What do single-ended and differential mean?

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Single-ended and differential refer to the reference for a voltage. Single-ended is referred to ground while differential is referred to some other voltage. For a single-ended measurement, the LabJack converts the difference between the voltage at an input and ground. For a differential measurement, the LabJack converts the difference between the voltage at one input and the voltage at another input that is not necessarily ground.

Differential does not refer to whether a signal is positive & negative or positive-only. The terms for that are bipolar and unipolar.

On the LabJack U3, U12, U6, and T7, analog inputs can set as single-ended or differential via software. Analog inputs on the LabJack UE9 are single-ended only, so an instrumentation amp is needed to convert a differential signal to single-ended, or a pseudo-differential measurement can be made by taking the difference of two single-ended measurements.

Also see the Differential Readings App Note.

Hardware with High Resolution differential analog inputs:

U6

T7

Hardware with Standard Resolution differential analog inputs
Hardware with High Resolution single-ended only analog inputs

Hardware with Standard Resolution single-ended only analog inputs