

AIG-502 系列

配備 Intel® Core™ i7 處理器與 Azure IoT Edge 軟體的高階工業物聯網閘道器，操作溫度 -40 至 70°C



特色與優點

- 支援 Modbus RTU/ASCII/TCP 用戶端
- 支援 Azure IoT Edge
- 配備安全開機功能，可有效防範惡意軟體注入攻擊
- 內建網路流量監控與診斷工具，可便於輕鬆故障排除
- 提供穩定的 OTA 功能，可防止系統在軟體升級過程中發生故障
- 提供 LTE Cat.4 美國、歐洲與亞太型號
- 符合 IEC 62443-4-2 安全等級 2 要求
- -40°C 至 70°C 操作溫度範圍

認證



簡介

AIG-502 是一款堅固耐用的工業物聯網 (IIoT) 閘道器，專為工業應用提供安全可靠的資料通訊解決方案。符合 IEC 62443-4-2 安全等級 2 要求，可確保安全的網路連線、資料傳輸及裝置驗證。配備 AIG-502 可透過 Modbus RTU、ASCII 及 TCP 通訊協定取得現場資料，並實現與 Azure 雲端平台的無縫整合。憑藉強大的運算能力，其可透過 Azure IoT Edge 模組支援進階邊緣運算能力，為追求高效率與資安合規的數位化工業應用打造理想解決方案。

透過 Azure IoT Edge 倍增邊緣運算能力

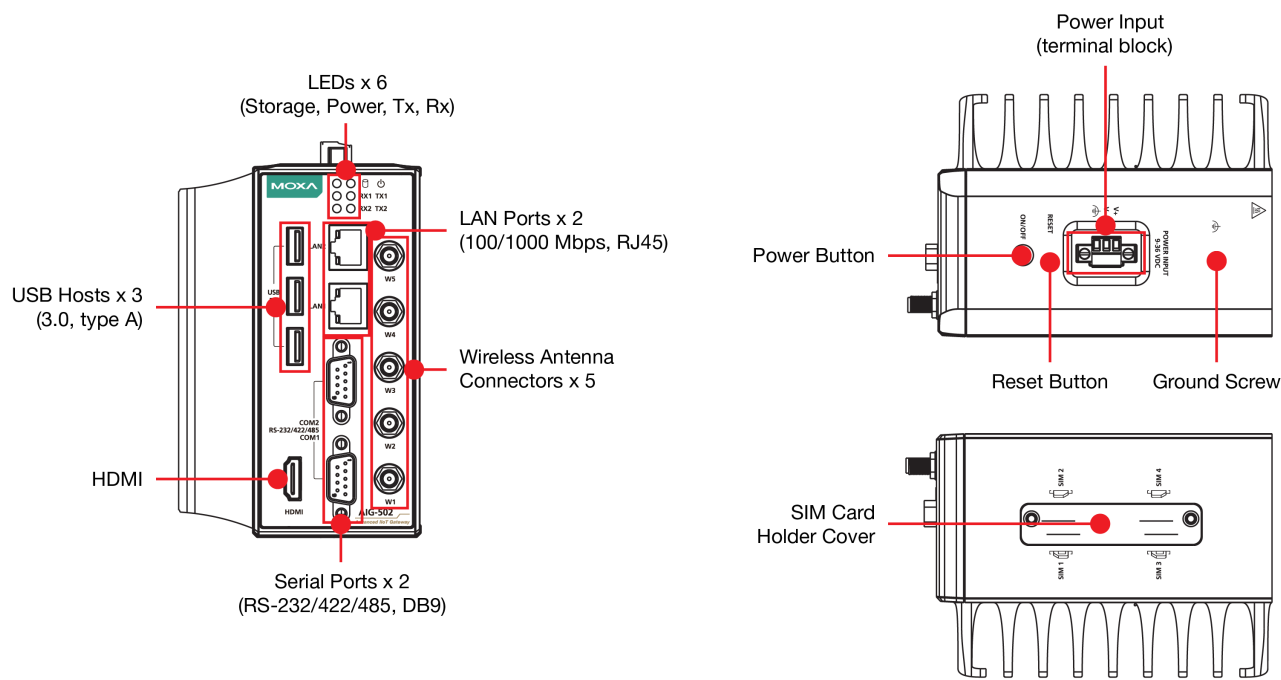
AIG-502 支援 Azure IoT Edge，帶來多種優勢，包括邊緣運算能力、降低頻寬成本、靈活性與擴展性、與 Azure 服務的無縫整合，以及簡化的管理與更新。具體而言，AIG-502 可於邊緣本地進行資料處理，不僅能提供快速回應與低延遲，還能有效降低網路頻寬使用量，進而節省成本。此外，AIG-502 的模組化設計與 Azure IoT Edge 支援功能，使您的系統兼具靈活性與易擴充性。同時，AIG-502 與 Azure 雲端服務的無縫整合，讓您能夠輕鬆將雲端功能延伸至邊緣裝置。

