

Industrial IoT DIN-rail Edge Gateway

IOT-DIN-iMX8PLUS

Datasheet v.1.1



IOT-DIN-iMX8PLUS is an industrial IOT Gateway with integrated DIN-rail latch mechanism and modular I/O expansion modules built on the iMX8M Plus processor designed for IOT control and monitoring applications.

It can be expanded with an assortment of modules for different applications. Up to 8 modules can be connected through a unique stack system, allowing additional functionality in a single gateway.

Key Features:

- NXP iMX8M Plus, quad core Cortex-A53, 1.8GHz
- Up to 8GB RAM, 128GB eMMC
- Worldwide LTE/4G modem, 2 x LAN
- USB3.0, RS485, RS232, CAN, 2x DI + 2x DO
- Secure Boot, TPM and Hardware Watchdog
- Stack up to 8 I/O Modules (see below)
- 5 year warranty and 15 year availability
- Optimised for industrial use
- ODM rebranding with custom logo and labelling



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CPU Core, Memory and Network

Note:

- "Option" column specifies the configuration code required to have the particular feature.
- "+" means that the feature is always available

Feature	Specification	Option
CPU	NXP i.MX8M Plus QuadLite, quad-core ARM Cortex-A53, 1.8GHz	C1800Q
	NXP i.MX8M Plus Quad, quad-core ARM Cortex-A53, 1.8GHz	C1800QM
NPU	AI/ML Neural Processing Unit, up to 2.3 TOPS	C1800QM
Real-time Co-Processor	ARM Cortex-M7, 800Mhz	+
RAM	1GB – 8GB, LPDDR4	D
Storage	16GB – 128GB eMMC flash, soldered on-board	N
LAN	2x GBit Ethernet ports, RJ45 connectors	+
WiFi and Bluetooth	802.11ac WiFi and Bluetooth 5.3 BLE Implemented with NXP 88W8997 module 1x RP-SMA antenna connector	WB
Cellular	4G/LTE CAT4 cellular module, Quectel EG25G Worldwide LTS, UMTS/HSPA+ and GSM/GPRS/EDGE coverage GPS	JEG25G
	LTE CAT1 cellular module, Quectel EG21G Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage	JEG21G
	SIM card socket	+
GNSS	GPS Implemented with Quectel EG25 module * mutually exclusive with WiFi module ("WB" option)	JEG25G or JEG21G NOT WB

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I/O

Feature	Specification	Option
USB	1x USB3.0 port, type-A connectors	+
Serial Ports	1x RS485, 2-wire (half-duplex) Isolated, terminal-block connector	+
	1x RS232, Rx/Tx Isolated, terminal-block connector	+
CAN	1x CAN bus port Isolated, terminal-block connector	+
Digital I/O	2x digital outputs + 2x digital inputs Isolated, 24V compliant with EN 61131-2, terminal-block connector	+
Debug	1x serial console via UART-to-USB bridge, micro-USB connector	+
	NXP SDP programming port, micro-USB connector	+

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I/O Expansion Modules

Feature	Specification	Code
WiFi and Bluetooth	802.11ax WiFi and Bluetooth 5.3 BLE Implemented with Intel WiFi 6E AX210 module 2x RP-SMA connectors Stacking restrictions: one IFM-WB module	FAWB
Wireless Mesh	Bluetooth mesh, Thread, Zigbee Nordic Semiconductor nRF52840 / Silicon Labs MGM240 module 1x RP-SMA connector Stacking restrictions: 3 RS485 RS232 MESH modules	FxWMN / FxWMS
RS485	4x RS485, two-wire Isolated, terminal-block connector Stacking restrictions: 3 RS485 RS232 MESH modules	FxRS4
RS232	4x RS232, Rx/Tx Isolated, terminal-block connector Stacking restrictions: 3 RS485 RS232 MESH modules	FxRS2
Digital I/O	8x digital outputs + 8x digital inputs Isolated, 24V compliant with EN 61131-2, terminal-block connector Stacking restrictions: up-to 4 digital I/O modules	FxDI808
CAN bus	2x CAN-FD Isolated, terminal-block connector 4x digital outputs + 4x digital inputs Isolated, 24V compliant with EN 61131-2, terminal-block connector Stacking restrictions: 1 CAN bus module	FxCAN
ADC	8x analog inputs, 0...10V / 4...20mA Isolated, terminal block connector Stacking restrictions: one ADC module	FxADC8
Secondary Storage	NVME SSD storage	FANVME

