USB Adapter Datasheet

1 Introduction

The USB Adapter is an integral tool of the LDSBus and Modbus issued with the LDSBus Configuration Utility, Modbus Configuration Utility and LDSBus Python SDK. It is used to:

a. Configure LDSBus and Modbus Devices (Device name, address, and termination settings)
b. LDSBus and Modbus Device firmware update
c. Sensor Calibration
d. Form an LDSBus using the LDSBus Python SDK or Modbus

The USB Adapter may be used with Microsoft Windows, Ubuntu Linux, Raspberry Pi 3/4/5, and RP2040 and RP2350 systems.

1.1 Features

- Reversible USB Type-C connector
- Individually powered LDSU and LDSBus Ports
- USB powered RJ11/RJ12 LDSU port
- 24V power jack inlet to power up the LDSBus through the RJ45 LDSBus port (power Adapter provided)
- Built in LDSBus Termination
- LED status Indicators for communication status
- Flush mount and DIN Rail mounting options
- Operating temperature range: 0°C to +70°C

Visit https://brtsys.com/resources for more information.

2 Part Numbers/Ordering Information

Part#	Description
LA-0201-01A	LDSBus USB Adapter
LA-0801-01A	LDSBus USBA-USBC Cable (1m)
LA-0711-01A	LDSBus USB Adapter PSU
LA-1201-01A	LDSBus DIN Rail Mount Set

Table 1 - Part Numbers / Ordering Information

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3 Specifications

Features	Interface	USB Type C RS485
	LED Indicator	Green (Receiving) Red (Transmitting)
	Mounting	Flush Mount
		DIN-Rail Mount
Power	Input Voltage	USB Power: 5V DC (power LDSU port) Power jack inlet: 24V DC (power RJ45 port)
	Max. Power	5V DC@2.5W 24V DC@12W
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 USB Adapter
	USB Cable	1x USB-C to USB-A 1 meter cable
	Power Adapter	1x 24VDC Power Adapter
Optional	Mounting Accessories	1x DIN Rail Mount Set

Table 2 - LDSBus USB Adapter Specifications

4 FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) These devices may not cause harmful interference, and

(2) These devices must accept any interference received, including interference that may cause undesired operation.

NOTE: The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF exposure guidelines, at least 20cm of separation distance between the device and the user's body must be always maintained.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.

Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

5 Hardware Features

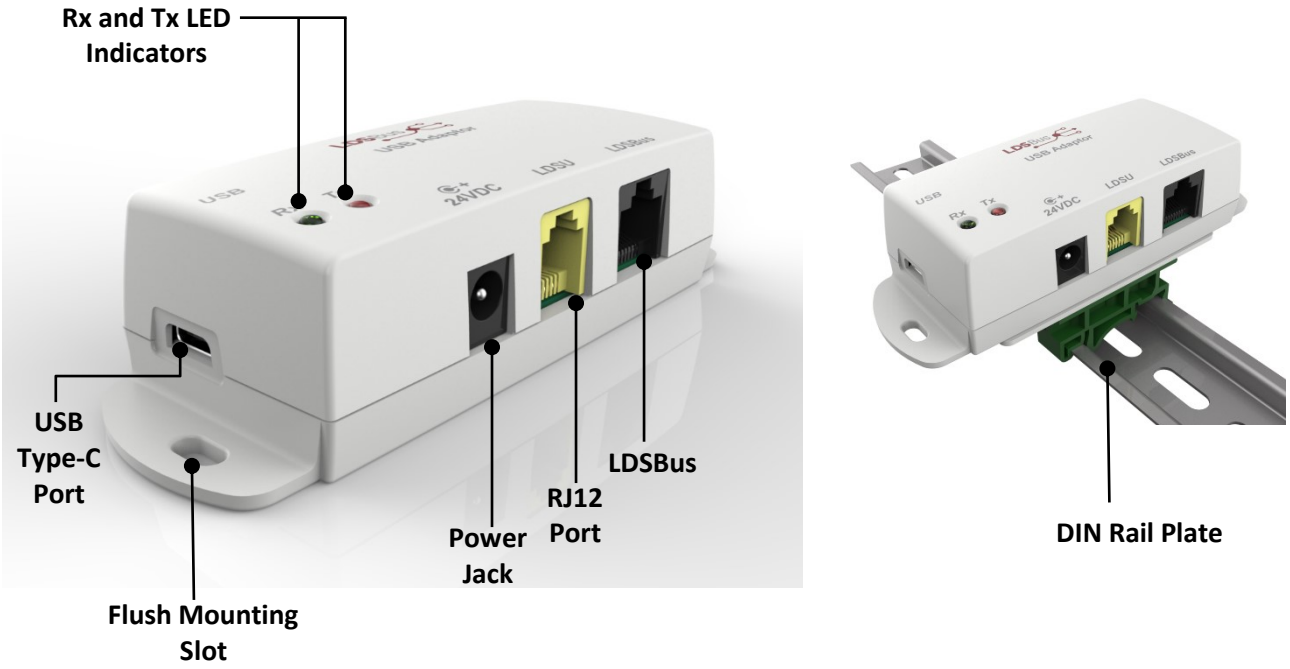

Figure 1 - LDSBus USB Adapter - Hardware Features

Function	Labels	Description
Rx and Tx LED Indicators	LED	Receiving/Transmitting LED
RJ12 Port	LDSU	LDSBus data and power interface port. The physical port is RJ12. The connection interface can be RJ11/RJ12.
Power Jack	24VDC	Power Source
LDSBus	LDSBus	An RJ45 port serves for data communication and power. In a Daisy chain configuration, the two LDSBus ports can function either as input or output.
USB Type-C Port	USB	This is where you connect the USB-C cable to the PC. It provides communication and 5V power from the computer to the adapter.

Table 3 - LDSBus USB Adapter Hardware Features

6 USB Adapter Configuration and Installation

Please refer to LDSBus Configuration Utility User Guide on how to configure the device name, address, and termination settings before using it for your application.

6.1 Connection Diagram

Figure 2 illustrates the connection of the LDSBus USB Adapter based on the applications.

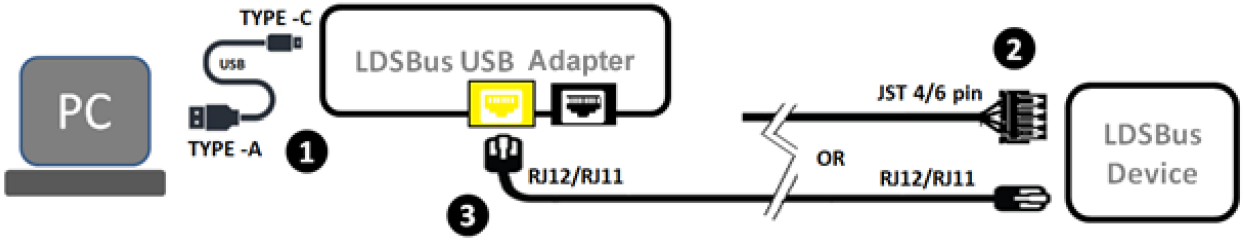

Figure 2 - Connection Diagram

Setup Instructions:

1. Connect the LDSBus USB Adapter to the Windows PC with the USB-C to USB-A cable as shown in Figure 2.
2. Ensure that the LDSBus Device is connected to its cable at one end as shown in Figure 2.
3. Attach the other end of the cable to the LDSBus USB Adapter as shown in Figure 2.

