



1.5kV ISO UART  
SAFE AND RELIABLE CONTROL

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## Description

1.5kV ISO UART device is perfect solution for embedded engineers and operators who need safe, stable, and reliable connection to UART console/platform.

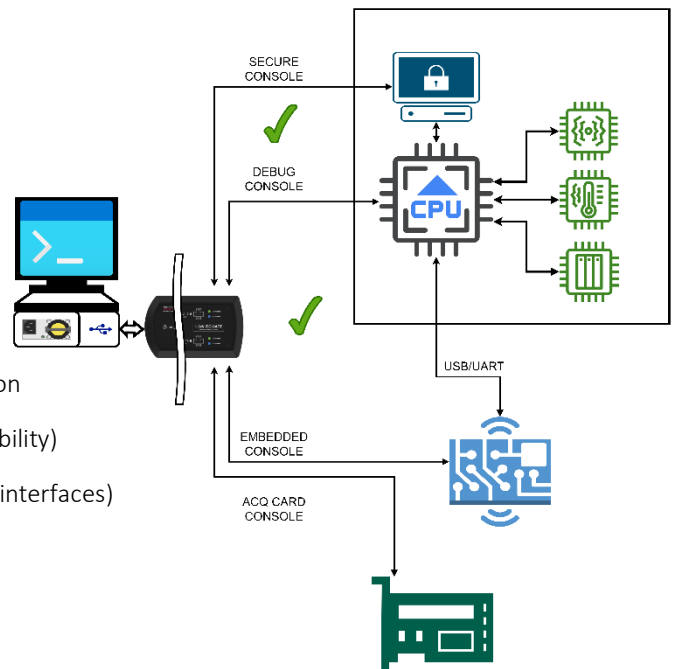
## Key Features

- 4 isolated UART Ports
- Up to 12Mbps
- 1.5kV / 3kV isolation (60 sec / 1 sec test)
- 1.8/3.3V, and ADJ Version available
- Two Isolated Domains (A/B)
- USB-Type C Connection
- -40°C - +55°C operational temperature



## Benefits

- Breaks GND loop in Host-Device connection
- Breaks AC Mains loop in Multi Host connection
- Improves Electro-Magnetic Immunity
- Removes coupling between EM field and cabling
- Removes return current from Host-Device connection
- Ensures 1.5kV/3kV isolation barrier (safety and reliability)
- Improve cabling (one device supports up to 4 UART interfaces)



