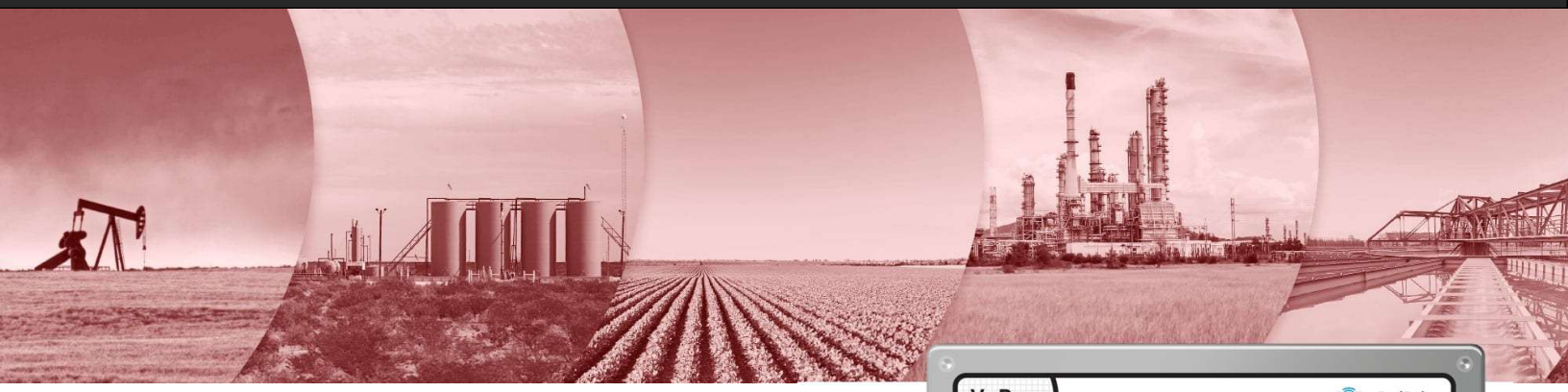
VolleyBoast

Draft



VoBo XP

Externally Powered LoRaWAN® Endpoint for Continuous Monitoring

The VoBo XP™ is an externally powered, industrial grade, 7 input, 4 output, LoRaWAN® bridge certified for safe and hazardous areas. It can operate as a LoRaWAN® Class A (listen after transmit) or Class C (always listening) device and can be configured to measure once per transmit cycle or at a higher rate and transmit statistics. The VoBo XP has the ability to perform control functions through its relay drivers which can be activated by downlink or by on-board analytics as part of a programmed process control feature. Relay drivers can be locked out, if desired. The VoBo XP can operate on solar power where an external power source is a challenge. The analog, digital, and serial channels support a wide range of sensors and simplify data collection from your own trusted and qualified sensors.

Configuration can be done locally through a serial connection or over the air with downlinks. The rugged enclosure and internal antenna permit it to be installed almost anywhere. The LoRa® radio technology provides robust wireless communication and the LoRaWAN® protocol enables economical scaling.

With the addition of proprietary VoBoSync* technology, data collection across any number of enabled devices, can be synchronized for true system analysis.

The VoBo XP is available for safe and hazardous areas

Applications

- Continuous or high-rate cycle time monitoring
- Monitoring with remote and/or condition-based control
- Sensors with power requirements higher than those supported by battery powered endpoints

LoRa Alliance Member

Features

- Externally Powered
- Solar Power Ready
- LoRaWAN® Class A or C
- 3 Analog Inputs
- 2 Digital Inputs
- Pulse Counting on Digital Inputs
- Wake Up Digital Input
- RS485 / RS232 Serial Interface
- Modbus RTU
- Optional Multiple Modbus devices
- 4 Relay Drivers
- Data Logging
- Power Failure Detection
- Analytics Plug-In Capable
- Optional VoBoSync*
- Hazardous Area Rated
- IP66 / NEMA 4X

