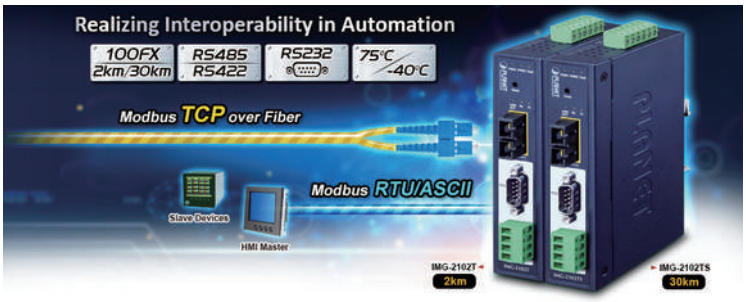
Industrial 1-Port RS232/422/485 Modbus Gateway with 1-Port 100BASE-FX



Standard Industrial Modbus TCP/RTU/ASCII Network Integration

PLANET has added the Industrial Modbus TCP/IP Protocol to its easily-integrated industrial management level products that come with SCADA/HMI system and other data acquisition systems on factory floors. Moreover, the industrial IT SNMP network is upgraded to the Industrial automation Modbus TCP/IP network. PLANET industrial management level products with the Modbus TCP/IP Protocol offer flexible network connectivity solutions for the industrial automation environment.

To complete the industrial automation environment application solution, PLANET has announced a first industrial level 1-port RS232/422/485 Modbus Gateway, IMG-210xT Series, a bridge that converts between Modbus TCP/IP Protocol and Modbus RTU/ASCII Protocol. It features a wide operating temperature range from -40 to 75 degrees C and a compact but rugged IP30 metal housing.



A Conversion Bridge for Flexible Network Deployment

The IMG-210xT Series can be a conversion bridge between the equipment with the Modbus RTU/ASCII Protocol and the administrator workstations that run the Modbus TCP/IP Protocol. The RS232/422/485 serial interface of the IMG-210xT Series provides the Modbus RTU/ASCII operation mode and various baud rate options to meet the demand of integration between the Modbus TCP/IP Protocol, Modbus RTU Master/Slave Protocol and Modbus ASCII Master/Slave Protocol.

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

Ethernet Interface

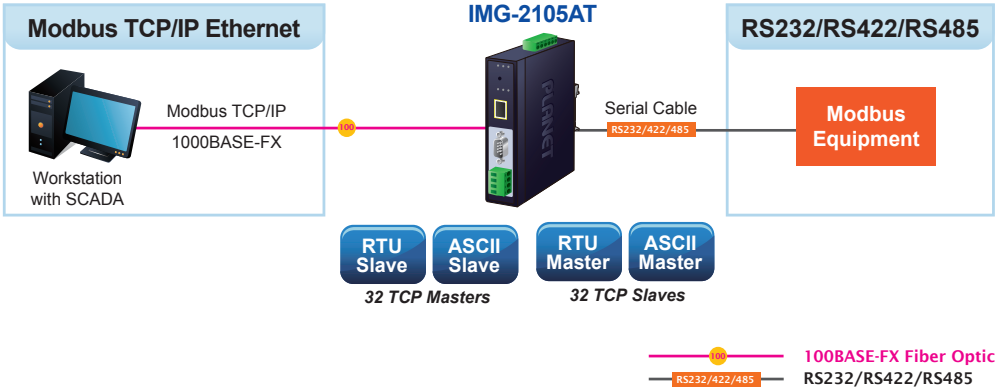
- Choice of fiber connectors: SC/LC fiber connector or multi-mode/single mode fiber connector

Management Function

- Built-in IP-based **Web interface** and **telnet interface** for remote management
- Software Protocol supports Modbus TCP, Modbus RTU, Modbus ASCII, IP, ARP, DHCP and DNS
- Supports RTU Master, RTU Slave, ASCII Master, and ASCII Slave four serial operation modes via management interface
- Master mode supports 32 TCP slave connection requests
- Slave mode supports 32 TCP master connection requests
- PLANET Modbus Gateway utility for finding client device on the network.
- PLANET Smart Discovery utility automatically finds the client devices on the network
- Firmware upgrade/configuration backup and restore via HTTP protocol

