

**ULI-341TC**  
**ULI-341TCK**  
**ULI-341DC**  
**ULI-342TC**  
**ULI-344TC**

**BB-USOPTL4**  
**BB-USOPTL4-LS**  
**BB-USO9ML4**  
**BB-USOPTL4DR-2-B**  
**BB-USOPTL4-4P**

## High Retention USB to RS-422/485 Converters



## Introduction

Advantech industrial features and specifications support USB convenience on the factory floor: "High-Retention USB Ports" are 50% stronger than regular USB ports to securely grip standard USB cables in demanding applications. "Port-to-Port isolation" protects the upstream device from downstream devices and downstream devices from each other ensuring ground loops or surges cannot be transferred through Port 1 to a device connected to Port 2. "Locked Serial Number" uses the same serial number associated with the converter model so, if the converter is shared by field service laptops, a locked serial number lets you plug-and-play without matching.

## Specifications

### Serial & Isolation Technology

- Modes RS-422 4-wire, RS-485 2 & 4-wire

Model #:	Connector:	Data Rate:	Isolation:	Surge Protection:	Locked Serial#:	LEDs:
ULI-341TC	(1) Terminal block	460.8 kbps	2 KV	-	-	TD, RD
ULI-341TCK	(1) Terminal block	460.8 kbps	2 KV	-	Yes	TD, RD
ULI-341DC	(1) DB9 male	460.8 kbps	2 KV	-	-	TD, RD
ULI-342TC	(2) Terminal blocks	921.6 kbps	3 KV	-	-	TD, RD
ULI-344TC	(4) Terminal blocks	921.6 kbps	2 KV	-	-	TD, RD

### USB Technology

Model #:	USB Port Connector:	Data Rate:	Standard:
ULI-341TC		1.5, 12 Mbps	1.1, 2.0
ULI-341TCK		1.5, 12 Mbps	2.0*
ULI-341DC	USB Type B female, high retention - 3.4 lb (15N) pull force	1.5, 12 Mbps	1.1, 2.0
ULI-342TC		480 Mbps	1.1, 2.0
ULI-344TC		2.0*	2.0*

\* Backward compatible

### Environmental

Model #:	Operating Temperature:	Storage Temperature:	Operating Humidity:
ULI-341TC			
ULI-341TCK	0 to +70 °C		
ULI-341DC		-40 to +85 °C	
ULI-342TC	-20 to +70 °C		95%, non-condensing
ULI-344TC	0 to +70 °C		

## Features

- Converts USB to RS-422/485 adding 1 or 4 ports to PCs
- Optical isolation protection from voltage spikes and ground loops
- High retention USB ports hold connections securely (by model)
- USB 2.0 (backward compatible)
- Up to 921.6 kbps serial data rate (by model)
- Up to 12 Mbps USB data rate (by model)
- Inline, panel and DIN rail mount options
- USB port or external powering options
- USB cable included with all models

### Power

Model #:	Source:	Input Voltage:	Consumption:
ULI-341TC			<100 mA (low power device)
ULI-341TCK			<500 mA (high power device)
ULI-341DC	USB port	5 Vdc	2.5W
ULI-342TC			
ULI-344TC	USB port or external PSU (not included, sold separately)	5 Vdc (USB port) (10-30 Vdc external PSU)	<100 mA (high power device) (5W, PSU)

### Mechanical

Model #:	Enclosure, Mounting:	Dimensions, mm:	USB Cable, included, length:	Weight, gm, w/cable:
ULI-341TC	IP30 plastic, in-line	88.3 x 42.7 x 20.2		90.72
ULI-341TCK	IP30 plastic, in-line	88.3 x 42.7 x 20.2		90.72
ULI-341DC	IP30 plastic, in-line	88.3 x 42.7 x 20.2		90.72
ULI-342TC	Plastic, DIN rail	84.5 x 119.1 x 29.3		181.44
ULI-344TC	IP30 metal, Panel	191 x 71 x 29.3	1.8 m	272.16

