

# VoBo GP-1

# VoBo HL-1

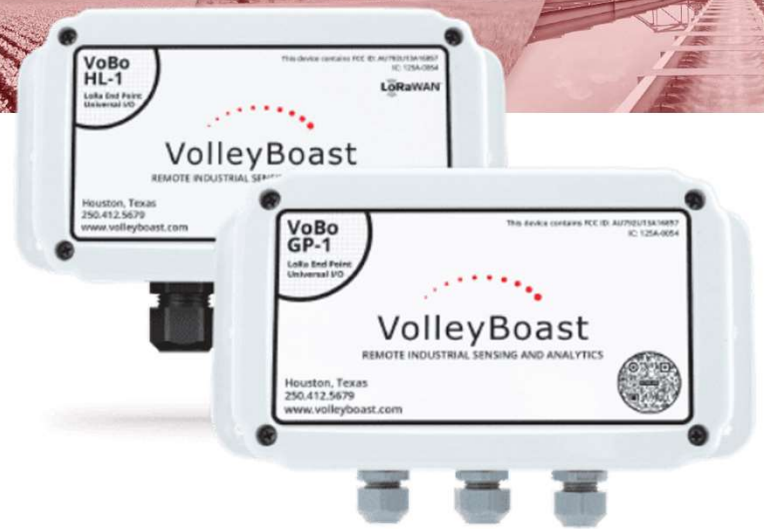
## Autonomous LoRaWAN® Endpoints for General Purpose and Hazardous Areas

The VoBo GP-1™ and VoBo HL-1™ are an industrial grade, multiple input, universal LoRaWAN® bridge. They convert wired process instruments into LoRaWAN® enabled instrumentation. It's wide range of analog and digital inputs enable customers to enhance their data collection and automation efforts using favored or legacy sensors. The VoBo GP-1 and HL-1 are battery operated and can supply power to connected sensors from its analog terminals. Typical battery life is 3+ years and is user replaceable. It can be configured locally through a serial connection or over the air with downlinks. Its rugged enclosure and internal antenna permit it to be installed almost anywhere, the HL-1 is certified for Class 1 Division 2 hazardous areas. The LoRa® radio technology and LoRaWAN® protocol provide dependable long-range communication and economical scaling.

With the addition of optional features VoBoSync\*, and/or VoBo Analytics, the VoBo is ideal for enhancing your Industry 4.0 data collection, edge analytics, and insights. \*Patent Pending

### Applications

- Temperature, pressure, flow monitoring
- Tank level monitoring
- Wellhead production monitoring
- Heat Trace monitoring
- Motor Condition monitoring
- Weather station monitoring
- Water quality monitoring



### Features

- 3 Analog Inputs
- 3 Digital Inputs
- 1 Wake Up Digital Input
- RS485 Modbus RTU Input
- Multiple Modbus RTU Read/Write
- *Optional*
- VoBoSync\* *Optional*
- VoBo Analytics *Optional*
- Data Logging
- Battery Powered
- LoRaWAN® Compliant
- Class 1, Division 2 (HL-1)
- IP66 / NEMA 4X

# Specifications

## Analog Input

|                              |   |
|------------------------------|---|
| Analog Inputs                | 3 Inputs*                               |
| Analog Input Types           | 2, 3, and 4 wire<br>4-20mA, 0-5V, 0-10V |
| Analog Input Impedance       |   |
| 4-20mA                       | 250 ohm                                 |
| 0-5V                         | 50 Kohm                                 |
| 0-10V                        | 37.5 Kohm                               |
| Measurement Resolution       | 12 bit                                  |
| Measurement Units            | Engineering units<br>or ADC counts      |
| Measurement Numerical Format | FP32                                    |

