



## **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/>)



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## 2 Part Numbers

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

## **Table of Contents**

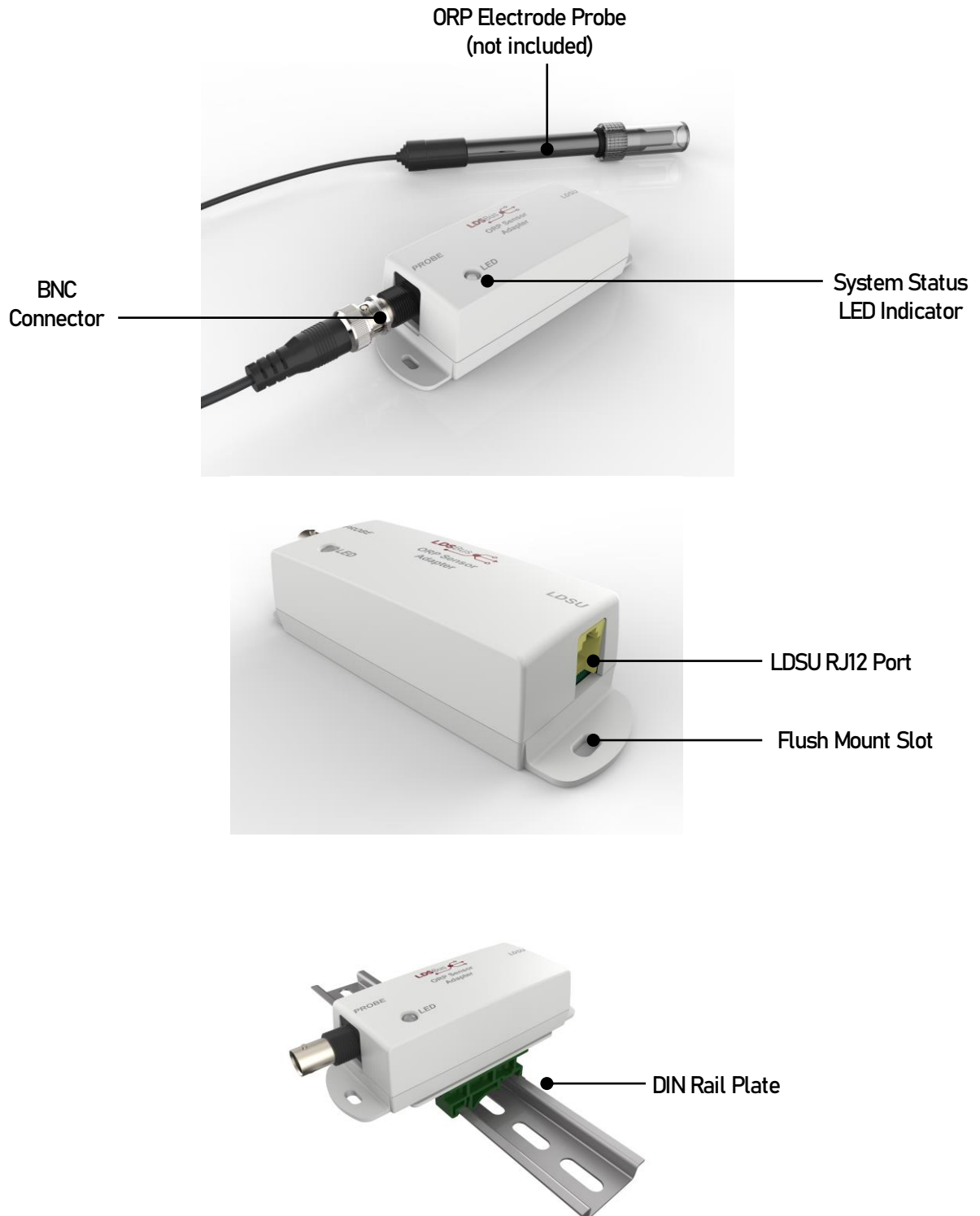
<b>1</b>	<b>Introduction .....</b>	<b>1</b>
<b>2</b>	<b>Part Numbers .....</b>	<b>2</b>
<b>3</b>	<b>Specifications .....</b>	<b>4</b>
<b>4</b>	<b>Hardware Features.....</b>	<b>5</b>
<b>5</b>	<b>Sensor Adapter Configuration and Installation .....</b>	<b>6</b>
<b>5.1</b>	<b>Connection Diagram.....</b>	<b>6</b>
<b>6</b>	<b>Mounting Options .....</b>	<b>7</b>
<b>6.1</b>	<b>Flush Mount .....</b>	<b>7</b>
<b>6.2</b>	<b>DIN Rail Mount.....</b>	<b>7</b>
<b>7</b>	<b>System Status LED Indicators .....</b>	<b>8</b>
<b>7</b>	<b>Probe Selection .....</b>	<b>9</b>
<b>8</b>	<b>Mechanical Dimension.....</b>	<b>10</b>
<b>9</b>	<b>Contact Information.....</b>	<b>11</b>
	<b>Appendix A – References .....</b>	<b>12</b>
	Document References .....	12
	Acronyms and Abbreviations .....	12
	<b>Appendix B – List of Figures and Tables.....</b>	<b>13</b>
	List of Figures .....	13
	List of Tables .....	13
	<b>Appendix C – Revision History .....</b>	<b>14</b>