### Software

Model #:	Drivers:	Windows O/S:	Linux:
ULI-341TC			
ULI-341TCK	FTDI Virtual COM Port (VCP) Driver	Windows 7/8/10/11	Ubuntu 11.10, Kernel version 3.0.0
ULI-341DC			
ULI-342TC			
ULI-344TC	Asix Driver	Windows 8/10/11	-

### Meantime Between Failures (MTBF)

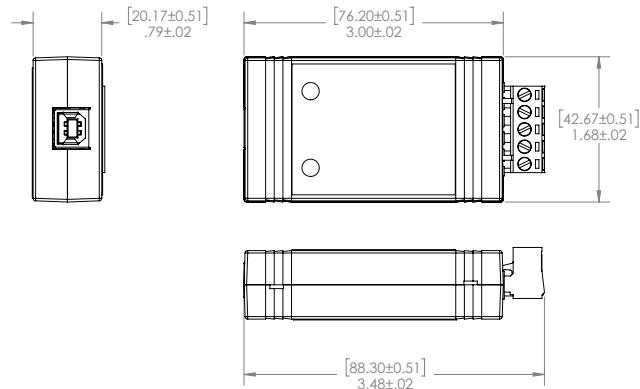
- Calculation Method MIL217F Parts Count Reliability Prediction

Model #:	Hours:
ULI-341TC	1,318,809
ULI-341TCK	1,318,809
ULI-341DC	3,333,587
ULI-342TC	5,150,117
ULI-344TC	489,211

<b>ULI-341TC</b>	BB-USOPTL4
<b>ULI-341TCK</b>	BB-USOPTL4-LS
<b>ULI-341DC</b>	BB-US09ML4
<b>ULI-342TC</b>	BB-USOPTL4DR-2-B
<b>ULI-344TC</b>	BB-USOPTL4-4P