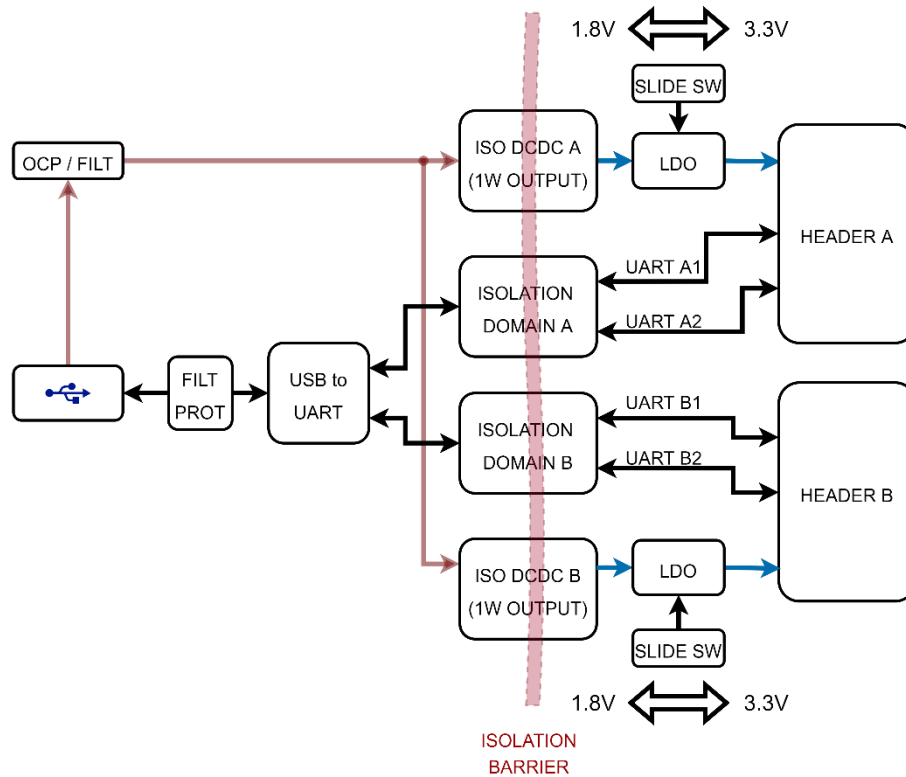
## Applications

- IoT Embedded Systems
- SoC / CPU / FPGA Platforms
- Medical and Data Acquisition
- EMC & Immunity Testing

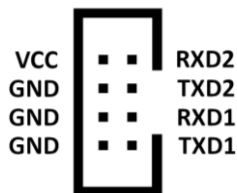
### Ordering Information

MANUFACTURER PART NUMBER	Description
EPED001A-10-STD	Standard ISO UART Device with selectable 1.8V/3.3V UART Voltage
EPED001A-10-180	ISO UART Device with fixed 1.8V UART Voltage
EPED001A-10-250	ISO UART Device with fixed 2.5V UART Voltage
EPED001A-10-330	ISO UART Device with fixed 3.3V UART Voltage
EPED001A-10-ADJ	ISO UART Device with UART interface set by target board
EPED001A-10-CUS	Customized version of ISO UART Device, on special request.

