LDSBus ORP Sensor Adapter Datasheet

1 Introduction

The LDSBus **O**xidation **R**eduction **P**otential (ORP) Sensor Adapter is designed to work with a matching ORP probe to form a complete ORP sensor. This adapter has a BNC connector for attaching the ORP probe. A 1-point calibration method is used to calibrate the adapter and probe, and ORP measurements can be undertaken with a resolution of 1 mV between -2000mV and +2000mV. These adapters and probes are suitable for use in applications such as agriculture, aquaculture, and water quality monitoring.

1.1 Features

- BNC connector to interface with a wide variety of ORP probe types
- Measures ORP between -2000mV~+2000mV with a linearized output and a resolution of 1mV
- Step-by-step guidance for 1 Point Calibration
- BRTSys's LDSBus protocol. Data/power transmission via LDSBus Quad T-Junction
- High report rate of 5 seconds
- Low power consumption 5V-91mW
- Operating temperature range: 0°C to +70°C
- Flush Mount and DIN Rail Mount options
- Supported platform applications: BRTSys's IoTPortal and LDSBus Python SDK

(Visit https://brtsys.com/resources/)

2 Part Numbers

Part#	Description
LS120101A	LDSBus ORP Sensor Adapter
LA120101A	LDSBus DIN Rail Mount Set

Table of Contents

3 Specifications

Features	Interface	BNC (Connect to ORP probe), RS485
	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 91mW
	Max. Power	265mW
Salinity Sensor input module	Detection Range	-2000mV ~ +2000mV
	Resolution	1mV
	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 ORP Sensor Adapter
	Installation (Optional)	1x DIN Rail Bracket set
	Wire Assembly	1X 5m RJ11 Cable