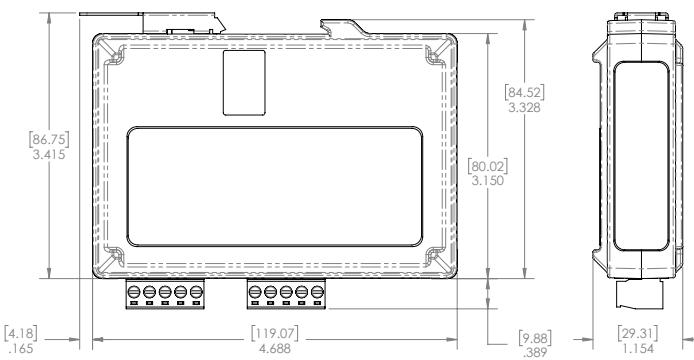
## Dimensions - ULI-341TC, ULI-341-TCK

Unit = mm / in



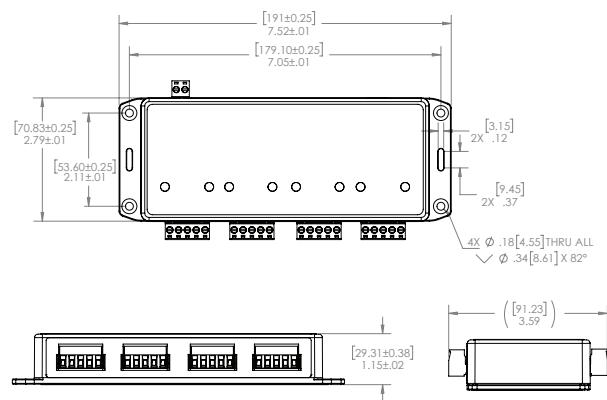
## Dimensions - ULI-342TC

Unit = mm / in



## Dimensions - ULI-344TC

Unit = mm / in



## Ordering Information

Model Number	Part Number to Order	Description
ULI-341TC	BB-USOPTL4	USB to RS-422/485 Converter – 2 kV Isolation, High-retention USB to (1) Serial TB, UL 508
ULI-341TCK	BB-USOPTL4-LS	USB to RS-422/485 Converter – 2 kV Isolation, High-retention USB to (1) Serial TB, Locked Serial# (shared serial# & COM port)
ULI-341DC	BB-US09ML4	USB to RS-422/485 Converter – 2 kV Isolation, High-retention USB to (1) Serial DB9 male
ULI-342TC	BB-USOPTL4DR-2-B	USB to RS-422/485 Converter – 3 kV Isolation, High-retention USB to (2) Serial TB
ULI-344TC	BB-USOPTL4-4P	USB to RS-422/485 Converter – 2 kV Isolation, High-retention USB to (4) Serial TB

# ULI-340 Series Selection Guide

## High Retention USB to RS-422/485 Converters



### USB to RS-422/485 Converters Comparison Table

Model Number	ULI-341TC	ULI-341TCK	ULI-341DC	ULI-342TC	ULI-344TC
Part Number to Order	BB-USOPTL4	BB-USOPTL4-LS	BB-US09ML4	BB-USOPTL4DR-2-B	BB-USOPTL4-4P
Description	Isolated, High-retention USB to 1 Serial, Inline			Isolated, High-retention USB to 2 Serial, DIN Rail	Isolated, High-retention USB to 4 Serial, Panel
USB Port Count		1		1	1
USB Connector			Type B		
High Retention Connector			✓		
USB Data Rate, max.		1.5, 12 Mbps		480 Mbps	12 Mbps
USB Standard		1.1 and 2.0		2.0	1.1 and 2.0
Serial Port Count		1		2	4
Serial Connector	Terminal block		DB9 male	Terminal blocks	Terminal blocks
Serial Interface	RS-422 4-wire, RS-485 2 & 4-wire				
Serial Data Rate, max.	460.8 kbps			921.6 kbps	
Isolation	2 kV			3 kV	2 kV
Locked Serial Number	-	✓		-	
Operating Temperature	0 to +70 °C				
Power Source	USB port-powered				USB port or external PSU
Power Input	5 Vdc				5 Vdc (USB port) 10-30 Vdc (external PSU)
Enclosure	IP30, plastic			Plastic	Plastic
Mounting Installation	In-line			DIN rail	Panel
Dimensions, mm	88 x 43 x 20			85 x 119 x 29	191 x 71 x 29
MTBF (MIL217F), hours	1318809	3333587	5150117	489211	
Regulatory / Approvals	FCC, CE, RoHS, WEEE				
	EMC: EN 55011:2016+A2:2021 Class A Group 1 BS EN 55011:2016+A2:2021 Class A Group 1 CISPR 11:2015+AMD1:2016+AMD2:2019 Ed 6.2 Class A Group 1 EN 55032:2015+A1:2020 Class A / BS EN 55032:2015+A1:2020 Class A CISPR 32:2015+AMD1:2019 Class A EN IEC 61000-6-4:2019 / BS EN IEC 61000-6-4:2019 EN 55035:2017+A11:2020 / BS EN 55035:2017+A11:2020 EN IEC 61000-6-2:2019 / BS EN IEC 61000-6-2:2019 EN 61000-4-2:2009 / EN IEC 61000-4-3:2020 / EN 61000-4-8:2010				



## Introduction

Model ULI-314DC USB to serial converters allow you to add four RS-232/422/485 ports to your PC. Built to rugged specifications, the ULI-314DC offer 2 kV port-to-port isolation. This means that your upstream PC is isolated from the downstream serial devices and the downstream serial devices are isolated from each other and the upstream PC. Heavy duty metal enclosure with panel and DIN rail mounting options, high ESD protection and wide operating temperatures, make them ideal for use in harsh environments.

