

UC-4400A 系列

Arm Cortex-A53 四核心 64 位元電腦，具備 LTE/5G 與 Wi-Fi 6E 功能



特色與優點

- Arm Cortex-A53 四核心 1.6 GHz 處理器
- 整合式 5G Sub-6GHz NR 模組，配備雙 SIM 並通過 AT&T 核准
- 2 個自動感應 10/100/1000 Mbps 乙太網路連接埠
- 內建 2-kV 隔離保護的 CANbus 和串列埠
- Moxa 工業 Linux，提供 10 年超長期間支援
- Wi-Fi 6E 與 4G LTE Cat.4 支援，並可選購配件
- 雙 SIM 插槽
- CE/FCC/UL 認證
- 符合 IEC 62443-4-2 安全等級 2 要求
- -40 至 75°C 操作溫度範圍 (啟用行動通訊模組的情況下為 -40 至 70°C)

認證



簡介

UC-4400A 運算平台是專為嵌入式資料擷取應用所設計。電腦配備最多四個 RS-232/422/485 串列埠、雙 10/100/1000 Mbps 乙太網路連接埠、最多 2 個 CAN 連接埠，以及 Mini PCIe 與 M.2 E 插槽以支援 LTE Cat.4 與 Wi-Fi 6E 模組。這些多元功能讓使用者能有效地調整 UC-4400A 以適應各種複雜通訊解決方案。

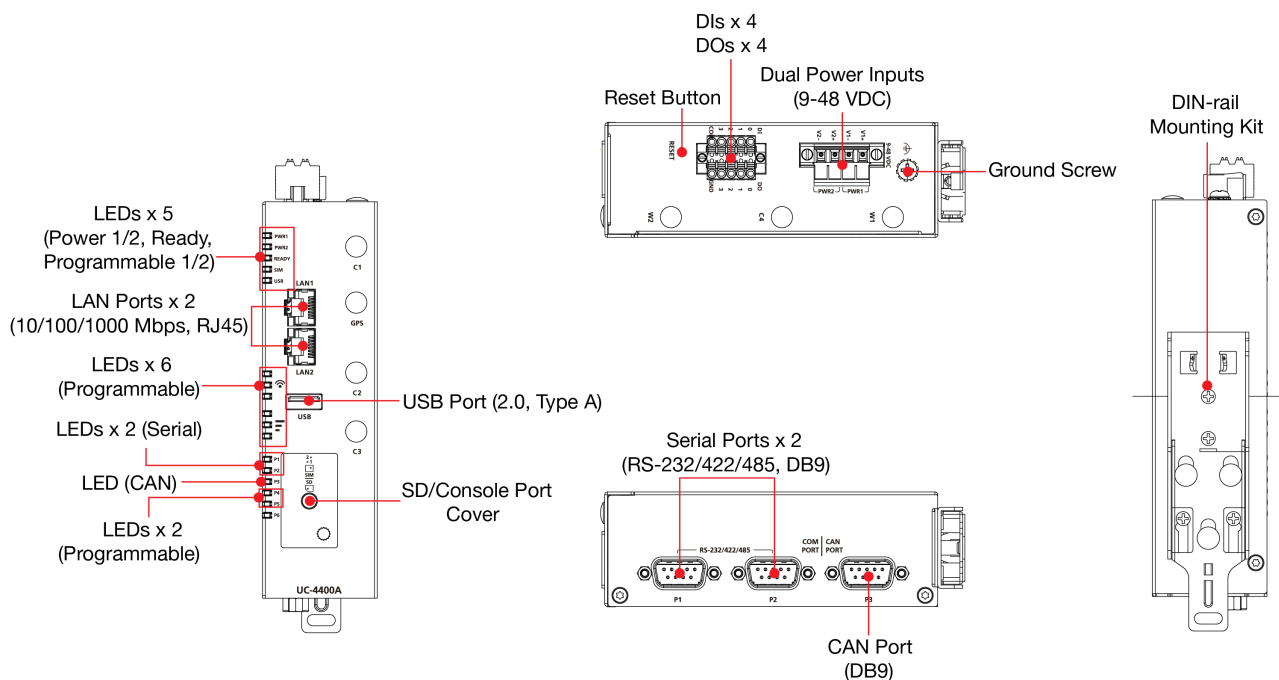
UC-4400A 採用的是專為能源監視系統進行最佳化的 Arm Cortex-A53 四核心處理器，但是該處理器目前已被廣泛地用於各種工業解決方案。這款輕薄的嵌入式電腦是可靠且安全的閘道，具備彈性的介面選項，可協助您在現場進行資料擷取並進行資料處理，同時也是適用於許多其他大規模部署的實用通訊平台。