\* Per channel type selectable

## Digital Input

|                            |                                      |
|----------------------------|--------------------------------------|
| Digital Inputs             | 3 Inputs*                            |
| Digital Input Types        | voltage or dry contact               |
| RS485 Port                 | 1                                    |
| RS485 Read/Write Addresses | 2 or more optional                   |
| RS485 Protocol             | Modbus RTU                           |
| Modbus Payload Capacity    | 41 registers (16 bit)<br>per address |
| Digital Interrupt (WKUP)   | 1 input                              |
| Digital Interrupt Type     | Dry contact                          |
| Configuration Port         | RS-232                               |

\* Per channel type selectable

## Functionality

|                             |  |
|-----------------------------|--|
| LoRaWAN® Class              | A  |
| Modbus RTU Write Capability | Yes  |
| Data Logging                | Sensor data, events,<br>configuration changes    |
| Data Logging Capacity       | ~5000 sensor payloads                            |
| Data Logging Access         | Serial or<br>downlink/uplink                     |
| Operation Modes             | Online* / Offline**                              |
| Sample Cycle Time           | 1 to 2880 minutes***                             |
| Wakeup by External Magnet   | Yes  |
| Heartbeat Cycle             | 24 hours   |
| Heartbeat Data              | Battery voltage, signal<br>strength, node status |
| VoBoSync (pat pending)      | Optional   |
| VoBo Analytics              | Optional   |

\* Transmits on LoRaWAN® plus local data logging

\*\* Local data logging only

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

## Mounting

|                      |                                    |
|----------------------|------------------------------------|
| Direct Mount Spacing | 8.03 x 3.23"                       |
| Optional Mounts*     | Rubber mounting feet<br>Pole mount |

\* Contact Volley Boast for available mounts

## Power

|                            |                      |
|----------------------------|----------------------|
| Battery Size               | LSH20 (D size)       |
| Battery Type               | Li-SOCl <sub>2</sub> |
| Battery Access             | User replaceable     |
| Battery Voltage            | 3.6 V nominal        |
| Battery Current            | 4000 mA, pulse       |
| Battery Capacity           | 13.0 Ah nominal      |
| Battery Life*              | 2+ years             |
| Voltage Supply to Terminal | 5 to 24 Vdc          |
| Sleep Current              | 40 uA                |

\* Battery life based on three 4-20mA sensors on a 60 min. cycle time

## Radio

|                    |   |
|--------------------|---|
| Protocol           | LoRaWAN® 1.0.4  |
| Antenna            | Internal, 1.4 dBi   |
| Range              | Up to 6 miles LOS   |
| Frequency          | ISM band, US 915 MHz                                      |
| Data Encryption    | AES 128   |
| FCC/IC Conformance | FCC ID: AU792U13A16857<br>IC:125A-0054                    |
| Compatibility      | Backward compatible with<br>LoRaWAN® compliant<br>devices |

## Environmental

|                |   |
|----------------|---|
| Temperature    | -35 to 80 °C  |
| Exposure Class | IP66 / NEMA 4X  |
| NRTL Listed    | UL-62368-1, Third Edition   |
| E115256        | CSA C22.2 No. 62368-1, Third Edition<br>Annex Y   |
| HL-1           | ANSI/ISA 12.12.01   |
| Certified Use  | and CAN/CSA C22.2 No.213<br>Class I, Division 2, Groups C,D T4<br>Class II, Division 2, Groups F,G T135 °C<br>Class III, Division 1 |

## Physical

|                       |                            |
|-----------------------|----------------------------|
| Enclosure Material    | Polycarbonate              |
| Enclosure Dimensions* | 7.6" x 4.6" x 3.1" approx. |
| Cord Grip Holes       |                            |
| GP-1                  | 3 holes, 0.625" diameter   |
| HL-1**                | 2 holes, 0.875" diameter   |
| Cord Grip Capacity    |                            |
| GP-1                  | 0.105 to 0.315" diameter   |
| HL-1                  | 0.095 to 0.290" diameter   |
| Input Terminals       | 24 to 12 AWG               |
| Weight                | 1.5 lbs                    |

\* Excluding cord grips

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

