Product Specifications

Industrial Secure IoT Modbus Gateway

IMG-3100T / IMG-3105AT / IMG-3200T / IMG-3400T

Version V1.0

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Change History:

Revision	Date	Author	Change List
Version 1.0	2026/7/24	Jason Chien	Initial Release

Author:	Jason Chien	**Editor:**	
Reviewed By:		**Approved By:**	Kent Kang

1. PRODUCT DESCRIPTION

Industrial Modbus Gateway for Modern IIoT Connectivity

The **IMG-3X00T Series** is designed to bridge **Modbus TCP**, **Modbus RTU**, and **Modbus ASCII** networks for modern industrial automation and IIoT applications. It enables seamless communication between Ethernet-based control systems and legacy serial devices, allowing existing PLCs, RTUs, HMIs, power meters, sensors and industrial controllers to be integrated into IP networks without replacing field equipment. By preserving existing Modbus infrastructures while extending network connectivity, the IMG-3X00T Series provides an efficient migration path for factories, transportation systems, utilities and building automation toward digitalized industrial environments.

MQTT Edge Gateway for Data Aggregation and Distribution

The **IMG-3X00T Series** expands traditional Modbus gateway functionality by integrating both **MQTT Client** and **built-in MQTT Broker** capabilities. It collects data from **Modbus RTU/ASCII** devices and securely publishes MQTT messages to **SCADA systems, MES platforms, edge servers, or cloud services**. The embedded MQTT Broker also enables local message exchange without requiring an external broker, simplifying Industrial IoT deployment.

In addition to MQTT communication, the **IMG-3X00T Series** bridges **Modbus TCP/IP** and **Modbus RTU/ASCII** networks, allowing legacy serial devices to be easily integrated into Ethernet-based automation systems. It supports **up to 32 TCP slave connections in Master mode** and **32 TCP master connections in Slave mode**, providing a flexible and reliable solution for industrial hybrid networks.

Flexible Modbus Operation Modes

The **IMG-3X00T Series** supports four Modbus communication modes, including **RTU Master**, **RTU Slave**, **ASCII Master**, and **ASCII Slave**. These operation modes provide flexible deployment for various industrial control architectures and simplify communication between Modbus TCP networks and serial Modbus devices. Whether operating as a master or slave, the gateway enables reliable protocol conversion, centralized monitoring and seamless integration of legacy Modbus equipment into modern Ethernet infrastructures.

Secure Remote Management and Cybersecurity

The **IMG-3X00T Series** provides comprehensive remote management through web-based interfaces, SNMP and CloudNMS monitoring, allowing administrators to remotely configure, monitor and maintain devices with ease. To strengthen cybersecurity, the gateway supports **Secure Boot**, **SNMP v1/v2c/v3**, **MQTT over TLS**, firmware upgrade, configuration backup and restore, user authentication, and secure management mechanisms. Event Log, Syslog, SNMP Trap and Relay Alarm functions further simplify maintenance while improving system availability and operational reliability.

Stable Performance under Harsh Industrial Environments

Designed for demanding industrial applications, the **IMG-3X00T Series** features a rugged **IP30-rated metal enclosure**, wide operating temperature range from **-40 to 75°C**, redundant **9~48V DC / 24V AC** power inputs with automatic failover, surge protection and ESD immunity. Supporting both DIN-rail and wall-mount installation, the gateway ensures stable and continuous Modbus communication in factories, transportation systems, power substations and other mission-critical industrial environments.

Dual Power Input for High Availability Network Systems

The IMG-3X00T Series features a redundant dual power input design supporting 9V to 48V DC operation for enhanced system reliability. When the primary power source fails, the built-in hardware failover mechanism automatically switches to the backup supply, ensuring uninterrupted communications and continuous operation. This high-availability design is especially suitable for remote sites, process control systems and mission-critical industrial applications where maintaining network uptime is essential.

Digital Input and Digital Output for External Alarm (IMG-3400T only)

With digital input and digital output on its front panel, an external alarm can help users via the digital input to detect and log external device status (such as door intrusion detector), and then immediately send an event alarm to the administrator. The digital output can be used to alarm the administrator if the IMG-3400T serial port shows DCD, changed DSR or power failure.

PLANET CloudNMS – Cloud-Based Universal Network Management

PLANET's **CloudNMS** platform and mobile app empower IT staff to remotely manage all network devices and Powered Devices (PDs) in real time. Designed for enterprises and industries, CloudNMS minimizes the need for on-site troubleshooting by providing centralized monitoring, fault detection, and instant alerts.