已啟用行動通訊的寬溫度型號可用於延伸的溫度應用。所有裝置全都在試驗室中經過完整測試，保證已啟用行動通訊的運算平台適用於寬溫應用。

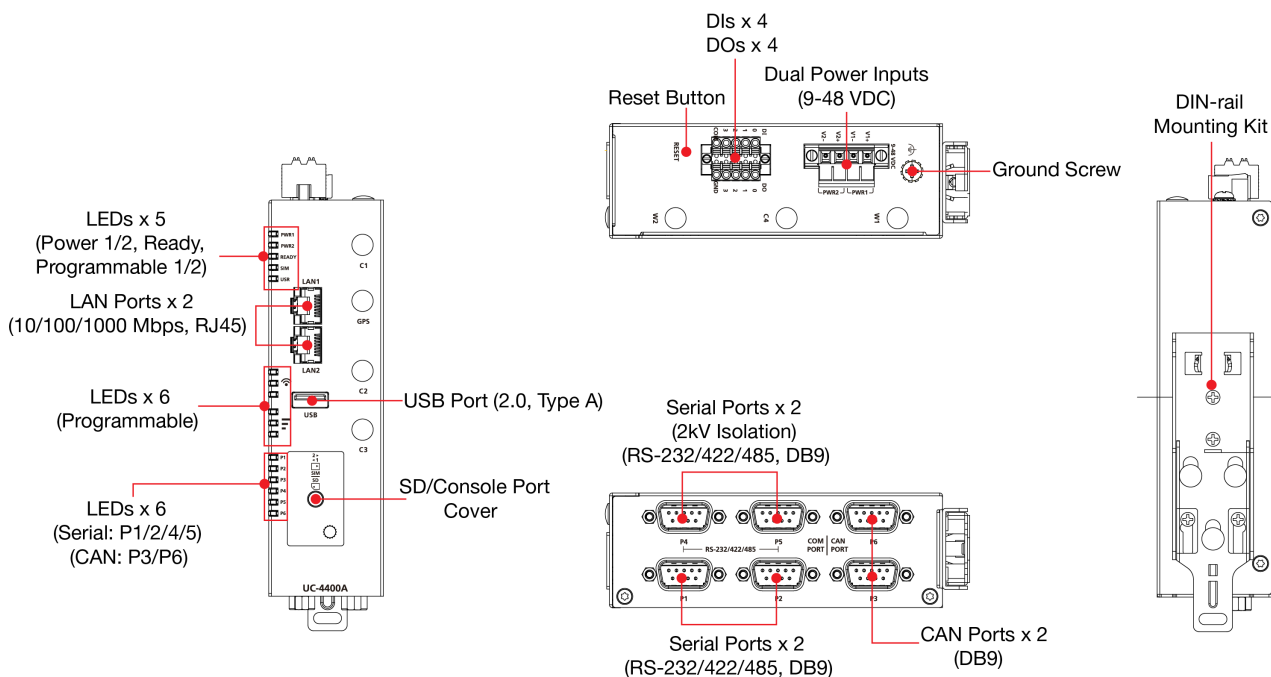
應用

- 太陽能/風能
- 電池能源儲存
- EV 充電基礎設施
- 設施監控
- 機器監控
- 石油與天然氣
- 水與廢水處理
- 智慧運輸系統
- 各種 IIoT 閘道器應用

