



LDSBus Dissolved Oxygen Sensor Adapter



1 Introduction

The LDSBus Dissolved Oxygen (DO) Sensor Adapter is designed to work with an analog galvanic probe to form a complete DO sensor. A BNC connector is built into the adapter for attaching such a probe.

The adapter and probe are calibrated using a single-point calibration procedure and the resulting sensor supports DO measurements ranging from 0 to 20 mg/L with a resolution of 0.01mg/L.

The sensor is suitable for use in water quality measurement applications such as nutrient tanks, fisheries and hatcheries, water treatment and sewage treatment plants, swimming pools, aquariums and many other applications. Monitoring, alerting and controlling the system can be done in real-time.

1.1 Features

- DO Sensor Adapter integrates directly with Analog Galvanic Dissolved Oxygen probe via BNC connector
- DO measurement range of 0 to 20 mg/L with linearized output and 0.01mg/L resolution
- Single Point step-by-step guided calibration
- Bridgetek LDSBus protocol. Wired data/power transmission through LDSBus HVT-Junction
- High report rate of 1 report every 5 seconds
- Low power consumption 88mW (5V)
- Operating temperature range : 0°C to +70°C
- Flush Mount and DIN Rail Mount options
- Supported platform applications: Bridgetek IoTPortal and LDSBus Python SDK

(Visit <http://bit.ly/lidsbus-resources>)



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2 Part Numbers

| Part# | Naming |
|-----------|--|
| LS100101A | LDSBus Dissolved Oxygen Sensor Adapter |
| LA120101A | LDSBus DIN Rail Mount Set |

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3 Product Specifications

| | | |
|---------------------------------|---------------------------|--|
| Features | Interface | BNC – DO probe connector RS485 – LDSBus communication |
| | LED Indicator (RGB) | System Status Indicator (Please refer to LED section) |
| | Mounting | Flush Mount DIN Rail Mount |
| Power | Input Voltage | 5V DC Bus Power |
| | Typical Power | 5V, 88mW |
| | Max. Power | 223mW |
| DO Sensor input module | Detection Range | 0– 20 mg/L |
| | Resolution | 0.01mg/L |
| | Response Time | <1Minute |
| | Calibration | 1 Point Calibration |
| Physical Characteristics | Color | White |
| | Housing | Polycarbonate |
| | Dimensions | L117.6mm x W42.9mm x H29.7mm |
| Environmental Limits | Operating Temperature | 0 to 70°C |
| | Storage Temperature | -20 to 85°C |
| | Ambient Relative Humidity | 5 to 95% (non-condensing) |
| Package Contents | Device | 1x LDSBus Dissolved Oxygen Sensor Adapter |
| | Installation (Optional) | 1x DIN Rail Bracket set |
| | Wire Assembly | 1X 5m RJ11 Cable |