### Functional Block Diagram



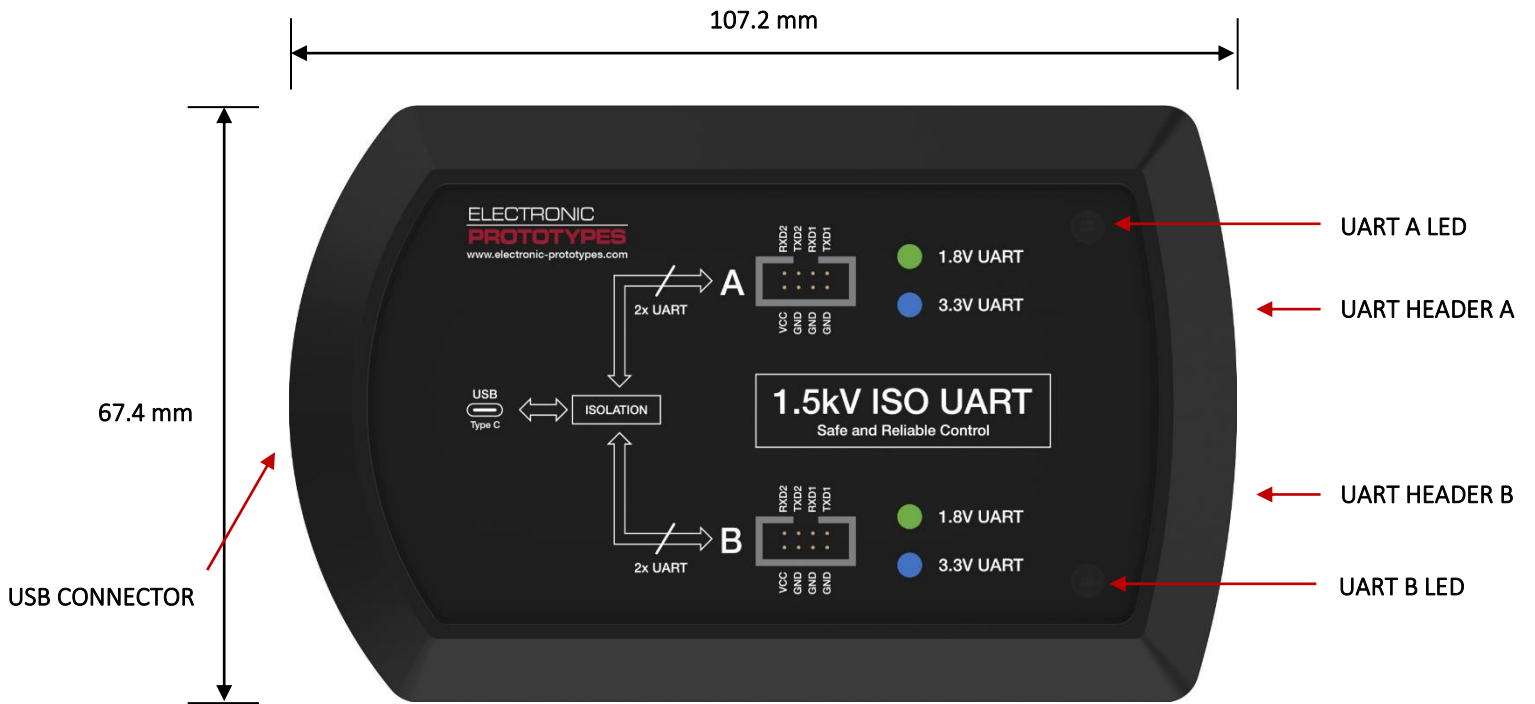
### UART Header pinout



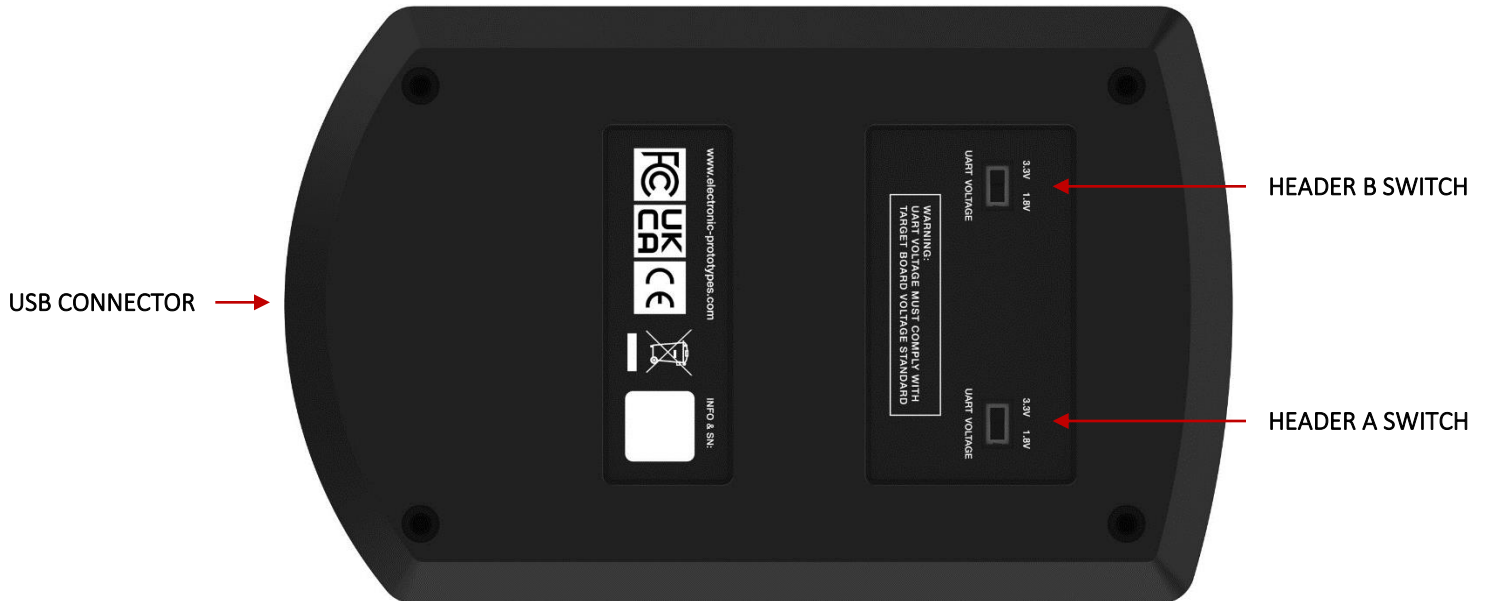
Name	Color	Description
VCC	Red	1.8V / 3.3V Output* (limited to 50mA)
GND	Black	Ground
RXD1	Yellow	Connect to TX line on Target device #1
TXD1	Orange	Connect to RX line on Target device #1
RXD2	Blue	Connect to TX line on Target device #2
TXD2	Green	Connect to RX line on Target device #2

