

General Specifications

Edge Gateway Indoor amnimo G series AG10

GS AMD03A01-01EN

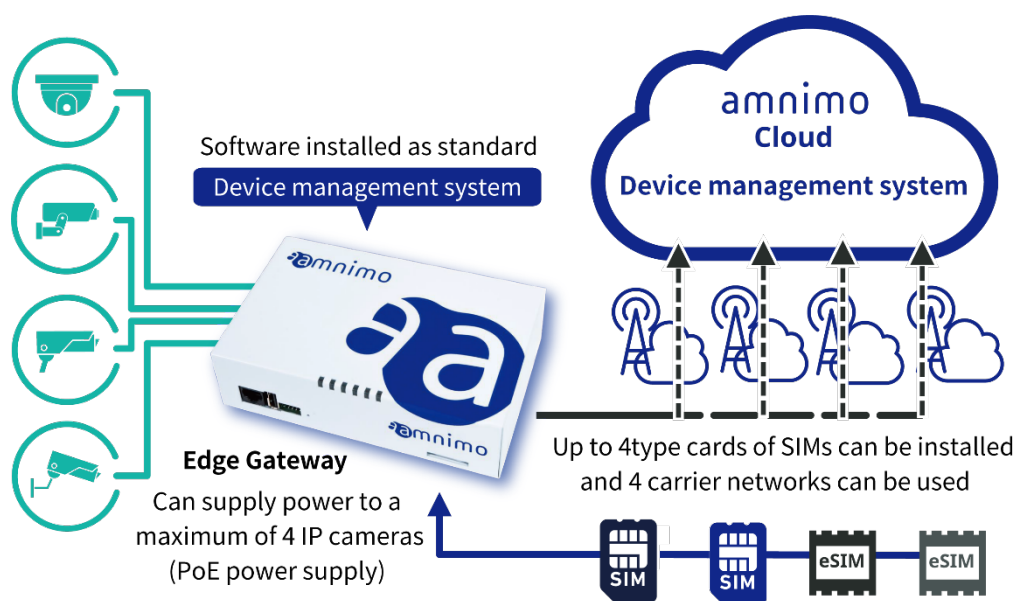
■ Outline

Edge Gateway amnimo G series (hereinafter described as “Edge Gateway”) is a device for connecting the amnimo Industrial IoT cloud system with various field devices via the network. Edge Gateway enables users to save data from field devices and monitor the operation status of devices. Users can also transfer data saved on Edge Gateway to the cloud as required.

■ Features

- With a mobile communication device available for industrial use that is equipped with a large capacity of RAM (2 GB)/eMMC (32 GB) and adopts Ubuntu (Linux) as the OS, custom applications can be easily developed and installed.
- High reliability is achieved with amnimo’s unique know-how. Communication obstacles are overcome by fast switching among multiple SIMs, and the reliability is improved by a unique module control method. Also, measures against instantaneous power failures are actualized by the power supply backup mechanism. Further, automatic initial setting and remote maintenance can be performed by cloud cooperation.
- By installing an SSD with a maximum capacity of 2 TB, a large amount of data can be saved.
- Equipped with 4 ports of PoE (Power over Ethernet) which can supply power to external devices as standard. A hardware configuration that is the most suitable for using surveillance cameras is formed.
- With an outdoor installation model (to be sold in the future), Edge Gateway can be used in a wide variety of environments.

■ System Configuration (Solution Configuration)



