



## 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 connector
- Measures pH range of 0 to 14pH with linearized output and 0.01 pH resolution
- 2 Point calibration guided step-by-step
- Bridgetek 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: Bridgetek IoTPortal and LDSBus Python SDK

(Visit <http://bit.ly/ldsbus-resources>)



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## 2 Part Numbers

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

## **Table of Contents**

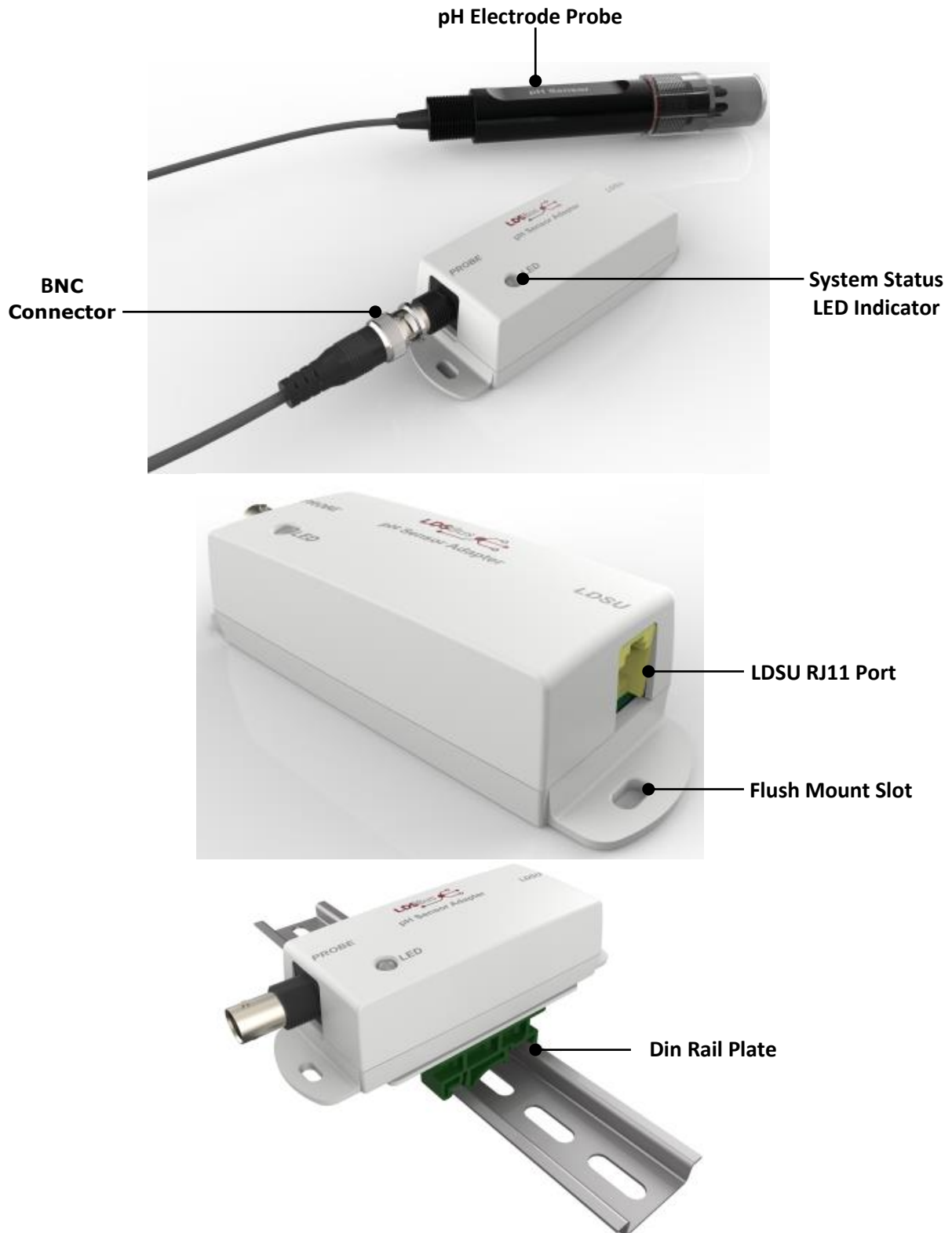
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### 3 Product Specifications

<b>Features</b>	Interface	BNC (Connect to pH probe), RS485
	LED Indicator (RGB)	System Status Indicator (Please refer to <a href="#">LED section</a> )
	Mounting	Flush Mount
DIN Rail Mount		
<b>Power</b>	Input Voltage	5V DC Bus Power
	Typical Power	5V 108mW
	Max. Power	218mW
<b>pH Sensor input module</b>	Range	0 – 14pH
	Resolution	0.01pH
	Response Time	<1Minute
	Calibration	2 Point Calibration
<b>Physical Characteristics</b>	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 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