With **CloudNMS**, businesses can manage diverse network deployments more **efficiently, securely, and intelligently**—all from a single cloud-based platform.

2. PRODUCT FEATURES

➢ **Physical Port**

IMG-3100T

- **1 10/100BASE-TX** Fast Ethernet RJ45 port
- One DB9 interface that support RS-232
- One terminal block interface that supports 2-wire RS-485 and 4-wire RS-422/RS-485 standards

IMG-3105AT

- **1 100BASE-FX SFP** slot
- One DB9 interface that support RS-232
- One terminal block interface that supports 2-wire RS-485 and 4-wire RS-422/RS-485 standards

IMG-3200T

- **2 10/100BASE-TX** Ethernet RJ45 ports
- Two software-selectable DB9 serial interfaces supporting RS-232, RS-422 and RS-485

IMG-3400T

- **2 10/100BASE-TX** Ethernet RJ45 ports
- Four software-selectable DB9 serial interfaces supporting RS-232, RS-422 and RS-485

➢ **Digital Input and Digital Output (IMG-3400T only)**

- 2 digital input (DI)
- 2 digital output (DO)
- Integrate sensors into auto alarm system
- Transfer alarms to IP networks via SNMP Trap

➢ **Serial Interface & Operation Modes**

High-Speed Transmission

- Supports asynchronous serial data rates up to 921600bps

Versatile Serial Operation Modes

- Supports RTU Master mode
- Supports RTU Slave mode
- Supports ASCII Master mode
- Supports ASCII Slave mode

Industrial Protocol Conversion

- Supports protocol conversion between Modbus TCP and Modbus RTU/ASCII

Multi-Host Connectivity

- Supports up to 32 TCP slave connections in Master mode
- Supports up to 32 TCP master connections in Slave mode

Industrial IoT Integration (MQTT)

- Supports MQTT Client and built-in MQTT Broker functions
- Supports Transparent Publish, Topic Distribution and Transparent Subscribe mechanisms
- Supports Internal and External MQTT Broker connections
- Supports QoS 0/1/2, TLS encryption and Username/Password authentication

➢ Management & Security

Network Management

- Supports IPv4 and IPv6 dual stack management
- Supports ARP, ICMP, TCP/IP, UDP, HTTP/HTTPS server, DHCP client and SNMP v1/v2c/v3
- Supports LLDP protocol
- Supports IP NTP (Network Time Protocol) and DNS management

Secure Management

- Supports HTTPS encrypted management
- Supports Certificate Management
- Supports SNMP v3
- Supports RADIUS/TACACS+ user authentication
- Supports Secure Boot technology for system integrity protection

Configuration & Maintenance

- Supports firmware upgrade
- Supports configuration backup and restore
- Supports HTTP/HTTPS Web management
- Supports PLANET Smart Discovery Utility
- Supports PLANET NMS System and CloudNMS

Intelligent Event Notification:

- Comprehensive alarm mechanism via Event Log, Syslog, SNMP Trap, and Relay Alarm output

➢ Industrial Case & Installation

Rugged Industrial Design

- IP30 rugged metal enclosure
- DIN-rail and wall-mount installation
- Operating temperature from -40 to 75°C
- Free fall, shock and vibration resistance for industrial environments

Redundant Power Design

- Dual redundant power input supporting 9~48V DC and 24V AC
- Reverse polarity protection
- Supports hardware automatic failover mechanism for uninterrupted operation

Electrical Protection

- Supports 6000V DC Ethernet ESD protection
- Supports 2KV surge protection

Diagnostics & Hardware Control

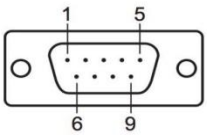
- Extensive LED indicators for network and serial status diagnosis
- Reset button for system reboot and factory default restoration
- Buzzer reset button for muting the alarm buzzer (IMG-3200T & IMG-3400T only)

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

CPU	MA35D03FI64C	x 1
Flash Size	128M bytes NOR FLASH	x 1
DRAM Size	256M bytes	x 1

3.2 FUNCTION SPECIFICATIONS

Product	IMG-3100T	IMG-3105AT	IMG-3200T	IMG-3400T
Serial Interface				
Serial Ports	1 x DB9 male for RS-232 1 x 4-Pin Terminal block for RS-422 / RS-485		2 x DB9 male for RS-232/RS-422/RS-485	4 x DB9 male for RS-232/RS-422/RS-485
Serial Standards	RS-232 / 4-wire RS-422 or RS-485 / 2-wire RS-485			
Baud Rate (Data Rate)	50bps to 921Kbps			
Data Bits	5, 6, 7, 8			
Parity Type	Odd, Even, None, Space, Mark			
Stop Bit	1, 1.5, 2			
Flow Control	RTS/CTS and DTR/DSR (RS-232 only) XON/XOFF			
Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: Tx+, Tx-, Rx+, Rx-, GND 4-wire RS-485: Tx+, Tx-, Rx+, Rx-, GND 2-wire RS-485: Data A (+), Data B (-), GND			
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	--	--	--

