Analog Input Wireless Transceiver Node
Custom Analog Sensor Transmitter

Applications

- Wireless transmission of any analog (0-5 V, 0-10 V, 0-12.5 V, 4-20 mA, mV/V) sensor signal from a standard industrial sensor.
- Convert any standard industrial sensor with an analog output to a wireless sensor.
- Ideal for In process monitoring, equipnment monitoring, general plant health monitoring, and multi-sensor interfacing.

Special Features

- Transmission range of 1,500 feet in open air
- Configurable to power and transmit any sensor signal listed below
- On-board battery supplies 12V or 24V to power the sensor.
- Edge computing gives small, actionable data.
- Configurable sample and transmit intervals to fit many application requirements.
- Simple integration into existing Leap Sensors system: preconfigured and paired with the gateway
- LED indicators for power, Thread network connection, gateway connection, and database connection status

Description & Product Highlights

Phase IV's Leap Sensors Analog Input Node is the foundation for all analog sensor wireless connectivity. The combination of multiple simultaneous inputs and sensor powering makes the Analog Input ideal for multiple sensor monitoring applications, or rapidly deployable semi-custom systems.

The Leap Sensors wireless sensor system greatly reduces the cost and complexity of laying cables between sensors and data acquisiton units. Wireless communication is much better suited for small, actionable datapoints.

Interfacing with any sensor is quick and simple with programmable sensor excitation and user configurable sensor calibration fields.

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

Analog Input Node Model (4 X M8 connector configuration shown)

Modularity and customizability

Each Analog Input Node has the capability to support and interface simultaneously with up to 4 analog voltage ouptut sensors and a mV/V output sensor (bridge, potentiometer, RTD). This makes the Analog Input Node ideal for all remote sensing aplications, and semi-custom applications. Interfacing multiple sensors to one transceiver node provides a substantial ROI compared to individual sensing devices.

Ease of implementation

All Leap device nodes come pre-configured and paired with selected Leap gateways for quick and simple integration into an existing Leap Sensors system, or to act as a new stand-alone system. Custom firmware loaded on the device can configure the data viewing software to accept any and all new device types.

Real-time data viewing and alters

All Leap nodes stream data to Leap Gateway devices at configurable intervals, viewable in real time. In addition to real-time viewing and graphing of sensor parameters, alerts based on any sensor condition are configurable, which can be sent directly to an email or cellphone for instant communication.

PHASE IV
ENGINEERING INC.

LEAP® 2.0 Analog Input Node Specifications	
General Sensor Specifications	
Analog Input Signals	**24-Bit ADC:** 3 x 0-10 V 2 x 4-20 mA 1 x mV/V
Programmable Sensor Excitation	12 V @ 80 mA max, 24 V @ 25 mA max
Sensor Interface	Pre-configured multi-pin M8 or M12 connectors, or cable glands.*
Output units	User and factory configurable.
Power Specifications	
Battery Power	3.6 V, 14,000 mAh D-cell, Lithium Thionyl Chloride
Battery Life	4-6 years at 10-minute sample and transmit intervals
Power / Current Consumption	**Sleep Current:** 8uA **Operating Current:** 6mA - 30mA (depending on sensors) **Transmit Current:** 9mA @ 0dBm and 80mA @ 20 dBm **RX Current:** 11 mA
Wireless Specifications	

Wireless Transmission Range	Industrial Environments**	Open-Air**
	500 ft	500 ft

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RF Transmission Power	User configurable 0-20 dBm, factory configured to 20 dBm***
RF Communication Protocol	Thread, IPV6LoWPAN, IEEE 802.15.4
RF Frequency and Modulation	2.4 GHz (16 Channels), DSSS-OQPSK (DSSS provides higher noise and interference resistance)
Data Security	AES 128-bit encryption with secure join and key exchange (J-PAKE)
Certifications	FCC (US), IC (Canada). Tested and found to be ACMA (Australia) compliant.
Other Features	
Operating Temp.	- 40° C to 60° C (-40° C to 120° C optional)
Gateway Compatibility	Compatible with all Leap Sensors® Wireless Gateways
Firmware	Over-the-air upgradeable via WEB-UI
Gateway Communication	Send and receive (data, acknowledgements, updates, and device configuration)
LED Power Switch	Power status, gateway connection status, thread-network connection status, data server connection status.
Internal Memory	1 MB (10,000 time-stamped device readings)
Enclosure & Hardware Specifications	
Dimensions	113 mm x 80 mm x 60 mm****
Weight	370 grams *****
Material	Poly-Carbonate (UL-94 rated)
Ingress Protection	IP68
Connectivity Options	IEEE 802.15.4 wireless

Panel connecitons are customizable, consult factory for complete options.

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

*** *Transmission power requirements are governed regionally.*

**** *Enclosure dimensions and weights vary, see specific sensor system datasheets for dimensions.*

[Outbound sensor data, inbound device configurations, firmware updates, and transmission acknowledgements]
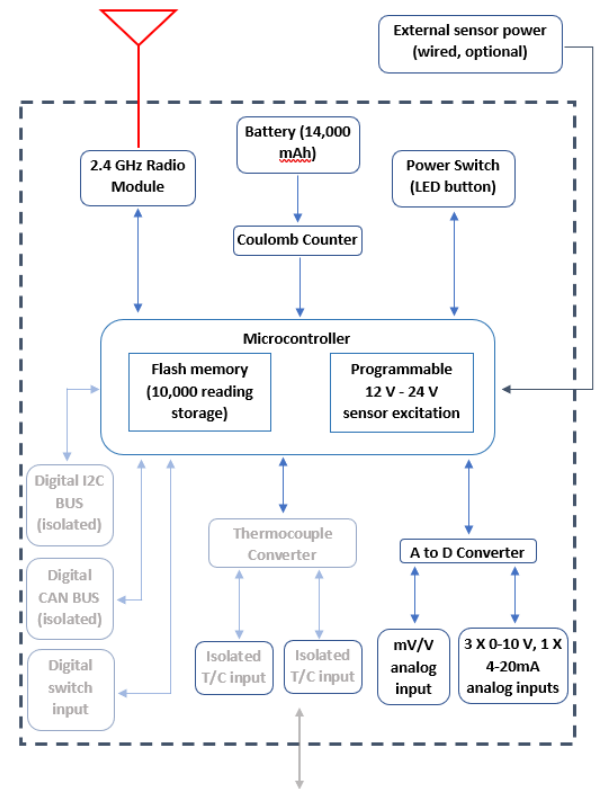
[0-10 V sensors, 4-20 mA sensors, resistive bridge sensors, externally powered or device node powered.]