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System

Feature	Specification	Option
RTC	Real time clock operated from on-board coin-cell battery	+
Watchdog	Hardware watchdog	+
Security	Secure boot, implemented with i.MX8M Plus HAB Module	+
	TPM 2.0, Infineon SLB9673	+
Indicators	2 x programmable dual colour LEDs	+

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Electrical and Mechanical

Feature	Specification
Power Supply	12V-24VDC (-20%/+20%) Reverse voltage protection
Power Consumption	2.5W – 8W, depending on system load and configuration
Housing Type	DIN rail housing (for DIN rail version EN 50022)
Housing Material	ABS/PC high endurance
Cooling	Passive cooling, fanless design
Dimensions	Gateway: 110 x 30 x 95 mm I/O Modules: 110 x 20 x 95mm
Weight	Gateway: 220 gram I/O Modules: 110 gram

Compliance

Feature	Specification
Regulatory	FCC, CE, UKCA
EMC	EN 55032/5, EN 61000-6-2, EN 61000-6-3
Safety	EN/UL/IEC 62368-1

Reliability and Environmental

Feature	Specification
MTTF	> 200,000 hours
Warranty	5 years
Operating temperature	Commercial: 0° to 50°C Industrial: -30° to 70°C
Storage Temperature	-40° to 85°C
Relative humidity	10% to 90% (non-condensing)

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Software

Feature	Specification
OS Support	Debian Linux and Yocto BSP Fully Open Software Architecture Docker, MS Azure IoT and Node-RED Support for OTA updates with Mender Modbus RTU, Modbus TCP and MQTT Support for BalenaOS platform

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I/O Modules

IFM-DI808 - 8x DIN + 8x DOUT

Interface	8x digital inputs, compliant with EN 61131-2 8x digital outputs, compliant with EN 61131-2 Galvanically isolated from main system	
Connectors	2 x 10-pin socket with push-in spring contacts	
Power Supply	12 - 24 VDC from external source 4-pin socket with screw-type terminal	
Stacking Restrictions	Up-to 4x IFM-DI808 modules	

IFM-RS485 – 4x RS485 Ports

Interface	4x RS485 ports, 2-wire Programmable baud rate of up to 4Mbps Galvanically isolated from main unit	
Connectors	2 x 10-pin socket with push-in spring contacts	
Stacking Restrictions	Up-to 3x IFM-RS485 or IFM-RS232 modules	

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IFM-RS232 – 4x RS232 Ports

Interface	4x RS232 ports, RX/TX only Programmable baud rate of up to 250kbps Galvanically isolated from main unit	
Connectors	2 x 10-pin socket with push-in spring contacts	
Stacking Restrictions	Up-to 3x IFM-RS485 or IFM-RS232 modules	

IFM-ADC8 – 8x Analogue Inputs

Interface	8x analog input channels Configurable 4...20mA 0...10 V	
Connectors	2 x 10-pin socket with push-in spring contacts	
Stacking Restrictions	Up-to 1x IFM-ADC8 module can be installed in stack	

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IFM-WB – 802.11ax WiFi + Bluetooth 5.3

Interface	802.11ax WiFi and Bluetooth 5.3 BLE Implemented with Intel WiFi 6E AX210 module	
Connectors	2x RP-SMA connectors	
Stacking Restrictions	Up-to 1x IFM-WB module can be installed in stack Must be installed in position A (next to main gateway)	

Accessories

Feature	Specification	
Cellular Antenna	Cellular rubber duck antenna with SMA connector. Can be used together with cellular antenna extender or assembled on the gateway SMA connector.	
Cellular Antenna Extender	1m antenna extender cable with magnetic mount. Should be used together with cellular antenna.	
PSU with Terminal Plug Adapter	Wall mount PSU with terminal plug adapter. Input 100-240VAC 50/60Hz, 36W output 12VDC 3A. Includes US, EU, UK, AU AC blades Should only be used for evaluation or development.	

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For initial testing and development, we recommend ordering the IOT-DIN-IMX8PLUS Starter Kit

- IOTDIN-IMX8P-C1800QM-D4-N32-JEG25G-XL gateway
- 12V PSU with terminal plug adapter
- Cellular antenna
- Cellular antenna extender
- USB cable



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VERSION CONTROL		
Version	Date	Comment
1.0	06/06/2024	First Release
1.1	03/11/2025	Updated I/O expansion modules