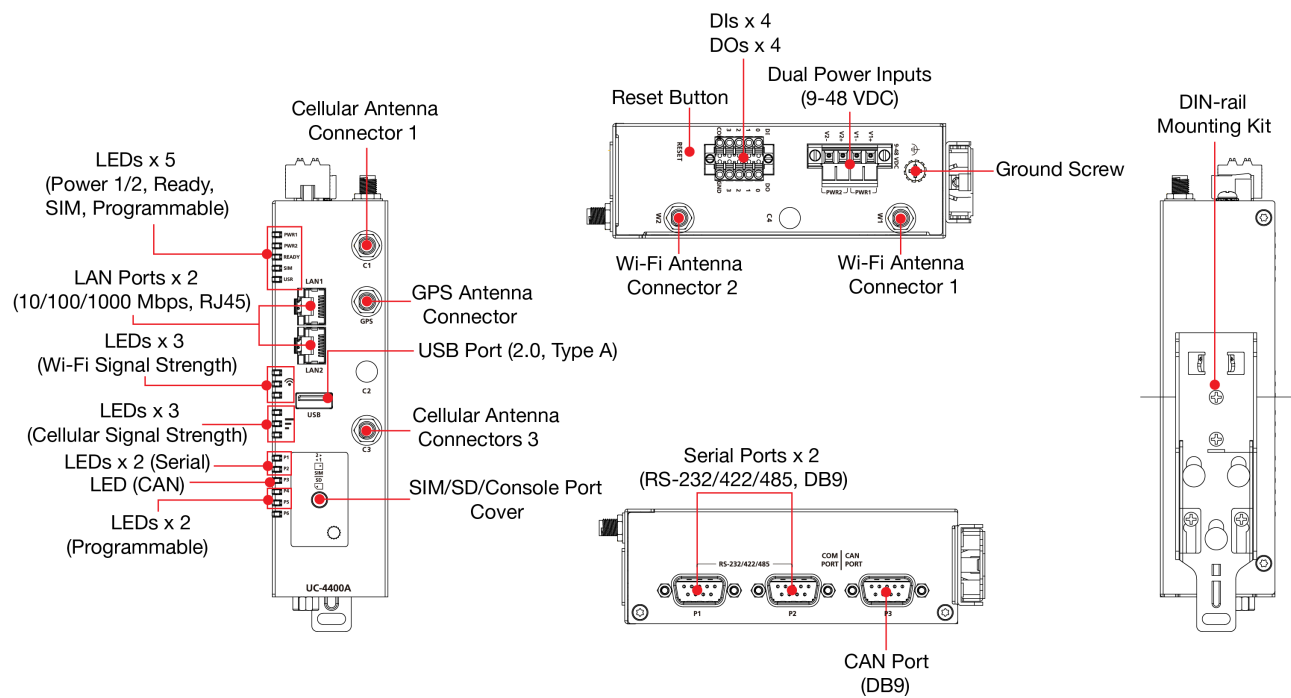
UC-4410A 型號



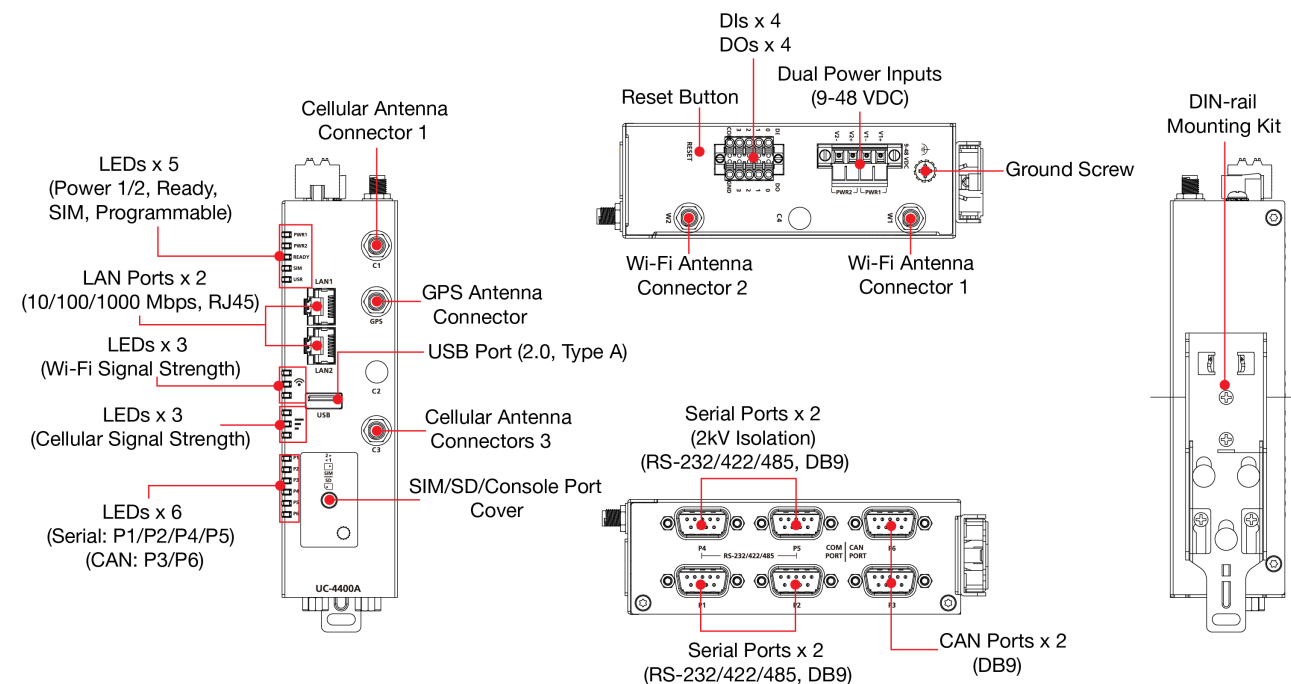
UC-4414A 型號



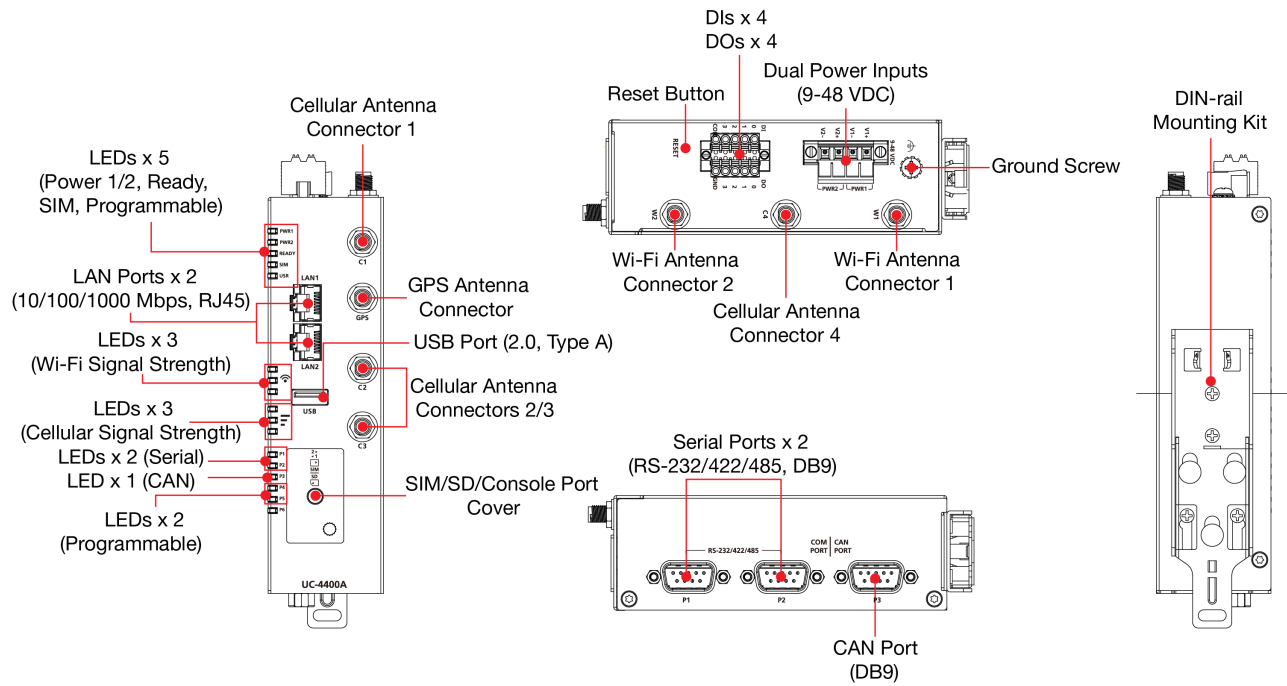
UC-4430A 型號



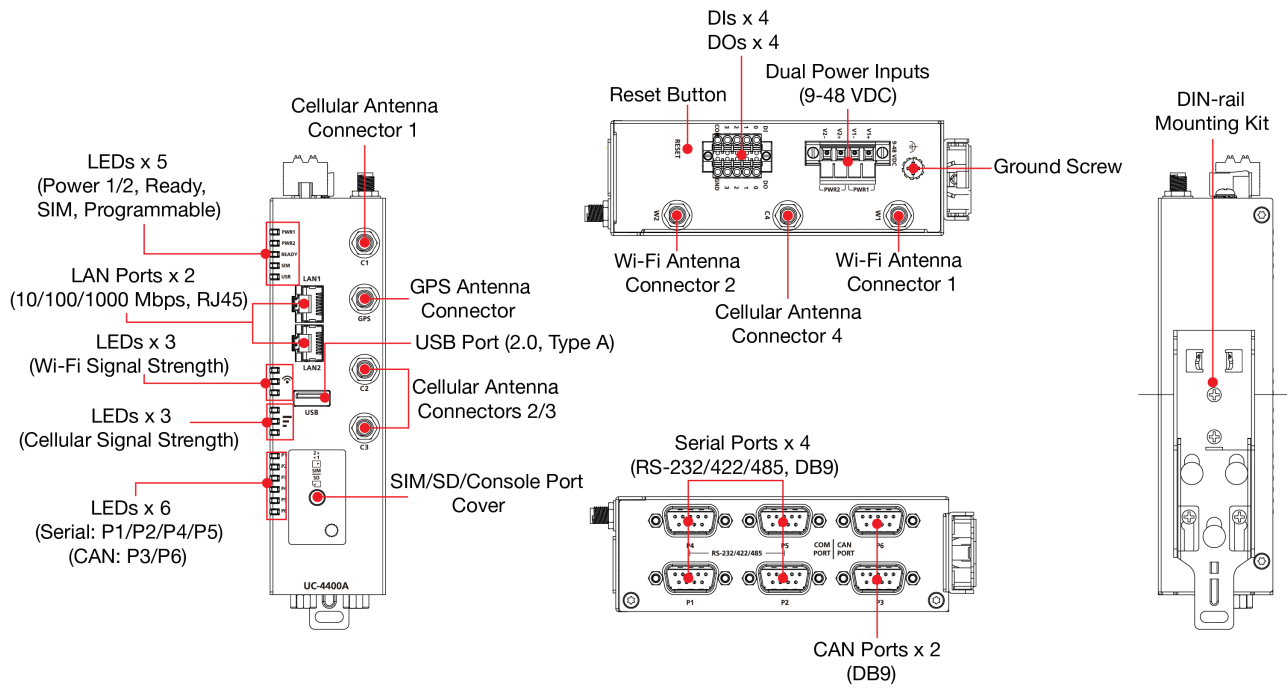
UC-4434A 型號



UC-4450A 型號



UC-4454A 型號



規格

Computer	
CPU	Arm Cortex-A53 quad-core 1.6 GHz
DRAM	4 GB LPDDR4
Supported OS	Moxa Industrial Linux 3 (Debian 11, kernel 5.10), 2031 EOL

	See www.moxa.com/MIL
Storage Pre-installed	16 GB eMMC
Expansion Slots	microSD socket x 1

Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2
Serial Ports	UC-4414/UC-4434/UC-4454 models: RS-232/422/485 ports x 4 (software-selectable, DB9 male connector) UC-4410/UC-4430/UC-4450 models: RS-232/422/485 ports x 2 (software-selectable, DB9 male connector)
CAN Ports	UC-4414/UC-4434/UC-4454 models: CAN 2.0 A/B x 2 (DB9 male) UC-4410/UC-4430/UC-4450 models: CAN 2.0 A/B x 1 (DB9 male)