6.2 LDSBus Setup

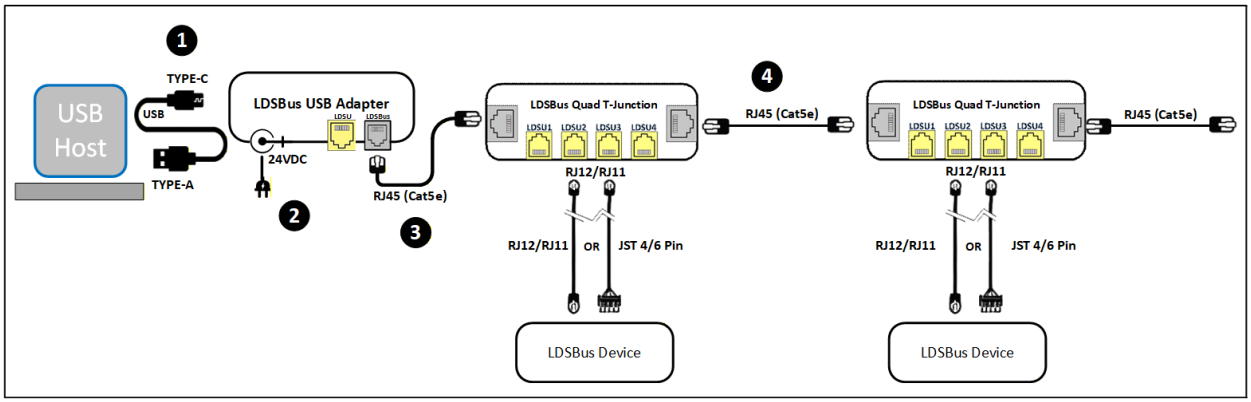

Figure 3 - LDSBus Setup

1. Connect the LDSBus USB Adapter to the Windows PC with the USB-C to USB-A cable.

2. Connect a 24VDC/18W power Adapter to the DC jack and power on. Power to the LDSBus RJ45 connector is controlled by software.

3. Connect the first LDSBus Quad T-Junction to the LDSBus USB Adapter using a RJ45 (CAT5e). The LDSBus Devices connected to the LDSBus Quad T-Junction must be preconfigured through the LDSBus Configuration Utility tool.

4. If there are more than one LDSBus Quad T-Junction devices, daisy chain together as shown in Figure 3 using RJ45 (CAT5e) cable(s). The termination on the last LDSBus device must be set to the ON state.

