

## LEAP 2.0 Gateway by Phase IV Ethernet / USB and Cellular Models

Phase IV Datasheet LEAP Ethernet and Cellular Gateway

### Applications

- LEAP sensor node wireless data acquisition
- Communication of data to cloud servers, local servers, PLC's, or existing plant monitoring software via protocol conversion plug-ins.

### Special Features

- Transmission range of 3000 ft in open air
- Compatible with up to 64 LEAP sensor 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
- LED indicators for power and network connection status

### Description & Product Highlights

Phase IV's LEAP wireless sensor 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 70 LEAP sensor node devices simultaneously, and can be expanded to 200 devices depending on the selected transmit interval and data sampling rate.



### 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 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 device nodes for quick and simple integration into an existing LEAP system, or to act as a new stand-alone system.

#### Two Way Communication

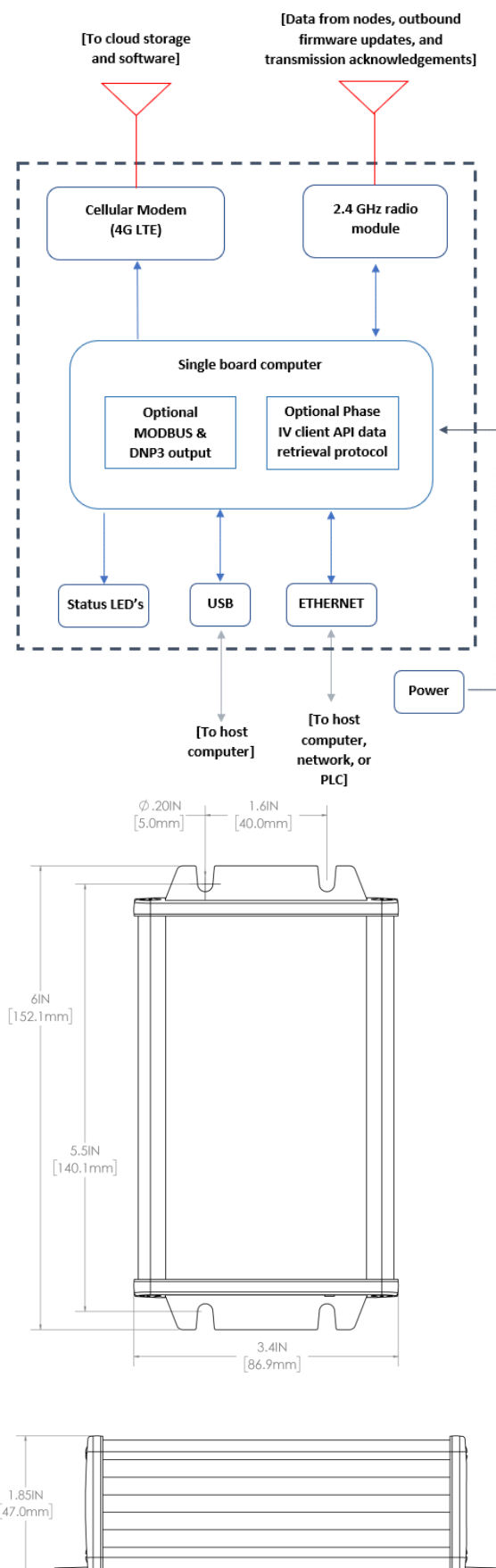
The gateway receives data from transceiver nodes, as well as passes information to them. This includes transmission acknowledgements to alleviate dataloss, firmware updates for device nodes, and configuration settings to the sensor nodes, allowing for changes and updates to all be made over-the-air.

