



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 are 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 connector
- Measures pH range of 0 to 14pH with linearized output and 0.01 pH resolution
- 2 Point calibration guided step-by-step
- BRTSys's 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's IoTPortal and LDSBus Python SDK

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



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2 Part Numbers

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

Table of Contents

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

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

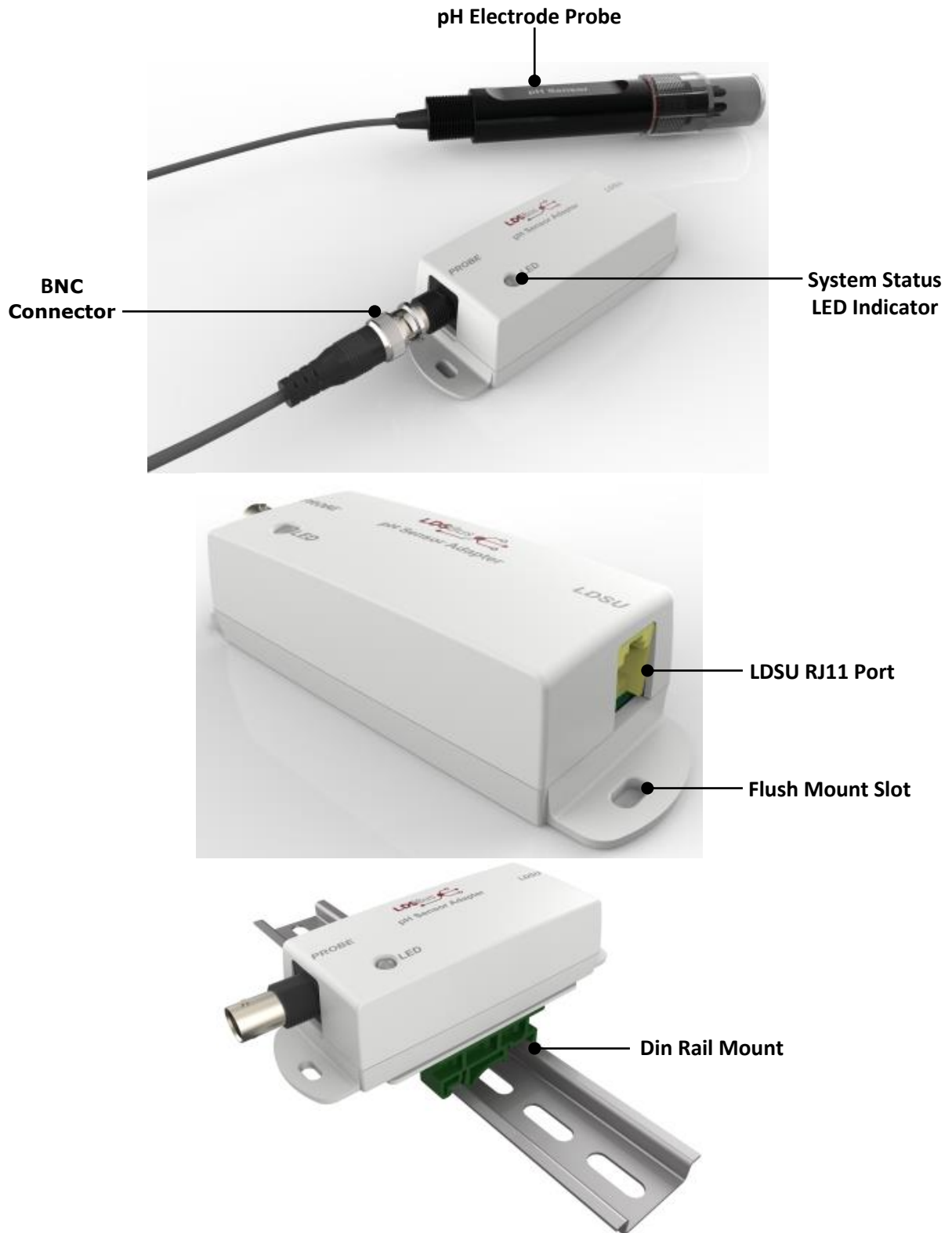


Figure 1 - LDSBus pH Sensor Adapter Hardware Features

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.

