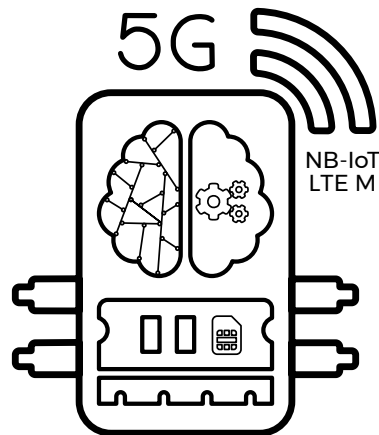


# intelliventy<sup>®</sup>

## 5G IoT gateway



**"intelliventy<sup>®</sup>  
IoT Gateway  
is the most  
comprehensive  
and open  
solution to  
connect  
IoT sensor  
networks."**

*„We believe that people live through their practices and tacit knowledge, so that the most powerful things are those that are effectively invisible in use.” – Mark D. Weiser*

## Introduction

Pervasive computing systems are capable of collecting, processing and communicating data, they can adapt to the data's context and activity. That means, in essence, a network that can understand its surroundings and improve the human experience and quality of life.

**intelliventy<sup>®</sup> 5G IoT Gateway** connects whatever customer needs to process data directly at the edge, reduce latency and relieve connectivity networks.

The gateway is Linux based. It provides tremendous possibilities opening up the entire embedded applications ecosystem. It supports industry grade specifications like mission critical operations in temperatures ranging between -40°C and 85°C.

The design provides the flexibility needed while still keeping it simple! Based on the concept of modularity, It may operate with many wireless technologies without PCB redesign requirements. While, as of now, the support of all major connectivity standards like NB-IoT, LTE MI and LTE was assured, the development was triggered to enable 5G version that will open up again tremendous possibilities.

To ease deployments of use cases and solutions, It provides a full backend system including FOTA (Firmware Over The Air), open APIs to connect to any system needed to share and fetch data as well as visualisation capabilities to derive insights out of collected data through our interfaces and supported protocols.

### 5G, LTE-M, NB-IoT, Wi-Fi, BLE

Wireless connectivity via: 5G SA/NSA, LTE, NB-IoT, Cat. M, EGPRS, Wi-Fi, BLE

### MQTT/-SN LWM2M

Native support of modern IoT Protocols: i.e.: MQTT/-SN, open for other implementations

### OTA

Remote Over the Air Firmware upgrade function

### OA&M Linux OS

Remote operations, administration and maintenance

### GPS

GPS, GLONASS, Galileo, BeiDou/Compass, QZSS, Cell ID Positioning

### I2C, USB RS-232/485, Ethernet

Vast integration of sensors network on common data bus: i.e. I2C, USB, RS-232/485

### RESTful

Ease of data access via REST Web APIs

### MPU

Multipurpose computing Hybrid data processing in edge, public or private cloud

## Connectivity

Full flexibility which allows plug and play exchange of connectivity modules to meet requirements:

Bandwidth overview per connectivity technology:

- Rel.15 LTE & 5G Sub-6GHz: Max. 2.5 Gbps (DL); Max. 650 Mbps (UL) - NSA  
Max. 2.1 Gbps (DL); Max. 900 Mbps (UL) - SA
- Rel.14 LTE Cat NB2,
- Rel.14 LTE Cat M1 with CE Mode B
- EDGE: 296kbps (DL), Max. 236.8kbps (UL)
- GPRS: 107kbps (DL), Max. 85.6kbps (UL)
- Gen.9, GPS, GLONASS, BeiDou, Galileo
- Wi-Fi (a/b/g/n/ac/ax 2.4/5 GHz), BLE 4.2/5.1

## Hardware Features

Industrial certified design for enhanced Edge Computing.

EMI/ESD Protection

Comprehensive/Industrial power rail protection

Powerful MPU:

- NXP i.MX8M Dual/Quad\* Core 1.5 GHz ARM Cortex-A53 + ARM Cortex-M4 Real-time Co-processor
- 1-4\* GB LPDDR4-3200 DRAM
- 4-64\* GB eMMC 5.0 Flash & SDXC UHS-I class µSD (up to 2TB at 100MB/s)
- OpenGL® ES 3.1, OpenGL® 3.0, Vulkan®, Open CL™ 1.2 4Kp60 Display Support
- Digital and analog audio
- Digital and analog data collection

## Electrical spec.

The design supports two main modes of operation in power efficient and high computing scenarios.

- DC Supply voltage: nominally 12V or 14V
- Logic-level: 3.3V/5V on GPIO

Industrial operations range: -40 °C to +85 °C

## Software Features

Linux® OS, Android™, Windows 10 IoT Core, FreeRTOS®

I2C Communication, Flexible I/O operations

Firmware Upgrade Over-The-Air (FOTA)

Communication Protocols:

- PPP, TCP, UDP
- SSL, TLS, FTP(S)
- HTTP(S), PING, NITZ
- MQTT, MQTT-SN, LWM2M, oneM2M
- UART/Modbus/Profibus over RS
- Modbus TCP/Profinet/Ethernet over RJ

## Physical Interfaces

2x USB 3.0 SuperSpeed Ports; Type-A

1x 1000Mbps Ethernet port; RJ45 connector

1x True RS-232 Serial; 9-pin DE-9 Female

1x Half-duplex 3.3 V RS-485 Serial; Terminal Block

1x USB 2.0 Console Serial Interface; USB Type-B Micro

3x Wolfson WM8731L Codex; Line Out; Line In; Mic In;

3x µSIM Cards + eSIM\*

4x 3.3 V Digital GPIOs (1x I2C up to 400 kHz);

4x 18-Bit Delta-Sigma ADC Inputs; up to 240 sps;

1x M.2 Key-E Expansion Slot w PCIe 2.1 and USB 2.0

1x M.2 Key-B Socket with PCIe 2.1 + USB 3.0

1x mPCIe Socket with USB 2.0

1x HDMI2.0a

## Use cases

The gateways supports vast range of usage across industries. Application examples:

- Smart Retail: monitoring stock, goods rotation, sales
- Smart Logistics: tracking distribution and transport
- Smart Product: embedded intelligence and compute
- Industry 4.0: digital retrofitting, enhanced maintenance, remote operations, automation
- Smart Metering: remote and wireless data collection