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
- Free fall, shock-proof and vibration-proof for industries
- Supports extensive LED indicators for network diagnosis
- -40 to 75 degrees C operating temperature
- Reset button for reset to factory default



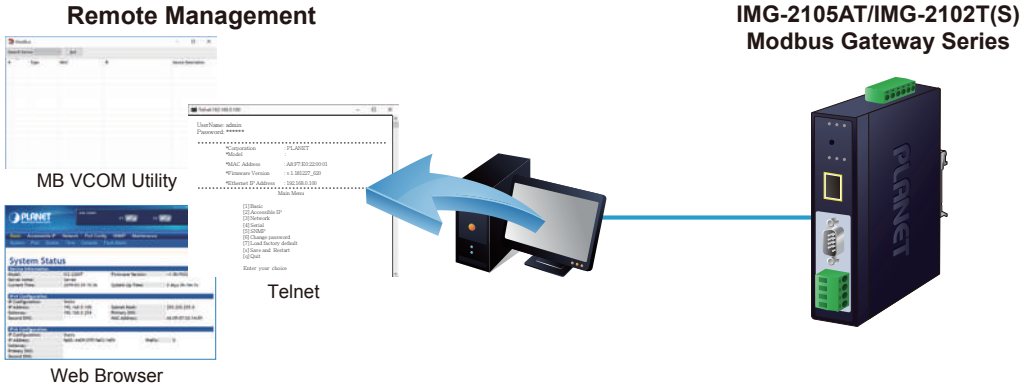
The advantage of having the IMG-210xT series is to assist users to build an industrial environment between the Modbus TCP/IP Protocol and the Modbus RTU/ASCII Protocol easily, thus offering an application solution to the industrial control equipment without Ethernet ports and the industrial control equipment can only control through an industrial PC workstation or industrial control panel.

In addition, the effective integration solution of Modbus Ethernet devices, Modbus serial equipment or multi Modbus master / slave in an industrial hybrid network brings the following:

- Master mode supports up to 32 TCP slave connection requests.
- Slave mode supports up to 32 TCP master connection requests.

Remote Management

The IMG-210xT series makes the connected industrial Modbus RTU/ASCII equipment become IP-based facilities and is able to connect to the Modbus TCP/IP network via its RS232/422/485 serial interface and **100BASE-FX** Ethernet port. It provides a remote web management and telnet Interface for efficient remote network management. The IMG-210xT series also provides PLANET Modbus Gateway utility tool and supports PLANET Smart Discovery utility to help network administrator to easily get the current IP subnet address information or change the IP subnet address setting of the IMG-210xT series.



Modbus Serial Port State Monitoring

The IMG-210xT series shows the details of the total bytes transmitted and received on the RS232/422/485 serial interface, and the detailed total number of frames transmitted and received on the remote web/telnet management interface. This function allows network administrator to check the status and statistics of the IMG-210xT series via the single RS232/422/485 serial interface.

