

# Detailed guide for using your USBuddy

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## Introduction

USBuddy is a tool for monitoring and developing USB 2.0 devices and chargers. USBuddy breaks out all signals from USB 2.0 and measures the current using a small, 20 mΩ shunt resistor which has negligible impact on bus voltage. At full 0.5 A, the voltage drop is an insignificant 10 mV. The voltage drop is amplified by a factor of 50 to give a convenient ratio 1 mV = 1 mA. USBuddy is rated for 24 V and 4 A so you can develop powerful USB chargers too. USBuddy also contains a green LED diode which indicates the presence of voltage on the bus.

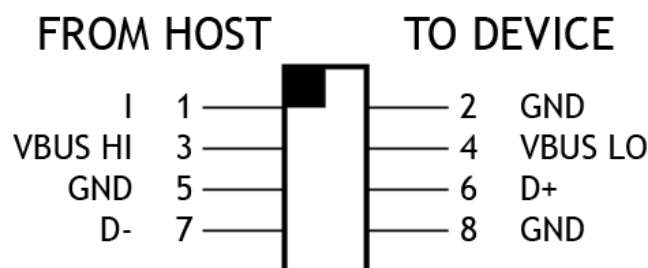
## Specifications

Parameter	Min	Typical	Max	Unit
Bus voltage	4		24	V
Current	0		4	A
Current measurement error (at 100 mA)		±0.5%	±2%	
LED current (VBUS = 5 V)		1.2		mA

## How to use USBuddy

- 1) Using a USB A-B cable, connect your host (such as computer) to the “FROM HOST” port. The LED should light green.
- 2) Connect your device to the “TO DEVICE” port.
- 3) Access bus voltage, current and differential data lines on the pin header.
- 4) You can measure bus voltage either on VBUS HI or VBUS LO, the difference is insignificant. The voltage the device sees is more close to VBUS LO though.
- 5) If you wish to measure the current using your own amplifier, measure the voltage difference between VBUS HI and VBUS LO. The resistance is 20 mΩ.

## Pin header mapping



Number	Label	Description
1	I	Device current from the internal amplifier, 1 mV = 1 mA, measure against GND.
2	GND	Ground.
3	VBUS HI	Bus voltage on the host side (before the current shunt).
4	VBUS LO	Bus voltage on the device side (after the current shunt).
5	GND	Ground.
6	D+	Positive signal of the differential data pair.
7	D-	Negative signal of the differential data pair.
8	GND	Ground.