



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/Ordering Information

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

Table 1- Part Numbers / Ordering Information

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3 Specifications

Features	Interface	BNC – EC probe connector RS485 – LDSBus communication
	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, 91mW
	Max. Power	266mW
EC Sensor input module	Detection Range	0.001 – 150mS/cm
	Resolution	0.001mS/cm
	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 EC Sensor Adapter
	Wire Assembly	1X 5m RJ11 Cable
Optional	Mounting Accessories	1x LDSBus DIN Rail Mount set (LA120101A)

Table 2 - LDSBus EC Sensor Adapter Specifications

4 Hardware Features

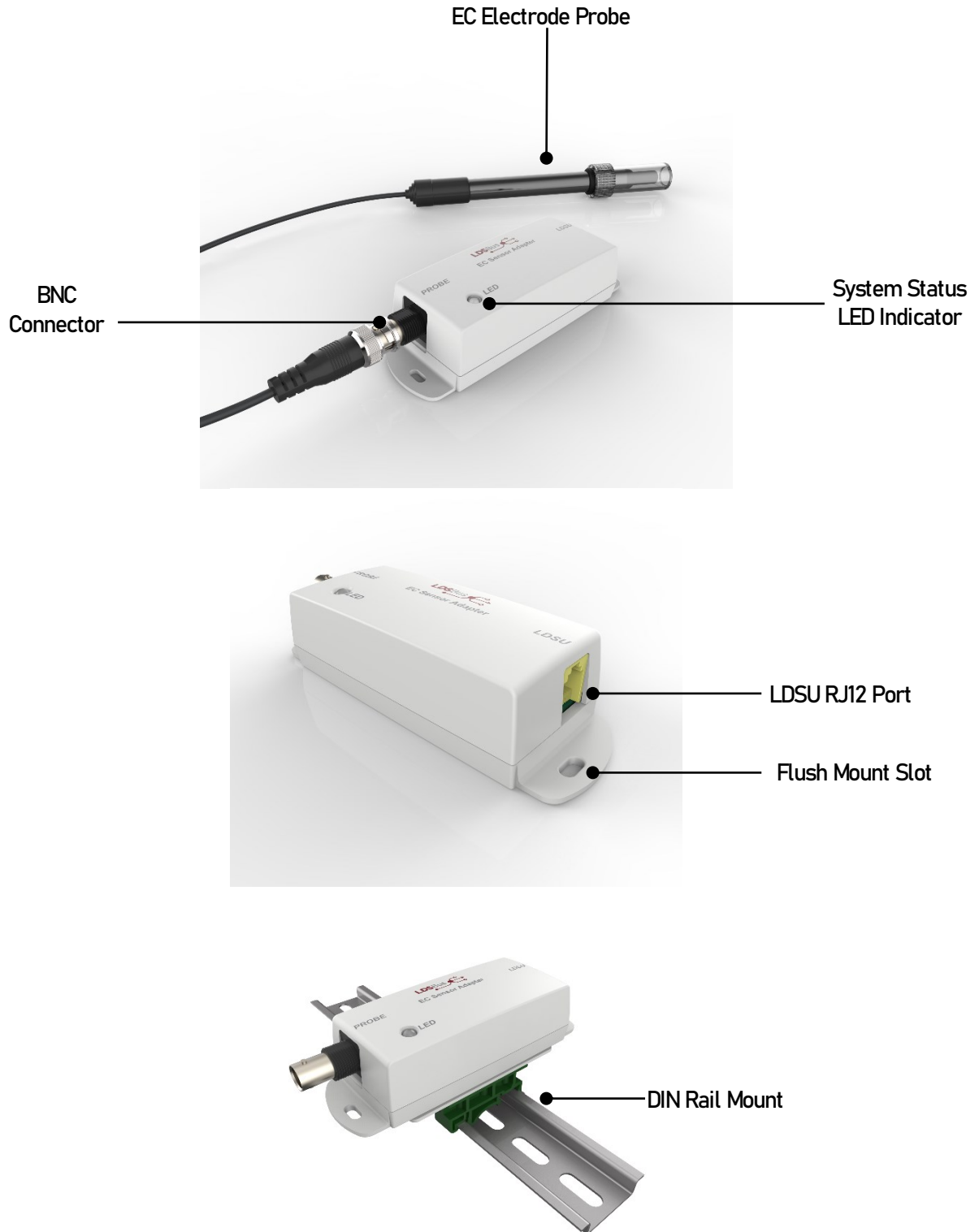


Figure 1 - LDSBus EC Sensor Adapter Hardware Features

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.