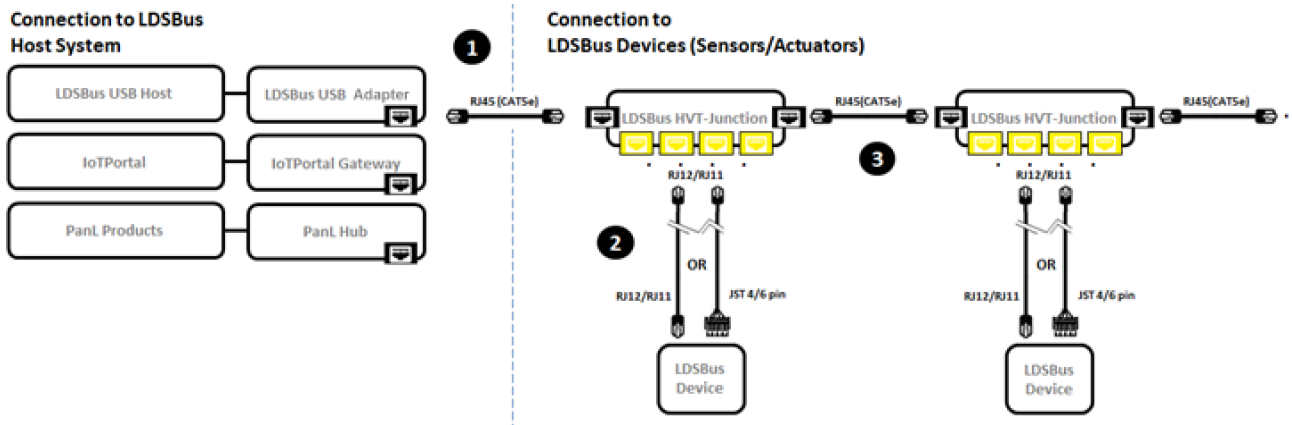


Figure 2 - LDSBus pH Sensor Adapter to LDSBus - Connection Diagram

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.

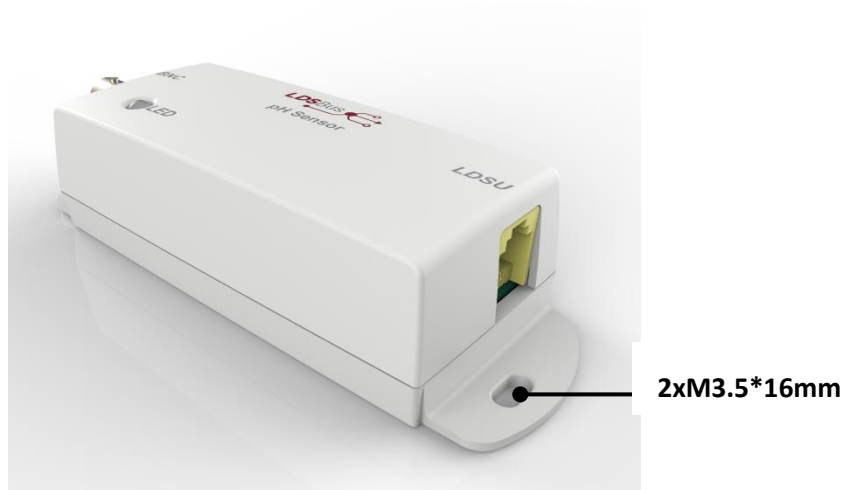


Figure 3 - LDSBus pH Sensor Adapter Flush Mount

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.



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 ± 0.5 pH
Theoretical slope %	:	$\geq 90\%$ and $\leq 105\%$
Internal Resistance	:	$\leq 250M\Omega$

For more information on calibration, please refer to [BRTSYS AN 001 LDSBus Configuration Utility Guide](#)

