LDSBus pH Sensor Adapter Datasheet

1 Introduction

The LDSBus pH Sensor Adapter is designed to work with pH probes to form a complete pH sensor. The adapter consists of a built-in BNC connector used to attach pH probes. The adapter and probe are calibrated using a 2-point calibration algorithm and supports measurement of pH ranging from 0 to 14 pH with a 0.01 pH resolution. The adapter and probe combination is suitable for use in applications such as nutrient tanks, water treatment plants, sewage treatment plants, swimming pools. Real time monitoring, alert notifications and control automation can be achieved.

1.1 Features

- pH Sensor Adapter to integrate with any pH probe with a BNC connecter

- Measures pH range of 0 to 14pH with linearized output and 0.01 pH resolution

- 2 Point calibration guided step-by-step

- BRTSYS LDSBus protocol. Wired data/power transmission through LDSBus HVT-Junction

- High report rate of 1 report every 5 seconds

- Low power consumption 5V-108mW

- Operating temperature range : 0°C to +70°C

- Flush Mount and DIN Rail Mount options

- Supported platform application: BRTSYS IoTPortal and LDSBus Python SDK

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

2 Part Numbers

Part#	Naming
LS040101A	LDSBus pH Sensor Adapter
LA120101A	LDSBus DIN Rail Mount Set

Table of Contents

3 Product Specifications

Features	Interface	BNC (Connect to pH 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 108mW
	Max. Power	218mW
pH Sensor input module	Range	0 – 14pH
	Resolution	0.01pH
	Response Time	<1Minute
	Calibration	2 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 pH Sensor Adapter
	Installation (Optional)	1x DIN Rail Bracket set
	Wire Assembly	1X 5m RJ11 Cable

Table 1 - LDSBus pH Sensor Adapter Specifications
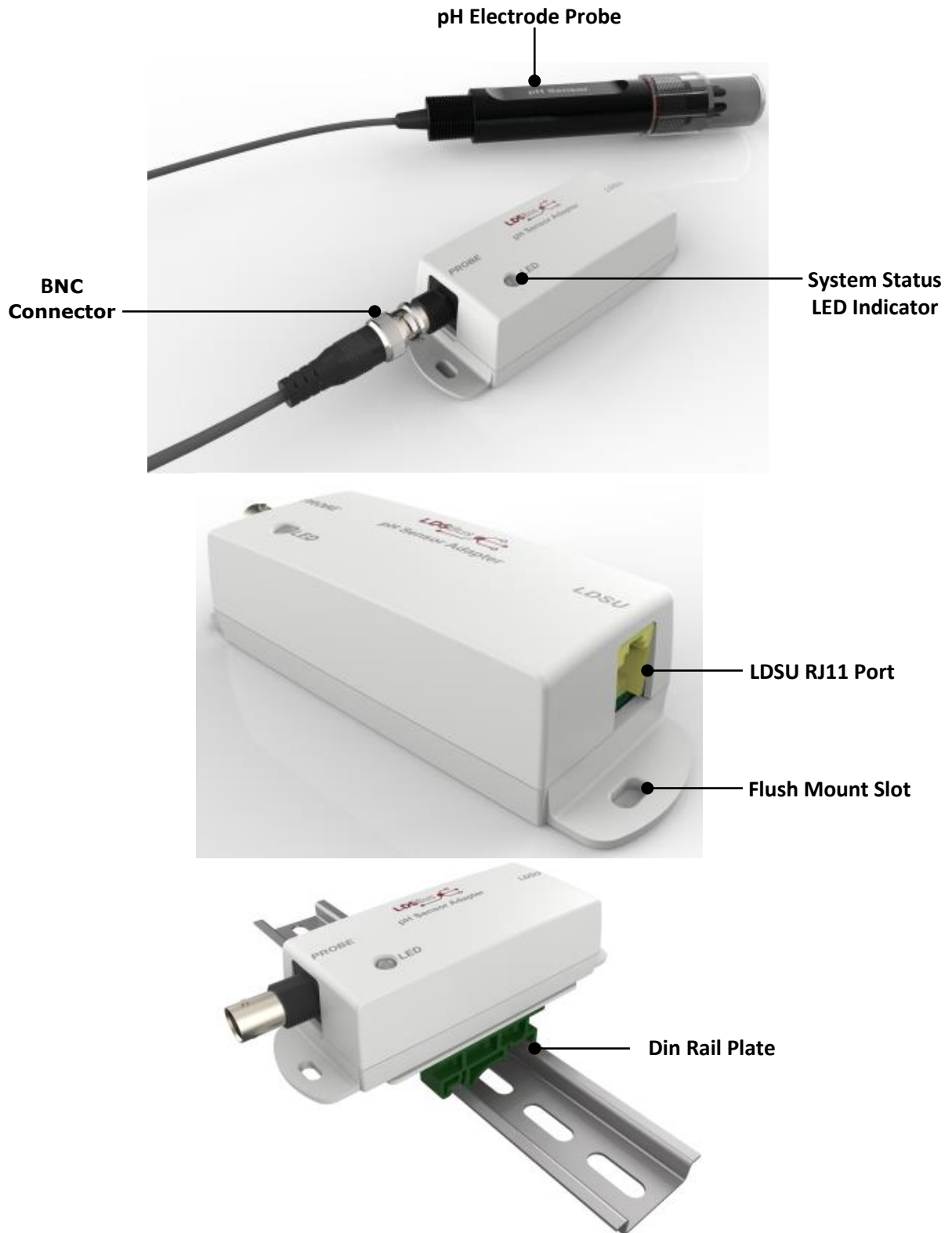
4 Hardware Features