## Specifications

### Serial & Isolation Technology

- Modes RS-232, RS-422 4-wire, RS-485 2 & 4-wire

Model #:	Connector:	Data Rate:	Protection:	Industrial Bus:	LEDs:
ULI-314DC	(4) DB9 male	921.6 kbps	2kv Isolation 15 kV Air, 8 kV Contact $\pm 0.5kV_{DC}$ ports. $\pm 1kV$ signal ports.	Modbus	TD, RD, PWR

### USB Technology

Model #:	USB Port Connector:	Data Rate:	Standard:
ULI-314DC	USB Type B female, high retention - 3.4 lb (15N) pull force	1.5, 12,480 Mbps	1.1. 2.0

\* Backward compatible

### Environmental

Model #:	Operating Temperature:	Storage Temperature:	Operating Humidity:
ULI-314DC	-40 to +85 °C	-40 to +85 °C	95%, non-condensing

### Power

Model #:	Source:	Input Voltage:	Consumption:
ULI-314DC	External PSU (not included, sold separately) Dual Inputs - terminal block, locking barrel plug	10-48 Vdc	4.5W

## Features

- Converts USB to RS-232/422/485 adding 4 ports to PCs
- 2 kV Port-to-Port Isolation
- ESD 8 kV Contact, 15 kV Air Protection
- High retention USB ports hold connections securely
- USB 2.0 (backward compatible), up to 480 Mbps USB data rate
- Up to 921.6 kbps serial data rate
- Rugged Metal Case and Wide Operating Temperature (-40 to 80°C)
- UL Class 1/Division 2
- USB cable included

### Mechanical

Model #:	Enclosure, Mounting:	Dimensions, mm:	USB Cable, included, length:	Weight, gm, w/cable:
ULI-314DC	IP30 metal, DIN rail or Panel	203 x 35 x 120	1.8 m	748.04

### Software

Model #:	Operating System:
ULI-314DC	Windows 11, 10 (32/64 bit), Server 2016, Server 2019 Linux (Ubuntu 11.10, Kernel version 3.0.0)

### Meantime Between Failures (MTBF)

- Calculation Method MIL217F Parts Count Reliability Prediction

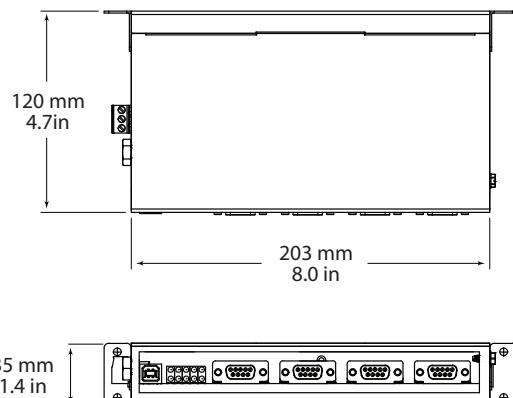
Model #:	Hours:
ULI-314DC	72,749

**Regulatory/Approvals/Certifications**

Model #:	CE Directives:	CE Standards:	
ULI-314DC	FCC, UL C1/D2 #E245458	2014/30/EU – Electromagnetic Compatibility 2011/65/EU amended by (EU) 2015/863 Reduction of Hazardous Substances (RoHS) 2012/19/EU – Waste Electrical & Electronic Equipment (WEEE)	EN 55032 Class A – Electromagnetic Compatibility of Multimedia Equipment – Emission Requirements EN 55024 – Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement EN 61000-6-4 A1 – Generic Emission Standard for (heavy) Industrial Environments (Class A) EN 61000-6-2 – Generic Immunity Standards for (heavy) Industrial Environments

**Dimensions**

Unit = mm / in

**Ordering Information**

Model Number	Part Number to Order	Description
ULI-314DC	BB-USR604	USB to RS-232/422/485 Converter – 2 kV Isolation, High-retention USB to (4-port) Serial DB9 male, UL C1/D2