8 Mechanical Dimension

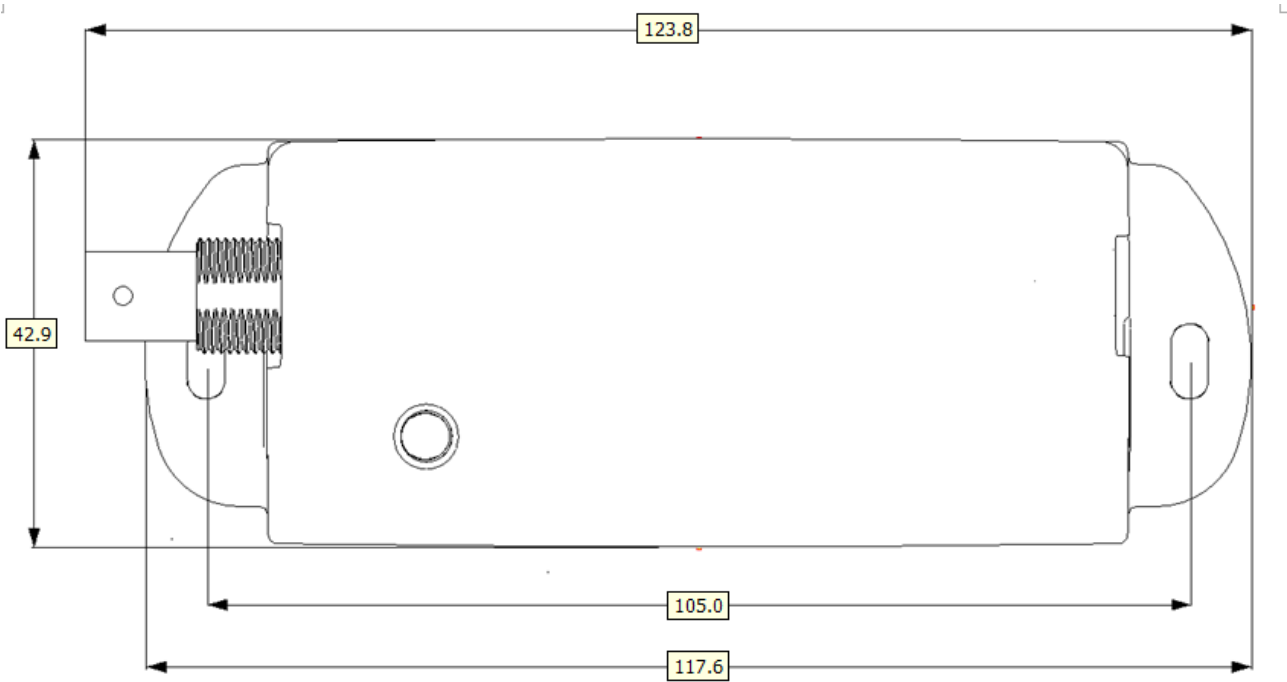


Figure 5 – LDSBus pH Sensor Adapter Dimension – Top View

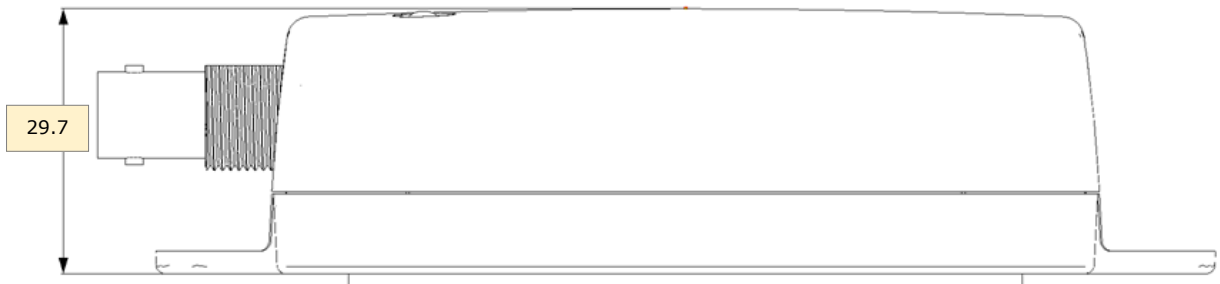


Figure 6 – LDSBus pH Sensor Adapter Dimension – Side View

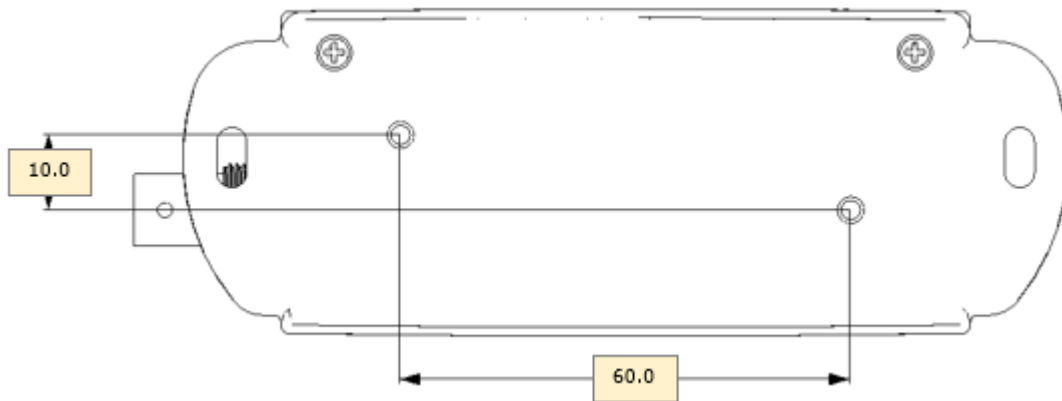


Figure 7 – LDSBus pH Sensor Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

9 Contact Information

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Appendix A – References

Document References

[BRTSYS_AN_001 LDSBus Configuration Utility 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

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

List of Tables

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

Appendix C – Revision History

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Revision	Changes	Date
Version 1.0	Initial Release	18-11-2021
Version 1.1	Updated release under BRT Systems	15-09-2022
Version 1.2	Corrected BRTSYS to BRTSys	24-03-2023