

Product Specifications

RS232/RS422/RS485 Modbus Gateway

MG-110 / MG-115A

Version 1.0

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Change History:

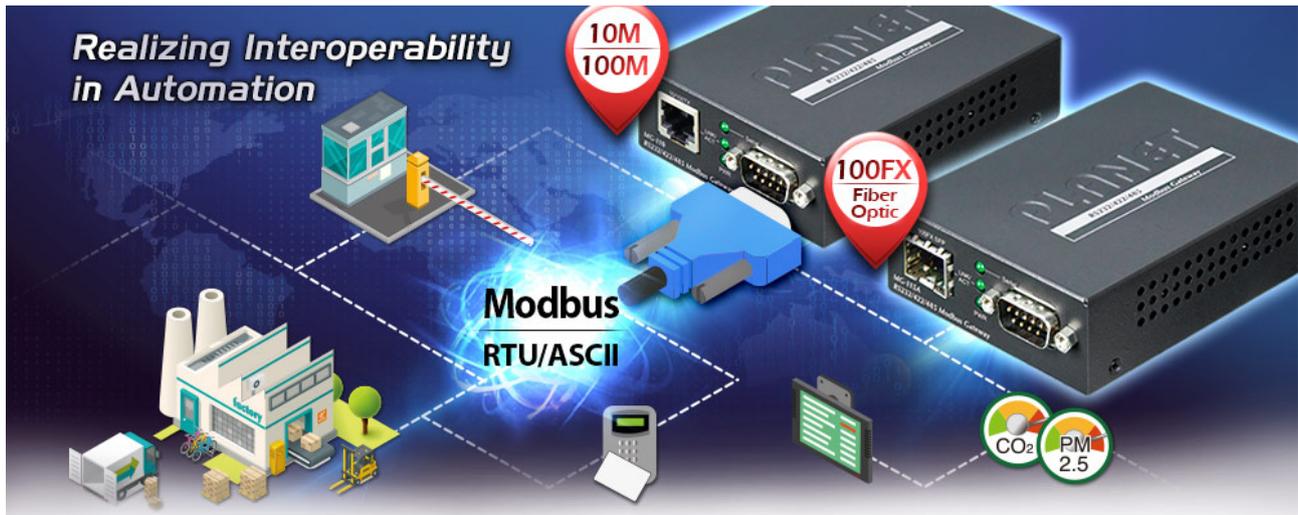
Revision	Date	Author	Change List
1.0	2020/2/19	Angeline	Initial release

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

1. PRODUCT DESCRIPTION

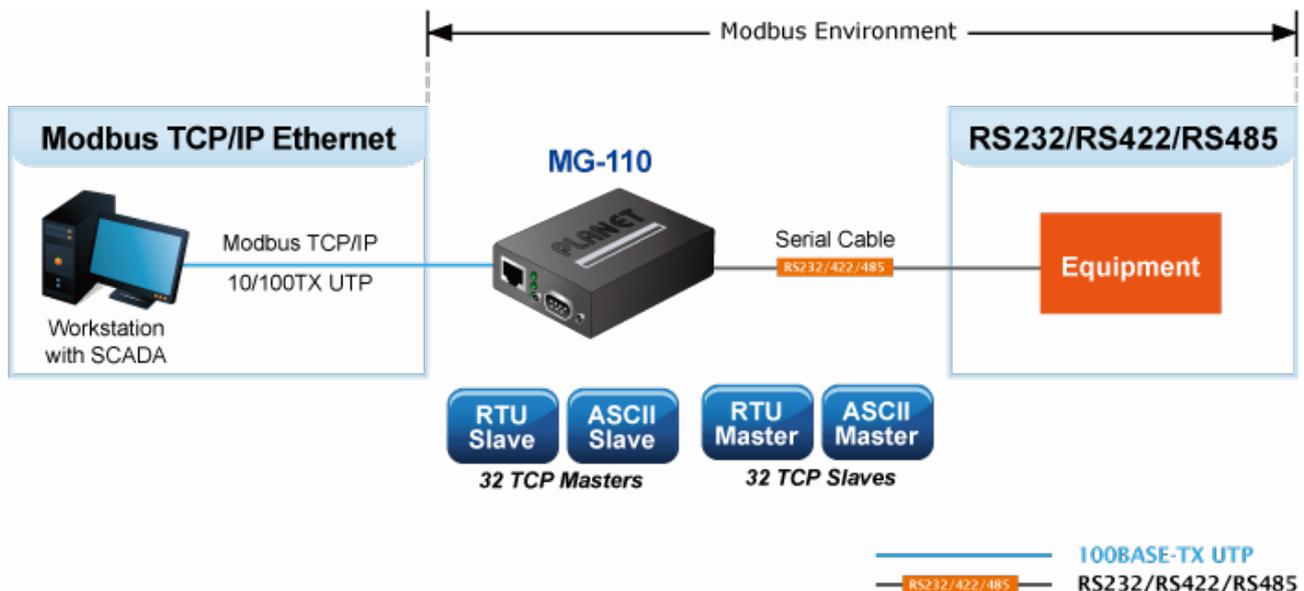
Standard Modbus TCP/RTU/ASCII Network Integration

