



# LDSBus EC Sensor Adapter Datasheet



## 1 Introduction

The LDSBus **E**lectrical **C**onductivity (EC) Sensor Adapter is designed to work with EC probes to form a complete EC sensor. The adapter consists of built-in BNC connector used to attach EC probes.

The adapter and probe are calibrated using a two-point calibration procedure and the resulting sensor supports EC measurements ranging from 0.001mS/cm to 150mS/cm with a 0.001 mS/cm resolution.

The sensor is suitable for use in measuring salts, nutrients, and impurities in water in hydroponics, aquaponics and aquaculture and freshwater systems. Monitoring, alerting, and controlling the system can be done in real-time.

## 1.1 Features

- Supports Probe Cell Constant  $K=0.1$ ,  $K=1.0$  and  $K=10$  probes with BNC connectors
- Measures EC range of 0.001mS/cm to 150mS/cm with linearized output and 0.001mS/cm resolution
- 2 Point step-by-step guided calibration
- BRTSys's LDSBus protocol. Wired data/power transmission through LDSBus Quad T-Junction
- High report rate of 1 report every 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> for more information.



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## 2 Part Numbers

Part#	Description
LS050101A	LDSBus EC Sensor Adapter
LA120101A	LDSBus DIN Rail Mount Set

## **Table of Contents**

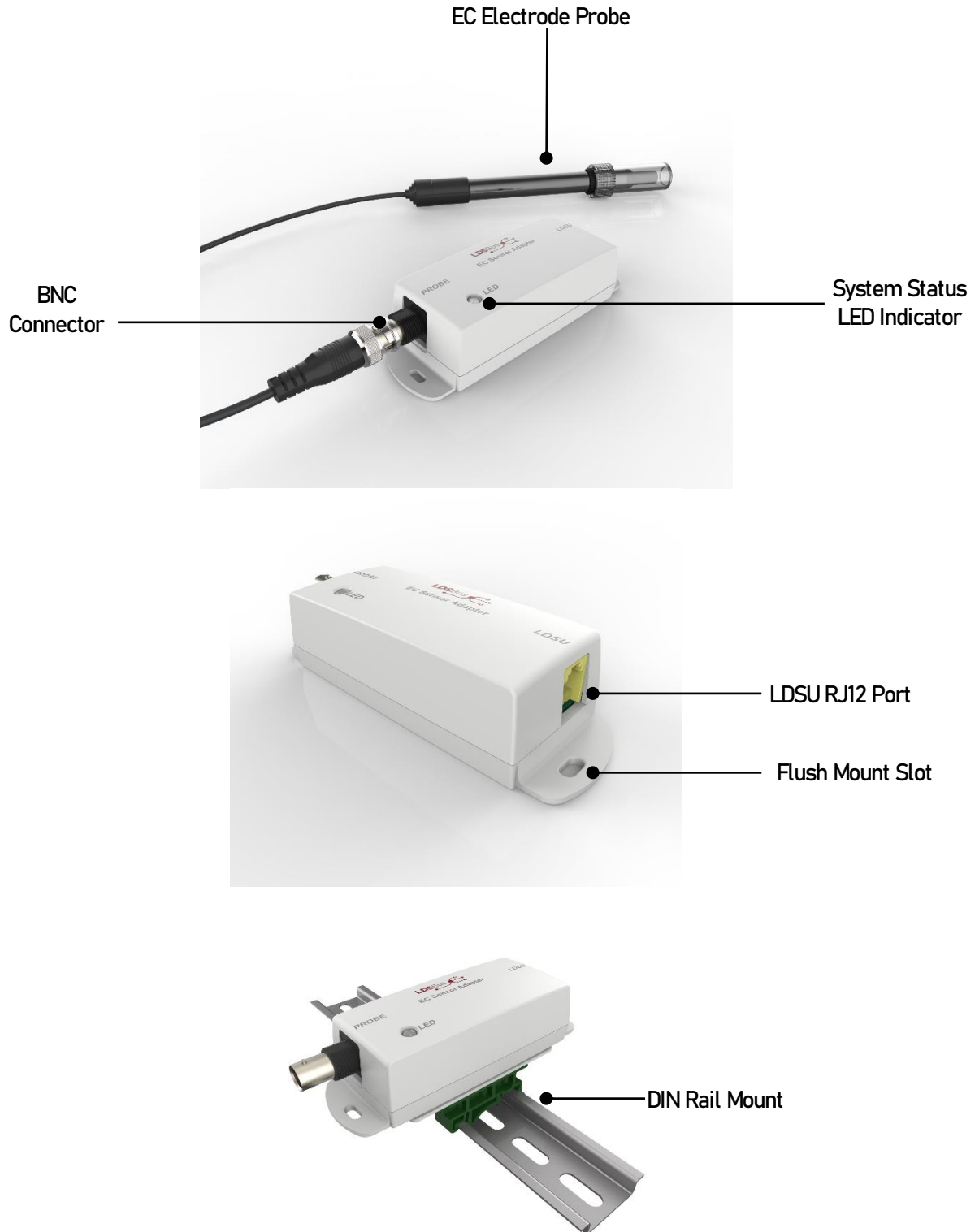
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### 3 Specifications

