Connecting Dendrometer to Data Loggers

Ecomatik
Umweltmess- und Datentechnik
Münchner Str. 23
D-85221 Dachau/Germany
Tel.: ++49 8131 260 738
Fax: ++49 8131 274 736
e-mail: info@ecomatik.de
website: www.ecomatik.de

Requirements and Data conversion

All Ecomatik dendrometer models require one analog differential, or one single-ended logger channel and a known, regulated and precise excitation voltage (Vex). The dendrometer voltage output is non-buffered and hence representing a high-impedance source. Therefore input impedance of the measurement device should be at least 1 MOhm. Furthermore an analog measurement resolution of at least 12 bits in the voltage range of 0 to Vex is recommended.

0.5<Vex< 10 V DC
The output is Vout: 0<=Vout<=Vex

Time of excitation ca. 100 mS
The result in µm=Vout/Vex*C (C is a constant)

For dendrometer types DD-S, DD-S2, DD-S2W, DD-RO, DD-L1, DD-L1W, DR1, DR1W, DR3, DR3W, DV, DC1, DF1 (from Oct./2021), DF5
C=11 000
For dendrometer types DF1 (until Sept./2021), DC2
C=15 000
For dendrometer Type DC3, DD-L2, DR2, DF2, DF6
C=25 400
For dendrometer Type DC4, DF3, DD-L3
C=50 800
For dendrometer Type DF4
C=150 000

Connection

3-wire connection
(cable type: 2-wires + shield)

Single-ended Voltage

Cable Color	Input Port
Brown	H (Signal, Vout +)
White	Vex
Black (shield)	GND

4-wire connection
(cable type: 4-wires + shield)

Single-ended Voltage

Cable Color	Input Port
Yellow	H (Signal, Vout +)
Green	GND
Brown	Vex
White	GND
Black	GND

Differential Voltage

Cable Color	Input Port
Yellow	H (Signal, Vout +)
Green	L (Signal, Vout -)
Brown	Vex
White	GND
Black	GND

Power Consumption

The internal resistance of dendrometers is 10 or 20 KOhms, depending on the respective model. If Vex = 5 V, and excitation time=0.1 second. The sensor energy consumption for one measurement is at maximum 69.4 nWh.