS-422/RS-485 over 100Base-FX Media Converter (Fiber, SM/15km)
ICS-2105A	Industrial RS-232/RS-422/RS-485 over 100Base-FX Media Converter (Fiber, Vary on SFP module)

## Relative Products

ICS-100	RS-232 / RS-422 / RS-485 over Fast Ethernet Media Converter
ICS-102 / ICS-102S15 / ICS-105A	RS-232 / RS-422 / RS-485 over Fast Ethernet Media Converter
ICS-2100	Industrial RS-232/ RS-422/ RS-485 over Ethernet Media Converter

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