<b>Features</b>	Interface	BNC – EC probe connector RS485 – LDSBus communication
	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>EC Sensor input module</b>	Max. Power	266mW
	Detection Range	0.001 – 150mS/cm
	Resolution	0.001mS/cm
	Response Time	<1Minute
<b>Physical Characteristics</b>	Calibration	2 Point Calibration
	Color	White
	Housing	Polycarbonate
<b>Environmental Limits</b>	Dimensions	L117.6mm x W42.9mm x H29.7mm
	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 EC Sensor Adapter
	Installation (Optional)	1x DIN Rail Bracket set
	Wire Assembly	1X 5m RJ11 Cable

**Table 1 - LDSBus EC Sensor Adapter Specifications**

## 4 Hardware Features



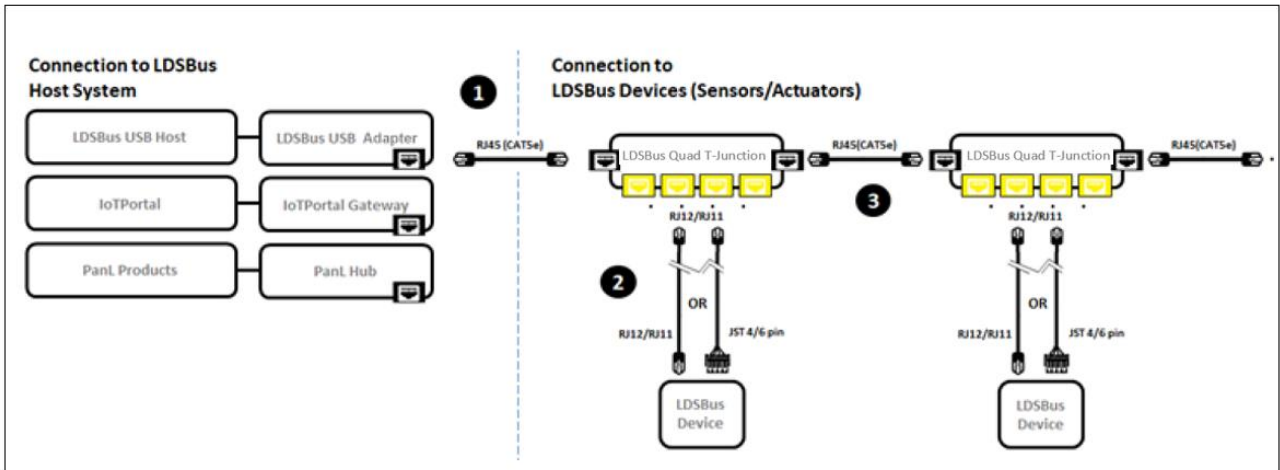
**Figure 1 - LDSBus EC Sensor Adapter Hardware Features**

## 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 EC 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 EC Sensor Adapter to LDSBus - Connection Diagram**