### 3 Specifications

<b>Features</b>	Interface	BNC (Connect to ORP probe), RS485
	LED Indicator (RGB)	System Status Indicator (Please refer to <a href="#">LED section</a> )
<b>Power</b>	Mounting	Flush Mount DIN Rail Mount
	Input Voltage	5V DC Bus Power
	Typical Power	5V 91mW
<b>Salinity Sensor input module</b>	Max. Power	265mW
	Detection Range	-2000mV ~ +2000mV
	Resolution	1mV
	Response Time	<1Minute
<b>Physical Characteristics</b>	Calibration	1 Point Calibration
	Color	White
	Housing	Polycarbonate
	Dimensions	L117.6mm x W42.9mm x H29.7mm
<b>Environmental Limits</b>	Operating Temperature	0 to 70°C
	Storage Temperature	-20 to 85°C
	Ambient Relative Humidity	5 to 95% (non-condensing)
<b>Package Contents</b>	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



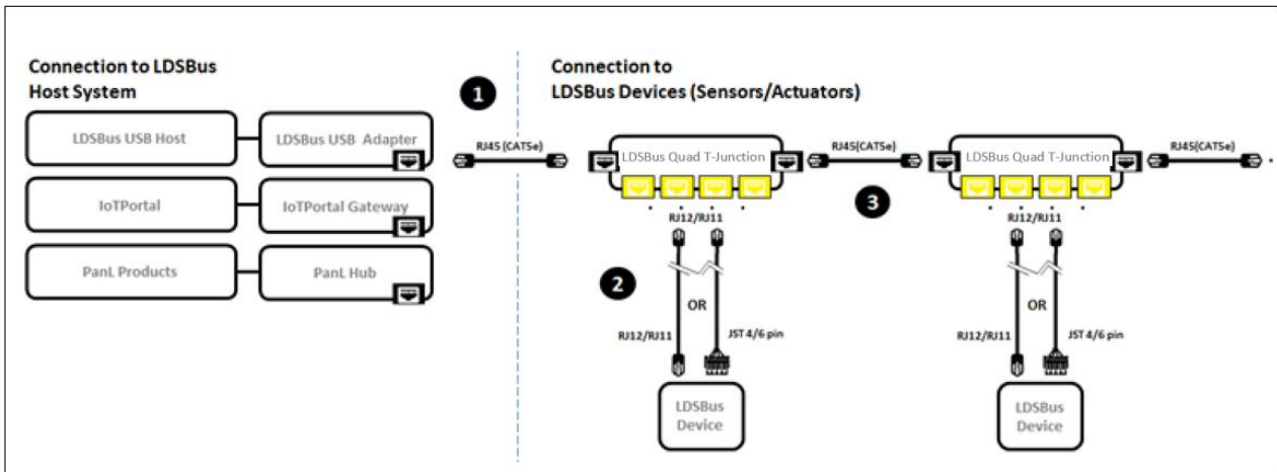
**Figure 1 - LDSBus ORP Sensor Adapter Hardware Features**