Stable Performance in Hardened Environment Design

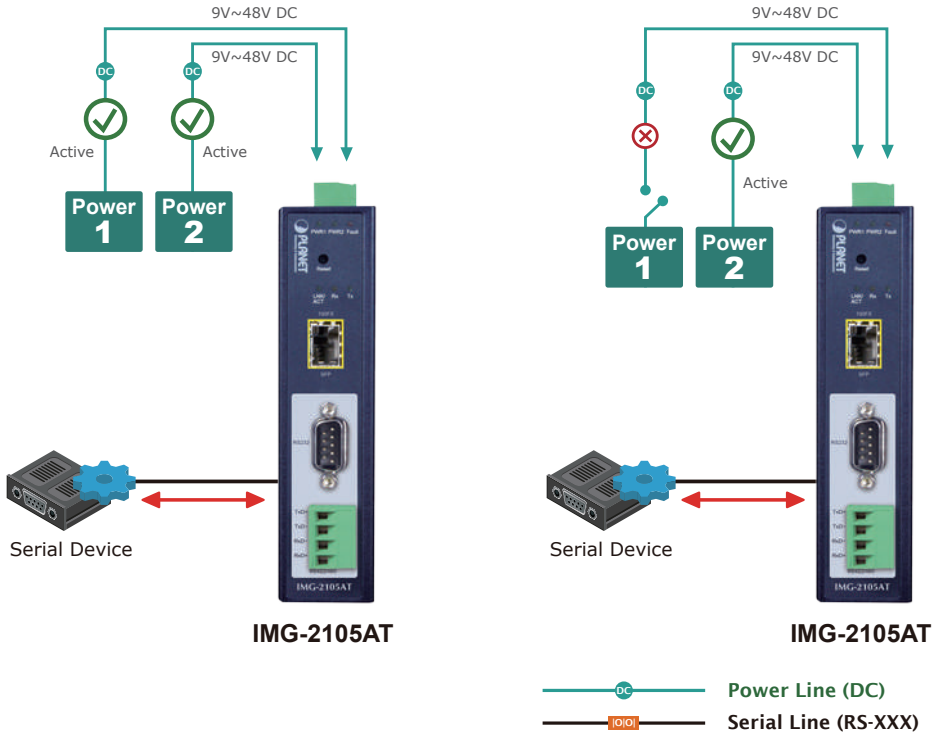
The IMG-210xT series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets. Its operating temperature ranging from -40 to 75 degrees C allows the IMG-210xT series to be placed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

The IMG-210xT series is equipped with a compact IP30-rated metal case that allows wall mounting for efficient use of cabinet space. The IMG-210xT series also provides an integrated power supply source with wide-ranging voltages (9 to 48V DC / 24V AC) ideally suitable for worldwide operation with high availability applications.

Dual Power Input for High Availability Network System

The IMG-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 IMG-210xT series via Power Supply 2 without any break of operation.

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

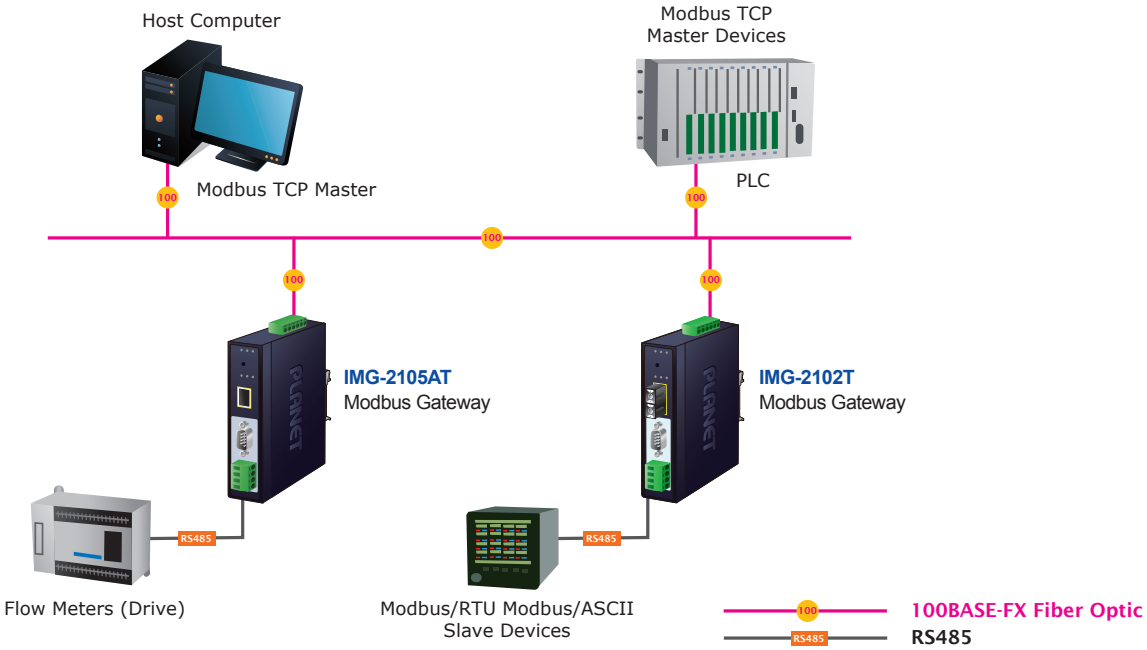


Applications

RTU/ASCII Master to Multi Modbus TCP/IP Slaves

The IMG-210xT series can act as a bridge between the industrial RTU/ASCII master equipment and the multi-industrial TCP/IP slave equipment in a Modbus TCP/IP networking environment to control multi-industrial TCP/IP slave equipment via the industrial RTU/ASCII master equipment.