Figure 1 - LDSBus pH Sensor Adapter Hardware Features

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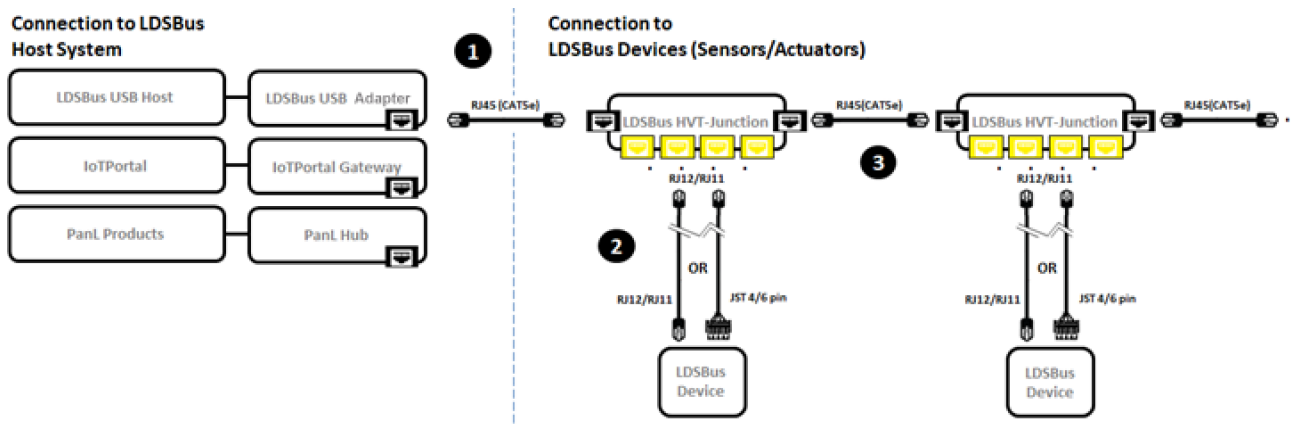

