Rain Gauge v4.3.0

Operating procedures and theory of operation

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# Introduction

# Theory of Operation

# Operating Procedures

# Appendix A: Mathematical References

## Statistical Data Pseudo-Code:

### Mean:

**for (i = 0; i < length of data set; i++)**

**sum += data[i]**

**MeanValue = sum/length;**

### **Max:**

**for (i = 0; i < length of data set; i++) {**

**if(data[i] > DataMax) {**

**DataMax = data[i] }}**

### Min:

**for (i = 0; i < length of data set; i++) {**

**if(data[i] < DataMax) {**

**DataMax = data[i] }}**

### STD:

**for (i = 0; i < length of data set; i++) {**

**Diff = data[i] – MeanValue  
 Diff \*= Diff  
 Variance += Diff }**

**Variance /= length**

**STD = sqrt(Variance)**

## Slope & Intercept Calculations Pseudo-Code:

This formula is follows the sum of least squares to determine slope & intercept

**// Calculate the averages of load and pressure**

**for (i = 0; i < length of data set; i++) {**

**MeanLoad += load[i]  
 MeanPressure += pressure[i]**

**}  
MeanLoad /= length  
MeanPressure /= length  
  
// Calculate the slope  
for (i = 0; i < length of data set; i++) {  
 tempLoad = load[i] – MeanLoad  
 tempPressure = load[i] – MeanPressure  
 numerator += (tempLoad \* tempPressure)  
 denominator += (tempPressure ^2)  
}  
Slope = numerator/denominator  
  
// Calculate the intercept  
Intercept = MeanLoad – (slope \* MeanPressure)**