■ General Specifications

● Hardware Specifications

Product Name	Edge Gateway Indoor amnimo G series	
Model Name	AG10-010JP-10-□□□□	AG10-020JP-10-□□□□
CPU	ARM Cortex-A53 1GHz (2 cores)	
RAM	2G Byte	
NOR FLASH	4M Byte	
NAND FLASH	512M Byte	
eMMC	32G Byte	
Storage medium (SSD) * 1	None, or 512 GByte (standard) (Please consult us for a storage medium of 256 GB ~ 2 TB.)	
Mobile network	LTE Cat4, 3G	Corresponding to regional BWA
Band	LTE FDD: B1, B3, B8, B18, B19, B21 WCDMA: B1, B6, B8, B19	LTE FDD: B1, B18 LTE TDD: B41
Antenna terminal		
Mobile	SMA x 2	
GPS	SMA x 1	
GNSS	GPS(QZSS) / GLONASS / Galileo / BeiDou	
PoE power supply	IEEE 802.3at	
Interface		
Ethernet	10BASE-T/100BASE-TX/1000BASE-T × 5 ports (Including 4 ports (PoE power supply)) RJ-45 connector	
RS-232	D-sub 9-pin x 1 port (Maximum baud rate 500kbsp)	
Console	RJ-45 x 1 port (Compatible with a CISCO Console)	
USB	USB2.0 Type A × 1 port	
SD card	1 slot (SDXC)	
SIM slot	Micro SIM (3FF) × 2 slots eSIM × 2 * 2	
DI	4 ports (Connector terminals are required separately.)	
DO	2 ports (Connector terminals are required separately.)	
Switch		
Push	1 (for shutdown and factory settings)	
DIP	4 (for setting)	
LED	2-color LED (PWR, ANT, MOB, ST1, ST2, ST3)	
External dimension	177 (W) x 110 (D) x 44 (H) mm (without protrusions)	
Weight	About 820 g	
Power supply voltage	DC 10.8 V ~ 32 V	
Consumption current	Main body + PoE: Maximum of 50 W (including PoE 40 W)	
Operating temperature	-20 °C ~ 60 °C	
Storage temperature	-20 °C ~ 70 °C	
Relative humidity	10 ~ 90 % (non-condensation)	

*1 Please select a capacity of a storage medium (SSD) when you purchase your product.

*2 Please consult us if you consider using eSIM.

● Software Specifications

Product Name	Edge Gateway Indoor amnimo G series	
Model Name	AG10-0□□0JP-10-□□□□	
Kernel	Linux (4.19)	
OS	Ubuntu 18.04 LTS	
Basic protocol	ARP/IPv4/UDP/TCP	
Connection protocol	IPCP/PPP/PPPoE	
Dynamic IP address	DHCP server/client (IPv4) DHCP server can be set for each interface	
Domain name resolution	DNS relay/client	
Routing	Static routing	
Address conversion/ Port conversion	NAT/NAPT (source/destination)	
VPN	IPsec/remote.it (standard installation)	
Time synchronization	NTP/GPS	
Security	Packet filter	
Operation management		
Setting method	<ul style="list-style-type: none"> ● amsh CLI (Command Line Interface) dedicated for amnimo Edge Gateway ● amnimo GUI GUI (Graphical User Interface) dedicated for amnimo Edge Gateway Set by using a Web browser 	
Firmware update	Differential update/Full update can be performed by the amsh and amnimo GUI	
Log management	Syslog	
Device management	amnimo Device Management System	
Development tool chain	<ul style="list-style-type: none"> ● gcc-7 7.5.0-3ubuntu1 ~ 18.04 	
	<ul style="list-style-type: none"> ● binutils 2.30-21ubuntu1 ~ 18.04.4 	

■ Function Specifications

- Fast switching among multiple SIMs
- Controlling On/Off of PoE which can supply power to external devices
- Backup function for instantaneous power failures
- Function for downloading and updating firmware (FOTA: Firmware Over The Air)

■ Additional Specification (Option/VW1)

The latest IP video management system (hereinafter described as “VMS”), Nx Witness VMS manufactured by NetworkOptix, can be used.

This VMS is software that enables users to view videos recorded by IP cameras connected, save data to a storage medium, and manage it. Licenses for the number of cameras connected to Edge Gateway are required separately.

■ Operation Environment

Operating temperature	-20 °C ~ 60 °C
Storage temperature	-20 °C ~ 70 °C
Relative humidity	10 ~ 90 % (non-condensation)

* Both temperature and humidity are applicable only to the main body.

* A place free of corrosive gas and dust, and a place not exposed to sea breeze, direct sunlight and water such as rain.

