



ResIOT-X7 Carrier-grade LoRaWAN® Base station

ResIOT® presents the latest generation of LoRaWAN® Carrier-grade Gateway.

It is ideal for demanding markets: Smart Grid, Energy, Telecom and Broadcasting. This flexible solution provides durable, low-power, widearea connectivity in support of M2M and IoT applications. It is suitable for outdoor installation. The ResIOT-X7 gateway supports a range of industrial temperatures: -40° / $+85^{\circ}$





ResIoT-X7 Specifications

Processor & Memory	ARM Cortex-A7 Processor 528/629MHz RAM DDR3 512MB, 4GB eMMC Flash, Cache 32 KB-I, 32 KB-D, 128 KB L2
Radio LoRa	Up to 4 x card with: Chipset Semtech SX1301 + 2*SX1257 RF end-front, 8 Multi-SF LoRa Channels, Listen before talk Able to receive up to 32 LoRa® modulated packets simultaneously Protocol 1.02, 1.03, 1.1. Class A,B,C (B only with Gps/Gnss version) Max TX Power +27 dBm, Receiving Sensitivity -142.5dBm Available frequencies: 868 MHz and 915 MHz ISM bands
Power Supply/Consumption	PoE-Power over ethernet Input 42~60 VDC IEEE 802.3af, Max 5W for models ResIoT-X7-ETH-1-868-00 PoE-Power over ethernet Input 42~60 VDC IEEE 802.3af, Max 8W for models ResIoT-X7-LTE-1-868-00,ResIoT-X7-LTE-1-868-G0 PoE-Power over ethernet Input 42~60 VDC IEEE 802.3af, Max 13W for models ResIoT-X7-LTE-2-868-G0 PoE-Power over ethernet Input 42~60 VDC IEEE 802.3at, Max 18W for models

ResIoT-X7 Datasheet v.1.8 - 27-09-2021



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	ResIOT-X7-LTE-3-868-G0 PoE-Power over ethernet Input 42~60 VDC IEEE 802.3at, Max 23W for models ResIOT-X7-LTE-4-868-G0 or direct supply 12-24 VDC (for Direct power supply or via Solar Panels)
Short power outage support	with Supercapacitors, max time 4 minutes
Sensors and parameter monitoring	Accelerometer, Shock, Inclination, Temperature, Humidity, Voltage input POE or DC 12-24V, Supercap state, Cpu, Memory, eMMC Flash, Modem connection state, signal quality, operator 2G/3G/4G LTE + monitor via RS485 external device
Working Temp.	-40°C~85°C. Operating Humidity 10%~95%, non-condensing
Gps/GNSS	GNSS: BeiDou, Galileo, GLONASS, GPS / QZSS Number of concurrent GNSS: 3
Modem	GLOBAL EDGE GSM/GPRS, 3G, 4G Regulatory: GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ SRRC/ NAL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ ICASA
Connectors	Ethernet 1 RJ-45 10/100 (PoE) LoRa 1xNTYPE (Optional 2xNTYPE, 3xNTYPE or 4xNTYPE) Optional Gps/GNSS 1xNTYPE Optional 1xLTE Antenna IP67 6 Pin connectors for 12-24VDC power supply and RS485





	optional RS232/CAN-bus
Connected External Devices	Modbus via RS485, fully programmable Optional RS232 and CAN-bus
OS	Linux 4.1.15 (Yocto), KIT Toolchain available for software developer
Software	SSH, OpenVPN Four modes of use: 1) LoRaWAN® Gateway with ResIoT® Merlin Base Station Client (for business or carrier-grade networks with full remote control and secure connection with ResIoT® GW Remote Access Server) 2) LoRaWAN® Gateway with Semtech™ Packet Forwarder 3) Industrial IoT Box. On-premises ResIoT® LoRaWAN® Network Server and ResIoT® IoT Platform all in a box with free unlimited license 4) Hybrid Mode 1+3 LoRaWAN® Gateway with ResIoT® Merlin Base Station Client & Industrial IoT Box
Data retention /buffering	With software ResIoT® Base Station Client/Merlin IoT Box + ResIoT® Infrastructure Server In case of connection failure, the data are saved and forwarded to the Network Server as application messages and managed in a dedicated way
Remote access SSH without VPN and firewall configuration	With software ResIoT® Base Station Client/Merlin IoT Box + ResIoT® Infrastructure Server It is possible to access directly via ssh or web gui from the ResIoT® Infrastructure Server web interface without the need to configure other VPN software or firewall configuration