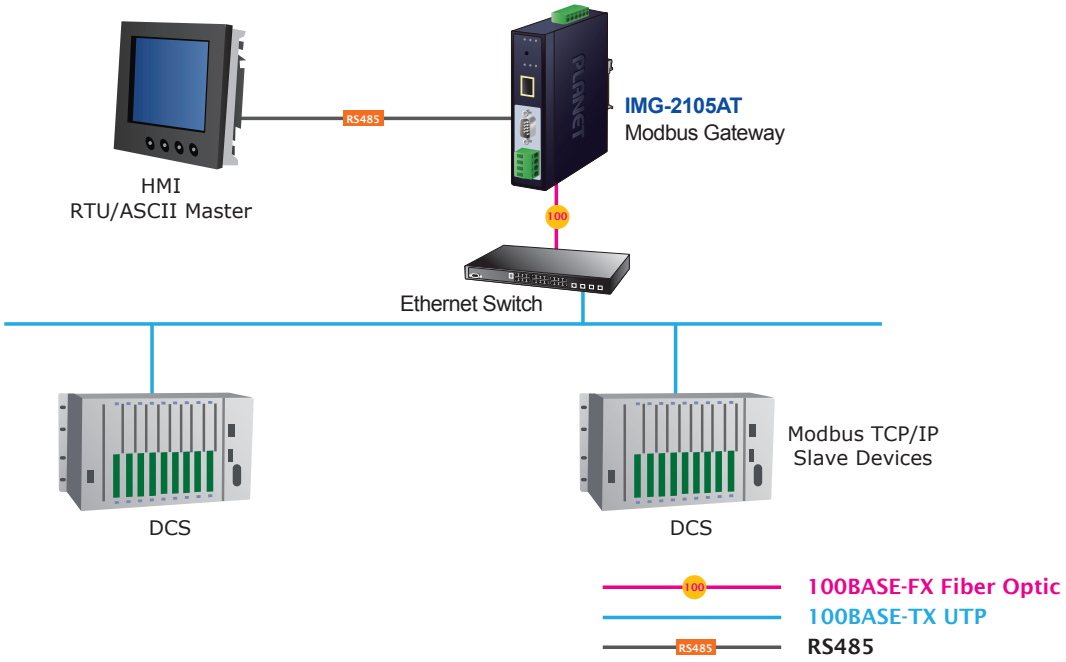
Multi Modbus TCP/IP Master to RTU/ASCII Slaves



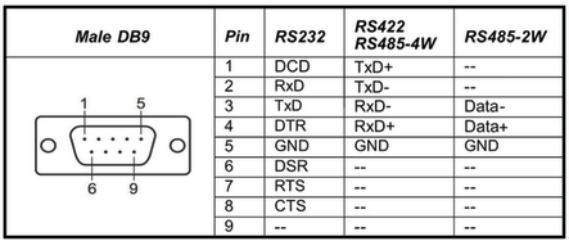
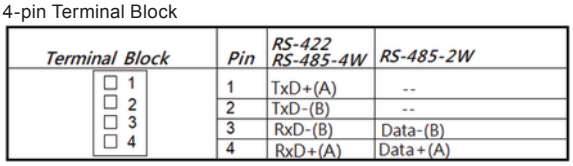
Multi Modbus TCP/IP Master to RTU/ASCII Slaves

The IMG-210xT series can operate as a bridge between the multi-industrial TCP/IP master equipment and the industrial RTU/ASCII slave equipment in a Modbus TCP/IP networking environment to control the industrial RTU/ASCII slave equipment via the multi-industrial TCP/IP master equipment.