以輕鬆安裝及復原能力實現可靠的軟體更新

軟體更新功能可確保輕鬆、可靠及安全的系統升級。使用者可透過網頁主控台安裝 Debian，並使用 Debian APT 安裝特定修補程式，或直接套用 Moxa 提供的完整更新套件。更新可透過線上或手動上傳方式取得，並提供立即安裝或排程安裝兩種選項。此功能也支援下載續傳與自動復原機制，可提供無縫且負有韌性的更新體驗，確保系統穩定執行。

專為偵測安全性問題的儀表板

安全性儀表板可透過裝置掃描功能，從以下方面多角度識別潛在網路安全威脅：帳號設定管理、應用程式網路連線、應用程式資源使用監控、產品憑證部署、服務設定修改及系統狀態檢查。當偵測到威脅時，建議透過緩解計劃來解決問題。



規格

Computer	
CPU	Intel® Core™ i7-7600U processor (4M cache, up to 3.90 GHz)
DRAM	32 GB SODIMM DDR4
Storage Pre-installed	32 GB mSATA
Pre-installed OS	Moxa Industrial Linux (Debian 11, kernel 5.10.x)
Graphics Controller	Intel® HD Graphics 620
Computer Interface	
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2
Serial Ports	RS-232/422/485 ports x 2 (software-selectable, DB9 male connector)
USB 3.0	USB 3.0 hosts x 3, type-A connectors
Wi-Fi Antenna Connector	RP-SMA x 2 (excluding AIG-502-T-AZU-LX)
Cellular Antenna Connector	SMA x 2 (excluding AIG-502-T-AZU-LX)
GPS Antenna Connector	SMA x 1 (excluding AIG-502-T-AZU-LX)
Expansion Slots	mPCIe slots x 1 (for optional Wi-Fi module)
SIM Format	Nano (excluding AIG-502-T-AZU-LX)
Number of SIMs	2
Video Output	HDMI x 1
TPM	TPM v2.0
Ethernet Interface	
10/100/1000BaseT(X) Ports (RJ45 connector)	2
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features

Industrial Protocols	Azure IoT Edge
Configuration Options	Web Console (HTTP/HTTPS)
Time Management	NTP Server/Client GPS
Security	SSH HTTPS/SSL TLS Firewall

Serial Interface

No. of Ports	2
Connector	DB9 male
Baudrate	50 bps to 115.2 kbps
Data Bits	7, 8
Stop Bits	1, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS, XON/XOFF, ADDC (automatic data direction control) for RS-485

Serial Signals

RS-232	TxD, RxD, RTS, CTS, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	Data+, Data-, GND

Serial Software Features

Industrial Protocols	Modbus RTU/ASCII Master
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Cellular Interface

Cellular Standards	LTE Cat. 4
Band Options (US)	LTE Band 2 (1900 MHz) / LTE Band 4 (1700 MHz) / LTE Band 5 (850 MHz) / LTE Band 12 (700 MHz) / LTE Band 13 (700 MHz) / LTE Band 14 (700 MHz) / LTE Band 66 (1700 MHz) / LTE Band 71 (600 MHz) UMTS/HSPA 850 MHz / 1900 MHz Carrier Approval: Verizon, AT&T Note: LTE Band 71 (600 MHz). is not included in the selectable antenna support range. Please contact Moxa if you need to use this band.
Band Options (EU)	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 7 (2600 MHz) / LTE Band 8 (900 MHz) / LTE Band 20 (800 MHz) UMTS/HSPA 900 MHz / 1800 MHz / 2100 MHz
Band Option (APAC)	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 5 (850 MHz) / LTE Band 8 (900 MHz) / LTE Band 28 (700 MHz) UMTS/HSPA 850 MHz / 900 MHz / 2100 MHz