7 Mounting Instructions

7.1 Flush Mount

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

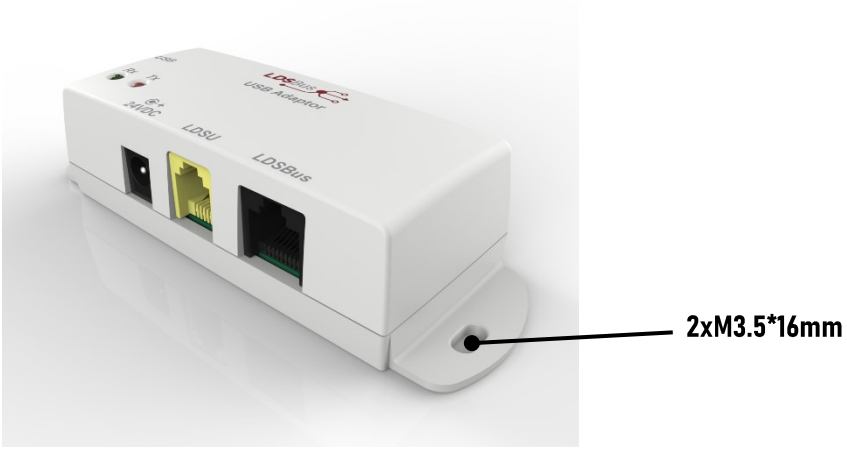

Figure 4 - LDSBus USB Adapter Flush Mount

7.2 DIN Rail Mount

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

Figure 5 - LDSBus USB Adapter DIN Rail Mount

8 Mechanical Dimensions

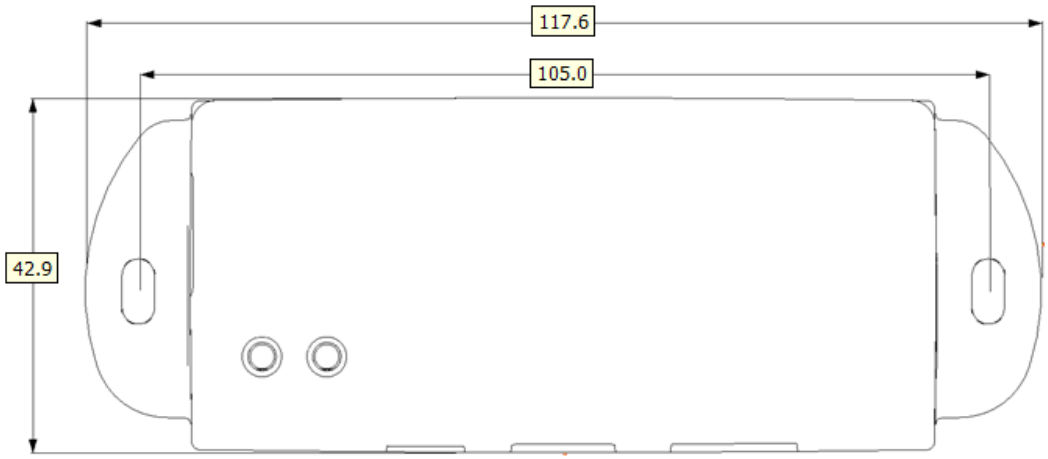

Figure 6 - LDSBus USB Adapter Dimension – Top View

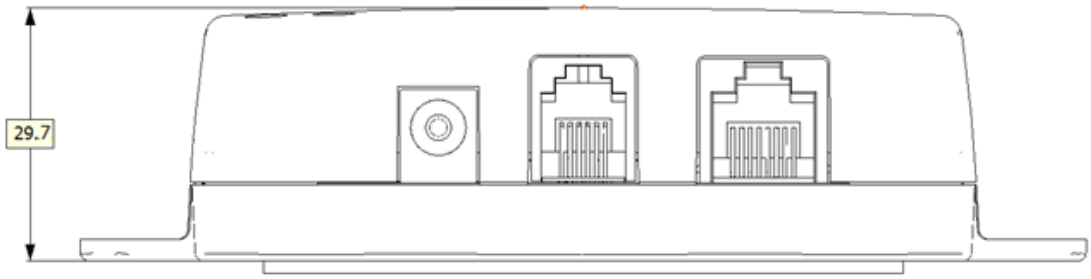

Figure 7 - LDSBus USB Adapter Dimension – Side View

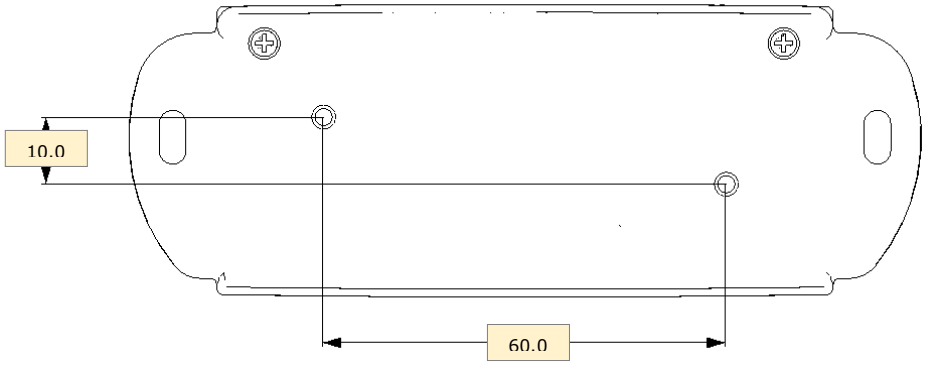

Figure 8 - LDSBus USB Adapter Dimension – Bottom View

Note: All dimensions are in millimetres.

9 Contact Information

Refer to https://brtsys.com/contact-us/ for contact information.

Appendix A – References

Document References

LDSBus Configuration Utility User Guide

LDSBus Python SDK V3.0.0 Guide

Modbus Configuration Utility User Guide

Modbus Device Configuration Application Note

Sensors and Actuators QSG for USBHost

Acronyms and Abbreviations

Terms	Description
DC	Direct Current
LED	Light Emitting Diode
IoT	Internet of Things

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Appendix C – Revision History

Document Title: LDSBus USB Adapter Datasheet

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Product Page: https://brtsys.com/product/usb-adapter/

Document Feedback: Send Feedback

Revision	Changes	Date
Version 1.0	Initial Release	27-10-2021
Version 1.1	Updated release under BRT Systems	15-09-2022
Version 1.2	Updated HVT references to Quad T-Junction; Updated company address	21-09-2023
Version 1.3	Section 1.1 - ROHS icon added Section 4 – Added FCC statement Added Table 3 Section 6.1 & 6.2 – Added website hyperlinks Appendix A – References > Document References - updated	23-01-2026