(Note) Not waterproof/dustproof.

■ Compatible Certifications

This product has obtained the following certifications.

Model Name	AG10-010JP-10-□□□□	AG10-020JP-10-□□□□
Compatible law/regulation		
Japan Radio Act	Installed with a certified module (Construction design certification: 201-180342)	Installed with a certified module (Construction design certification: 022-190195)
Telecommunications Business Act	Obtained design certification Certification number: D200011019	Obtained design certification Certification number: D200012019

■ Model Name and Specification Codes

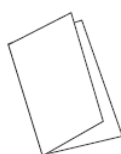
Model Name	Specification Code			Description
AG10				Edge Gateway Indoor Type
	-0			Always "0"
Communication board	1			LTE Cat.4, 3G
	2			Corresponding to regional BWA
Expansion board	0			Always "0" (Not implemented)
Destination		JP		Japanese model
Case type		-1		Always "1" (Indoor Type)
Power supply type		0		Always "0" (DC 10.8 ~ 32.0V)
Storage capacity (SSD)		-000G		Without SSDs
		-512G		SSD 512 GB (Standard)
Additional specification			/VW1	VMS Nx Witness

*Nx Witness is a VMS (Video Management System) manufactured by NetworkOptix.

*Please consult us if you prefer a storage capacity (SSD) other than 512 GB (256 GB ~ 2 TB).

■ Attached Items

「Before Using」 (A sheet of A4 paper folded in half), Rubber feet (4 pieces)



(IM AMD03A01-11JA)

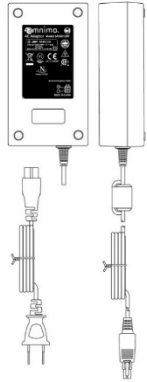


(M7901YH)

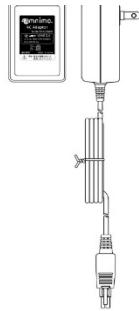
■ Accessories (Sold Separately)

Parts Number	Product Name	Description
M7901YA (SA50012RF)	AC adapter DC24 V/2 A	DC24V/2A (A load of 30 W in an environment of 60 °C) AC adapter + AC power cable
M7901YC (SA12364RF)	AC adapter DC12 V/1 A	DC12 V/1A (A load of 6 W in an environment of 60 °C)
M7901YD	Rod antenna	2 antennas for 3G/LTE/WiMAX
M7901YE	External antenna	Coaxial cable length 2.5 m, 2 antennas with a magnet
M7901YF	GPS antenna	Cable length 5 m, with a magnet
M7901YJ	Body fixing bracket	For AG10 (Edge Gateway Indoor), with 4 screws
M7901YH	Rubber feet	Rubber feet (4 pieces)
M7901YG	Console convertor	RJ-45 - D-sub 9-pin
M7901YK	DC power cable	Power supply connector – Unprocessed on one side (Cable 1 m)

AC adapter DC24V/2A
M7901YA (SA50012RF)



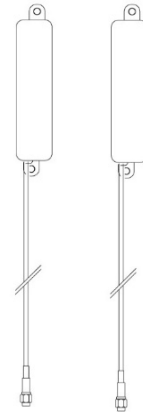
AC adapter DC12V/1A
M7901YC (SA12364RF)



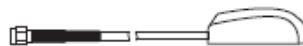
Rod antenna
M7901YD



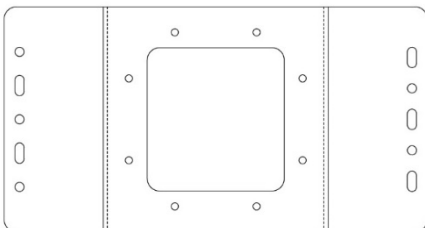
External antenna
M7901YE



GPS antenna
M7901YF



Body fixing bracket
M7901YJ (with screws)



