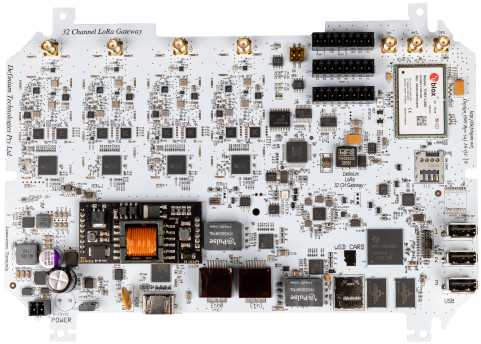
Product Brief **(PRELIMINARY)**

Nexus 32

32-channel LoRaWAN® IoT Edge Gateway



LoRaWAN gateway with LTE and PoE

- 32-channel LoRa® Gateway Radio with LoRaWAN support
- BasicStation and Reference Packet Forwarder Support
- LTE connectivity with 3G fallback
- Dual 10/100/1000 BaseT Ethernet with 802.3at Power-over-Ethernet
- Dual RS232 and CAN ports
- Multi-constellation GNSS with time synchronization
- USB host support with full embedded Linux system

Product Description

Definium's LoRaWAN gateways combine a high-performance LoRaWAN radio with multiple back-haul technologies, simplifying deployment of urban and rural Internet of Things networks.

The quad 8-channel (32 total channels) low-power long-range LoRa ISM-band radio is suitable for coordinating thousands of IoT devices within a radius of up to 25 km. Multiple gateways can be effectively co-located to create gateway installations of 64 or more channels, or used with sectored antennas to increase coverage density in 8-channel networks. Rural or difficult urban deployment is straight-forward using solar and LTE, and can provide Internet connectivity to other devices via Ethernet. Ethernet passthough is available, eliminating the need to run new cables where an existing connection is available.

The built-in multi-constellation GNSS can accurately locate the gateway, time-sync, and assist radio calibration (TDOA coming soon).

The Embedded Linux operating system which powers the gateway is fully open to the user, enabling custom configuration and application installation. Out-of-the-box support for multiple major LoRaWAN networks makes setup a breeze, and secure cryptographic storage means nobody can infiltrate your network—even if they gain physical control.

The LoRa radio is fully configurable and supports the creation of custom LoRa and FSK protocols or running a local closed-loop LoRaWAN server without Internet connectivity required. Ultra-remote deployment can be achieved using a stand-alone server with solar power, transmitting important data through the Iridium Satellite network using one of our supporting products.

Definium Technologies designs and manufactures its devices in-house in Launceston, Tasmania. Definium produces a broad range of gateways and sensors to use in any IoT network.

Product Selector

Model	Region			Radios					Access		Interfaces			Features							Case	
	AU915, AS923 (Australia / Asia)	US915 (United States)	EU868 (Europe)	LoRa, LoRaWAN, FSK	LTE (RX diversity, 3G fall-back)	Multi-constellation GNSS	WiFi	Iridium Satellite	Display (HDMI) with USB	USB Serial Console	CAN / CANOpen Ports	USB Host	RS232	125 kHz LoRa Channels	500 kHz LoRa Channels	FSK Channels	MicroSD for OS & Storage	Embedded Linux OS	Secure cryptographic storage	Power over Ethernet (802.3at)	Powder-coated & transparent	IP66+ (with outdoor antennas)
DT1090	○	○	○	●	●	●	○	○	●	●	2	1	2	32	4	4	16GB	4.x	●	●	●	
DT1090-OUTBACK	○	○	○	●	●	●	○	○	●	●	2	1	2	32	4	4	16GB	4.x	●	●		●

OS Installed on SD Card. ● = Hardware ready, software available. ○ = Product variants support individual regions (see below).

Definium Technologies

Nexus 32

Features

LoRaWAN	32-channel LoRaWAN Gateway RSSI geo-location capable Packet forwarders for major networks
LoRa/FSK RX: TX:	ISM band low-power long-range radio Sensitivity –137 dBm 32×125kHz LoRa 4×500kHz LoRa 4×FSK 20 dBm EIRP maximum transmit power 4×LoRa/FSK (half-duplex)
GNSS	Concurrent multi-constellation GNSS (3) GPS, Gallileo, GLONASS, and BeiDou support GPS time synchronisation –167 dBm navigation sensitivity
CAN	Dual CAN ports with dedicated ground and power access CAN support via SocketCAN CANopen support via CANopenNode
USB	Dual USB Host ports with full Linux support
RS232	Dual RS232 ports Fully supported as serial interface

System

OS	Definium Linux 4.x Kernel (ArchLinux derivative) Software pre-installed for managing all features
Hardware	1 GHz ARM A9 with 1 GB RAM 16 GB MicroSD storage (OS installed on card)
Display	HDMI with up to 2048 × 2048 resolution USB touch-display capable Full desktop environment available
LTE Cat 4 UMTS/DC-HSPA+ GSM	Up to 150 Mbps down / 50 Mbps up FDD LTE Bands: 1, 3, 5, 7, 28 MIMO 2x2 RX diversity Software supported sharing to Ethernet Bands: 850/900/1900/2100 Bands: 850/900/1800/1900
Ethernet	10/100/1000 BaseT Ethernet 802.3at Power-over-Ethernet
WiFi	WiFi USB dongles supported by Linux
Iridium Satellite	When paired with supporting products only
Interfaces	RJ45 Ethernet Micro-SIM 1.8V/3V MicroSD (included) Terminal block (CAN, power) Dual DE-9M (RS232) 2.1mm barrel (power) USB A Host (2) Micro-USB B Serial Console (1) HDMI (full-size) 50Ω SMA radio connectors (7)

Enclosure

Powder-coated	TBA
IP66+	TBA

Electrical data

Power supply	10 V to 24 V DC (12 V) 802.3at Power-over-Ethernet (PoE range 50 V to 57 V)
Consumption	TBA (expecting 20 W)

Environmental data, quality & reliability

Operating range	–20°C to 60°C
RoHS compliant (lead-free)	

Security

Secure cryptographic storage of keys and certificates

Hardware random number generator

Certifications and approvals

To be determined

Support products

Definium Luna LoRaWAN Sensors	
DT1046	Nexus 8 LoRaWAN Gateway with LTE, CAN, and PoE
DT1045	Multi-technology industrial gateway with LTE & Iridium satellite back-haul
LoRaWAN network provision and hosting via partners	

Further Information

For conact information, see www.definium.net/contact.

For more product details and ordering information, see the product data sheet.