Table 1 – LDSBus ORP Sensor Adapter Specifications

4 Hardware Features

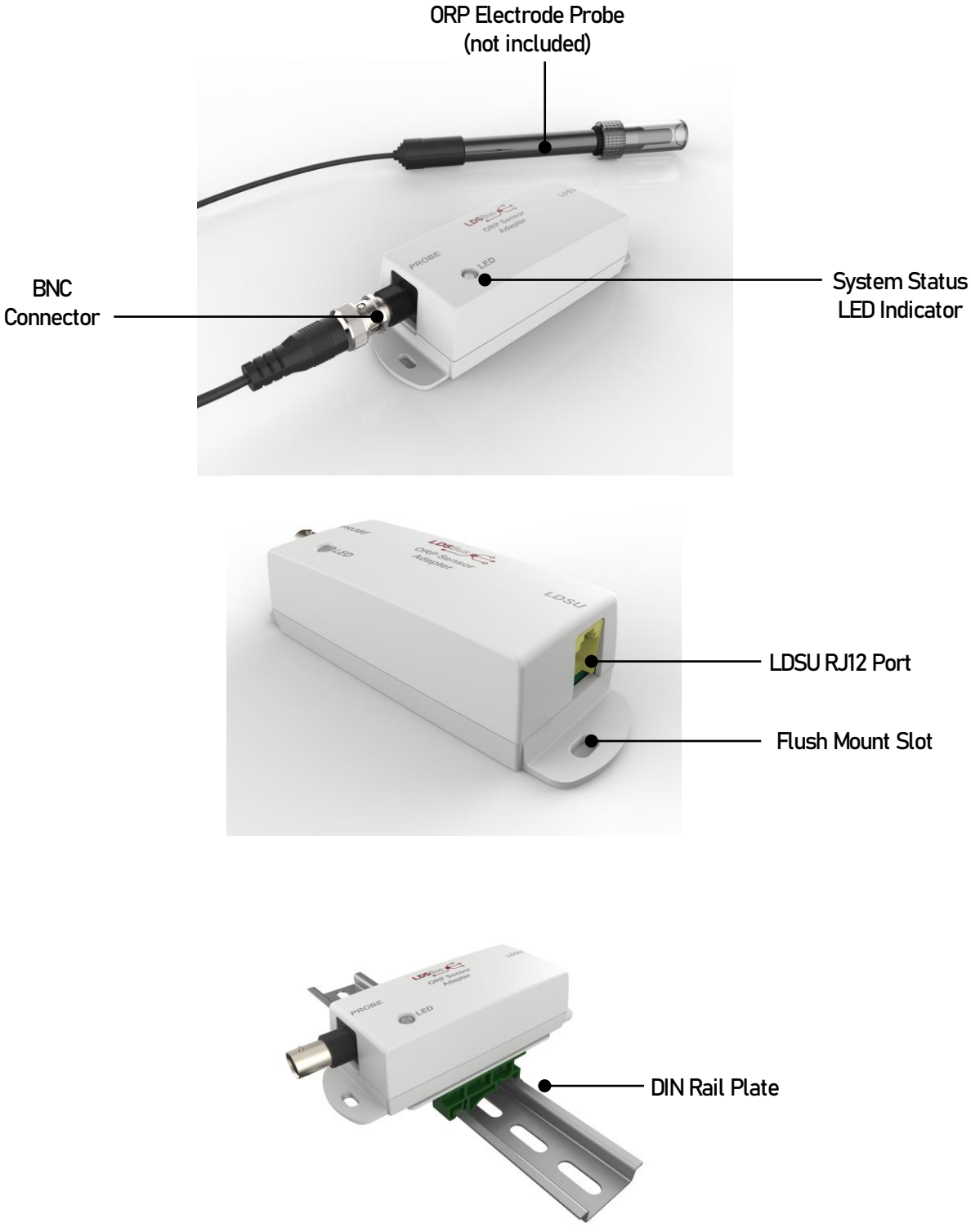

Figure 1 - LDSBus ORP Sensor Adapter Hardware Features

5 Sensor Adapter Configuration and Installation

Please visit https://brtsys.com/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 ORP Sensor (LDSBus Device) to the LDSBus. Please visit https://brtsys.com/resources to view the full device application, setup, and installation guides.

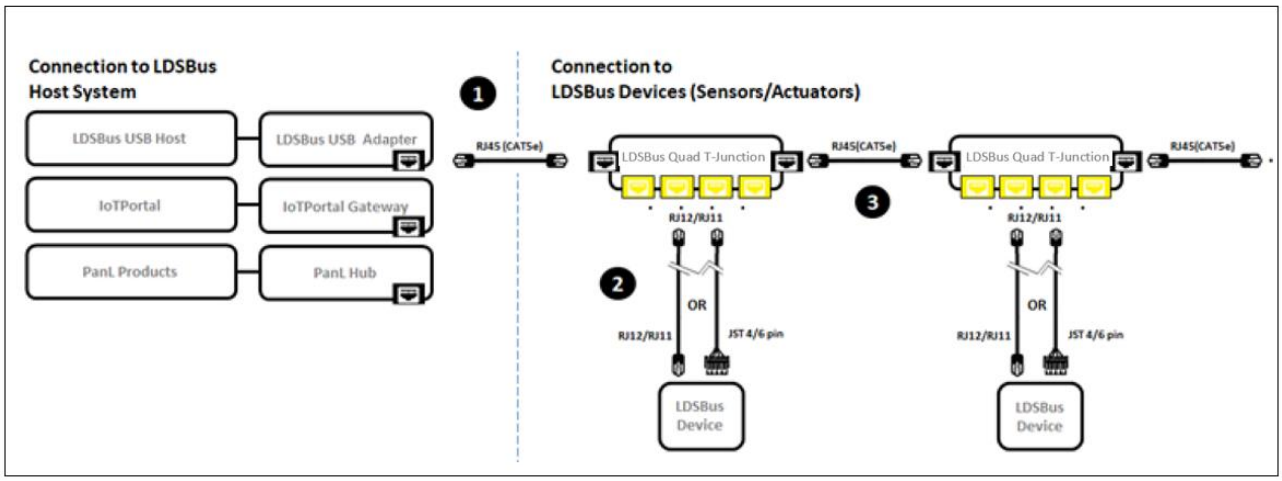

Figure 2 - LDSBus ORP Sensor Adapter to LDSBus - Connection Diagram

Setup Instructions:

1. Connect the first LDSBus Quad T-Junction to any of the LDSBus Host Systems using the RJ45 (CAT5e) cable.

2. Connect the configured LDSBus ORP Sensor Adapter to the LDSBus Quad T-Junction as shown in Figure 2.

3. If there is more than one LDSBus Quad T-Junction, chain them together as shown in Figure 2.

6 Mounting Options

6.1 Flush Mount

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

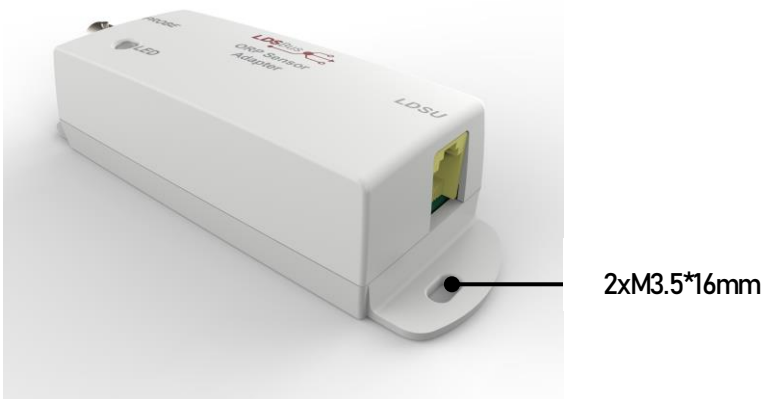

Figure 3 - LDSBus ORP Sensor Adapter Flush Mount

6.2 DIN Rail Mount

The LDSBus ORP Sensor can be mounted on a DIN Rail using the LDSBus DIN Rail Mount set. This set is optional and includes the bracket and mounting screws.

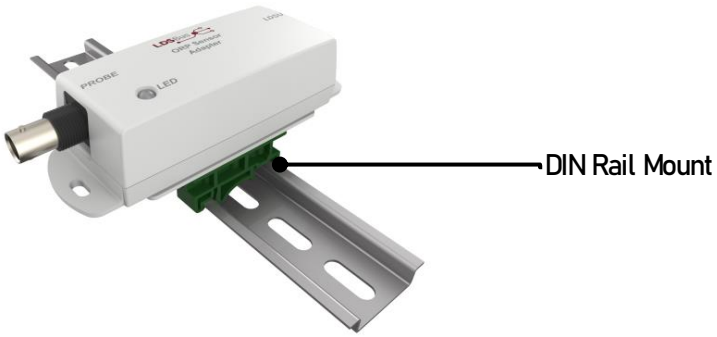

Figure 4 – LDSBus ORP Sensor Adapter DIN Rail Mount

7 System Status LED Indicators

LDSU devices come with a tri-color LED, and LED status colors are mentioned in the table below.

Status display colors

1. RED - Device in error conditions
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 ORP Sensor Adapter – System Status LED Indicator

7 Probe Selection

The following specifications are recommended for selecting a Probe -

Detection Range	:	-2000mV to +2000mV
Connector	:	BNC

For more information on calibration, please refer to
BRTSYS_AN_001_LDSBus Configuration Utility User Guide

For information related to probes recommendation and selection criteria, please refer to LDSBus Probe Specifications.