PLANET **MG-11x** 1-port RS232/422/485 Modbus Gateway Series supports the standard Modbus Protocol, which makes it possible for converting any Modbus Protocols between Modbus TCP, Modbus RTU, and Modbus ASCII for all supported hardware interfaces. Its serial protocol can be used for industrial automation where SCADA or HMI system is in place. Moreover, its network integration can be upgraded from the SNMP network to the automated Modbus TCP network, which brings interconnection over Ethernet longer distances, thus making a network infrastructure more flexible.



A Conversion Bridge for Flexible Network Deployment

The MG-11x 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 MG-11x 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.



The advantage of having the MG-11x Series is to assist users to build an environment between the Modbus TCP Protocol and the Modbus RTU/ASCII Protocol easily, thus offering an application solution to the control equipment without Ethernet ports, and the control equipment can only control through a PC workstation or control panel.

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

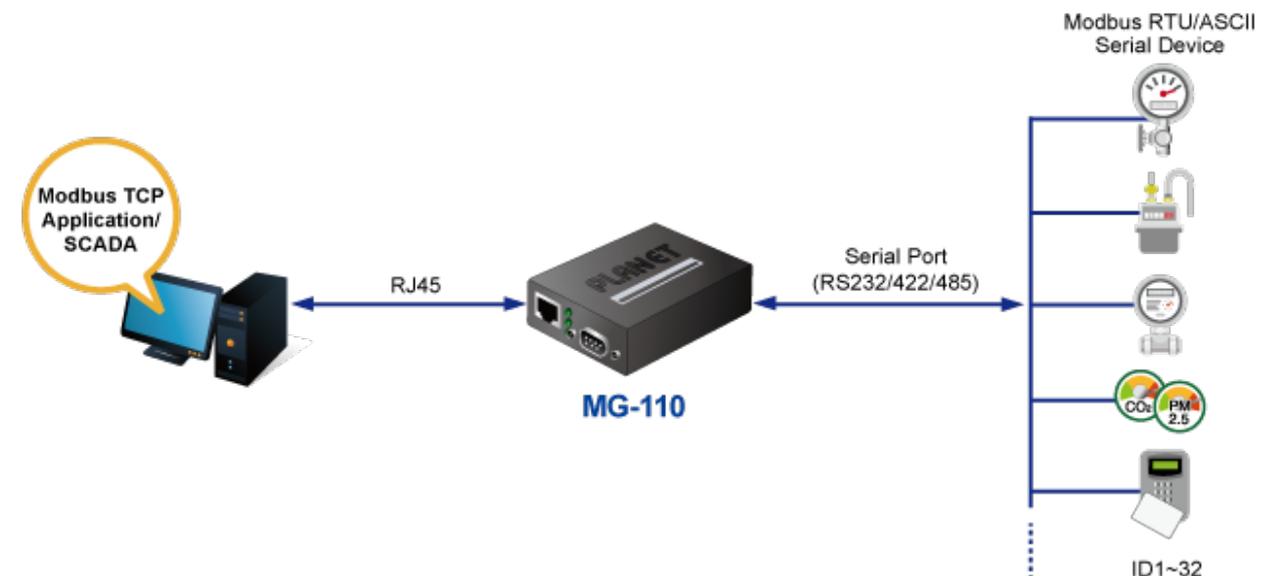
- Master mode supports up to 32 slave TCP connection requests
- Slave mode supports up to 32 TCP master connections

Differences between Serial Devices and Modbus

Serial Devices Server



Modbus Gateway



Remote Management

The MG-11x Series makes the connected 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 **10/100BASE-TX RJ45** or **100BASE-FX** Ethernet port. It provides a remote web management and telnet Interface for efficient remote network management. The MG-11x 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 MG-11x Series.