Digital Input	DIs x 4
Digital Output	DOs x 4
USB 2.0	USB 2.0 hosts x 1, type-A connectors
Wi-Fi Antenna Connector	UC-4430/ UC-4434/UC-4450/UC-4454 models: RP-SMA x 2
Cellular Antenna Connector	UC-4450/UC-4454 models: SMA x 4 UC-4430/ UC-4434 models: SMA x 2
GPS Antenna Connector	UC-4430/ UC-4434/UC-4450/UC-4454 models: SMA x 1
Console Port	RS-232 (TxD, RxD, GND), 3-pin header output (115200, n, 8, 1)
Expansion Slots	UC-4430/ UC-4434/UC-4450/UC-4454 models: M.2 E-key slot x 1 (for Wi-Fi) UC-4430/ UC-4434 models: mPCIe slot x 1 (for LTE)
SIM Format	UC-4430/ UC-4434/UC-4450/UC-4454 models: Nano
Number of SIMs	UC-4430/ UC-4434/UC-4450/UC-4454 models: 2
Buttons	Programmable button
TPM	TPM v2.0

Ethernet Interface

Magnetic Isolation Protection	1.5 kV (built-in)
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Serial Interface

No. of Ports	UC-4414/UC-4434/UC-4454 models: 4 UC-4410/UC-4430/UC-4450 models: 2
Baudrate	50 bps to 921.60 kbps
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS, XON/XOFF ADDC (automatic data direction control) for RS-485 RTS Toggle (RS-232 only)

Isolation	UC-4414/4434 models: 2 kV (P4 and P5 ports)
Console Port	1 x 3-pin header to DB9 console port

Serial Signals

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

CAN Interface

No. of Ports	UC-4414/UC-4434/UC-4454 models: 2 UC-4410/UC-4430/UC-4450 models: 1
Baudrate	10 to 1000 kbps
Connector	DB9 male
Industrial Protocols	CAN 2.0A CAN 2.0B
Isolation	2 kV (built-in)
Signals	CAN_H, CAN_L, CAN_GND, CAN_SHLD, CAN_V+, GND

Digital Inputs

Digital Input Channels	DIs x 4
Connector	Screw-fastened Euroblock terminal
Sensor Type	Wet contact (NPN) Dry contact
Dry Contact	Logic 1: Open Logic 0: Close to GND
Wet Contact (COM to DI)	Logic 1: 0 to 3 VDC Logic 0: 10 to 30 VDC
Isolation	3K VDC