## 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**

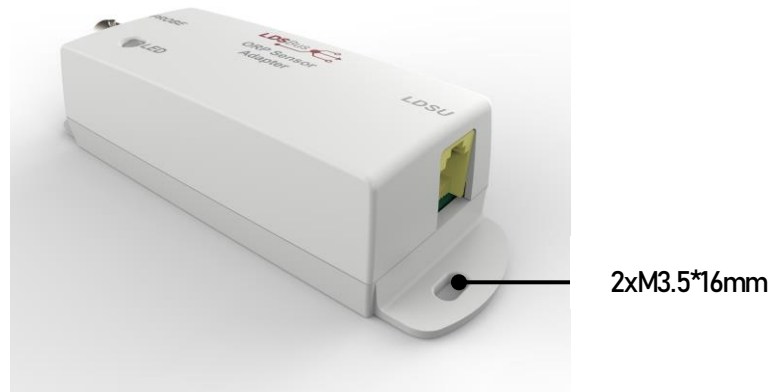
#### **Setup Instructions:**

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

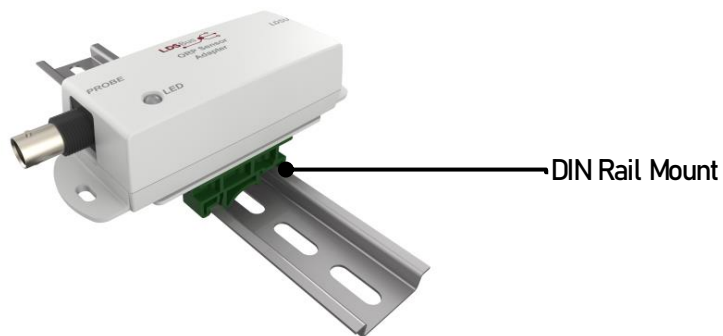
The LDSBus ORP Sensor Adapter can be flush mounted directly on a wall or any flat surface using 2 M3.5\*16mm (thread) screws.



**Figure 3 - LDSBus ORP Sensor Adapter Flush Mount**

### 6.2 DIN Rail Mount

The LDSBus ORP Sensor 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 [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