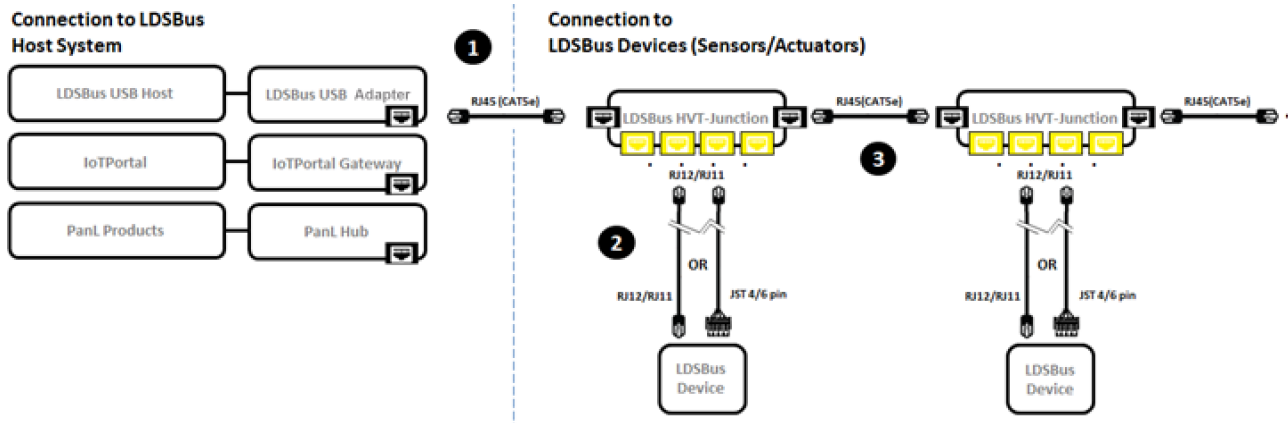
**Figure 1 - LDSBus pH Sensor Adapter Hardware Features**

## 5 Sensor Configuration and Installation

Please visit <http://bit.ly/ldsbus-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 <http://bit.ly/ldsbus-resources> to view the full device application, setup and installation guides.



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

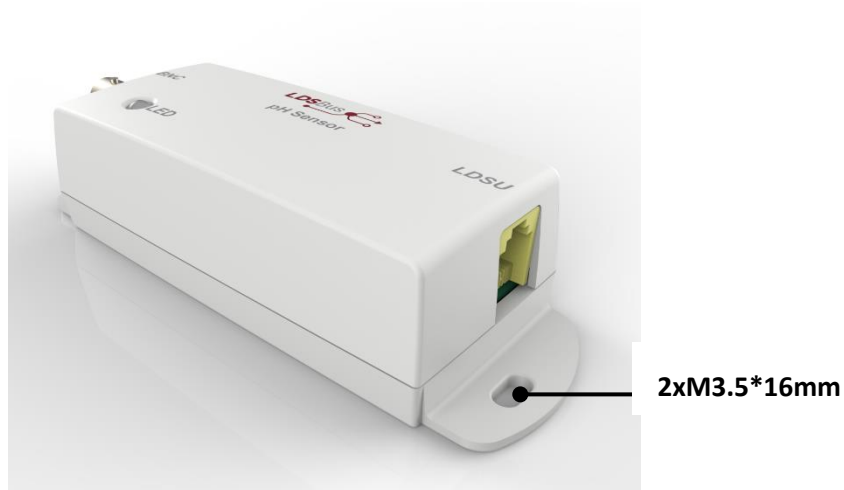
#### **Setup Instructions:**

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. $7 \pm 0.5$ pH
Theoretical slope %	:	$\geq 90\%$ and $\leq 105\%$
Internal Resistance	:	$\leq 250M\Omega$

For more information on calibration, please refer to [BRT\\_AN\\_075 LDSBus Configuration Utility User Guide](#)