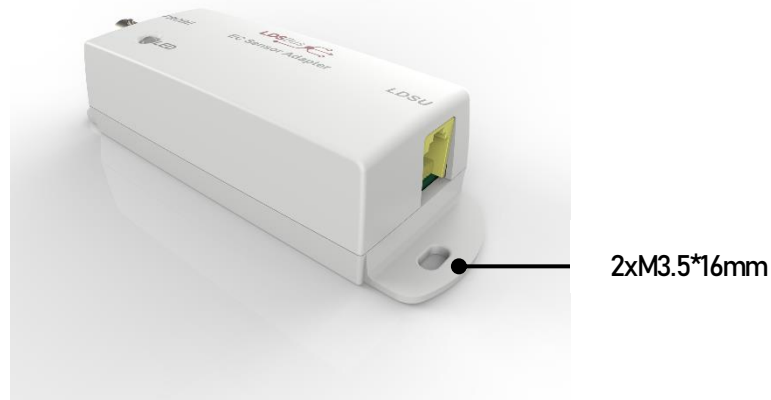
#### **Setup Instructions:**

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 EC Sensor 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

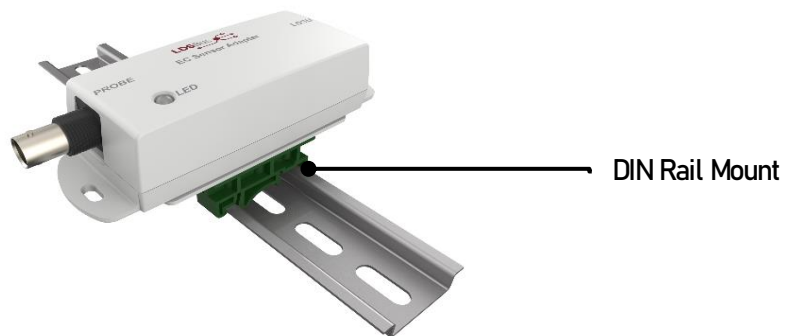
The LDSBus EC Sensor Adapter can be flush mounted directly on a wall or any flat surface using 2 M3.5\*16mm (thread) screws.



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

### 6.2 DIN Rail Mount

The DIN Rail Mount can be fixed using a DIN Rail bracket that has two mounting holes. The package includes mounting screws and a backplate. (The DIN Rail Bracket is not included in the package).












**Figure 4 – LDSBus EC Sensor Adapter DIN Rail Mount**

## 7 System Status LED Indicators

LDSU devices come with an RGB LED (4 status colors) as mentioned in the table below.

Status display colors

1. RED - Device in error condition
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 EC Sensor Adapter – System Status LED Indicator**