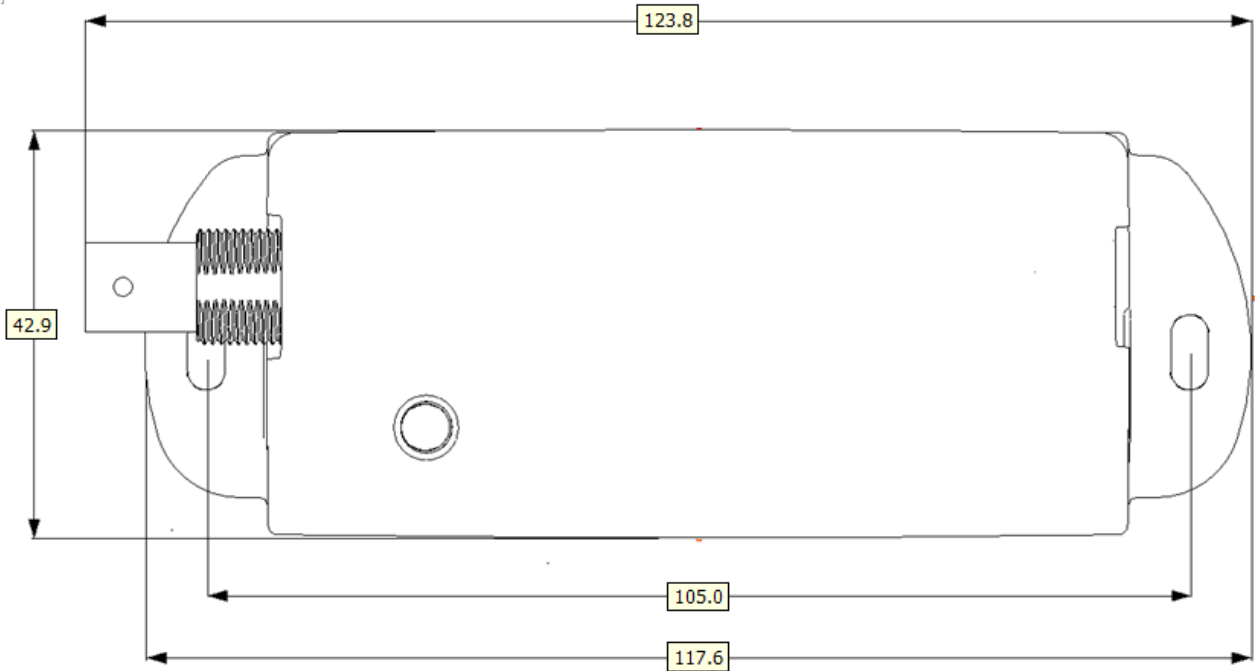


Figure 5 – LDSBus ORP Sensor Adapter Dimension – Top View

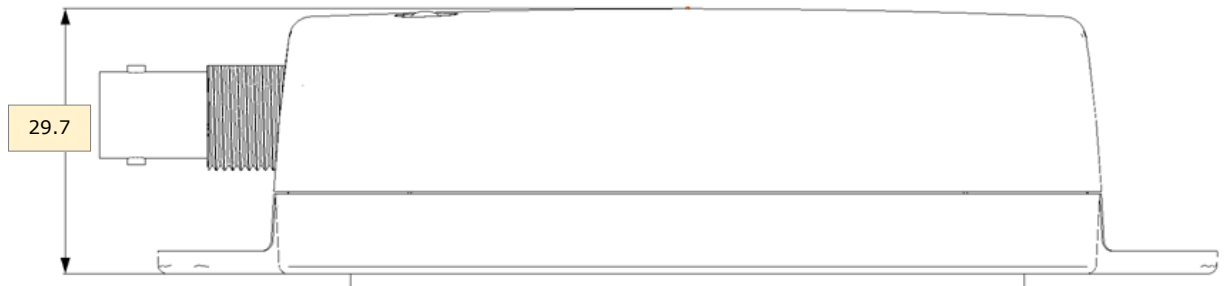


Figure 6 – LDSBus ORP Sensor Adapter Dimension – Side View

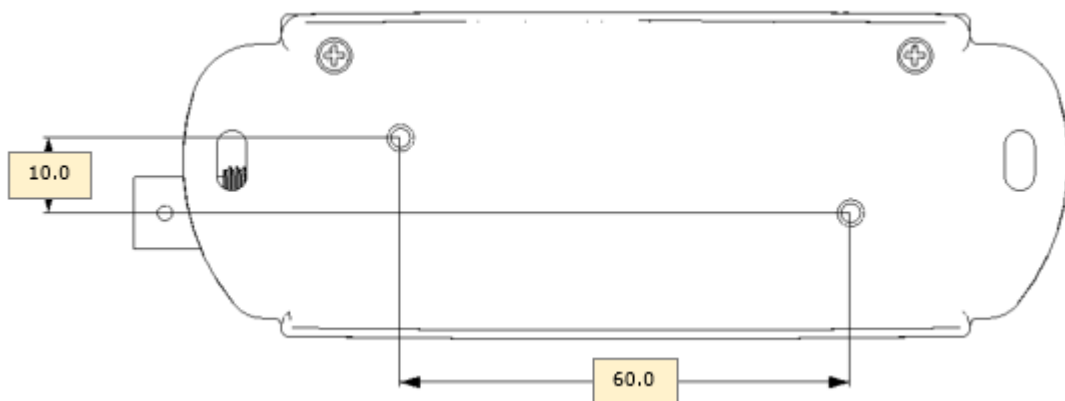


Figure 7 – LDSBus ORP Sensor Adapter Dimension – Bottom View

**Note:** All dimensions are in millimetres.

## 9 Contact Information

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

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## 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**

### **List of Figures**

Figure 1 - LDSBus ORP Sensor Adapter Hardware Features.....	5
Figure 2 - LDSBus ORP Sensor Adapter to LDSBus - Connection Diagram .....	6
Figure 3 - LDSBus ORP Sensor Adapter Flush Mount .....	7
Figure 4 - LDSBus ORP Sensor Adapter DIN Rail Mount .....	7
Figure 5 - LDSBus ORP Sensor Adapter Dimension – Top View .....	10
Figure 6 - LDSBus ORP Sensor Adapter Dimension – Side View.....	10
Figure 7 - LDSBus ORP Sensor Adapter Dimension – Bottom View .....	10

### **List of Tables**

Table 1 - LDSBus ORP Sensor Adapter Specifications.....	4
Table 2 - LDSBus ORP Sensor Adapter – System Status LED Indicator.....	8

## Appendix C – Revision History

Document Title: LDSBus ORP Sensor Adapter Datasheet  
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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