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

## 8 Mechanical Dimension

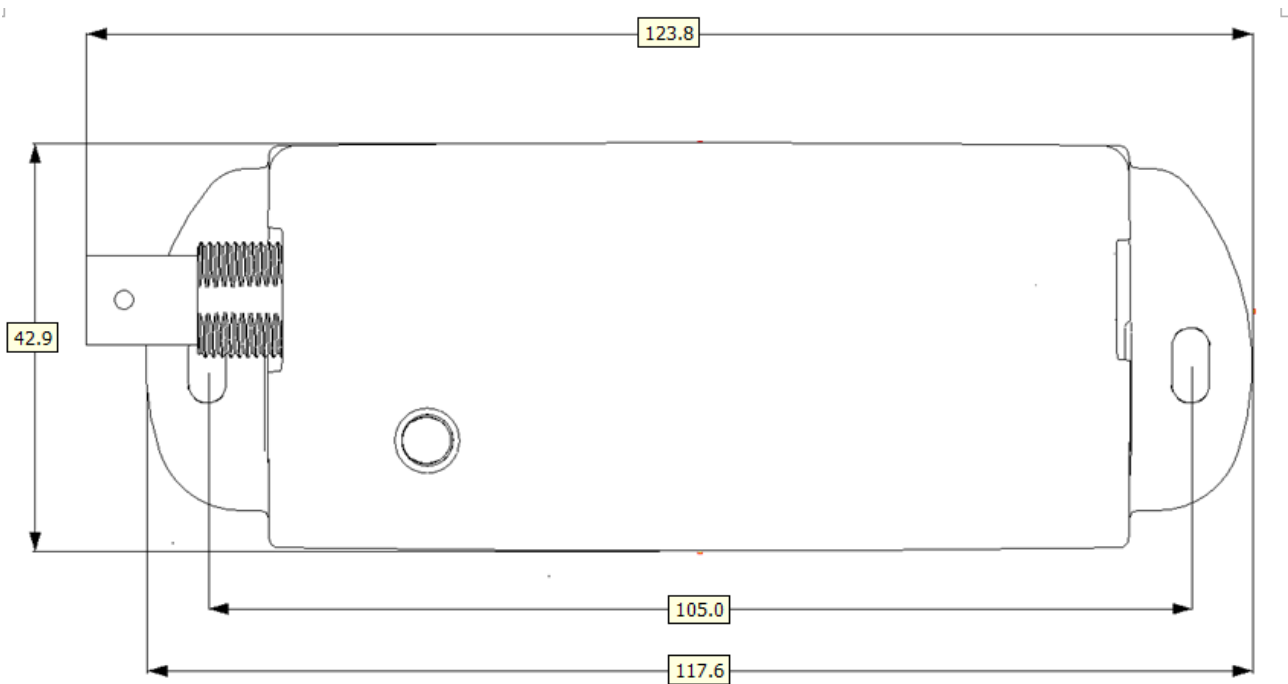


Figure 5 – LDSBus pH Sensor Adapter Dimension – Top View

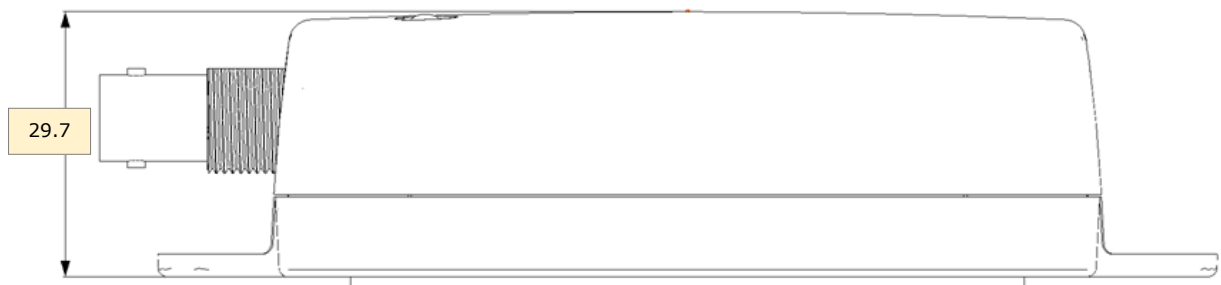


Figure 6 – LDSBus pH Sensor Adapter Dimension – Side View

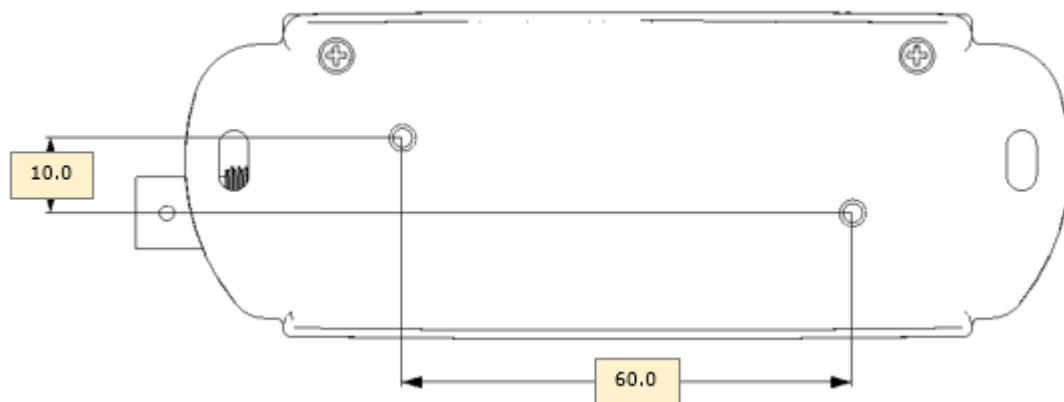


Figure 7 – LDSBus pH Sensor Adapter Dimension – Bottom View

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

## 9 Contact Information

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## Appendix A – References

### Document References

[BRT AN 075 LDSBus Configuration Utility User Guide](#)

[BRT API 002 LDSBus Python SDK Guide](#)

[Sensor Actuator Quick Start Guide](#)

### Acronyms and Abbreviations

Terms	Description
DC	Direct Current
LED	Light Emitting Diode

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## Appendix C – Revision History

Document Title: LDSBus pH Sensor Adapter Datasheet  
Document Reference No.: BRT\_000358  
Clearance No.: BRT#182  
Product Page: <https://brtchip.com/product/>  
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Revision	Changes	Date
Version 1.0	Initial Release	18-11-2021

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