Serial Line Protection	-	-	2KV isolation protection 1KV (level 2) surge protection 15KV ESD protection
Operation Mode	Modbus RTU Master Modbus RTU Slave Modbus ASCII Master Modbus ASCII Slave		
TCP Connections	Master mode: Up to 32 TCP Slave connections Slave mode: Up to 32 TCP Master connections		
Ethernet Interface			
Ethernet Ports	1 x RJ45	1 x SFP	2 x RJ45
Standard	10/100BASE-TX	100BASE-FX	10/100BASE-TX
Distance	100m	2 km to 120 km (depending on SFP module)	100m
Hardware Specifications			
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			50 x 87 x 135 mm
Weight	392g		477g	625g
LED Indicators	System: PWR1 (Green) PWR2 (Green) Alarm (Red) Port Interfaces : LNK/ACT (Green) RX (Amber) TX (Green)		System: PWR1 (Green) PWR2 (Green) Alarm (Red) SYS (Green) Port Interfaces : LNK/ACT (Green) RX (Amber) TX (Green)	System: PWR1 (Green) PWR2 (Green) Alarm (Red) SYS (Green) I/O (Red) Port Interfaces : LNK/ACT (Green) RX (Amber) TX (Green)
Power Requirements	9~48V DC, redundant power with reverse polarity protection 24V AC			
Power Consumption	Max. 2.4 watts/8.19BTU (Power on without any connection)	Max. 2.88 watts/9.83BTU (Power on without any connection)	Max. 3.24 watts/11.05BTU (Power on without any connection)	Max. 4.48 watts/15.28BTU (Power on without any connection)
	Max. 2.52 watts/8.6BTU (Full loading)	Max. 2.88 watts/9.83BTU (Full loading)	Max. 4.32 watts/14.74BTU (Full loading)	Max. 4.51 watts/15.39BTU (Full loading)
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 Removable 6-pin terminal block for DI/DO interface (IMG-3400T only) Pin 1/2 for DI 1 & 2, Pin 3/4 for DO 1 & 2, Pin 5/6 for GND			
Alarm	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V DC			
DI, DO	-	-	-	2 digital input (DI) Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Input load to 24V DC, 10mA max. 2 digital output (DO): Open collector to 24V DC, 100mA max.
ESD Protection	6KV			
Surge Protection	2KV			
Reset Button	< 5 sec: System reboot > 5 sec: Factory default			
Buzzer Reset	-	-	Push Button for Buzzer Muting	
Management				
Management Interfaces	HTTP Web management HTTPS Web management Windows-based VCOM Utility management SNMPv1, v2c and v3 PLANET Smart Discovery Utility PLANET on-promise NMS System and cloud-based CloudNMS			
IP Protocol	IPv4 / IPv6			
Time Management	NTP Client			
Name Service	DNS Client			
Network Protocol	LLDP			
System Maintenance	Firmware Upgrade Configuration Backup / Restore			
Diagnostic	Event Log Syslog			

Event Notification	SNMP Trap Relay Alarm
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 2737 Entity MIB (Version 2) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like MIB
Security	
Hardware Security	Hardware-based Secure Boot Arm® TrustZone® Technology Hardware True Random Number Generator (TRNG) Hardware-accelerated AES, SHA, ECC and RSA Cryptographic Operations Hardware Key Store and OTP Protection for Secure Boot Keys
System Security	HTTPS Secure Web Management HTTP-to-HTTPS Redirection Certificate Management IP-based Management Access Control TLS 1.2 / TLS 1.3 SNMP v3 Authentication and Encryption
MQTT	
MQTT Operation Modes	MQTT Client Built-in MQTT Broker
MQTT Messaging	Retained Messages Last Will and Testament (LWT)
Publish Methods	Transparent Serial Data Publishing Data Mapping-based Publishing
Subscribe Methods	Transparent MQTT-to-Serial Data Forwarding
Quality of Service	MQTT QoS Level 0,1 and 2
Authentication	Username and Password
Transport Security	MQTT over TLS 1.2
Broker Connectivity	Built-in or External MQTT Broker
Standards Conformances	
Regulatory Compliance	FCC Part 15 Class A, CE Certification Class A
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Standards	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX RFC 768 UDP RFC 793 TCP RFC 791 IP RFC 792 ICMP RFC 5905 NTPv4 RFC 1591 DNS (client only) RFC 1908 SNMPv2c RFC 2616 HTTP/1.1 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 RS-232/422/485
Regulatory Approval	RoHS
Environment	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

