TELEDYNE LECROY
Everywhereyoulook™

Embedded USB Probe

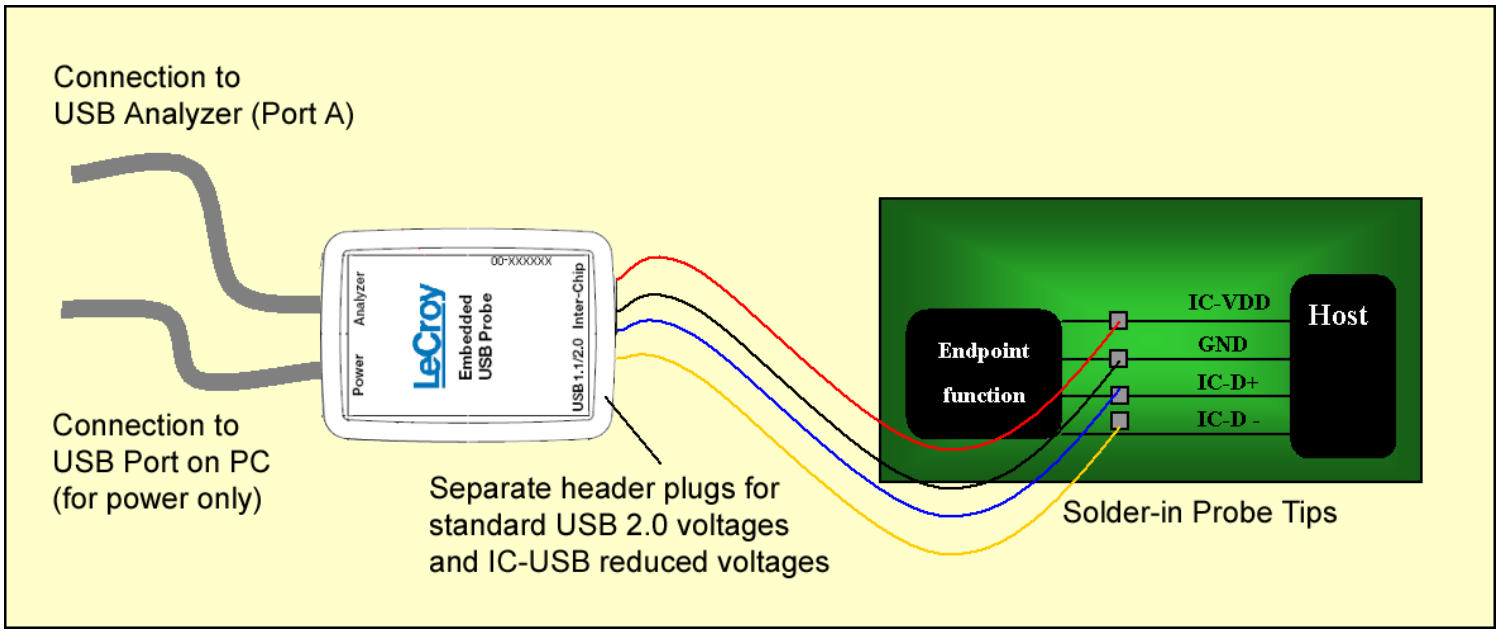


Overview

Inter-Chip USB (IC-USB) specification (Reference A) defines a standard methodology for using USB in chip-to-chip communications. It is used in the embedded systems market as a replacement for i2C to control data transfers between endpoint functions within an embedded device. IC-USB allows vendors to leverage on-board embedded USB host logic to enable faster chip-to-chip communications using USB physical links within a multi-chip PCB assembly.

Teledyne LeCroy's embedded probe supports tapping these chip-to-chip links using low or full speed Inter-chip signals at all defined IC-USB voltages. The probe can also be used to tap USB 2.0 links at standard 3.3 volt signal levels.

The embedded probe utilizes a 4-wire header plug that can be attached as a solder down tap or as flying lead connection attached directly to header pins on the DUT. Probing techniques above can be used for both USB 2.0 compliant electrical links or low/full speed Inter-chip links. The USB protocol traffic can be monitored (via the D+/D- wires) by attaching the probe to the "A" port of a LeCroy USB analyzer.



Probe Specifications

Operational Characteristics:

A 4-wire tap allows solder down directly between chip-to-chip connections on a PCB. For IC-USB links, a high-fidelity amplifier is used to increase signal amplitude to valid USB 1.1/2/0 voltages. Supported voltages defined by the Inter-Chip USB (IC-USB) specification (Reference A) include:

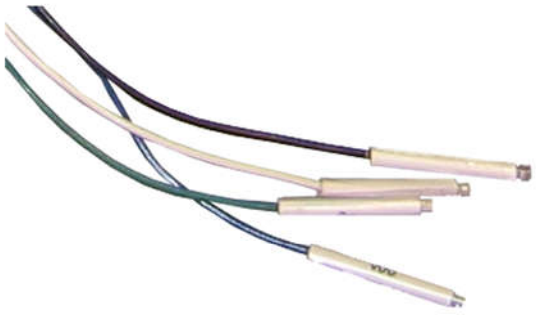
1.0 V	1.5V	3.0 V
1.2V	1.8 V	3.3V (standard USB 1.1/2.0 voltage)

Probe Components:

- Header plug allows connection to the female portion of probe lead assembly
- Two flying lead probe sets (6" for IC-USB links; 2" for high-speed USB 2.0 links)



Embedded probe shown with flying lead taps (separate 4-wire probe header plugs are provided for standard USB voltages and for IC-USB reduced voltages



Flying lead probe tips allow easy connection to PCB-based probe points

- Solder in resistor probe tips
- Two type "A" USB connections (One USB cable for power; one cable for connection to LeCroy analyzer)

Temperature and Humidity

The probe will operate in the following temperature range:

Operating: 0°C to 55°C (31°F to 131°F)

Non-operating: -20°C to 80°C (-4°F to 176°F)

The hardware will operate in the following humidity range:

10% to 90% RH (non-condensing)

Ordering Information

Product Description: LeCroy Embedded USB Probe

Product Part Number: USB-FE02-V01

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Local sales offices are located throughout the world.
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