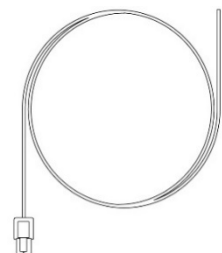
Rubber feet
M7901YH



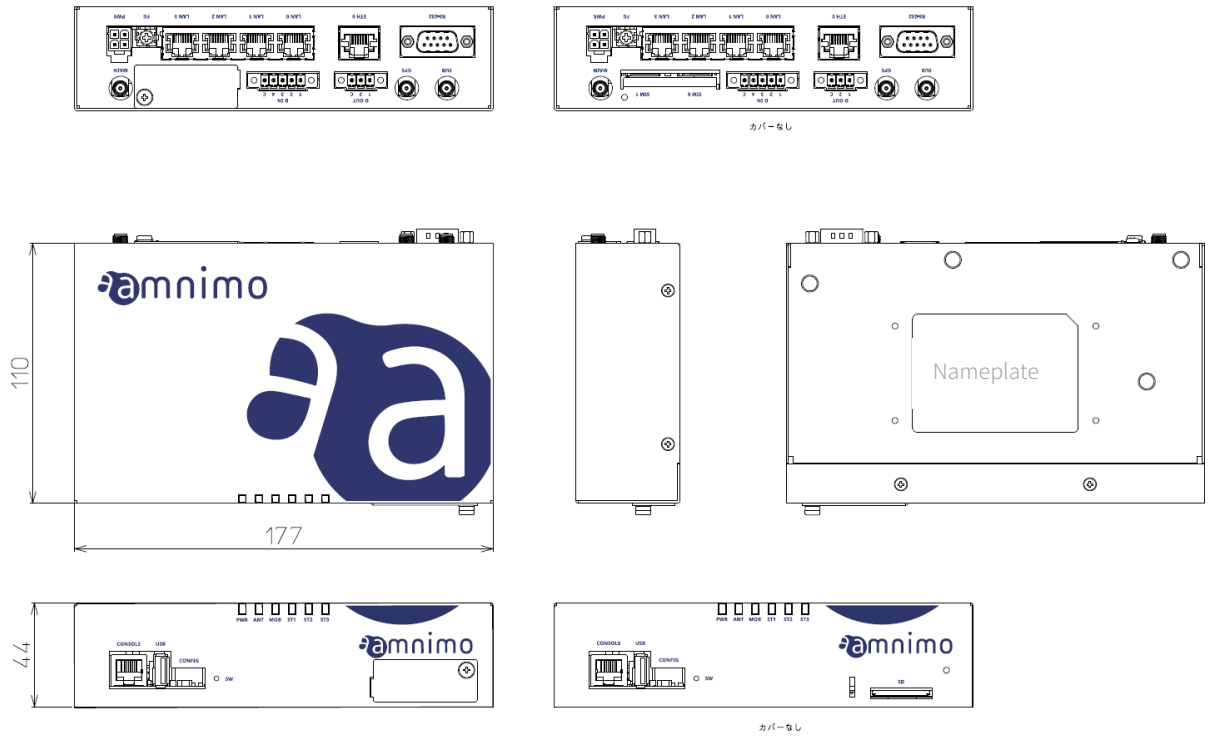
Console convertor
M7901YG



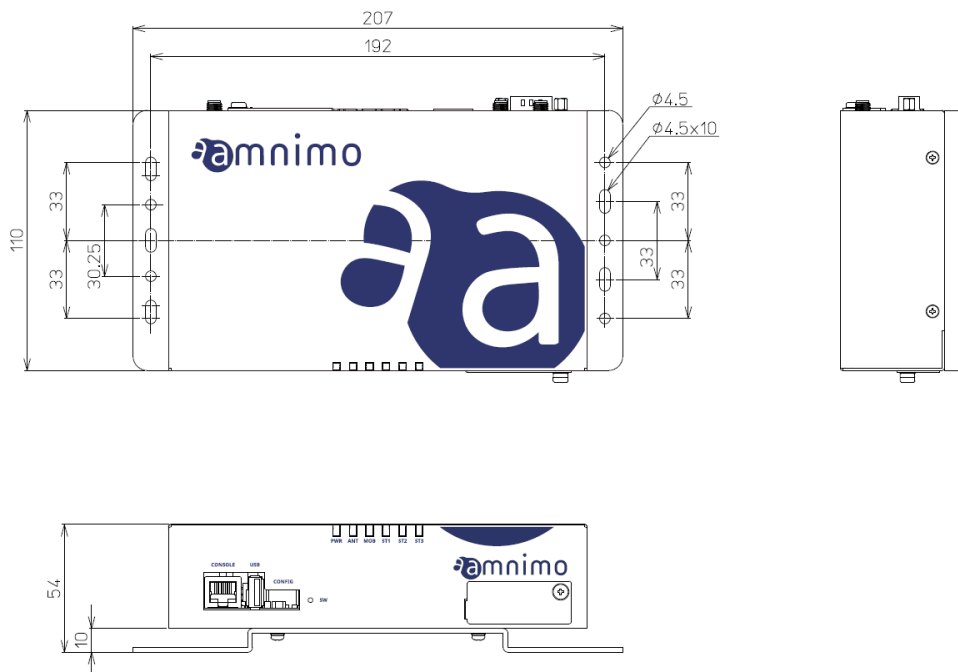
DC power cable
M7901YK



■ Outline Drawing



■ When mounting the body fixing bracket



Measurement unit: mm

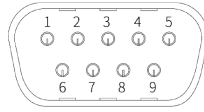
■ Each Connector Pin Layout of Interface

● RS-232

RS-232 operates as DTE by using a D-sub 9-pin (male). The maximum baud rate is 500 kbps.

Pin assignment for RS-232

Pin Number	Pin Assignment
1	CD (In)
2	RXD (In)
3	TXD (Out)
4	DTR (Out)
5	GND
6	DSR (In)
7	RTS (Out)
8	CTS (In)
9	RI (In)



● DI (Digital Input)

For external power supply, DC12 V or DC24 V is required.

Pin assignment for Digital Input (DI)

Pin Number	Pin Assignment	Description
1	DIN1	Digital input 1
2	DIN2	Digital input 2
3	DIN3	Digital input 3
4	DIN4	Digital input 4
C	VIN_COM	Digital input common



*Recommended connector: Manufactured by Phoenix contact Product number 1827732

● DO (Digital Output)

For external power supply, DC12 V or DC24 V is required.

Pin assignment for Digital Output (DO)

Pin Number	Pin Assignment	Description
1	DOUT1	Digital output 1
2	DOUT2	Digital output 2
C	VOUT_COM	Digital output common