Remote Management



Modbus Serial Port State Monitoring

The MG-11x 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 MG-11x Series via the single RS232/422/485 serial interface.

Easy Chassis Installation

The MG-11x Series can be used as a stand-alone unit or as a slide-in module to the PLANET Media Converter Chassis (MC-700 and MC-1500 chassis series). The media chassis can assist in providing DC power to the MG-11x Series and can be DIN-rail or wall mounted for efficient use of cabinet space, without the need of replacing the existing serial equipment and software system.

Optional installation method



Media Chassis Installation



DIN-rail Installation



Wall-mount Installation

2. PRODUCT FEATURES

▶ **Serial Interface**

- One DB9 interface supports RS232, 2-wire RS485, 4-wire RS485 and RS422 standards
- Asynchronous serial data rates up to 921600bps

▶ **Ethernet Interface**

- 1-port 10/100BASE-TX RJ45 interface with auto MDI/MDI-X function
- 1-port 100BASE-FX SFP slot

▶ **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 slave TCP connection requests
- Slave mode supports 32 TCP master connections
- 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

▶ **Case and Installation**

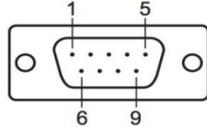
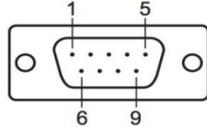
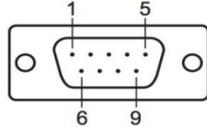
- Compact size for easy Installation:
 - Standalone - Wall mountable or DIN-rail mounting (optional accessory)
 - Co-works with PLANET media chassis (**MC-700/1500**)
- -10 to 60 degrees C operating temperature
- Reset button for resetting to factory default

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
Ethernet Switch Controller	IP101GR	x 1
Flash Size	32M bytes	x 1
DRAM Size	64M bytes	x 1

3.2 FUNCTION SPECIFICATIONS

Product	MG-110	MG-115A																																										
Serial Interface																																												
Serial Ports	1 x DB9 male																																											
Serial Standards	RS232 RS422 4-wire 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	<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 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> </tr> <tr> <td>3</td> <td>TxD</td> <td>RxD-</td> <td>Data-</td> </tr> <tr> <td>4</td> <td>DTR</td> <td>RxD+</td> <td>Data+</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>6</td> <td>DSR</td> <td>--</td> <td>--</td> </tr> <tr> <td>7</td> <td>RTS</td> <td>--</td> <td>--</td> </tr> <tr> <td>8</td> <td>CTS</td> <td>--</td> <td>--</td> </tr> <tr> <td>9</td> <td>--</td> <td>--</td> <td>--</td> </tr> </tbody> </table>		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	--	--	--
Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W																																								
	1	DCD	TxD+	--																																								
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	7	RTS	--	--																																								
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Operation Mode	RTU Master/RTU Slave/ASCII Master/ASCII Slave Master mode: Supports up to 32 slave TCP connection requests Slave mode: Supports up to 32 master TCP connection requests																																											
Ethernet Interface																																												

Ethernet Ports	1 x RJ45	1 x SFP
Standard	10/100BASE-TX	100BASE-FX
Distance	100m	2km to 120km, Vary on SFP modules
ESD Protection	6KV	
Hardware		
Installation	DIN-rail kit and wall-mount ear	
Dimensions (W x D x H)	97 x 70 x 26mm	97 x 70 x 26mm
Weight	184 g	185 g
LED Indicators	System: Link TP/SFP Port: Link/ Active Serial Port: Active	
Power Requirements	External Power Adaptor 5V DC / 2A max.	
Power Consumption	5.5 watts (max)	
Mechanical	Metal	
Reset Button	< 5 sec: System reboot > 5 sec: Factory default	
Compatible Media Converter Chassis	MC-700/MC-1500/MC-1500R	
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	Accessible IP (white list)	
SNMP	SNMP v1 and v2c	

Standards Conformances	
Regulatory Compliance	FCC Part 15 Class A, CE Certification Class A
Standards	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 1908 SNMPv2c RFC 2068 HTTP RFC 2131 DHCP Client EIA/TIA RS232/422/485
Regulatory Approval	RoHS
Environment	
Operating Temperature	-10 ~ 60 degrees C
Storage Temperature	-10 ~ 70 degrees C
Humidity	5 ~ 95% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