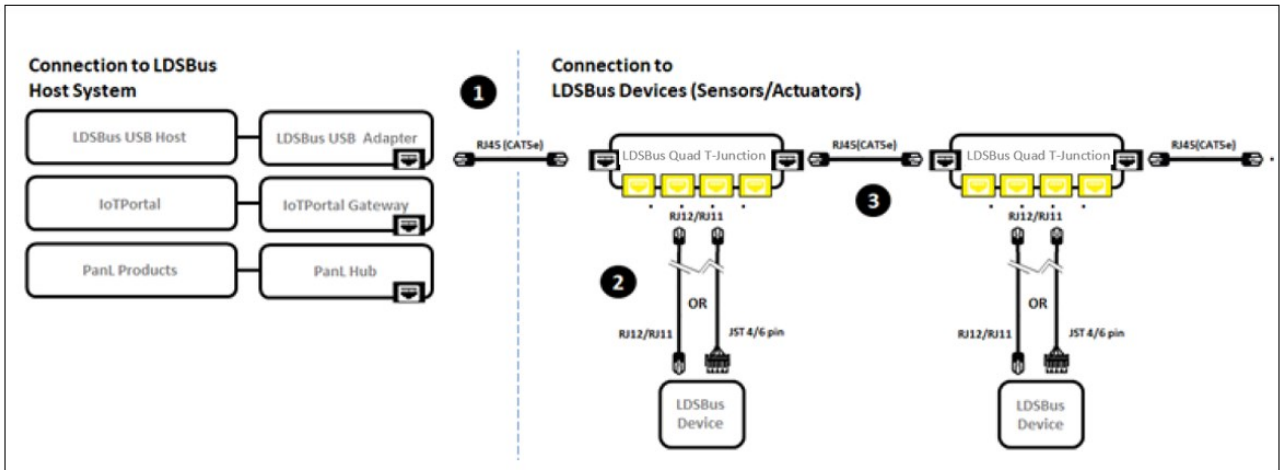


Figure 2 - LDSBus EC Sensor Adapter to LDSBus - Connection Diagram

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.

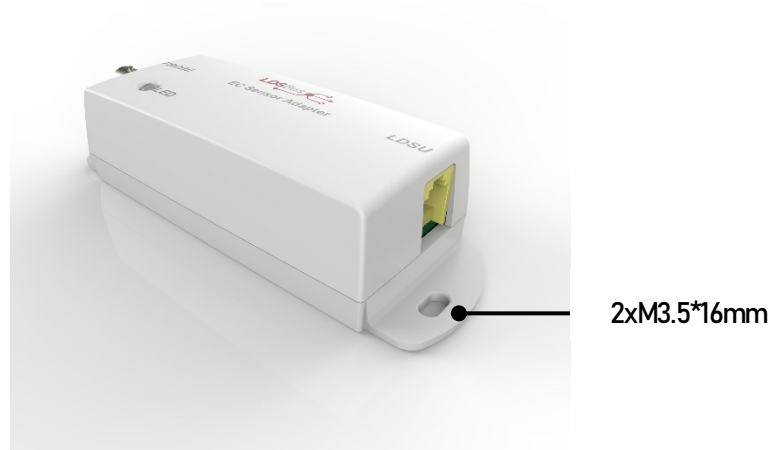


Figure 3 - LDSBus EC Sensor Adapter Flush Mount

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).

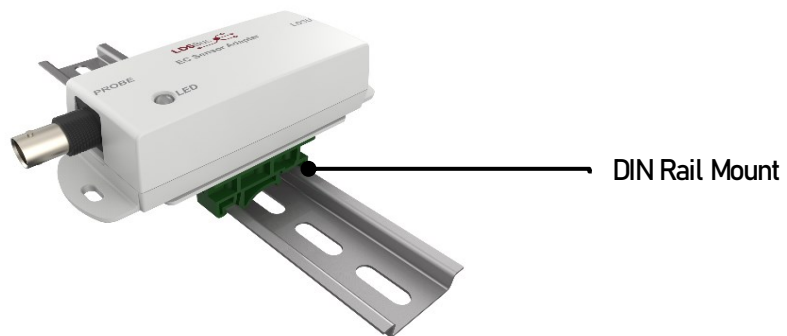


Figure 4 – LDSBus EC Sensor Adapter DIN Rail Mount

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 3 – 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

