



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 HVT-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/>)



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2 Part Numbers

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

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3 Product 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

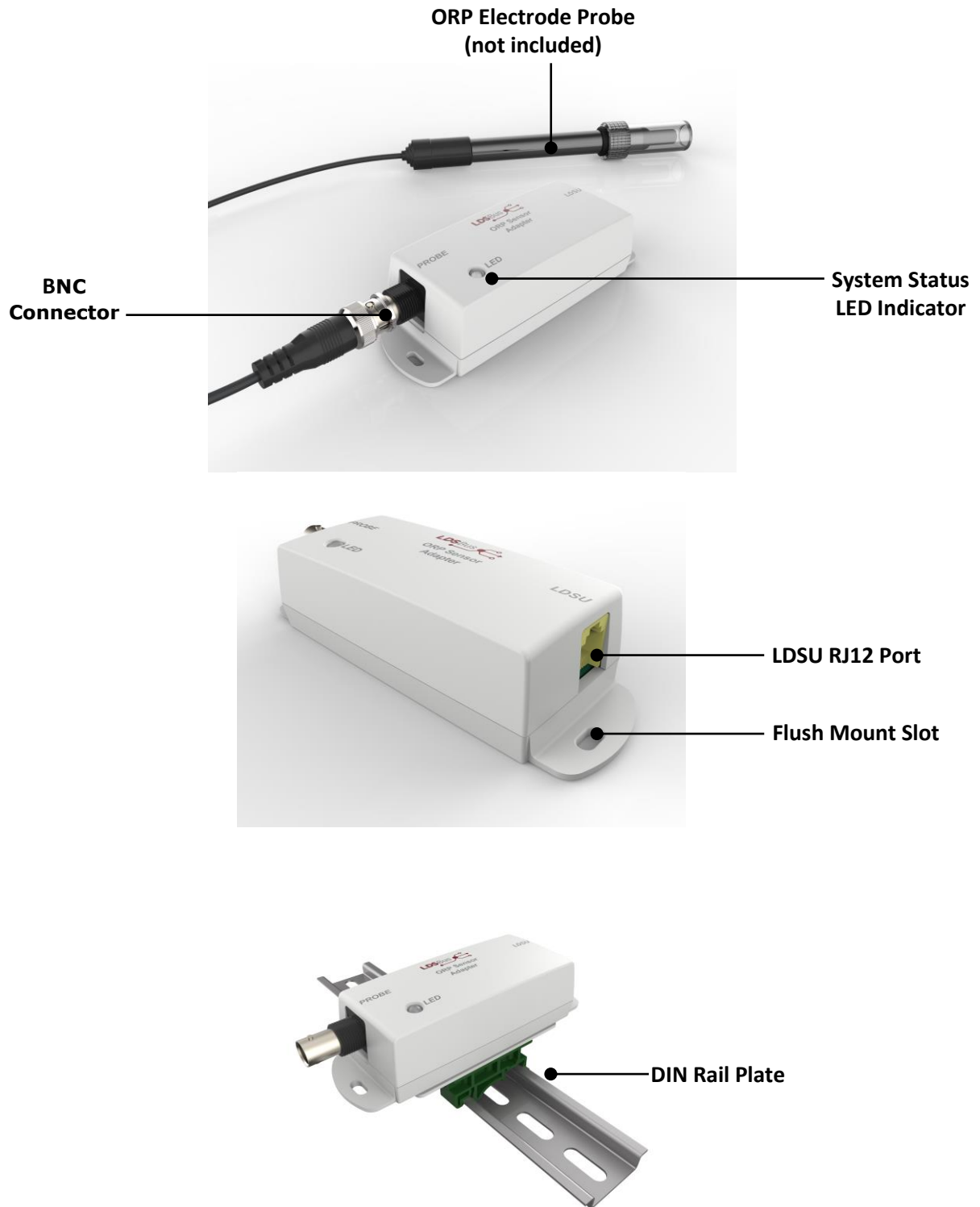


Figure 1 - LDSBus ORP Sensor Adapter Hardware Features

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.

