

## 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.

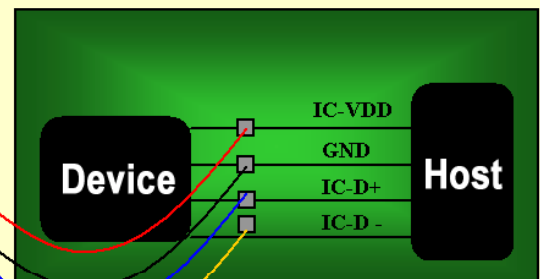
Teledyne LeCroy's embedded probe supports tapping these chip-to-chip links using low or full speed Inter-chip signals at all defined IC-USB voltages. The probe can also be used to tap USB 2.0 links at standard 3.3 volt signal levels.

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 Teledyne LeCroy USB analyzer.

Connection to  
USB Analyzer (Port A)



Connection to  
USB Port on Host Machine  
(for power only)



Solder-in Probe Tips

# Probe Specifications

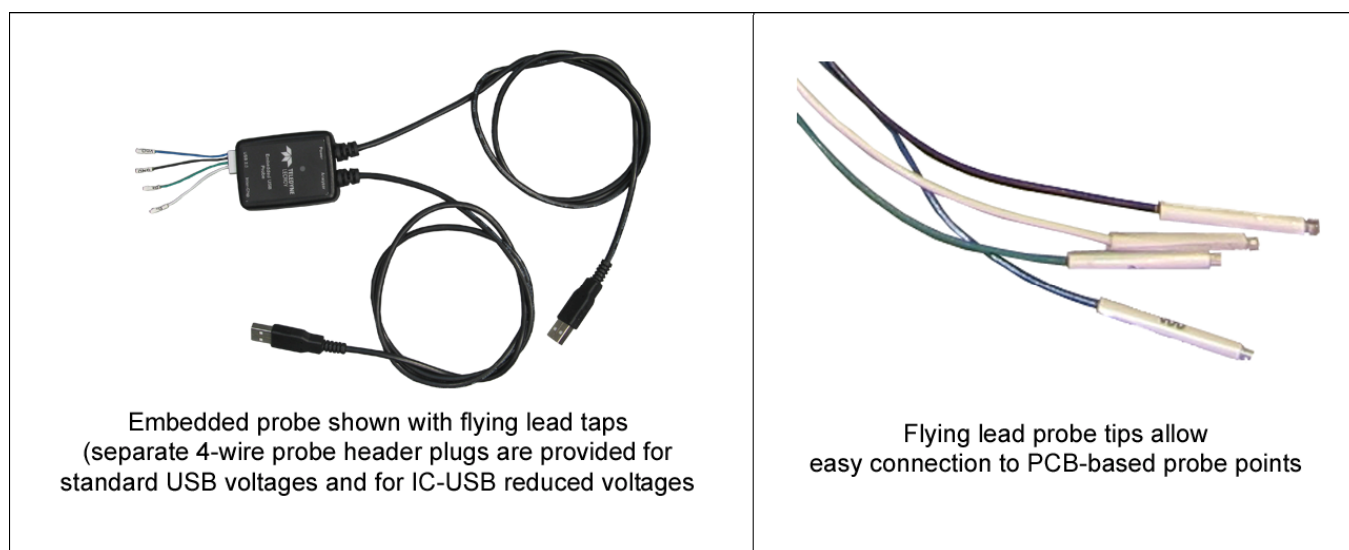
## Operational Characteristics:

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)



- Solder in resistor probe tips
- Two type "A" USB connections (One USB cable for power; one cable for connection to 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: Embedded USB Probe  
Product Part Number: USB-FE02-V01



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