RTU/ASCII Master to Multi Modbus TCP/IP Slaves



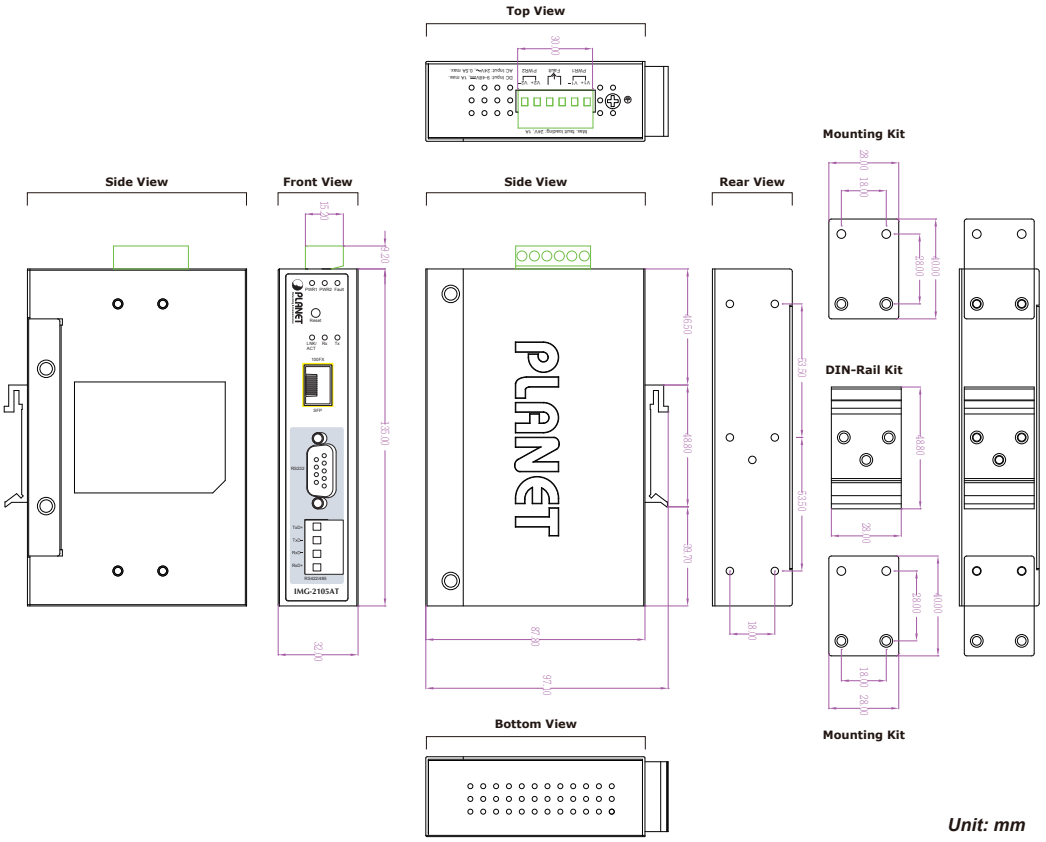
Specifications

Product	IMG-2105AT	IMG-2102T	IMG-2102TS
Serial Interface			
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		
Stop Bit	1, 1.5, 2		
Parity Type	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	Serial Port  4-pin Terminal Block 		
Operation Mode	RTU Master/RTU Slave/ASCII Master/ASCII Slave Master mode: Supports up to 32 TCP slave connection requests Slave mode: Supports up to 32 TCP master connection requests		
Ethernet Interface			
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		
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	390g	387g	392g
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: 0.44A (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: 0.22A (5.3 watts) 48VDC: 0.3A (6watts)	Full Loading 12VDC: 0.43A (5.1 watts) 24VDC: 0.23A (5.5 watts) 48VDC: 0.3A (6watts)