GPS Interface

Receiver Types	GPS/GLONASS/BeiDou/Galileo/QZSS
Accuracy	Position: 2.0 m @CEP50

Sensitivity	Acquisition: -147.0 dBm Cold starts: -145 dBm Tracking: -160 dBm
Update Rate	1 Hz

Azure IoT Edge

Versions Supported	v1.4.33
Authentication Methods	Manual / Connection String DPS / Symmetric Encryption DPS / X.509 Certificate DPS / TPM
Azure Direct Methods	Reboot Software Upgrade Remote API Invocation
Azure Module Twin	Device Configuration
Moxa Functions	Custom Payload Message Group

Modbus RTU/ASCII

Mode	Client (Master)
Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Max. No. of Commands	256 per port
Max. No of Connected Devices	31 slave devices per serial port

Modbus TCP

Mode	Client (Master), Server (Slave)
Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Max. No. of Server Connections	64
Max. No. of Client Connections	4
Max. No. of Commands	3000

LED Indicators

System	Power x 2
LAN	2 per port (10/100/1000 Mbps)
Serial	2 per port (Tx, Rx)

Power Parameters

Input Voltage	9 to 36 VDC 12 to 36 VDC, 6A (for hazardous locations)
Input Current	8 A @ 9 VDC 2 A @ 36 VDC
Power Consumption	72 W (max.)
Power Connector	3-pin terminal block

Reliability

Automatic Reboot Trigger	External WDT (watchdog timer)
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Physical Characteristics

Housing	Metal
IP Rating	IP20
Dimensions	134 x 60.4 x 120 mm (5.28 x 2.38 x 4.72 in)
Weight	1,500 g (3.3 lb)
Installation	DIN-rail mounting (with optional kit) Wall mounting (with optional kit)

Environmental Limits

Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-40 to 75°C (-40 to 167°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-64

Standards and Certifications

EMC	EN 55032/35 EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Safety	UL 62368-1 EN 62368-1
Radio	NCC RCM
Carrier Approvals	AT&T Verizon PTCRB
RED	EN 300 328 EN 301 489-1/17/19/52 EN 301 511 EN 301 893 EN 301 908-1 EN 303 413 EN 62311
Hazardous Locations	Class I Division 2, ATEX, IECEx
International Approval	BSMI
Green Product	RoHS, CRoHS, WEEE