*Patent Pending

Preliminary

Specifications

Analog Input

Analog Inputs	3 Inputs*
Analog Input Types	2, 3, and 4 wire 4-20mA, 0-5V, 0-10V NAMUR proximity
Analog Input Impedance	
4-20mA	250 ohm
0-5V	500 Kohm
0-10V	375 Kohm
NAMUR	1000 ohm
Measurement Resolution	16 bit
Measurement Units	Engineering units or ADC counts
Measurement Numerical Format	FP32
Continuous Measurement**	Average, Max/Min

** Per channel type selectable*

*** Class C only*

Digital Input

Digital Inputs	2 Inputs*
Digital Input Types	Dry contact, voltage, PNP, NPN
Pulse Counting	On 2 digital inputs
Pulse Counting Frequency (max)	2500 Hz
Pulse Counting Units	Freq, Total pulse cnt, Per cycle pulse cnt
Digital Interrupt (WKUP)	1 Input
Digital Interrupt Type	Dry contact

** Per channel type selectable*

Serial Input/Output

Serial Input	1 Inputs
Serial Interface	RS485 or RS232
Serial Protocol	Modbus RTU
Number of Slave Devices	1 Standard >1 Optional**
Serial I/O Port***	RS-232

** Per channel type selectable*

*** Daisy chained slave devices*

**** For configuration, monitoring, and data recovery*

Functionality

LoRaWAN® Class	A or C
Data Logging	Sensor data, events, configuration changes
Data Logging Capacity	~5000 sensor payloads
Data Logging Access	Serial or downlink/uplink
Output Control	Command, event or analytics driven
Operation Modes	Online* / Offline**
Sample Cycle Time	
Class A Function	1 to 2880 minutes***
Class C Function	Near continuous****
Wakeup by External Magnet	Yes
Heartbeat Cycle	24 hours
Heartbeat Data	Battery voltage, signal strength, node status

** Transmits on LoRaWAN® plus local data logging*

*** Local data logging only*

**** On demand when digital interrupt (WKUP) is triggered*

***** With analytics*

Relay Drivers

Number of Drivers	4
Driver Control	Downlink, sequence or analytics driven
Driver Type	Low Side (N-Channel)
Input Voltage	36.0 V maximum 3.0 V minimum
Input Current	900 mA maximum
On-State Resistance	600 mOhm maximum
Off-State Leakage Current	1 mA maximum
Over-Voltage Protection	Yes
Over-Current Protection	Yes
Over-Temperature Protection	Yes
Open Circuit Detection	Yes

Specifications

Radio

Protocol	LoRaWAN® 1.0.4
Antenna	Internal
Range	Up to 6 miles LOS
Frequency	US915, EU868, and other Channel Plans available
Data Encryption	AES 128
FCC/IC Conformance	FCC ID: AU792U13A16857 IC:125A-0054
Compatibility	Backward compatible with LoRaWAN® compliant devices

Physical

Enclosure Material	Glass Reinforced Polyester
Enclosure Dimensions	8.625" x 4.75" x 3.625" *
Cord Grip Holes	4 holes, 0.875" diameter**
Cord Grip Capacity	0.18 to 0.4" diameter
Input Terminals	24 to 12 AWG
Weight	2.75 lbs
Cover Fasteners	Captive, 316 stainless

** Excluding cord grips*

*** Will accommodate a 1/2" conduit fitting*

Environmental

Temperature	-40 to 80 °C
ATEX / IECEx	Ⓔx II 3G 3D ec nC T4
Certification	Ex ec nC IIC IIIA T4 Gc
USA & Canada	Class I, Division 2, Groups A-D, T4
Certification	Class I, Division 2, Groups F,G, T135°C
	Class I Zone 2 EX ec nC IIC IIIA T4 Gc
Ingress Rating	IP66 / NEMA 4X
Complies With	UL 62368-1, CSA C22.2 No. 62368-1
	CE European Community Directives

Mounting

Direct Mount Spacing	8.03 x 3.23"
Optional Mount*	Pole mount

**Contact Volley Boast for available mounts*

Power

VIN Input Voltage Range	8 to 24 Vdc
VIN Input Voltage Tol.	+/- 20%
VIN Input Current (max)	350 mA
V+ Output Voltage Range	5 to 24 Vdc
V+ Output Voltage Tol.	+/- 20%
V+ Output Current (max)	See Graph