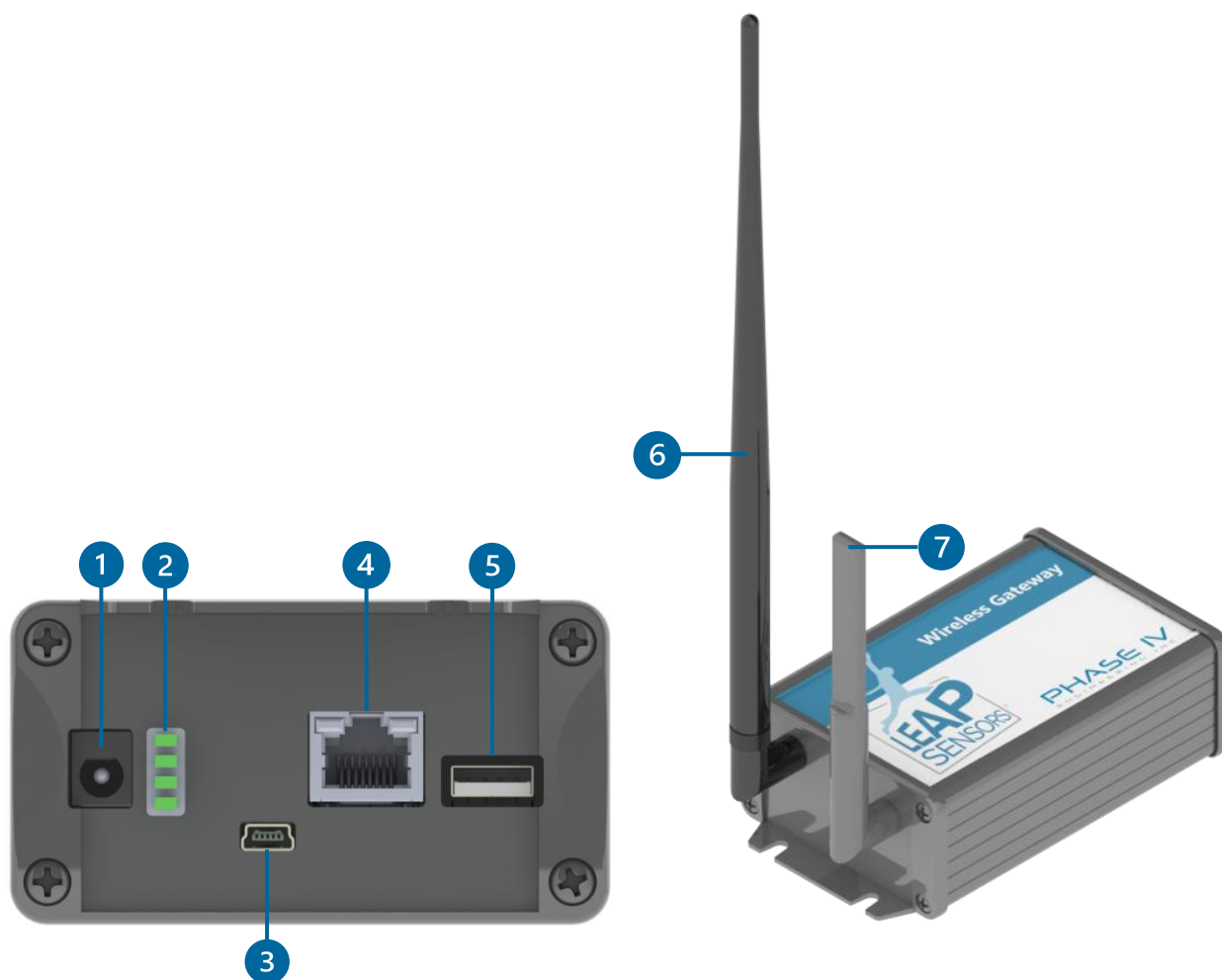
LEAP 2.0 Gateway Specifications		
General		
Models	Ethernet / USB	Cellular
Connectivity Options	USB 2.0, Ethernet, IEEE 802.15.4 wireless, 4G LTE wireless	
IP Assignment Options	Static, DHCP.	
Data Security	AES 128-bit encryption	
Firmware	Over-the-air upgradeable via WEB-UI	
Software Compatibility	Gateway based LEAP WEB-UI, Cloud based LEAP WEB-UI, and Network based LEAP WEB-UI	
Certifications	FCC (US). Tested and found to be IC (Canada) and ACMA (Australia) compliant.	
Operating Specifications		
Wireless Transmission Range	Industrial Environments*	Open-Air*
	750 ft	3000 ft
Input Power Connector	2.5 mm ID barrel connector (5 VDC - 3A AC/DC converter included)	
Input Power	5 VDC required, (400 mA idle draw)	
Operating Temperature	0 °C to 60 °C, optional - 40 °C to 85 °C	
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 64 sensor nodes per gateway. Contact factory for application - based bandwidth.	
Node Compatibility	All LEAP and LEAP 2.0 sensor node devices	
Communication		
RF Communication Protocol	Thread, IPV6LoWPAN, IEEE 802.15.4	
RF Transceiver Carrier	2.4 GHz (16 channels), DSSS-OQPSK	
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**	
LED's	Power status, network connections status	
Enclosure & Hardware Specifications		
Single-Board Computer	BeagleBone® Enhanced WiFi 512 (512 MB DDR3 RAM)	
Processor	T.I.® AM3358 Sitara 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 w/o antenna	
Weight (with Antennas)	USB / ETH - 371 grams	Cellular - 412 grams
Material	Powder Coated Aluminum	
Ingress Protection	IP51	
RF & 4G LTE Antenna Gain	Contact Factory	

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

\*\* BACNET interface in testing and development.

\*\*\* Gateway processor can be affected by stock, contact factory for confirmaiton 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)