Table 1 - LDSBus Dissolved Oxygen Sensor Adapter Specifications

4 Hardware Features

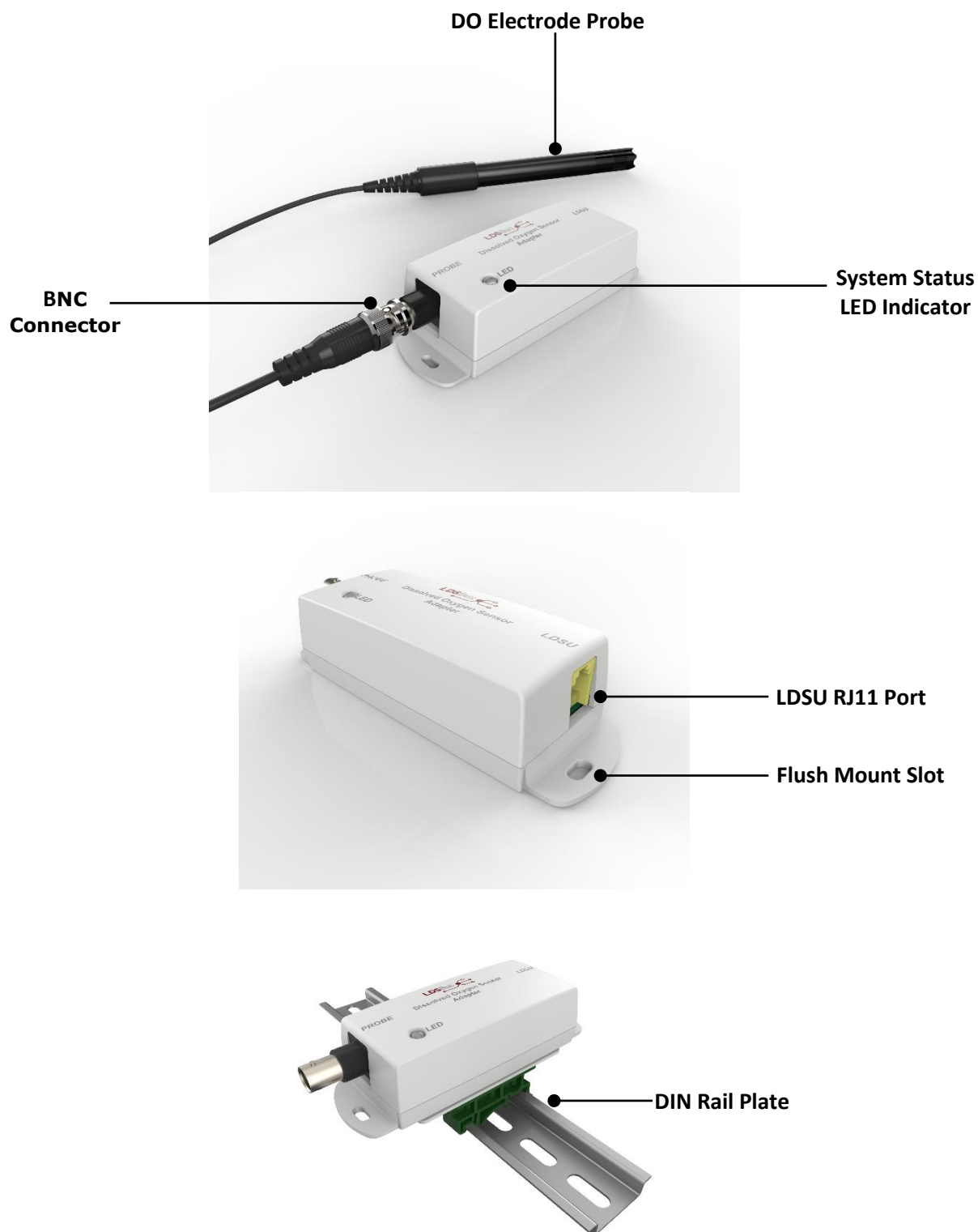


Figure 1 - LDSBus Dissolved Oxygen Sensor Adapter Hardware Features

5 Sensor Configuration and Installation

Please visit <http://bit.ly/ldsbus-resources> to access the LDSBus Configuration Utility Guide on how to configure the device name, address, and termination settings before using it for your application.

5.1 Connection Diagram

Figure 2 illustrates the connection of the LDSBus DO Sensor Adapter (LDSBus Device) to the LDSBus. Please visit <http://bit.ly/ldsbus-resources> to view the full device application, setup and installation guides.

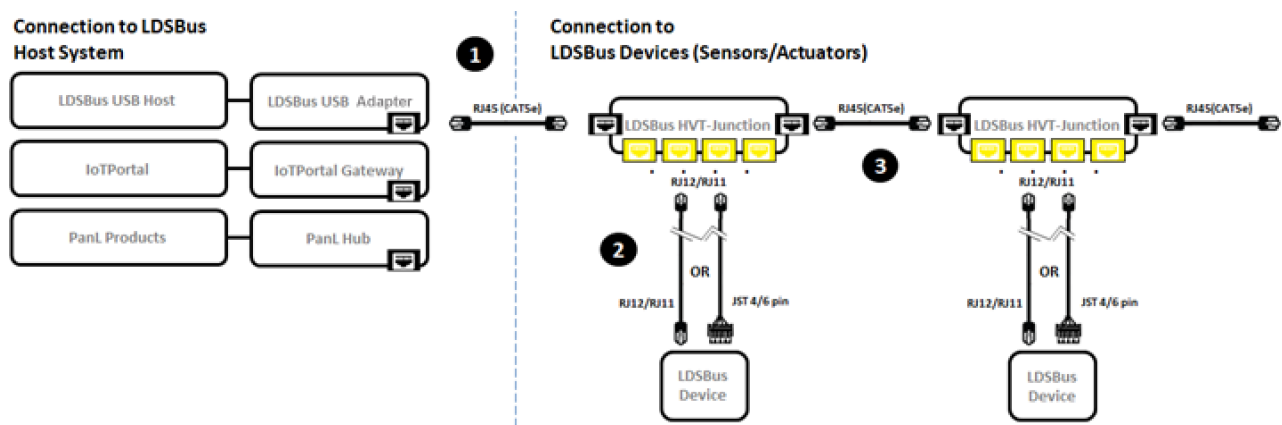


Figure 2 - LDSBus Dissolved Oxygen Sensor Adapter to LDSBus - Connection Diagram

Setup Instructions:

1. Connect the first LDSBus HVT-Junction to any of the LDSBus Host Systems using the RJ45 (CAT5e) cable.
2. Connect the configured LDSBus DO Sensor to the LDSBus HVT-Junction as shown in Figure 2.
3. If there is more than one LDSBus HVT-Junction, chain them together as shown in Figure 2.