Complete remote management	With software ResIOT® Base Station Client/Merlin IoT Box + ResIOT® Infrastructure Server All configuration operations are done centrally by the ResIOT® Infrastructure Server
Monitoring and alerting of all parameters	With software ResIOT® Base Station Client/Merlin IoT Box + ResIOT® Infrastructure Server It is possible to automate any escalation for the management of maintenance interventions in case of problems with Lua language scripts or using preconfigured smart actions within the Infrastructure server
Other functions	Spectral scan, SNMP Agent, NetID Filter With ResIOT® Base Station Client/Merlin IoT Box: Automatic backup between Ethernet and Modem 2G/3G/4G LTE uplink Simplified installation in self-provisioning mode via GRPC
Size / Dimension	258mm x 228mm x Height 90mm
Weight	2.65 Kg
Material, Chassis Type	IP67 Aluminum
HS-Code TARIC	85176200 85176200 00





ResIoT-X7 BASE STATION ORDERING INFORMATION

Model	Frequency Support	Description	Radio Channels	GPS GLONASS	GPS/GLO NASS Antenna	Modem 2G/3G/LTE	LoRa Antenna	2G/3G/LTE Antenna	LoRaWAN® Class Device support	Pre-installed Software
ResIoT-X7-ETH-1-868-00	863..870 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 868Mhz, Ethernet, PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi	8	N	N	N	1 x IP67 3.8 dBi Length 465mm	N	A, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-1-868-00	863..870 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 868Mhz, Ethernet,LTE/4G/3G/2G Modem , PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi, 1xLTE Antenna IP67	8	N	N	YES	1 x IP67 3.8 dBi Length 465mm	1 x IP67	A, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers

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ResIoT-X7-LTE-1-868-G0	863..870 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 868Mhz, GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	8	YES	1 x IP67	YES	1 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-ETH-1-868-0W	863..870 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 868Mhz, Ethernet, Wifi , PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi, 1xWifi Antenna IP67	8	N	N	N	1 x IP67 3.8 dBi Length 465mm	N	A, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-2-868-G0	863..870 MHz	ResIoT® X7 Carrier-grade Base station 16 channels 868Mhz(2x8), GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE,Full duplex support. Included: 1xPole and Wall mount bracket, 2xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	16	YES	1 x IP67	YES	2 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-3-868-G0	863..870 MHz	ResIoT® X7 Carrier-grade Base station 24 channels 868Mhz(3x8), GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE,Full duplex support. Included: 1xPole and Wall mount bracket, 2xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	24	YES	1 x IP67	YES	3 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers





ResIoT-X7-LTE-4-868-G0	863..870 MHz	ResIoT® X7 Carrier-grade Base station 32 channels 868Mhz(4x8), GNSS, Ethernet,LTE/4G/3G/2G Modem, PoE, Full duplex support. Included: 1xPole and Wall mount bracket, 2xLoRa Antenna omni 868MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	32	YES	1 x IP67	YES	4 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
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ResIoT-X7-ETH-1-915-00	902.928 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 915Mhz, Ethernet, PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi	8	N	N	N	1 x IP67 3.8 dBi Length 465mm	N	A, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-1-915-00	902.928 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 915Mhz, Ethernet,LTE/4G/3G/2G Modem , PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi, 1xLTE Antenna IP67	8	N	N	YES	1 x IP67 3.8 dBi Length 465mm	1 x IP67	A, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-1-915-G0	902.928 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 915Mhz, GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	8	YES	1 x IP67	YES	1 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers





ResIoT-X7-ETH-1-915-OW	902.928 MHz	ResIoT® X7 Carrier-grade Base station 8 channels 915Mhz, Ethernet, PoE Included: 1xPole and Wall mount bracket, 1xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi, 1xWifi Antenna IP67	8	N	N	N	1 x IP67 3.8 dBi Length 465mm	N	A, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-2-915-G0	902.928 MHz	ResIoT® X7 Carrier-grade Base station 16 channels 915Mhz(2x8), GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE,Full duplex support. Included: 1xPole and Wall mount bracket, 2xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	16	YES	1 x IP67	YES	2 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-3-915-G0	902.928 MHz	ResIoT® X7 Carrier-grade Base station 24 channels 915Mhz(3x8), GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE,Full duplex support. Included: 1xPole and Wall mount bracket, 2xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	24	YES	1 x IP67	YES	3 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers
ResIoT-X7-LTE-4-915-G0	902.928 MHz	ResIoT® X7 Carrier-grade Base station 32 channels 915Mhz(3x8), GNSS, Ethernet,LTE/4G/3G/2G Modem , PoE,Full duplex support. Included: 1xPole and Wall mount bracket, 2xLoRa Antenna omni 915MhZ IP67 465x27mm 3.8 dBi, 1xGPS/GLONASS Antenna IP67, 1xLTE Antenna IP67	32	YES	1 x IP67	YES	3 x IP67 3.8 dBi Length 465mm	1 x IP67	A, B, C	ResIoT® Merlin IoT Box/Base Station Client, SSH Access, Custom configurable for other network servers