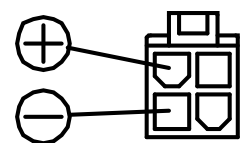


*Recommended connector: Manufactured by Phoenix contact Product number 1827716

● For power supply

Pin assignment for power supply connector

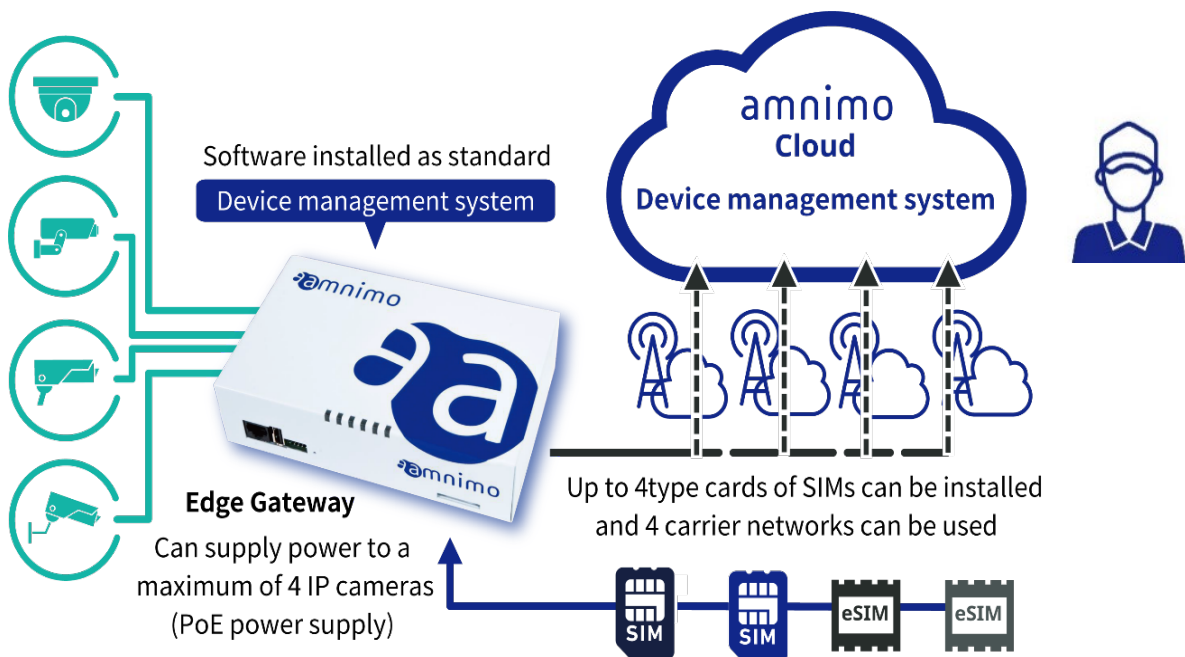
Pin Number	Pin Assignment	Description
1, 2 (upper part)	+	Power supply positive side
3, 4 (lower part)	-	Power supply negative side



*Recommended connector: Manufactured by Molex Product number 5557-04R

■ Device Management System (DMS) Functional Specifications

- **Edge Gateway Automatic Initial Setting Function**
By specifying the firmware and configuration files for the target Edge Gateway with the Device Management System in advance, if the Edge Gateway is connected to the Internet, they will be automatically downloaded and you will be able to configure the settings for the Edge Gateway with them.
- **Edge Gateway Alive Monitoring (Status Monitoring) Function**
You can check the operation and communication status of Edge Gateway.
- **Edge Gateway Firmware Update Function (FOTA: Firmware Over The Air)**
You can update the firmware of Edge Gateway remotely. Also, you can collectively update the firmware for multiple Edge Gateways (up to 50 units).
- **Edge Gateway Configuration File Upload/Download Function**
You can upload and download configuration files of Edge Gateway. With this function, you can configure the settings for Edge Gateway remotely. Also, if you replace an Edge Gateway with another one for maintenance, etc., the configuration files of the old one can be carried over to the new one.
- **Edge Gateway System Log Acquisition (Download) Function**
You can obtain system logs of Edge Gateway. With this function, if an abnormality occurs in Edge Gateway, you can remotely check it.
- **Edge Gateway Remote Control Function**
You can remotely control rebooting Edge Gateway, turning ON/OFF the PoE power supply, and turning ON/OFF of VBUS of the USB port.
- **Edge Gateway Diagnostic Information Acquisition Function**
The information self-diagnosed by Edge Gateway is displayed as a message on the DMS and saved as a log.



■ Cautions on use


● Contracting with a telecommunication carrier

This product is not installed with any SIM cards. It is necessary to sign a contract with a telecommunication carrier separately.

● Cautions about wireless communication

- This product can be used only in Japan.
- This product does not comply with technical standards other than those described in the Radio Equipment Regulations of the Japanese Radio Law and the regulations for terminal facilities, etc. of the Telecommunications Business Act.
- As this product has been certified as conforming to the technical requirements, you may be punished by law if you do the following:
 - Disassembling and modifying the product.
 - Peeling off the certification label
 - Using antennas other than the specified optional items.
- Communication may not be possible in the following places where radio waves are reflected:
 - A place where a strong magnetic field, static electricity or radio interference occurs
 - A place such as inside a room or cabinet with metal walls (including concrete walls with metal reinforcement embedded)
- Please do not install or use this product in an area where the use of radio equipment is prohibited such as inside planes or hospitals.

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