Figure 2 - LDSBus pH Sensor Adapter to LDSBus - Connection Diagram

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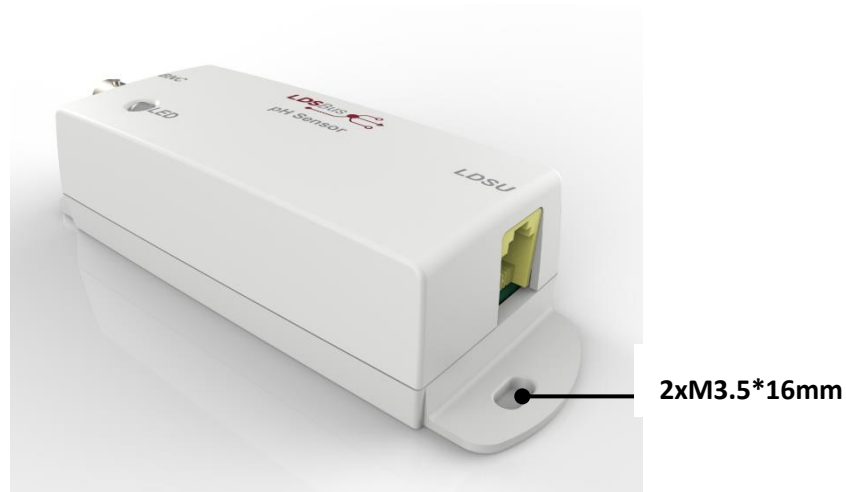

2xM3.5*16mm

Figure 3 - LDSBus pH Sensor Adapter Flush Mount

6.2 DIN Rail Mount

The LDSBus pH 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.

DIN Rail Mount

Figure 4 – LDSBus pH 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 pH Sensor Adapter – System Status LED Indicator

7 Probe Selection

The following specifications are recommended for selecting a Probe -

pH Range   :   0~14pH

Connector Interface   :   BNC

Zero Point   :   Max. 7±0.5pH

Theoretical slope %   :   ≥90% and ≤105%

Internal Resistance   :   ≤250MΩ

For more information on calibration, please refer to
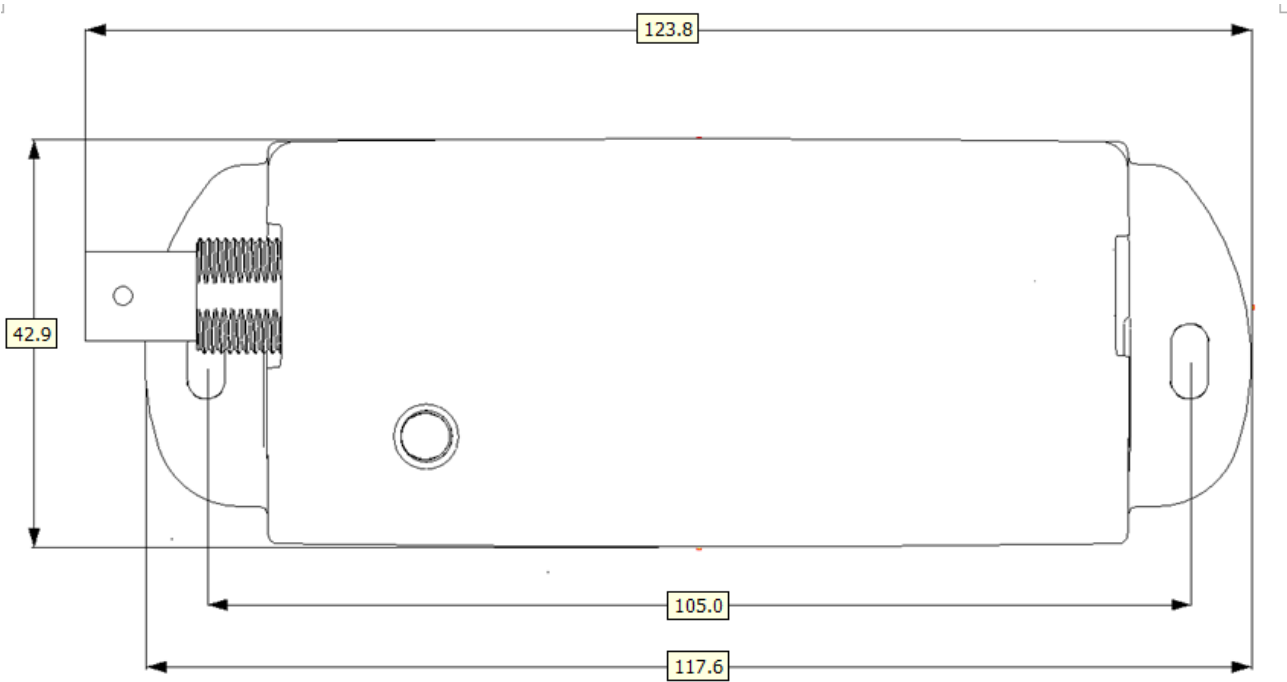BRTSYS_AN_001_LDSBus_Configuration_Utility_User_Guide