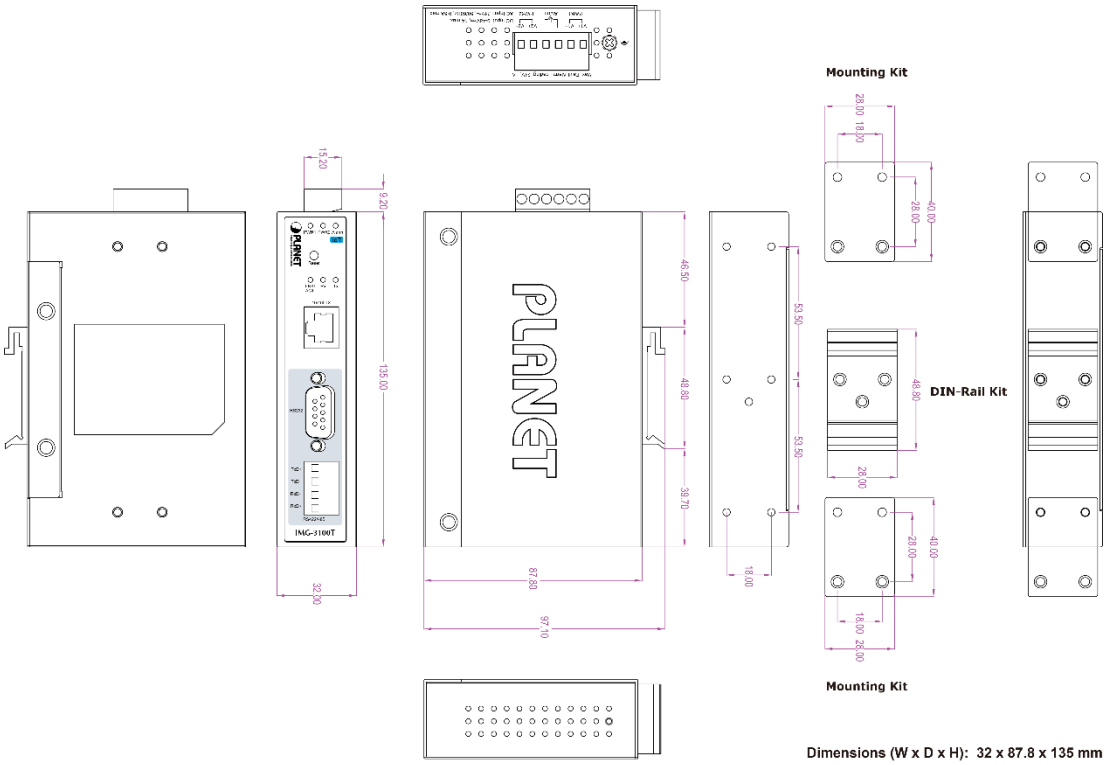
3.3 PHYSICAL SPECIFICATIONS:

- **IMG-3100T**

Dimensions (W x D x H):