MTBF

Time	510,913 hrs
Standards	Telcordia (Bellcore) Standard TR/SR, GB

Warranty

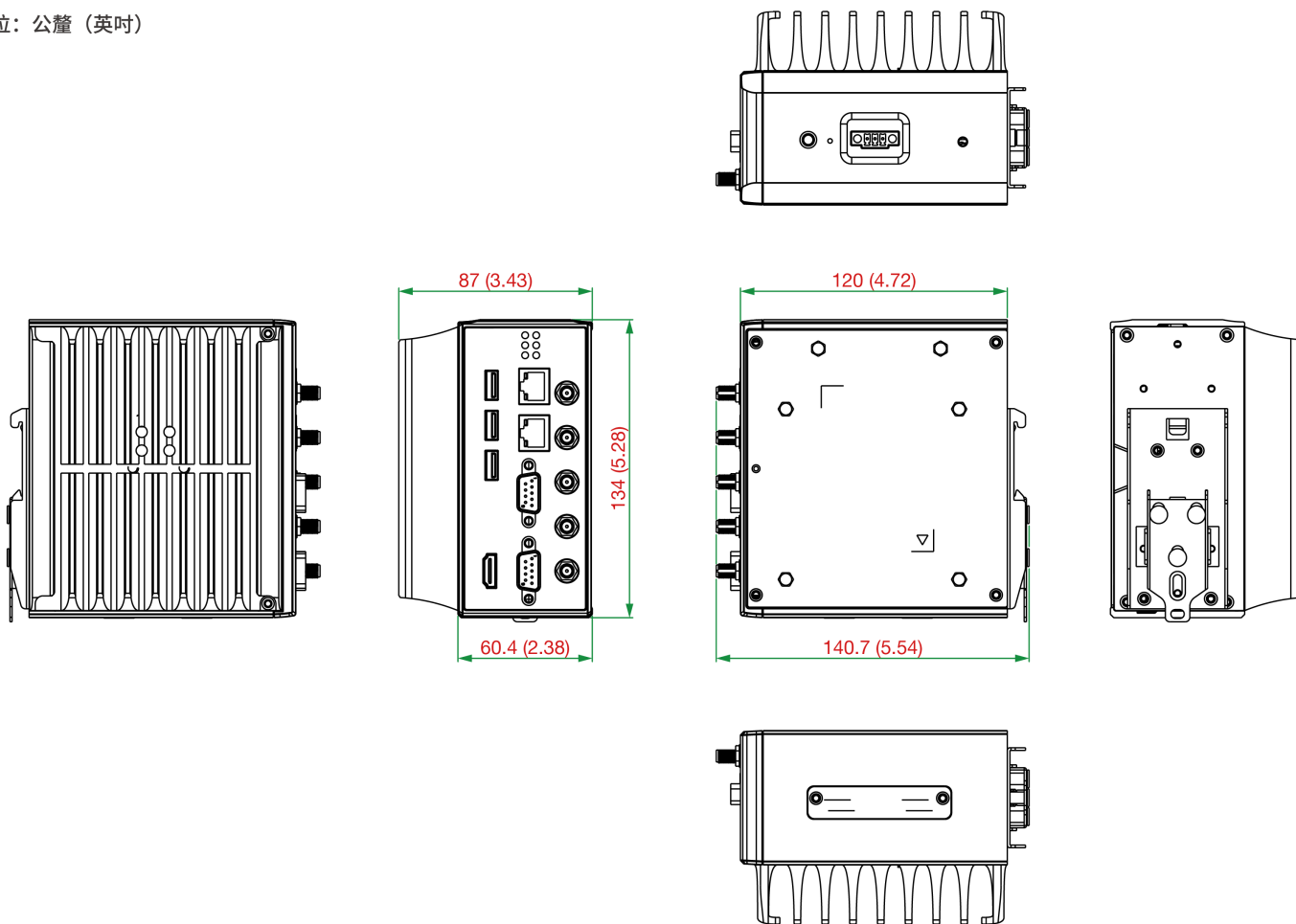
Warranty Period	3 years
Details	See www.moxa.com/tw/warranty

Package Contents

Device	1 x 1 x AIG-502 Series computer
Installation Kit	1 x DIN-rail mounting kit
Cable	1 x terminal block to power jack converter
Documentation	1 x quick installation guide 1 x warranty card 1 x sheet of tamper-proof labels

尺寸

單位：公釐（英吋）



訂購資訊

Model Name	mPCIe Slot 1 for LTE Module	mPCIe Slot 2 for Wi-Fi Module	Operating Temperature
AIG-502-T-AZU-LX	–	–	-40 to 70°C
AIG-502-T-US-AZU-LX	US region LTE module preinstalled	Reserved	-40 to 70°C
AIG-502-T-EU-AZU-LX	Europe region LTE module preinstalled	Reserved	-40 to 70°C
AIG-502-T-AP-AZU-LX	APAC region LTE module preinstalled	Reserved	-40 to 70°C

配件 (選購)

Power Adapters

PWR-24250-DT-S1	Desktop power supply (requires power cord), 24 VDC, 2.5 A, 100 to 240 VAC, 0 to 40°C operating temperature
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Wi-Fi Wireless Modules

MC-1220-WLAN11-AC	Wireless package for the MC-1200 Series with WPEQ-261ACNI(BT) 802.11ac/a/b/g/n Wi-Fi module and mPCIe module
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Antennas

ANT-LTEUS-ASM-01	GSM/GPRS/EDGE/UMTS/HSPA/LTE, 1 dBi, omnidirectional rubber-duck antenna
ANT-LTE-OSM-03-3m BK	700-2700 MHz, multiband antenna, specifically designed for 2G, 3G, and 4G applications, 3 m cable
ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-GPS-CSM-04-3m BK	20 dBi at 1575 to 1605 MHz, SMA (male), right-hand circular polarization (RHCP), active GPS antenna, 3-meter cable

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