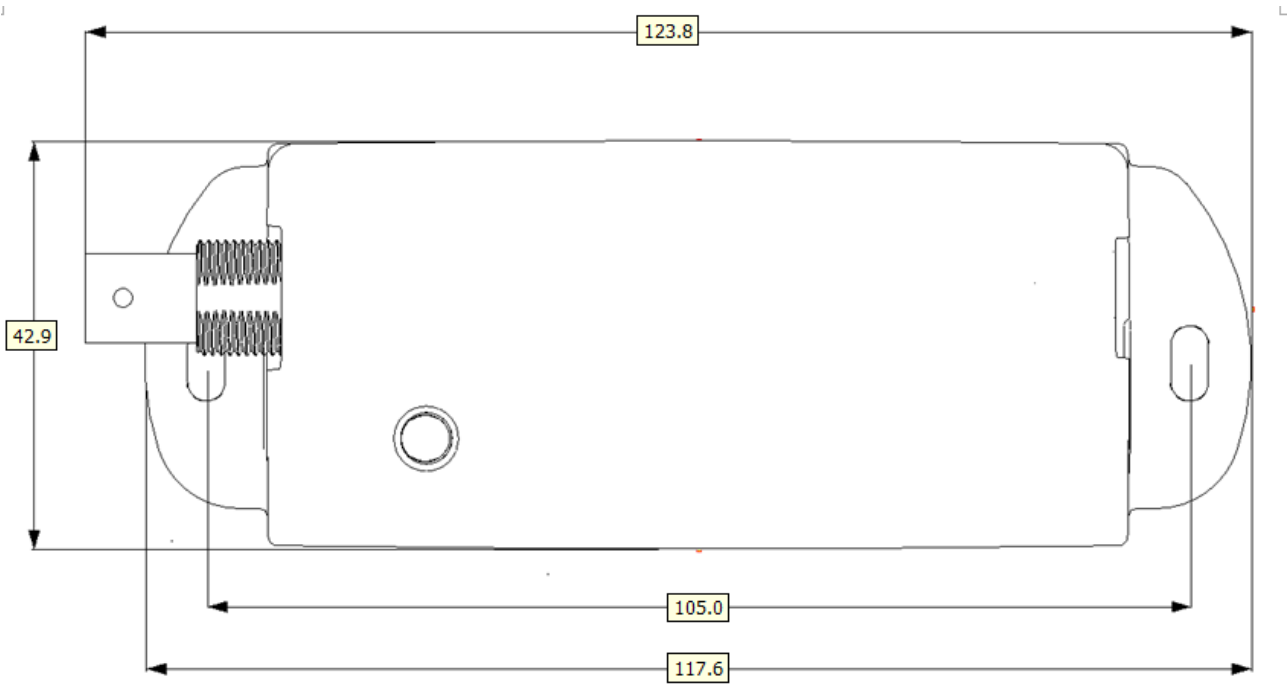


Figure 5 – LDSBus EC Sensor Adapter Dimension – Top View

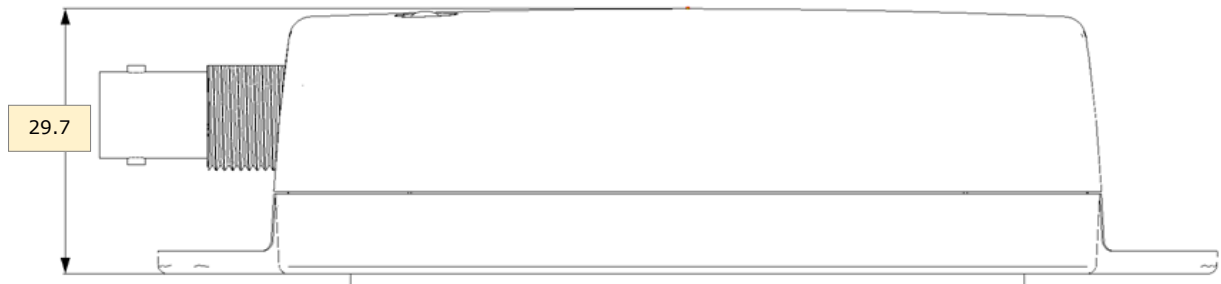


Figure 6 – LDSBus EC Sensor Adapter Dimension – Side View

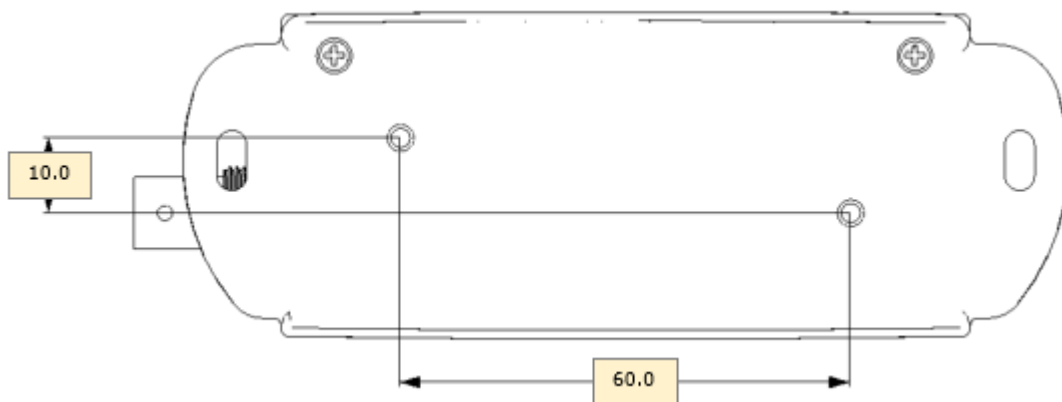


Figure 7 – LDSBus EC Sensor Adapter Dimension – Bottom View

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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Appendix C – Revision History

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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
Version 1.4	Updated Section 3. Specifications	04-09-2024