6 Mounting Options

6.1 Flush Mount

The LDSBus DO Sensor Adapter can be flush mounted directly on a wall or any flat surface using 2 M3.5*16mm (thread) screws.

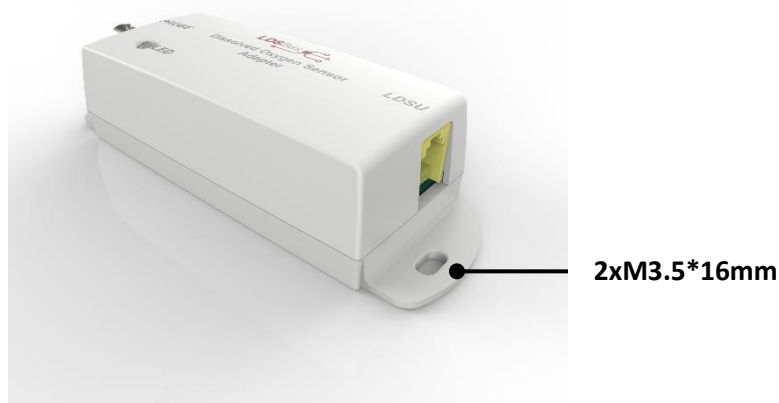


Figure 3 - LDSBus Dissolved Oxygen Sensor Adapter Flush Mount

6.2 DIN Rail Mount

The DIN Rail Mount can be fixed using a DIN Rail bracket that has two mounting holes. The package includes mounting screws and a backplate. (The DIN Rail Bracket is not included in the package).

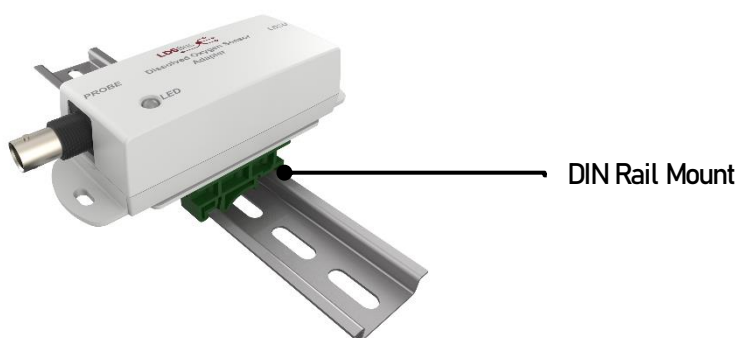


Figure 4 – LDSBus Dissolved Oxygen Sensor Adapter DIN Rail Mount

7 System Status LED Indicators

LDSU devices come with an RGB LED (4 status colors) as mentioned in the table below.

Status display colors

- | | | |
|-----------|---|--|
| 1. RED | - | Device in error condition |
| 2. YELLOW | - | Un-configured device |
| 3. GREEN | - | Device in normal state (Device termination is OFF) |
| 4. BLUE | - | Device in normal state (Device termination is ON) |










| Device Status | LED Color | | Flashing Frequency | Description |
|----------------------|-----------|---|-----------------------|---|
| Un-configured device | YELLOW |  | LED flashing @1Hz | Un-configured device with factory default address (126) |
| Configured device | GREEN |  | Steady-Non-flashing | Configured device (Device ID 1-125) and device is idle |
| | BLUE |  | | |
| Addressed device | GREEN |  | LED flashing @5Hz | Device is busy communicating |
| | BLUE |  | | |
| Identified device | GREEN |  | LED flashing @1Hz | Device in identify state |
| | BLUE |  | | |
| Device error | RED |  | Steady – Non-flashing | Device error has occurred |
| Firmware update | YELLOW |  | Steady – Non-flashing | Device firmware update |

Table 2 – LDSBus Dissolved Oxygen Sensor Adapter – System Status LED Indicator

8 Probe Selection

The following specifications are recommended for selecting Dissolved Oxygen Probe -

| | | |
|-----------------|---|----------------|
| Type | : | Galvanic Probe |
| Detection Range | : | 0-50mg/L |
| Connector | : | BNC |

For more information on calibration, please refer to
[BRT AN 075 LDSBus Configuration Utility User Guide](#)