\* Voltage Value depends on exact device configuration and ordered part number

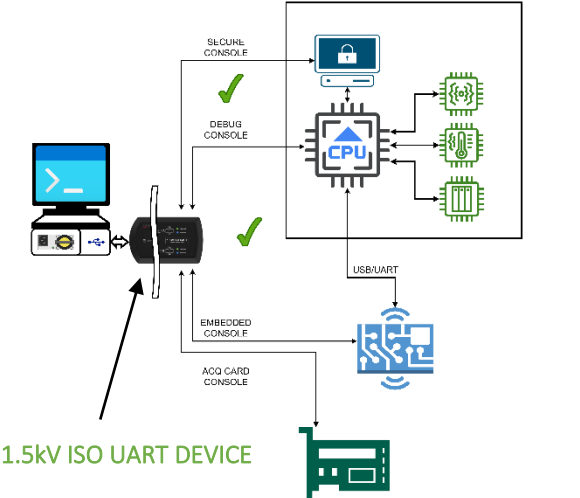
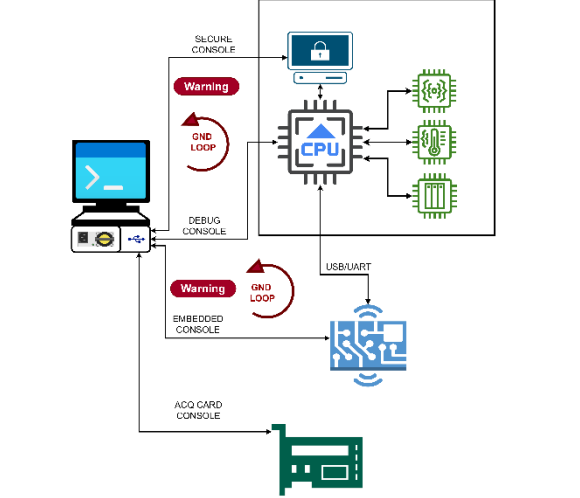
### 1.5kV ISO UART Overview – Top View