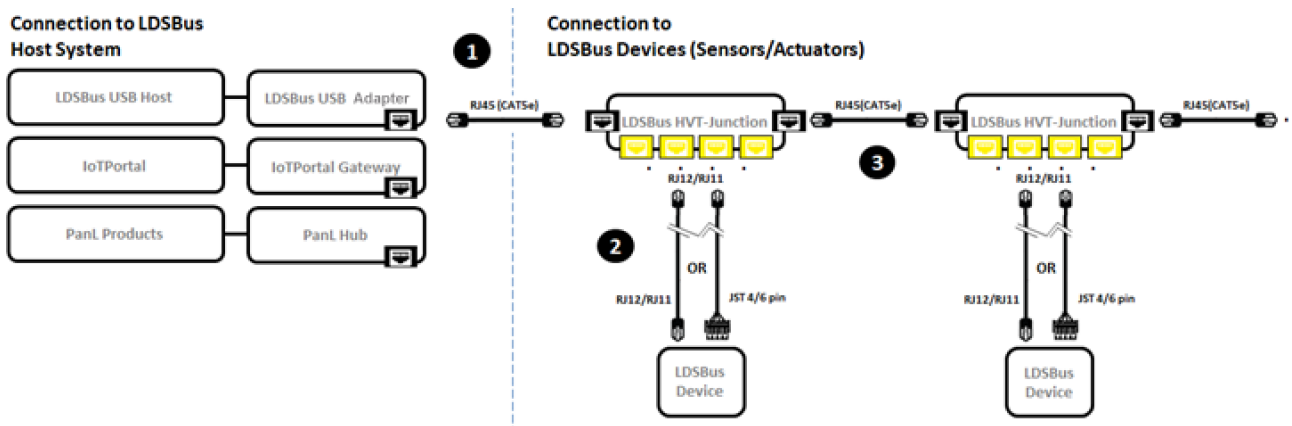


Figure 2 - LDSBus ORP Sensor Adapter to LDSBus - Connection Diagram

Setup Instructions:

1. Connect the first LDSBus HVT-Junction to any of the LDSBus Host Systems using the RJ45 (CAT5e) cable.
2. Connect the configured LDSBus ORP Sensor Adapter 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 ORP Sensor Adapter can be flush mounted directly on a wall or any flat surface using 2 M3.5*16mm (thread) screws.

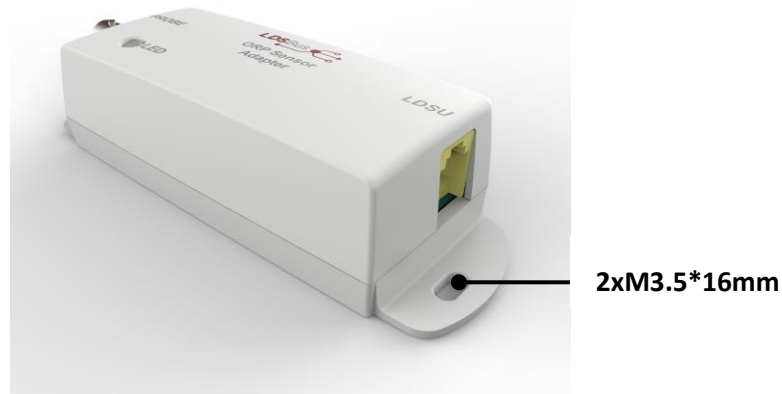


Figure 3 - LDSBus ORP Sensor Adapter Flush Mount

6.2 DIN Rail Mount

The LDSBus ORP Sensor Adapter 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.

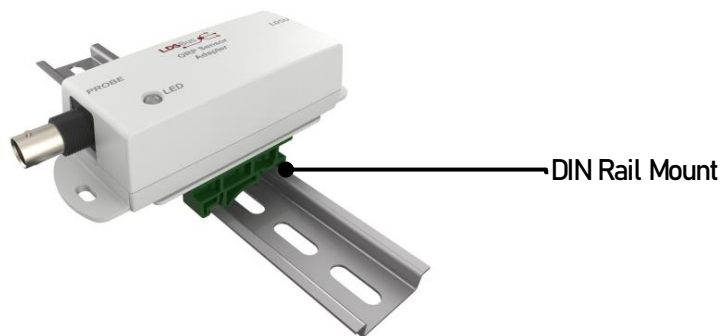


Figure 4 - LDSBus ORP Sensor Adapter DIN Rail Mount

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
[LDSBus Configuration Utility User Guide](#)

For information related to recommended probes, please refer to
<https://brtsys.com/document/application-notes/>.