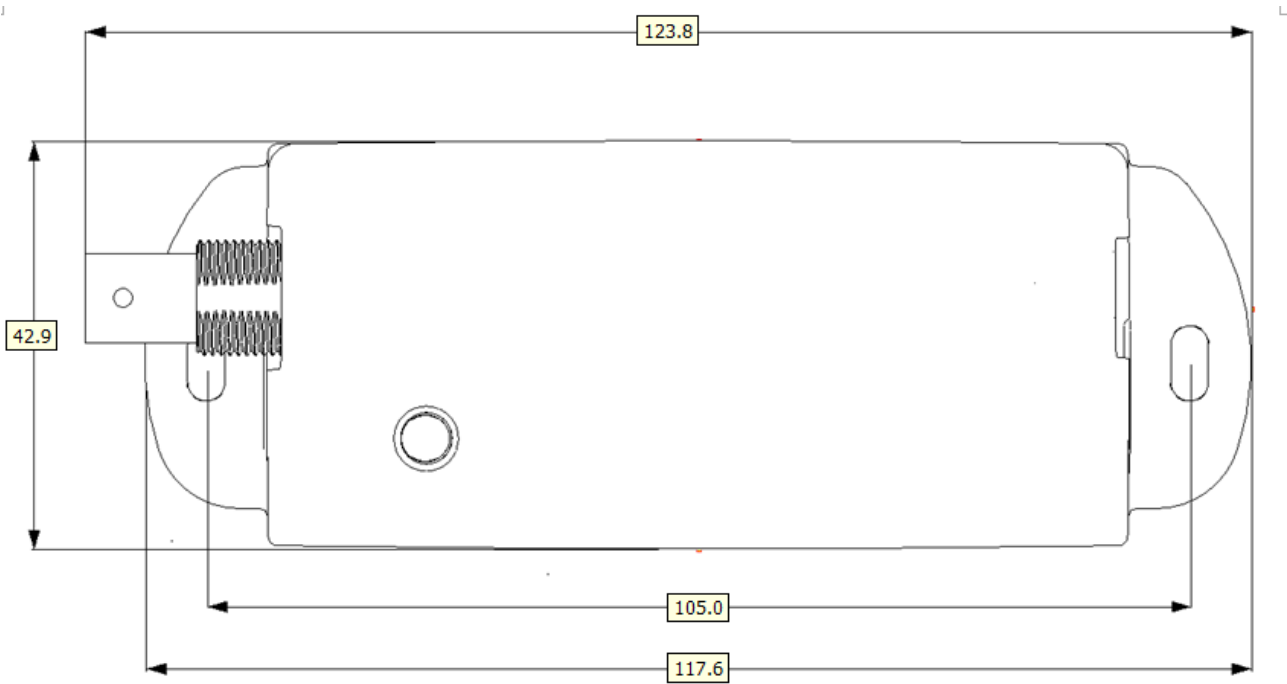
## 8 Probe Selection

The following specifications are recommended for selecting a Probe -

Detection Range	:	0.001mS/cm to 1.5mS/cm
Cell Constant	:	K=0.1
Detection Range	:	0.05mS/cm to 15mS/cm
Cell Constant	:	K=1.0
Detection Range	:	0.5mS/cm to 150mS/cm
Cell Constant	:	K=10
Connector	:	BNC

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

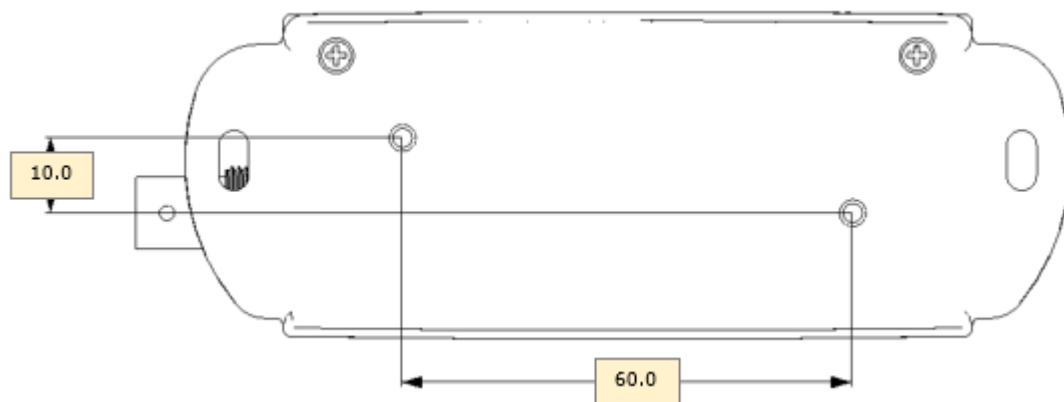
## 9 Mechanical Dimension



**Figure 5 – LDSBus EC Sensor Adapter Dimension – Top View**



**Figure 6 – LDSBus EC Sensor Adapter Dimension – Side View**



**Figure 7 – LDSBus EC Sensor Adapter Dimension – Bottom View**

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

## 10 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 Guide](#)

### Acronyms and Abbreviations

Terms	Description
DC	Direct Current
EC	Electrical Conductivity
LDSBus	Long Distance Sensor Bus
LED	Light Emitting Diode

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Document Title: LDSBus EC Sensor Adapter Datasheet  
Document Reference No.: BRTSYS\_000011  
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Product Page: <https://brtsys.com/ldsbus/>  
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Revision	Changes	Date
Version 1.0	Initial Release	04-03-2022
Version 1.1	Updated release under BRT Systems	15-09-2022
Version 1.2	Corrected BRTSYS to BRTSys	24-03-2023
Version 1.3	Updated the following: HVT references to Quad T-Junction; Singapore address	11-09-2023