Digital Outputs

Digital Output Channels	DOs x 4
Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	0 to 30 VDC

Cellular Interface

5G NR Bands	5G NSA and SA bands: n1 (FDD 2100) MHz n2 (FDD 1900) MHz n3 (FDD 1800) MHz n5 (FDD 850) MHz n7 (FDD 2600) MHz n8 (FDD 900) MHz n20 (FDD 800) MHz n25 (FDD 1900) MHz n28 (FDD 700) MHz n29 (SDL 700) MHz n40 (TDD 2300) MHz n41 (TDD 2500) MHz n48 (TDD 3600) MHz n66 (FDD 1700 / AWS-3) MHz n71 (FDD 600) MHz n75 (SDL 1500) MHz n77 (TDD 3700) MHz n78 (TDD 3500) MHz n79 (TDD 4500) MHz
LTE Bands	B1 (FDD 2100) MHz B2 (FDD 1900) MHz B3 (FDD 1800) MHz B4 (FDD 1700 / AWS) MHz B5 (FDD 850) MHz B7 (FDD 2600) MHz B8 (FDD 900) MHz B12 (FDD 700ac) MHz B13 (FDD 700c) MHz B14 (FDD 700PS) MHz B17 (FDD 700bc) MHz B18 (FDD 800) MHz B19 (FDD 800) MHz B20 (FDD 800DD) MHz B25 (FDD 1900) MHz B26 (FDD 850) MHz B28 (FDD 700) MHz B29 (SDL 700) MHz B30 (FDD 2300) MHz B32 (SDL 1500) MHz B34 (TDD 2000) MHz B38 (TDD 2600) MHz B39 (TDD 1900) MHz B40 (TDD 2300) MHz B41 (TDD 2500) MHz B42 (TDD 3500) MHz B43 (TDD 3600) MHz B46 (TDD 5200) MHz B48 (TDD 3600) MHz B66 (FDD 1700 / AWS-3) MHz B71 (FDD 600) MHz
UMT Bands	B1 (2100) MHz B2 (1900) MHz B3 (1800) MHz B4 (AWS) B5 (850) MHz B6 (800) MHz B8 (900) MHz B19 (800) MHz

GPS Interface

Frequency Range	Wide-band GNSS: 1559 to 1606 MHz (recommended) GPS: BW NB GPS 2.046 MHz (centered at 1575.42 MHz) GLONASS: BW 8.3 MHz approx. (1597.05 to 1606 MHz) BeiDou: 4.092 MHz BW (1559.05 to 1563.14 MHz) Galileo: 4.092 MHz BW (centered at 1575.42 MHz)
Antenna Types Supported	Active antenna (default) Passive antenna

Time to First Fix (TTFF)	Hot start: 1 s Warm start: 27 s Cold start: 28 s
Sensitivity	Cold starts: -146 dBm Tracking: -161 dBm Acquisition: -148 dBm
Update Rate	Minimum 1 Hz

WLAN Interface

WLAN Standards	802.11a/b/g/n/ac/ax (requires purchase of optional Wi-Fi accessory)
Frequency Band	2.4 GHz / 6 GHz 2.4 GHz / 5 GHz

Security Functions

Hardware-based Security	TPM 2.0 Hardware Root of Trust Secure Boot
Intrusion Detection	Host-based Intrusion Detection
Security Tools	Security Diagnostic Tool Security Event Auditing Secure Update
Disk Protection	LUKS Disk Encryption
Recovery	One-step recovery to the last known secure state Dual-system design with automatic fallback
Reliability	Network Keep Alive Network Failover and Failback

LED Indicators

System	Power x 2 READY (device bootup) x 1 SIM card indicator x 1
LAN	2 ports, 1 per port (10/100/1000 Mbps)
Serial	UC-4414/UC-4434/UC-4454 models: 1 LED per port for 4 serial ports UC-4410/UC-4430/UC-4450 models: 1 LED per port for 2 serial ports
CAN	UC-4414/UC-4434/UC-4454 models: 1 LED per port for 2 CAN ports UC-4410/UC-4430/UC-4450 models: 1 LED per port for 1 CAN port
Wireless Signal Strength	Cellular x 3 Wi-Fi x 3
User Programmable	1

Power Parameters

No. of Power Inputs	Redundant dual inputs
Input Voltage	9 to 48 VDC
Input Current	UC-4410/UC-4414 models: 1.53 A @ 9 VDC, 0.21 A @ 48 VDC UC-4430/ UC-4434 models: 2.10 A @ 9 VDC, 0.27 A @ 48 VDC (with LTE accessory) UC-4450/ UC-4454 models: 2.13 A @ 9 VDC, 0.30 A @ 48 VDC
Power Consumption	UC-4410/UC-4414 models: 10 W @ 95% CPU loading

