Gateway: Ethernet / USB and Cellular Models

Gateways

Phase IV Data Sheet Leap Sensors® Ethernet and Cellular Gateway

Applications

- Wireless data acquisition from Leap Sensors transceiver nodes
- Communication of data to PCs, cloud servers, local servers, PLC's, or existing plant monitoring software via protocol conversion plug-ins

Special Features

- Transmission range of 1,500 feet in open air range extenders available
- Compatible with up to 60 transceiver nodes simultaneously
- Cellular, USB, and ethernet interfaces supporting multiple communication protocols to interface with host networks, PLC's, computers, and cloud databases
- Simple integration into existing cloud or local database, building automation, or plant monitoring software with API command library or Modbus
- LED indicators for power and network connection status

Description & Product Highlights

Phase IV's Leap Sensors wireless system is ideal for long term remote monitoring, predictive maintenance monitoring of equipment, and in process verification monitoring.

The gateway functions as an intersection between streaming sensor data and the software interface. The gateway has the optional ability to be able to output data in MODBUS or DNP3 protocols, connect to a LAN or a local server, and pass data to a cloud storage location. API documentation also allows for easy integration into existing database systems.

Each gateway is capable of receiving data from 60 Leap Sensors node devices simultaneously and can be expanded by adding gateways.

The Leap Sensors system is intended primarily for the purpose of performing industrial sensor measurements.



Ethernet / USB & Cellular Gateway Model

Modularity and customizability

Gateways are configurable to host web-based software for small sensor installations, or to send data to a cloud or local server via 4G LTE cellular connection, or through a wired ethernet connection.

Ease of implementation

All gateways come pre-configured and paired with selected Leap Sensors transceiver nodes for quick and simple integration into an existing Leap Sensors system, or to function as a new stand-alone system.

Two-way communication

The gateway both receives and passes data from transceiver nodes. This includes transmission acknowledgements to alleviate data loss, firmware updates for transceiver nodes, and configuration settings to the nodes, allowing for changes and updates to all be made over-theair.

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Leap Sensors [®] Gateway Specifications				
General				
Models	Ethernet / USB	Cellular		
Connectivity Options	USB 2.0, Ethernet, IEEE 802.15.4 wir	eless, 4G LTE wireless		
IP Assignment Options	Static, DHCP			
Data Security	AES 128-bit encryption with secure join and key exchange (J-PAKE)			
Firmware	Over-the-air upgradeable via web interface			
Software Compatibility	Gateway based Leap Sensors web interface, cloud-based Leap Sensors web interface, and network-based Leap Sensors web interface			
Certifications	FCC (USA), IC (Canada)			
Operating Specifications				
Wireless Transmission	Industrial Environments*	Open-Air*		
Range	500 ft.	1,500 ft.		
Input Power Connector	2.5 mm ID barrel connector (5 VDC -	3A AC/DC converter included)		
Input Power	5 VDC required, 3A Max			
Operating Temperature	0 °C to 60 °C, optional - 40 °C to 85 °	с		
RF Transmission Power	800 mA peak current draw			
Cellular Transmission Power	900 mA peak current draw			
Node Compatibility and Capacity				
Gateway Network Capacity	Up to 60 sensor nodes per gateway. based bandwidth	Contact factory for application -		
Node Compatibility	All Leap Sensors transceiver node devices			
Communication				
RF Communication Protocol	Internet Protocol based thread, IPV6LoWPAN, IEEE 802.15.4			
RF Transceiver Carrier	Ever Carrier 2.4 GHz (16 channels), DSSS provides higher noise and interference resistance			
Sensor Communication	Receive and acknowledge			
Cellular Protocol	4G LTE (Cat-M1 protocol)			
Wired Connectivity Options	USB 2.0, RJ45 Gigabit Ethernet			
Output Protocols (via ethernet)	MODBUS TCP, DNP3, BACNET**			
LEDs	Power status, network connections	status		
Enclosure & Hardware Specifications				
Single-Board Computer	(512 MB DDR3 RAM)			
Processor	T.I. [®] AM3358 Sitera at 1 GHz (32-bit Arm Cortex-A8)***			
On-Board O.S.	Debian 9 Linux			
Dimensions	152.1 mm x 140.1 mm x 86.9 mm without antenna			
Weight (with Antennas)	USB / ETH - 371 grams	Cellular - 412 grams		
Material	Powder Coated Aluminum			
Ingress Protection	IP30, IP67 enclosure optional			
RF & 4G LTE Antenna Gain	Contact Factory			



* Transmission ranges vary with environmental condition. Reported values are test averages.

**BACNET interface in testing and development.

***Gateway processor can be affected by stock, contact factory for confirmation of performance.



Gateway Connector Interfaces and Antenna Legend.		
1	Power Connector, 2.5 mm Center Positive, 5V 3A max current draw	
2	LED Indicators for network connectivity status and power status	
3	Mini-USB connection for direct to PC interfacing and Gateway Network configuring	
4	RJ-45 Ethernet Port (For LAN, MODBUS TCP/IP, DNP3, BACNET connectivity)	
5	USB 2.0 (not used)	
6	2.4 GHz antenna (sensor & gateway communication)	
7	Cellular Antenna (for streaming data to a cloud server location via 4G-LTE)	