32 x 87.8 x 135mm

Weight: 392 g

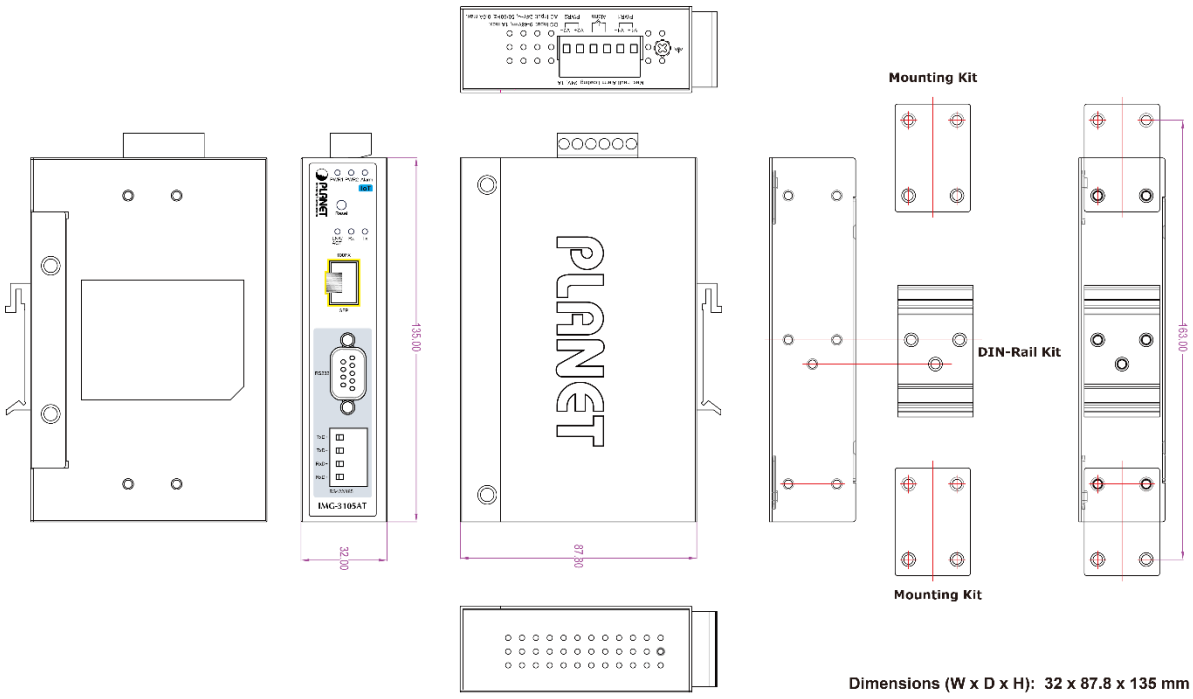


- **IMG-3105AT**

Dimensions (W x D x H):

32 x 87.8 x 135mm

Weight: 392 g

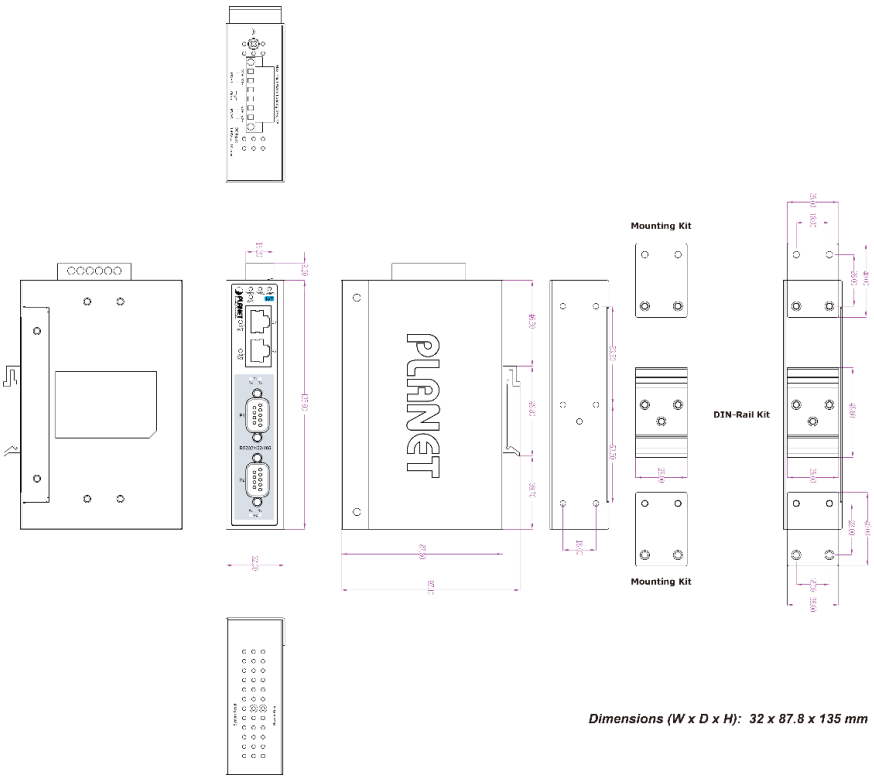


- **IMG-3200T**

Dimensions (W x D x H):

