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/ldsbus-resources)

2 Part Numbers

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

Table of Contents

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

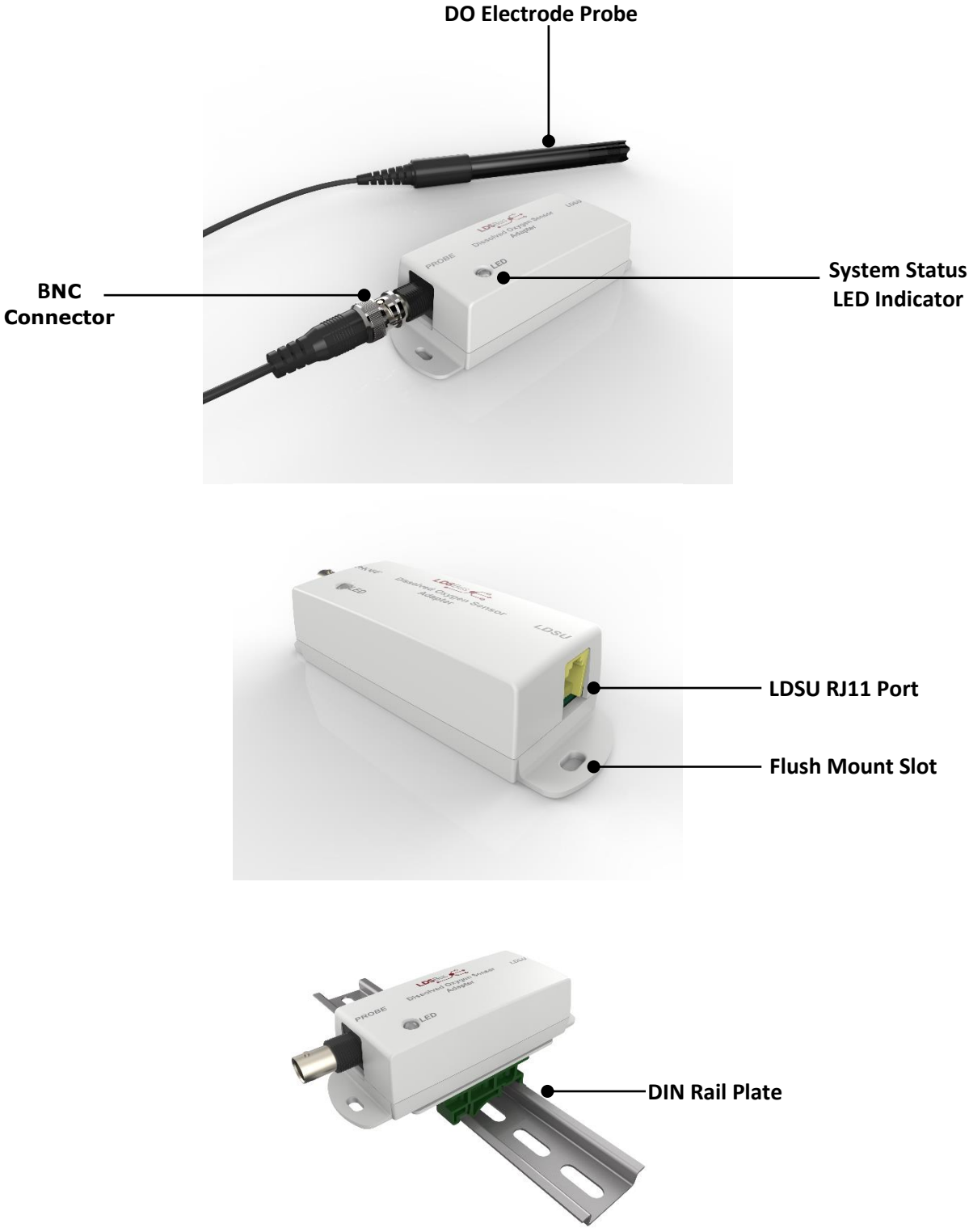

Figure 1 - LDSBus Dissolved Oxygen Sensor Adapter Hardware Features

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.