9 Mechanical Dimension

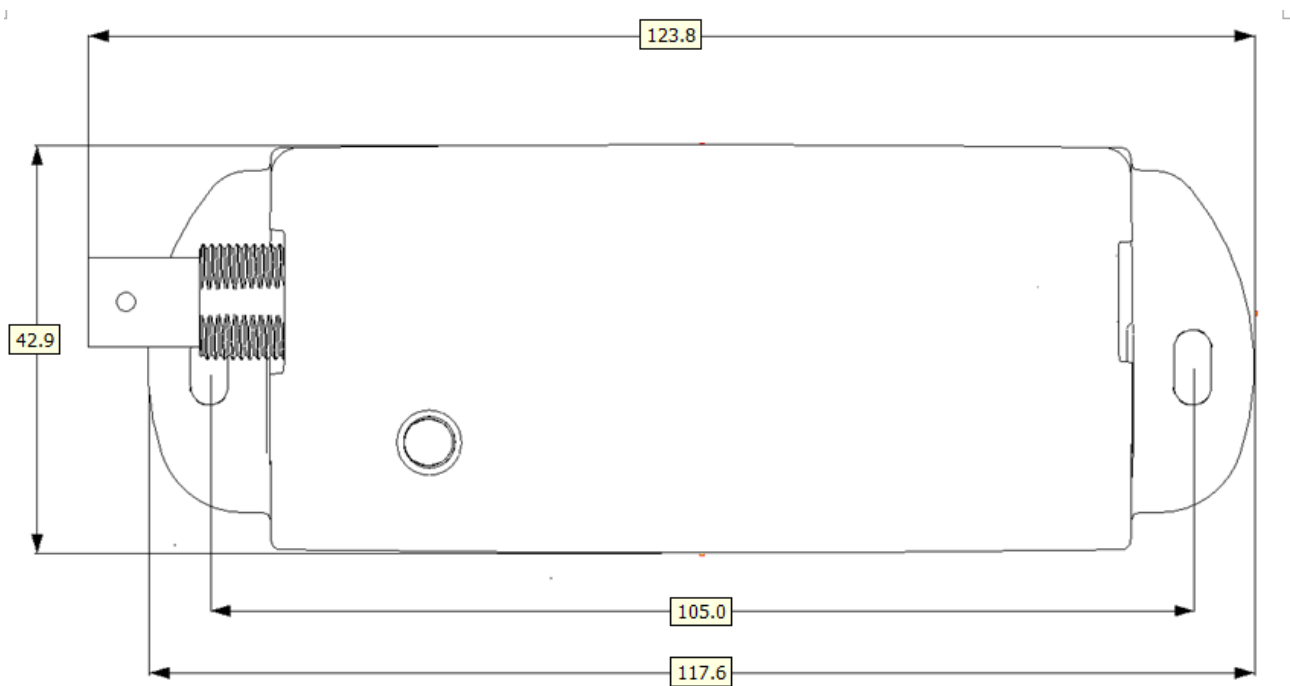


Figure 5 – LDSBus Dissolved Oxygen Sensor Adapter Dimension – Top View



Figure 6 – LDSBus Dissolved Oxygen Sensor Adapter Dimension – Side View

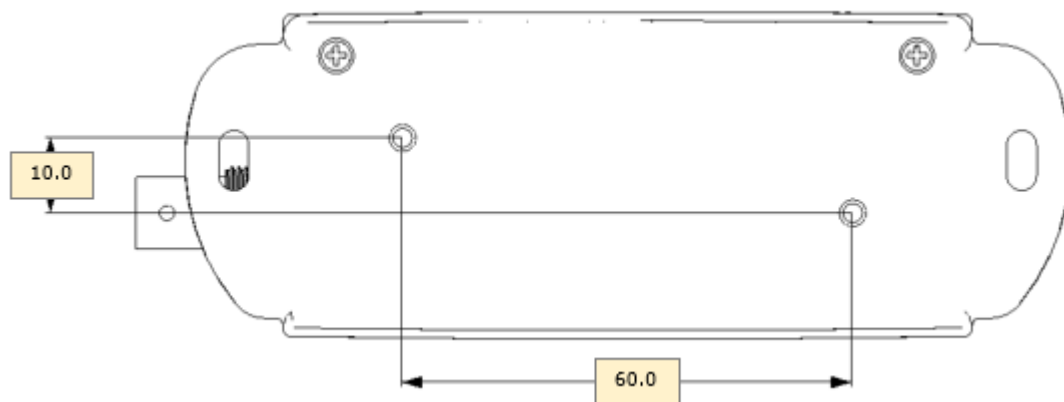


Figure 7 – LDSBus Dissolved Oxygen Sensor Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

10 Contact Information

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Appendix A – References

Document References

[BRT AN 075 LDSBus Configuration Utility User Guide](#)

Acronyms and Abbreviations

| Terms | Description |
|--------|--------------------------|
| DO | Dissolved Oxygen |
| LDSBus | Long Distance Sensor Bus |
| LED | Light Emitting Diode |

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Appendix C – Revision History

Document Title: LDSBus Dissolved Oxygen Sensor Adapter Datasheet
Document Reference No.: BRT_000382
Clearance No.: BRT#193
Product Page: <https://brtchip.com/ldsbus/>
Document Feedback: [Send Feedback](#)

| Revision | Changes | Date |
|-------------|-----------------|------------|
| Version 1.0 | Initial Release | 04-03-2022 |

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