32 x 87.8 x 135mm

Weight: 477 g



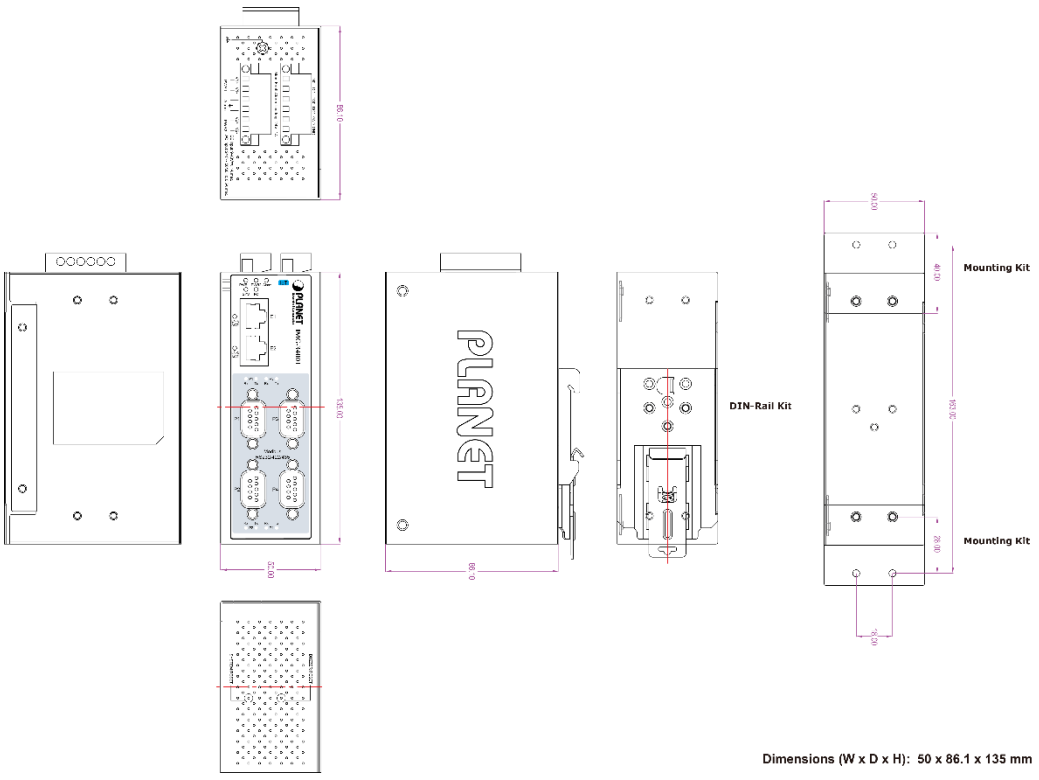
Dimensions (W x D x H): 32 x 87.8 x 135 mm

- **IMG-3400T**

Dimensions (W x D x H):