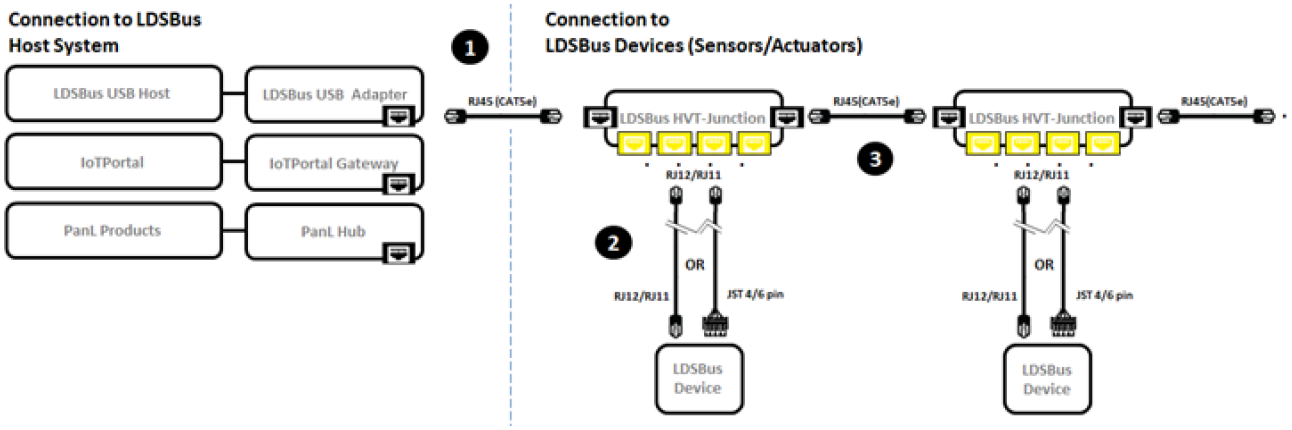

Figure 2 - LDSBus Dissolved Oxygen Sensor Adapter to LDSBus - Connection Diagram

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.

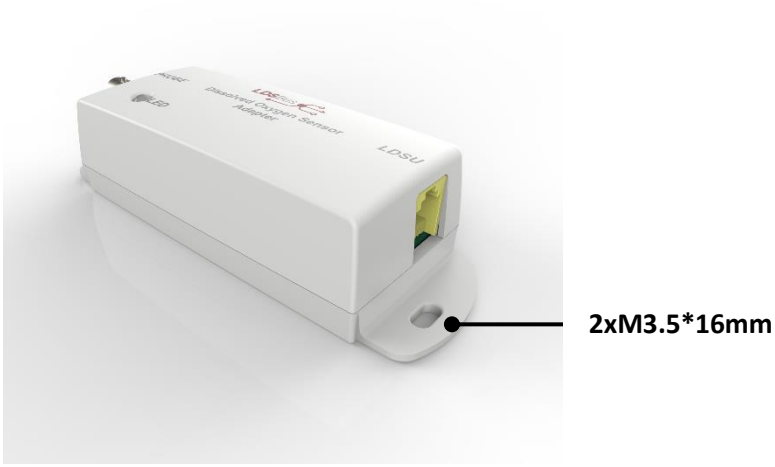

Figure 3 - LDSBus Dissolved Oxygen Sensor Adapter Flush Mount

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).