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
Management	
Management Interfaces	Web management Telnet Console management Windows-based MB VCOM Utility management SNMPv1, v2c / SNMP Trap UNI-NMS monitoring PLANET Smart Discovery Utility
IP Version	IPv4
Operation Mode	RTU Master RTU Slave ASCII Master ASCII Slave
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
Fault Alarm	Record: System log / SNMP trap
Time	NTP
Security	Allow max. 4 accessible IP address hosts/ranges
SNMP MIBs	RFC1213 MIB-II RFC1317 RS232-like MIB
Standards Conformances	
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
Environment	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

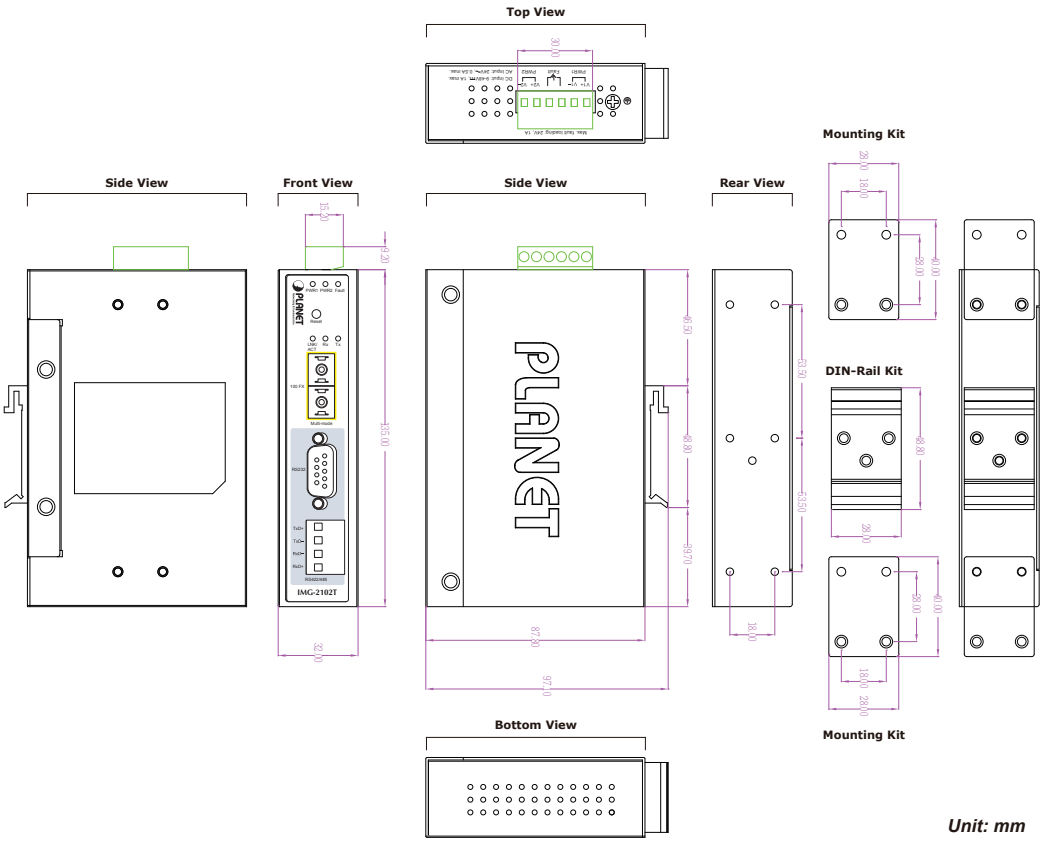
Dimensions

■ IMG-2105AT



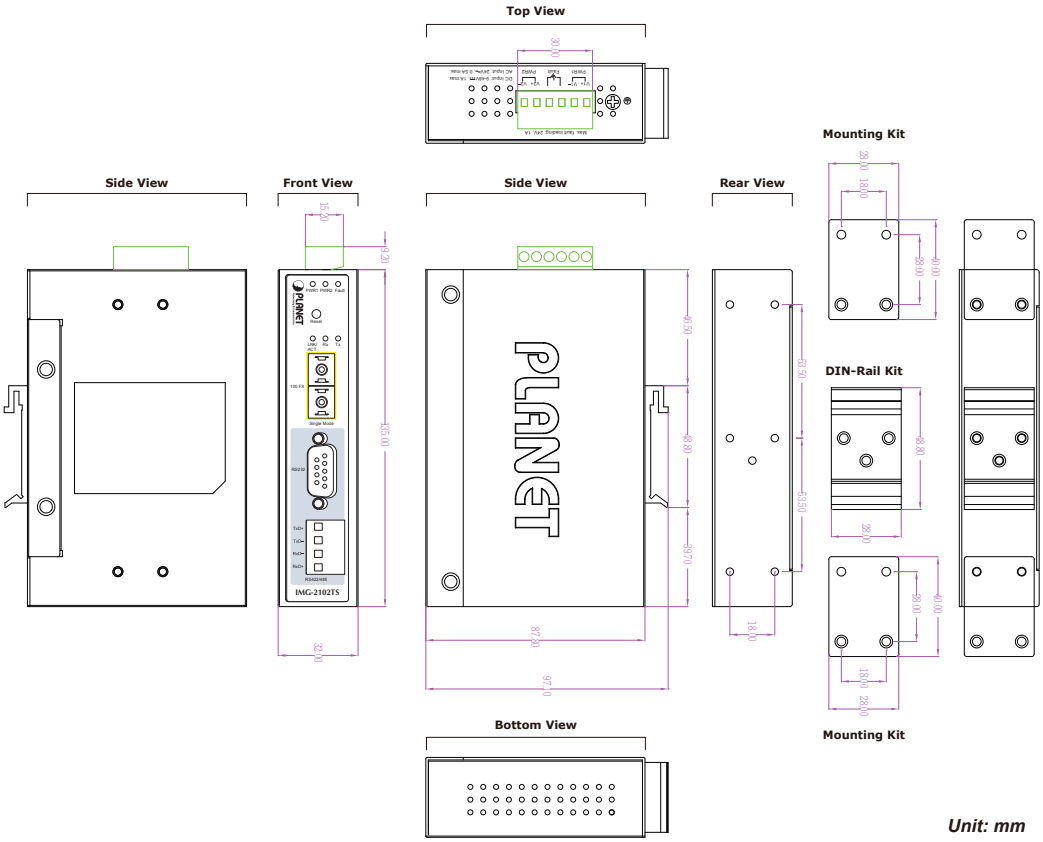
Unit: mm

■ IMG-2102T



Unit: mm

■ IMG-2102TS



Ordering Information

IMG-2105AT	Industrial 1-Port RS232/RS422/RS485 Modbus Gateway (1 x 100FX, -40~75 degrees C)
IMG-2102T	Industrial 1-Port RS232/RS422/RS485 Modbus Gateway (1 x 100FX SC, MM/2km, -40~75 degrees C)