50 x 87 x 135mm

Weight: 625 g



Dimensions (W x D x H): 50 x 86.1 x 135 mm

■ **Front Panel**

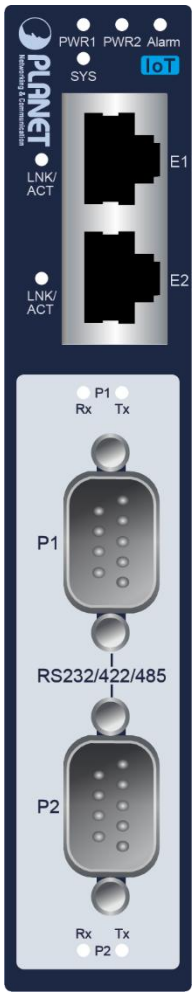
ICMG-3100T



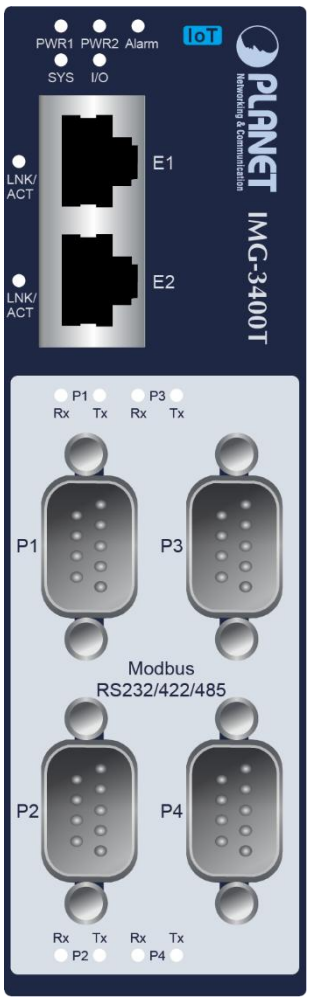
IMG-3105AT



IMG-3200T

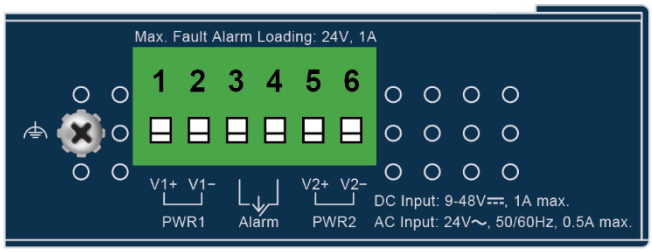


IMG-3400T

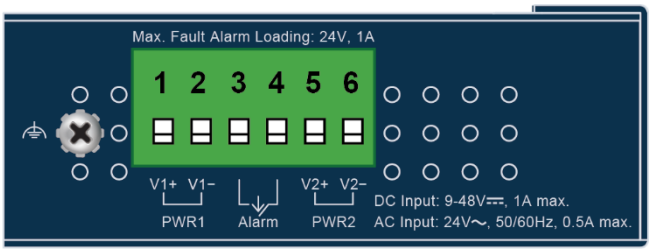


■ Top View

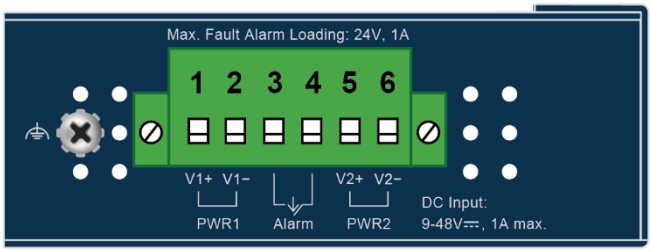
IMG-3100T

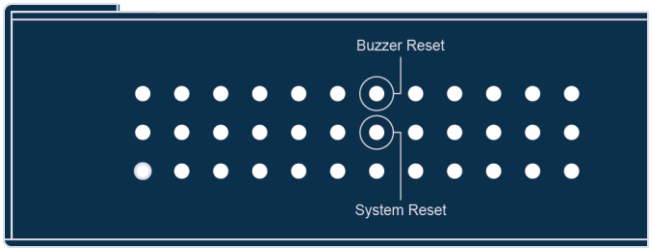


IMG-3105AT

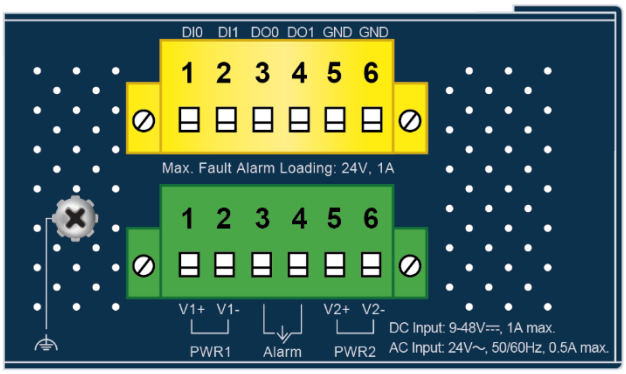


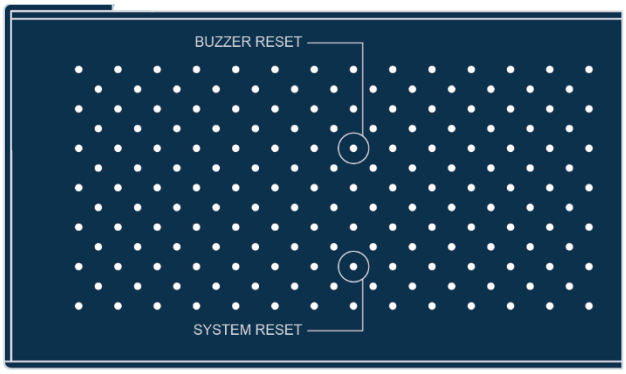
IMG-3200T





IMG-3400T

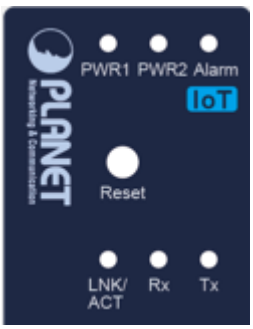




LED Definition:

ICS-3100T

- **System**



LED	Color	Function	
PWR1	**Green**	Lights	Lights to indicate that the Switch has power.
PWR2	**Green**	Lights	Lights to indicate that the Switch has power.
Alarm	**RED**	Lights	Lights to indicate that the system defined alarm events
10/100 LNK/ACT	**Green**	Lights	To indicate the port is running in 10/100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	**Amber**	**Blink**	To indicate that the device is actively receiving serial data.
Tx	**Green**	**Blink**	To indicate that the device is transmitting serial data.

