



R. M. Young Company

Model 52202 Tipping Bucket Rain Gauge

Correction Function (Rain Gauges SN: TB13871 and after)

June 2023

Measurements of the YOUNG Model 52202 Tipping Bucket Rain Gauge were used to create a correction function based on precipitation rate. For each test, a known volume of water passed through the gauge at various controlled rates. Recording the time and tip count produced an Actual Precipitation Rate vs Measured Precipitation Rate for the Rain Gauge. This process was repeated three times at each increment of 25 mm/hr starting at 50 mm/hr.

The correction function derived from these measurements is:

$$P_c = (1 + 1.817e-06 * R^2 + 8.285e-04 * R) * P_u$$

where

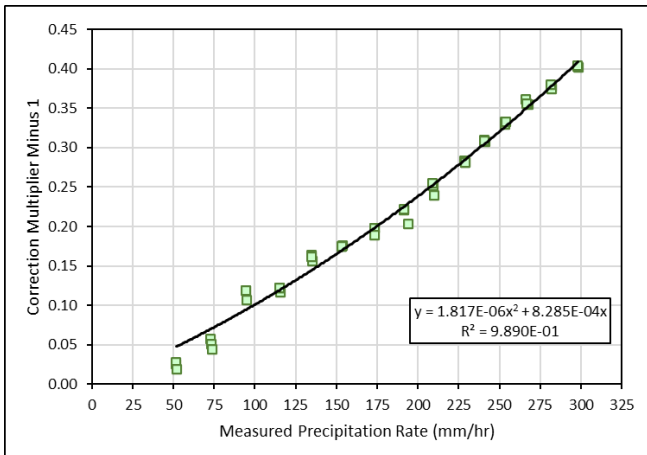
P_c is the corrected precipitation amount (mm)

R is the measured precipitation rate (mm/hour)

P_u is the uncorrected precipitation amount (mm)

Uncorrected precipitation amount (P_u) may be determined by counting tips and applying the published calibration constant for the gauge (0.1 mm/tip). $P_u = \text{Tip Count} * 0.1 \text{ mm}$

Measured precipitation rate (R) may be determined by dividing P_u by the time (in hours) during which tip counts are collected. $R = P_u / \text{Time}$



The adjacent graph shows Measured Precipitation Rate (R) versus Correction Multiplier Minus 1. Derived function and curve fit are also shown.

The graph below shows results of applying correction function to data collected at each precipitation rate.