8 Mechanical Dimension

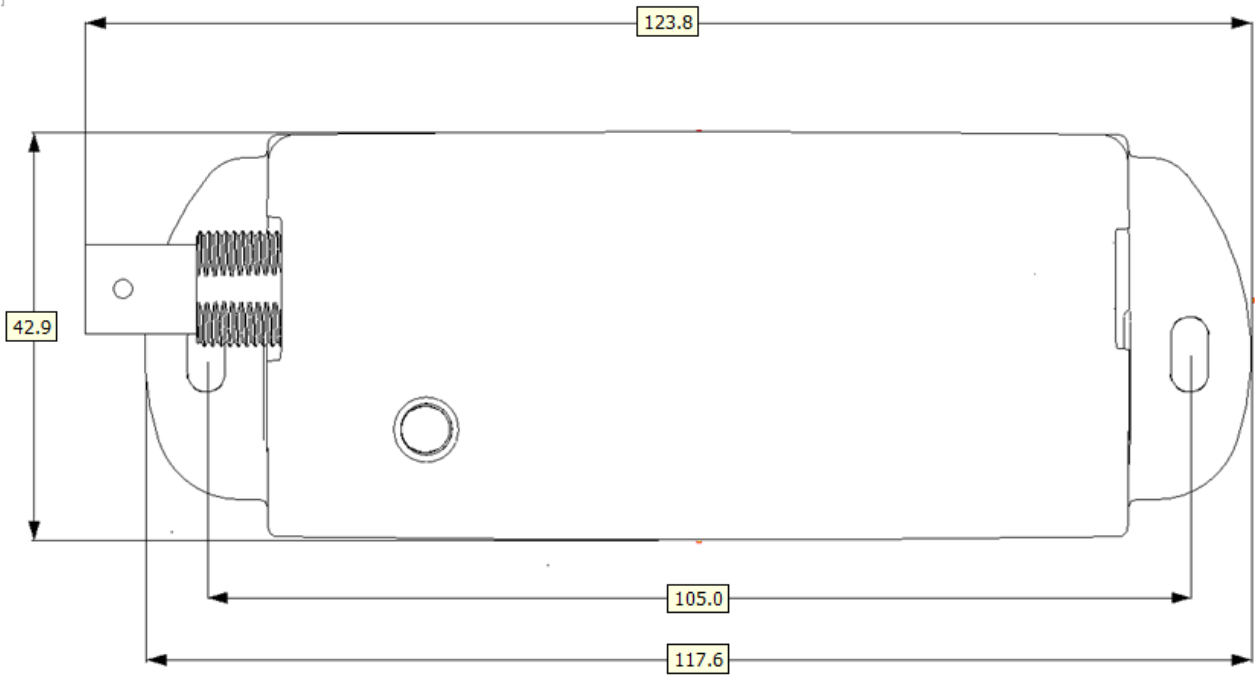


Figure 5 – LDSBus ORP Sensor Adapter Dimension – Top View

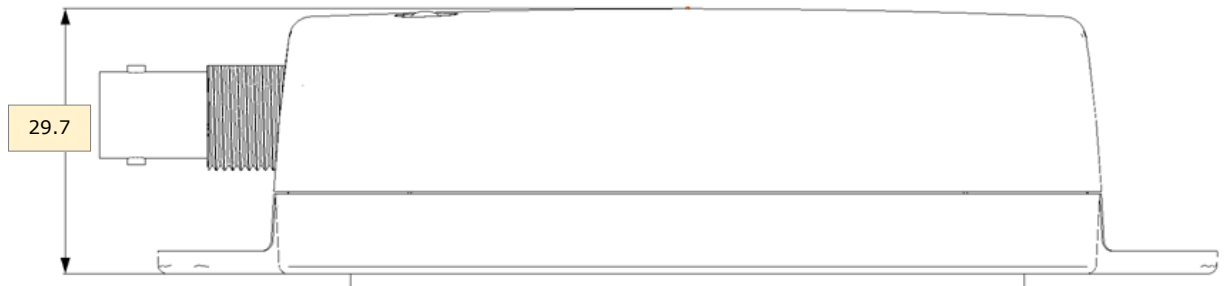


Figure 6 – LDSBus ORP Sensor Adapter Dimension – Side View

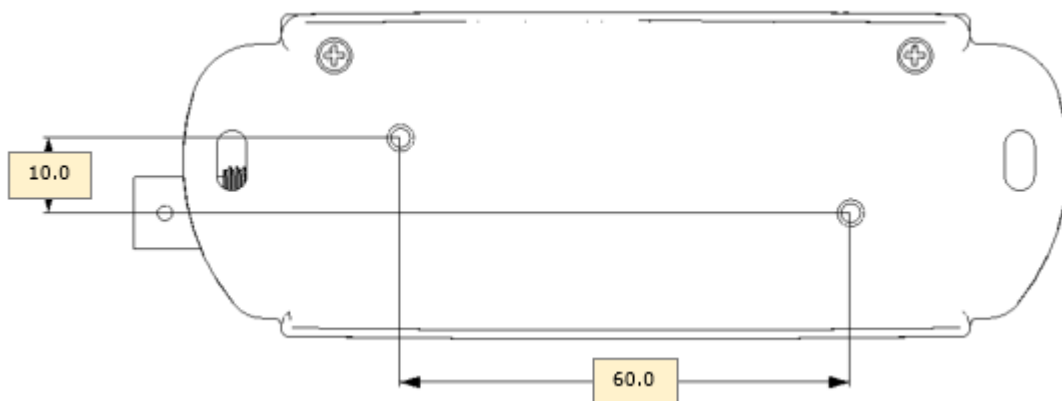


Figure 7 – LDSBus ORP Sensor Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

9 Contact Information

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Appendix A – References

Document References

[LDSBus Configuration Utility User Guide](#)

[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

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Appendix C – Revision History

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Revision	Changes	Date
Version 1.0	Initial Release	26-01-2023