	UC-4430/UC-4434 models: 13 W (with LTE) @ 95% CPU loading UC-4450/UC-4454 models: 14.4 W @ 95% CPU loading
Power Connector	Screw-fastened Euroblock terminal
Reverse Polarity Protection	Supported

Reliability

Automatic Reboot Trigger	External RTC (real-time clock)
Alert Tools	External WDT (watchdog timer)

Physical Characteristics

Housing	Metal SECC
IP Rating	IP30
Dimensions	141.5 x 120 x 41 mm (5.57 x 4.72 x 1.62 in)
Weight	750 g (1.7 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)

Environmental Limits

Operating Temperature	With Wi-Fi: -30 to 70°C (-22 to 158°F) With Cellular: -40 to 70°C (-40 to 158°F) Non-wireless Operation: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 55032/35 EN 61000-6-2/-6-4 UKCA RCM UC-441/443 models: KC UC-441 models: BSMI
EMI	FCC Part 15B Class A ICES-003 Class A EN 55032 Class A EN 61000-6-4 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: 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: line-to-line 2 kV, Signal: line-to-ground 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz; Signal: 10 V IEC 61000-4-8 PFMF
Cybersecurity	EN 18031-1
Radio Frequency	UC-445 models: FCC CE (RED) ISED UKCA RCM NCC

Carrier Approvals	UC-445 models: AT&T Verizon Expected completion Q3, 2025 PTCRB
International Approval	FCC CE ISED UKCA RCM UC-441/443 models: KC UC-441 models: BSMI UC-445 models: NCC
Safety	IEC 62368-1 EN 62368-1 UL 62368-1 UC-441 models: BSMI
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-64 2 grms @ 5 to 500 Hz, random wave, 1 hr per axis (without USB devices attached)
Green Product	RoHS, CRoHS, WEEE

MTBF

Time	UC-4410A-T: 1,311,070 hrs UC-4414A-I-T: 1,097,567 hrs UC-4430A-T: 1,161,321 hrs UC-4434A-I-T: 813,255 hrs UC-4450A-T-5G: 982,234 hrs UC-4454A-T-5G: 892,697 hrs
Standards	Telcordia (Bellcore) Standard TR/SR

Warranty

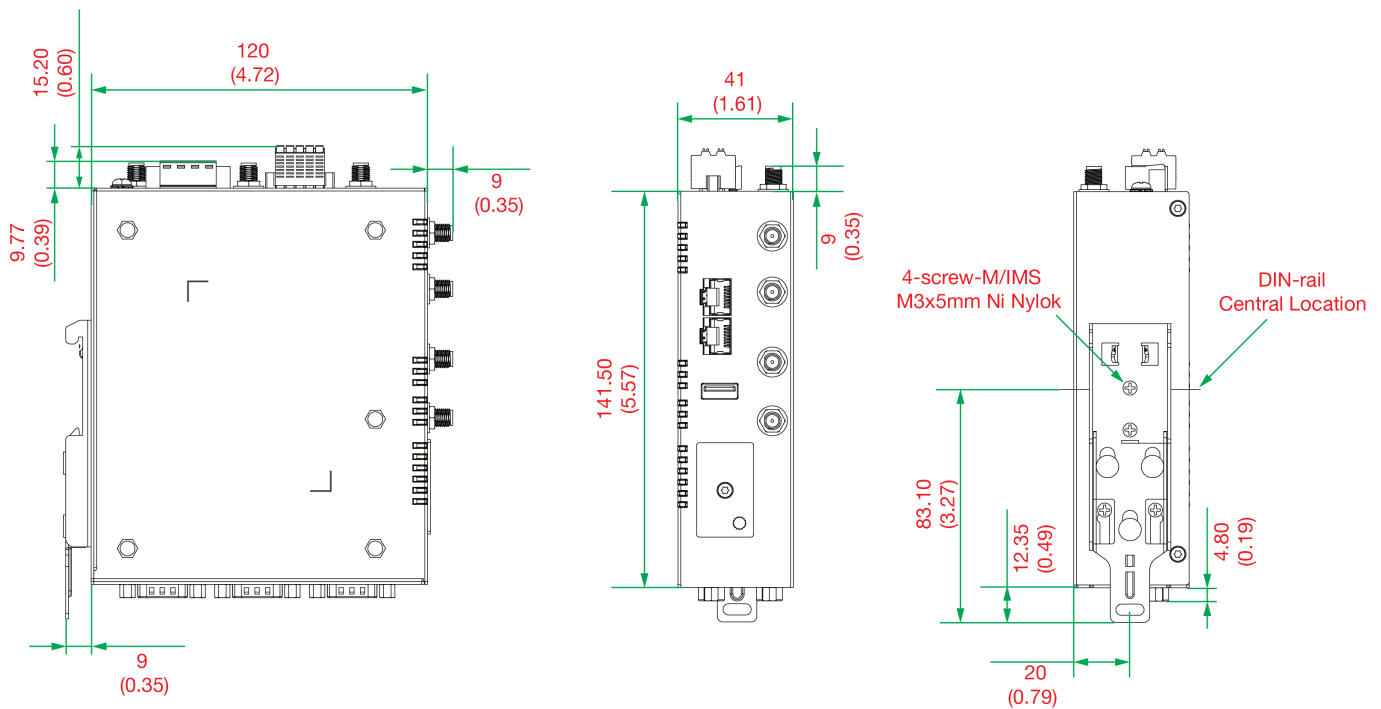
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