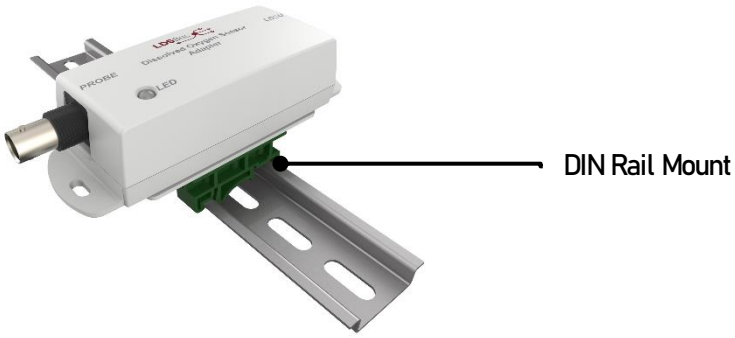

Figure 4 – LDSBus Dissolved Oxygen Sensor Adapter DIN Rail Mount

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

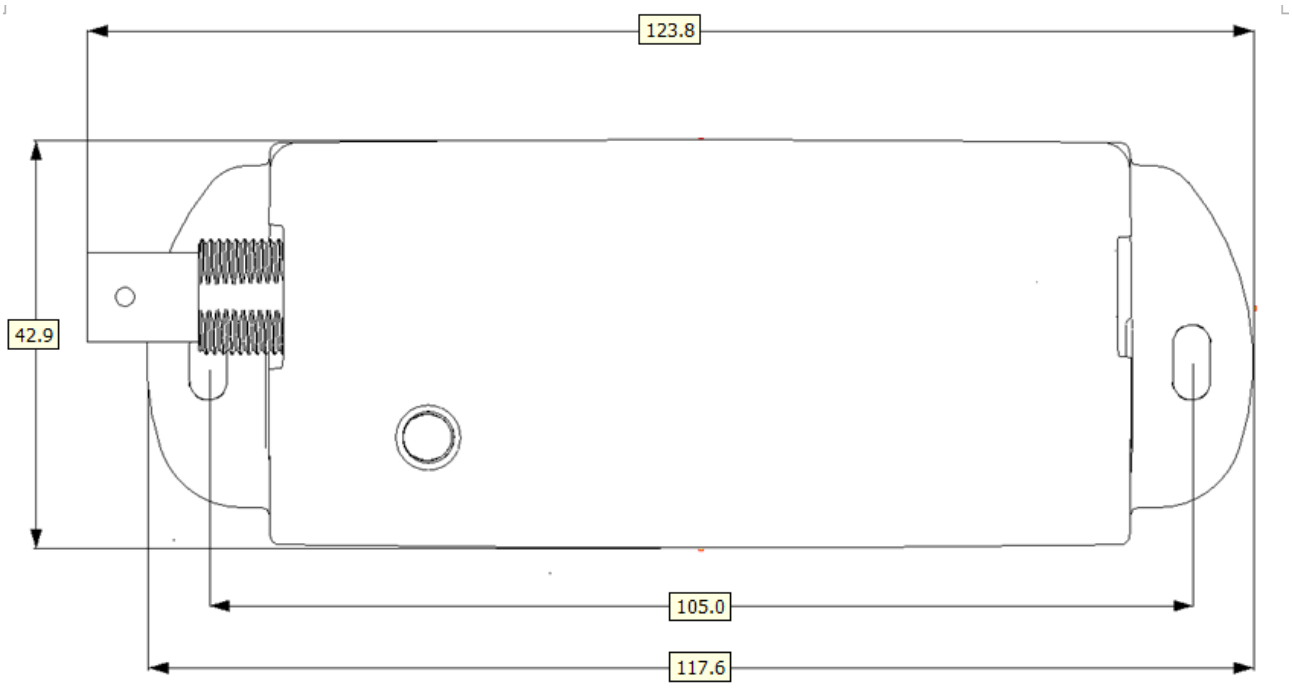

Figure 5 – LDSBus Dissolved Oxygen Sensor Adapter Dimension – Top View

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

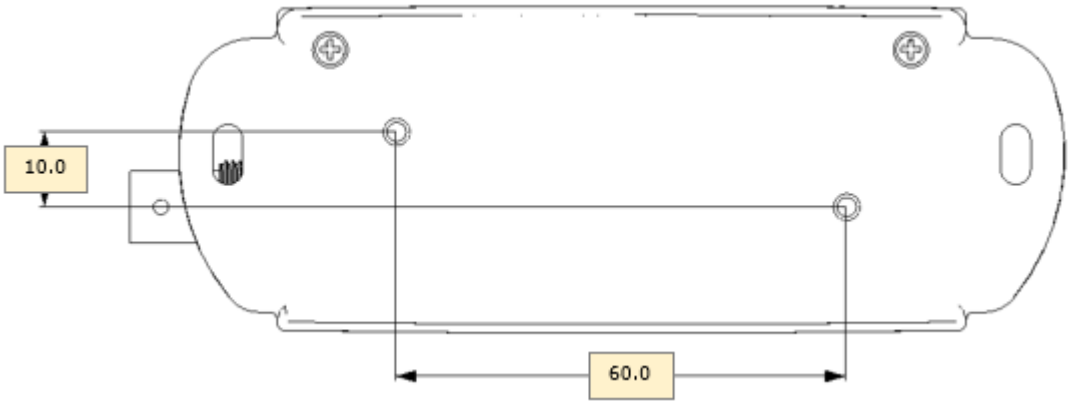

Figure 7 – LDSBus Dissolved Oxygen Sensor Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

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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

Appendix B – List of Figures and Tables

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List of Tables

Appendix C – Revision History

Document Title: LDSBus Dissolved Oxygen Sensor Adapter Datasheet

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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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