

Load Cell Calibration Equation

Created by A.J. Brown, 28 August 2024, Ansley.Brown@colostate.edu

Generic form of the load cell calibration equation:

$$\alpha \frac{kg}{mV/V} \left(\frac{1 m^3}{1000 kg} \right) \left(\frac{1}{\beta m^2} \right) \left(\frac{1000 mm}{1.0 m} \right) = 151.09 \frac{mm}{mV/V}$$

Where,

α is the load cell conversion coefficient (i.e., mV/V to kg), which is the slope of the linear calibration equation relating mV/V to kg weight on the lysimeter from a standard weight

β is the effective surface area of the lysimeter surface

Assuming the density of water is 1000 kg/m³

For CSU AVRC Lysimeters:

From Lane Simmons, 8/18/2024

My 2021 LL calibration is: **76.20mm/mV/V**, where density of water is 1000 kg/m³ and the LL surface area is 9.181 m².

My 2021 LL calibration is: **157.43 mm/mV/V**, where density of water is 1000 kg/m³ and the SL surface area is 2.341 m².

Lysimeter	Slope (lbs / mV / V)	Slope, α (kg / mV / V)	Effective Surface Area, β (m ²)	Conversion factor (mm/mV/V)
Large	1542.3367902	699.5922	9.181	76.20
Small	812.4875135	368.53813684387	2.341	157.43