ICS-3105AT

- **System**



LED	Color	Function	
PWR1	**Green**	Lights	Lights to indicate that the Switch has power.
PWR2	**Green**	Lights	Lights to indicate that the Switch has power.
Alarm	**RED**	Lights	Lights to indicate that the system defined alarm events
100 LNK/ACT	**Green**	Lights	To indicate the port is running in 100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	**Amber**	**Blink**	To indicate that the device is actively receiving serial data.
Tx	**Green**	**Blink**	To indicate that the device is transmitting serial data.

ICS-3200T

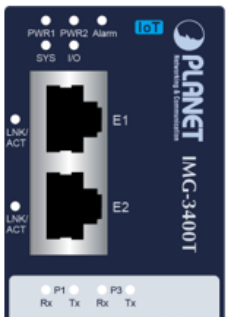
- **System**



LED	Color	Function	
PWR1	**Green**	Lights	Lights to indicate that the Switch has power.
PWR2	**Green**	Lights	Lights to indicate that the Switch has power.
Alarm	**RED**	Lights	Lights to indicate that the system defined alarm events
SYS	**Green**	Lights	To indicate that the system has started successfully and is operating normally.
10/100 LNK/ACT	**Green**	Lights	To indicate the port is running in 10/100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	**Amber**	**Blink**	To indicate that the device is actively receiving serial data.
Tx	**Green**	**Blink**	To indicate that the device is transmitting serial data.

ICS-3400T

- **System**



LED	Color	Function	
PWR1	**Green**	Lights	Lights to indicate that the Switch has power.
PWR2	**Green**	Lights	Lights to indicate that the Switch has power.
Alarm	**RED**	Lights	Lights to indicate that the system defined alarm events
SYS	**Green**	Lights	To indicate that the system has started successfully and is operating normally.
I/O	**RED**	Lights	Lights to indicate that Switch input power or port has failed or DI has event.
10/100 LNK/ACT	**Green**	Lights	To indicate the port is running in 10/100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	**Amber**	Blink	To indicate that the device is actively receiving serial data.
Tx	**Green**	Blink	To indicate that the device is transmitting serial data.

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: -40°C ~ 70 degrees C

Relative Humidity: 5% ~ 90% (non-condensing)

Storage:

Temperature: -40°C ~ 85 degrees C

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

3.5 ELECTRICAL SPECIFICATION

Model		ICS-3100T	ICS-3105AT	ICS-3200T	ICS-3400T
DC Power Input Voltage Range:		24V	24V	24V	24V
Power Consumption	**System on**	2.4 watts / 8.19 BTU	2.88 watts / 9.83 BTU	3.24 watts / 11.05 BTU	4.48 watts / 15.28 BTU
	Full Loading	2.52 watts / 8.6 BTU	2.88 watts / 9.83 BTU	4.32 watts / 14.74 BTU	4.51 watts / 15.39 BTU

3.6 REGULATORY COMPLIANCE

FCC Class A, CE.

3.7 RELIABILITY

MTBF > 100,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

IMG-3100T	IMG-3105AT	IMG-3200T	IMG-3400T
■ IMG-3100T x 1	■ IMG-3105AT x 1	■ IMG-3200T x 1	■ IMG-3400T x 1
■ Quick Start Guide x 1	■ Quick Start Guide x 1	■ Quick Start Guide x 1	■ Quick Start Guide x 1
■ CloudNMS Sheet x 1	■ CloudNMS Sheet x 1	■ CloudNMS Sheet x 1	■ CloudNMS Sheet x 1
■ Wall-mount kit x 1	■ Wall-mount kit x 1	■ Wall-mount kit x 1	■ Wall-mount kit x 1
■ Dust Cap (RJ45) x 1	■ Dust Cap (SFP) x 1	■ Dust Cap (RJ45) x 2	■ Dust Cap (RJ45) x 2

3.9 PACKING INFORMATION

	IMG-3100T	IMG-3105AT	IMG-3200T	IMG-3400T
Box Dimensions (W x D x H):	205 x 144 x 46 mm			202 x 140 x 94mm
Gross Weight:	0.56 kg	0.57 kg	0.61 kg	0.88 kg
Carton Dimensions (W x D x H):	445 x 320 x 280 mm			600 x 230 x 325 mm
Total Weight:	12.1 kg	12.1 kg	12.9 kg	11.38 kg
Quantity:	20pcs in one carton			12pcs in one carton