Package Contents

Device	1 x UC-4400A Series computer
Documentation	1 x quick installation guide 1 x warranty card

尺寸

單位：公釐（英吋）



訂購資訊

Model Name	Operating System	CPU	Serial Ports	CAN Ports	M.2 E-key Slot	M.2 B-key Slot	mPCIe	Operating Temperature
UC-4410A-T	Default: MIL3 Standard Order MIL3 Secure through UC-4400A (CTO)	Arm Cortex-A53 quad-core 1.6 GHz	2	1	-	-	-	-40 to 75°C
UC-4414A-I-T	Default: MIL3 Standard Order MIL3 Secure through UC-4400A (CTO)	Arm Cortex-A53 quad-core 1.6 GHz	4 (2 with isolation protection)	2	-	-	-	-40 to 75°C
UC-4430A-T	Default: MIL3 Standard Order MIL3 Secure through UC-4400A (CTO)	Arm Cortex-A53 quad-core 1.6 GHz	2	1	Reserved for Wi-Fi 6E	-	Reserved for LTE	-40 to 70°C
UC-4434A-I-T	Default: MIL3 Standard Order MIL3 Secure through UC-4400A (CTO)	Arm Cortex-A53 quad-core 1.6 GHz	4 (2 with isolation protection)	2	Reserved for Wi-Fi 6E	-	Reserved for LTE	-40 to 70°C
UC-4450A-T-5G	Default: MIL3 Standard Order MIL3 Secure through UC-4400A (CTO)	Arm Cortex-A53 quad-core 1.6 GHz	2	1	Reserved for Wi-Fi 6E	5G Sub-6GHz NR module	-	-40 to 70°C
UC-4454A-T-5G	Default: MIL3 Standard Order MIL3 Secure through UC-4400A (CTO)	Arm Cortex-A53 quad-core 1.6 GHz	4	2	Reserved for Wi-Fi 6E	5G Sub-6GHz NR module	-	-40 to 70°C

配件（選購）

Power Adapters

PWR-12150-CN-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, CN plug, -40 to 75°C operating temperature
PWR-12150-EU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, EU plug, -40 to 75°C operating temperature
PWR-12150-UK-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, UK plug, -40 to 75°C operating temperature

PWR-12150-AU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, AU plug, -40 to 75°C operating temperature
PWR-12150-USJP-SA-T	Locking barrel plug, 12 VDC 1.5 A, 100 to 240 VAC, US/JP plug, -40 to 75°C operating temperature

Cables

CBL-F9DPF1x4-BK-100	Console cable with 4-pin connector, 1 m
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Wall-Mounting Kits

UC-4400A Wall-mounting Kit	Wall-mounting kit with 2 plates (44.8 x 99 x 5.7 mm each) and 5 M3 x 5 mm screws for the UC-4400A Series
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Wireless Packages

UC-4400A-LTE-CAT4-WW	LTE package with a Telit LE910C4-WWxD LTE Cat. 4 mPCIe card for global coverage, 2 thermal pads, 2 heat sinks, 3 M2.5 x 5 mm screws for UC-443xA models
UC-4400A-WLAN22-AX	Wi-Fi 6E package with an EMWICOM WMX7205-1 Wi-Fi 6E M.2 card, 2 thermal pads, 2 heat sinks, 2 M2.5 x 5 mm screws for UC-443xA/445xA models

Antennas

ANT-5G-OSM-04	4 dBi LTE/5G NR dipole antenna with SMA (male) connector
ANT-WDB6-ARM-05	2 dBi at 2.4 GHz or 2 dBi at 5 GHz or 3 dBi at 6 GHz, tri-band dipole antenna with RP-SMA (female) connector
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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