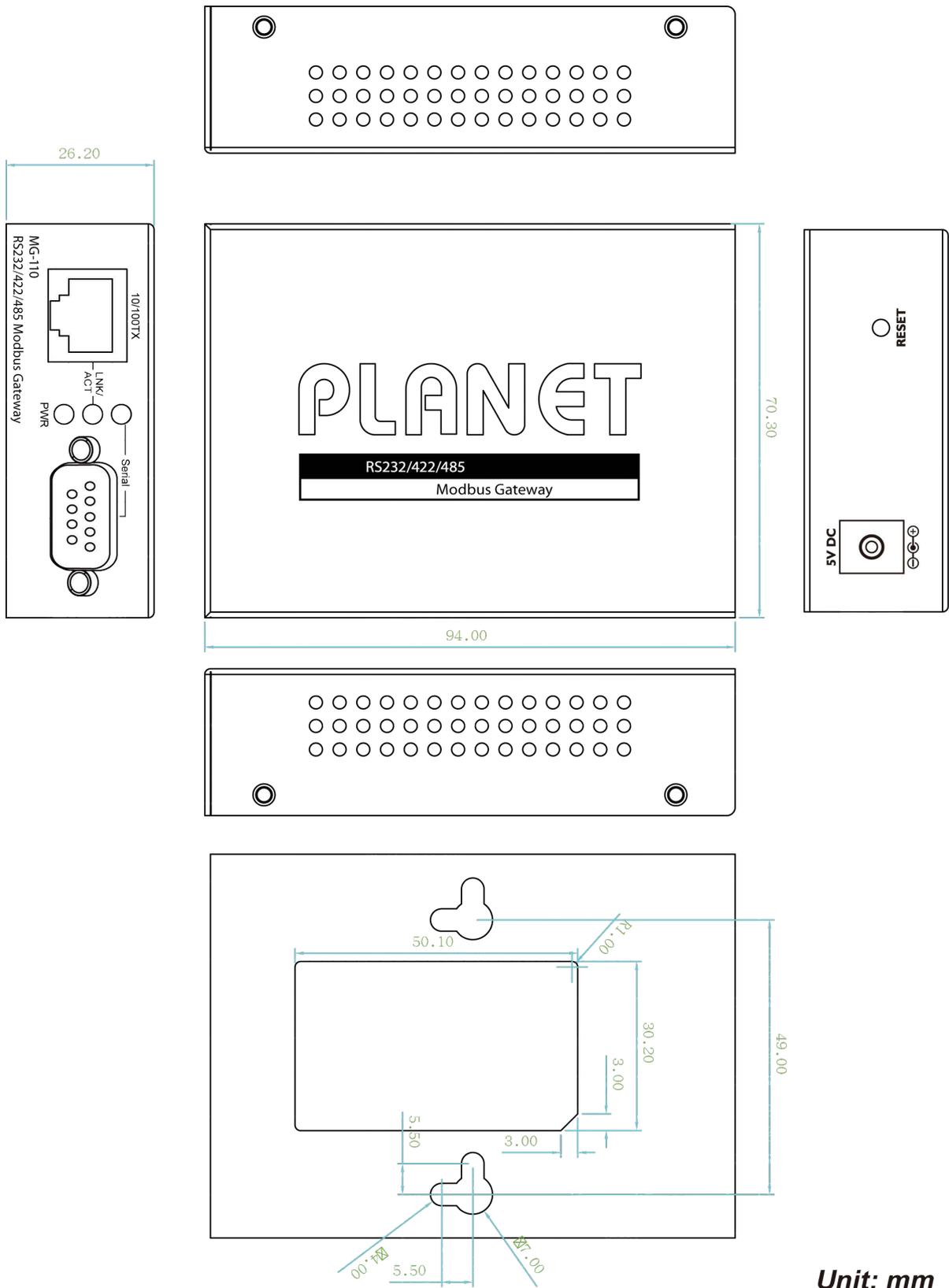
- 97 x 70 x 26mm (W x D x H)

Weight:

- **MG-110:** 184 g
- **MG-115A:** 185 g

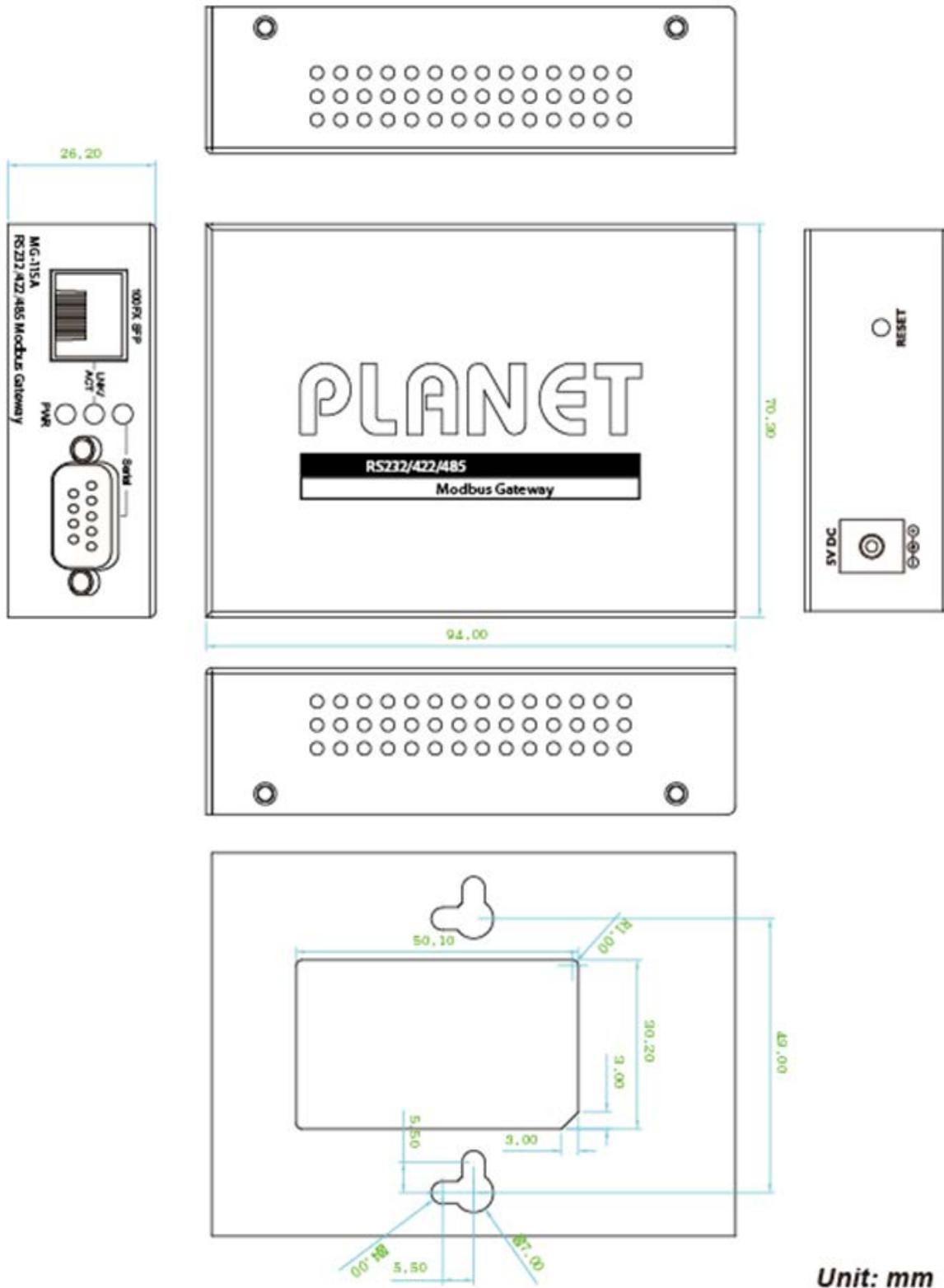
Drawing:

- **MG-110:**



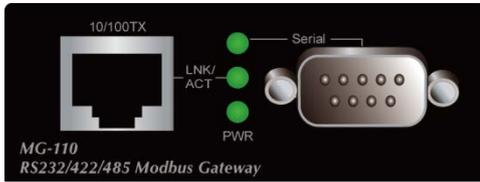
Unit: mm

■ **MG-115A:**

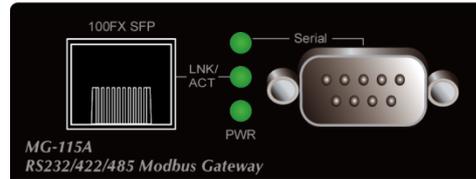


3.4 Panel view:

■ **Front Panel:**



MG-110



MG-115A

■ **Rear Panel:**



MG-110/MG-115A Rear Panel

■ **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	--	--	--

LED Definition:

■ **System**

LED	Color	Function	
PWR	Green	Lights	To indicate that the Switch is powered on.
TP or Fiber	Green	Lights	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
Serial	Green	Blinks	To indicate the Serial Port is receiving or sending data

3.5 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: -10 ~60 degrees C