### 1.5kV ISO UART Overview – Bottom View

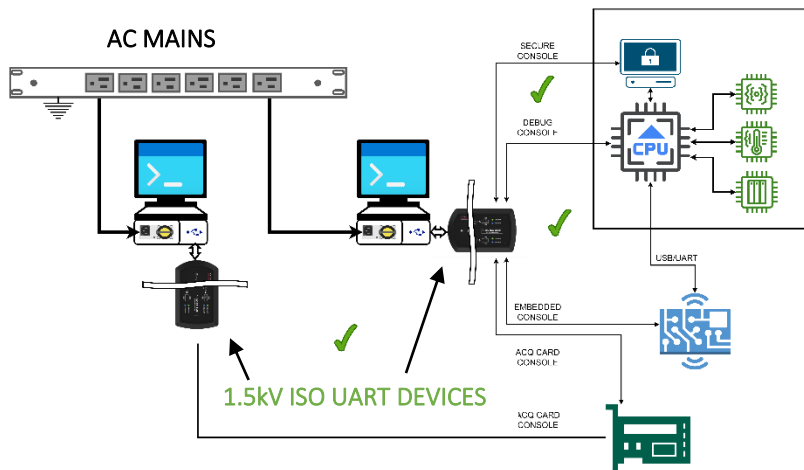


## ISO UART Application Example vs System with no isolation

ISO UART Application Example	System without Interfaces isolation
 <p>1.5kV ISO UART DEVICE</p>	
SAFETY	
<ul style="list-style-type: none"> <li>• 1.5kV/3.0kV Isolation barrier between Host – Device</li> <li>• No AC Mains loop</li> <li>• No Risk of damage caused by reference GND voltage difference</li> </ul>	<ul style="list-style-type: none"> <li>• No Functional or Electrical isolation = Potential risk of damage or injury</li> </ul>
EMC / IMMUNITY	
<ul style="list-style-type: none"> <li>• No Ground Loops Between Host and Device</li> <li>• No AC Mains Loop – Immunity improvements</li> <li>• Improved USB interface connection (fully compliant with EMC and USB standard)</li> </ul>	<ul style="list-style-type: none"> <li>• Architecture with potential EMC/Immunity issues</li> </ul>
GND LOOPS	
<ul style="list-style-type: none"> <li>• <b>NO GND LOOPS</b></li> <li>• Removed conducted emission from Host-Device connection</li> </ul>	<ul style="list-style-type: none"> <li>• Potential coupling with harsh EM environment</li> <li>• Increased radiated emission</li> <li>• Potential conducted coupling between Host and Device</li> </ul>

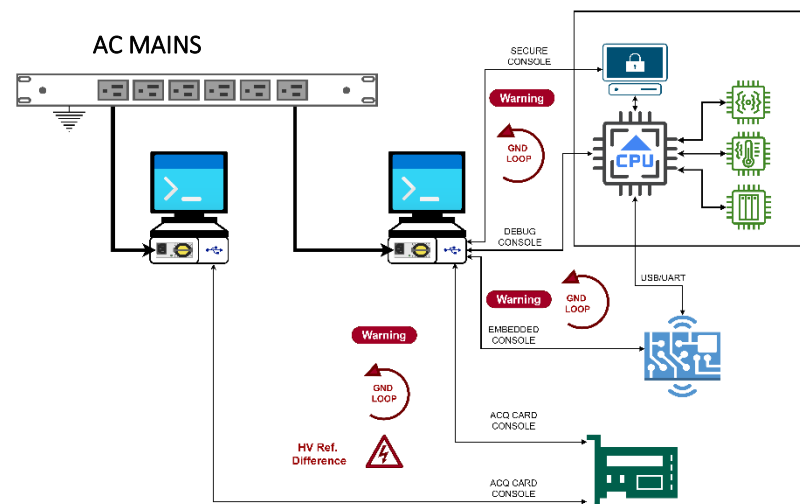
## ISO UART Application Multi-Host System vs System with no isolation

### Multi-Host System with ISO UART



- 1.5kV/3.0kV Isolation barrier
- No AC Mains Loop
- No Risk of damage caused by reference GND voltage difference
- No Ground Loops between Hosts
- No AC Mains Loops
- Improved EMC and Immunity of the system

### Multi-Host System with no Isolation



- No Functional or Electrical isolation = Potential risk of damage or injury
- Architecture with potential EMC/Immunity issues
- Potential coupling with harsh EM environment
- Increased radiated emission
- Potential conducted coupling between Host and Device

## Kit Content

ID	Item	QTY
1	1.5kV ISO UART	1
2	2m USB C-Type to A type Cable	1
3	4x2 UART Harness	2