IMG-2102TS	Industrial 1-Port RS232/RS422/RS485 Modbus Gateway (1 x 100FX SC, SM/30km, -40~75 degrees C)

Related Products

IMG-2100T	Industrial 1-Port RS232/RS422/RS485 Modbus Gateway (1 x 10/100TX, -40~75 degrees C)
IMG-2200T	Industrial 2-Port RS232/RS422/RS485 Modbus Gateway (2 x 10/100TX, -40~75 degrees C, 2KV isolation)
IMG-2400T	Industrial 4-Port RS232/RS422/RS485 Modbus Gateway (2 x 10/100TX, -40~75 degrees C, 2KV isolation, 2 x DI + 2 x DO)
MG-110	1-port RS232/422/485 Modbus Gateway (-10~60 degrees C)
MG-115A	1-port RS232/422/485 Modbus Gateway with 1-port 100BASE-FX SFP (-10~60 degrees C)
IMG-110T	Industrial 1-port RS422/485 Modbus Gateway (9~48VDC, -40~75 degrees C)
IMG-120T	Industrial 2-port RS422/485 Modbus Gateway (9~48VDC, -40~75 degrees C)

PLANET Technology Corporation

11F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)

Tel: 886-2-2219-9518 Fax: 886-2-2219-9528

Email: sales@planet.com.tw www.planet.com.tw

PLANET reserves the right to change specifications without prior notice. All brand names and trademarks are property of their respective owners. Copyright © 2020 PLANET Technology Corp. All rights reserved.