8 Mechanical Dimension

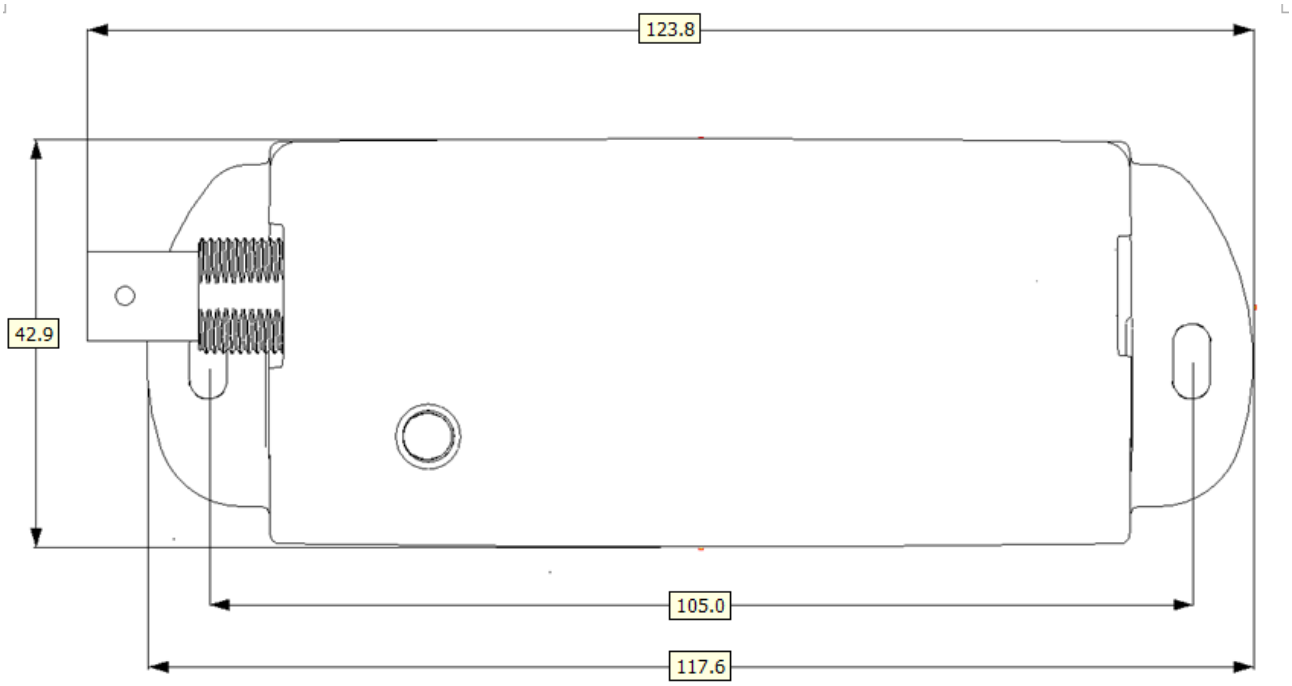

Figure 5 – LDSBus ORP Sensor Adapter Dimension – Top View

Figure 6 – LDSBus ORP Sensor Adapter Dimension – Side View

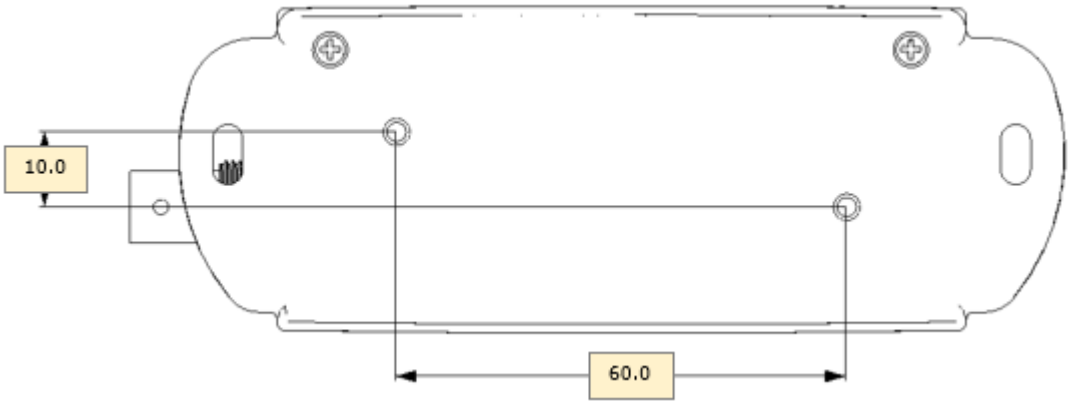

Figure 7 – LDSBus ORP Sensor Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

9 Contact Information

Refer to https://brtsys.com/contact-us/ for contact information.

Appendix A – References

Document References

BRTSYS_AN_001 LDSBus Configuration Utility User Guide

BRTSYS_API_001 LDSBus Python SDK Guide

Sensor_Actuator Quick Start Guide

Acronyms and Abbreviations

Terms	Description
DC	Direct Current
LED	Light Emitting Diode
LDSBus	Long Distance Sensor Bus
ORP	Oxidation Reduction Potential

Appendix B – List of Figures and Tables

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List of Tables

Appendix C – Revision History

Document Title: LDSBus ORP Sensor Adapter Datasheet

Document Reference No.: BRTSYS_000031

Clearance No.: BRTSYS#027

Product Page: https://brtsys.com/ldsbus/

Document Feedback: Send Feedback

Revision	Changes	Date
Version 1.0	Initial Release	26-01-2023
Version 1.1	Updated the following: HVT references to Quad T-Junction; Singapore address	11-09-2023