8 Mechanical Dimension

Figure 5 – LDSBus pH Sensor Adapter Dimension – Top View
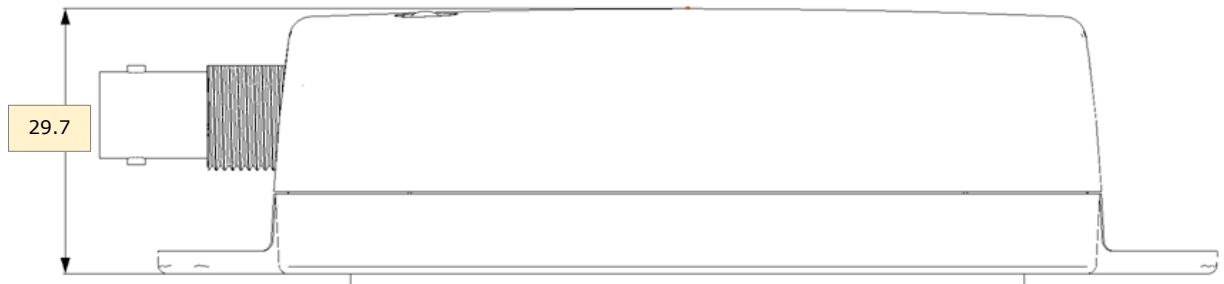
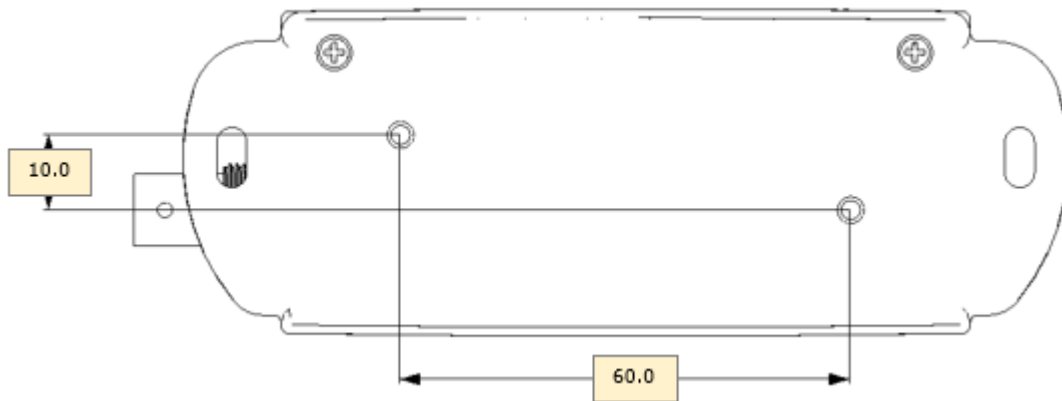**Figure 6 – LDSBus pH Sensor Adapter Dimension – Side View**

Figure 7 – LDSBus pH Sensor Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

9 Contact Information

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Distributor and Sales Representatives

Please visit the Sales Network page of the BRT Systems Web Site for the contact details of our distributor(s) and sales representative(s) in your country.

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

Appendix B – List of Figures and Tables

List of Figures

List of Tables

Appendix C – Revision History

Document Title: LDSBus pH Sensor Adapter Datasheet

Document Reference No.:   BRTSYS_000004

Clearance No.:   BRTSYS#012

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

Document Feedback: Send Feedback

Revision	Changes	Date
Version 1.0	Initial Release	18-11-2021
Version 1.1	Updated release under BRT Systems	15-09-2022