

Analog to SDI-12 Converter

(Integrated version)



ECOMATIK GmbH
Muenchner Str. 23
D-85221 Dachau/Germany
Tel.: +49 8131 260 738
Fax: +49 8131 260 736
e-mail: info@ecomatik.de
website: www.ecomatik.de

Version: Nov. 2025

ECOMATIK dendrometers and temperature sensors (e.g. LAT-B3) are originally equipped with an analog output. The analog-to-SDI-12 converter converts their signal into digital form and transmits the data via the SDI-12 protocol. The converter can also be used with other sensors operating with a 2.5 V excitation voltage.

By default, the converter is factory-integrated into the sensor cable and pre-programmed for the respective sensors. The output is provided in μm for dendrometers and in $^{\circ}\text{C}$ for the LAT-B3 and other ECOMATIK temperature sensors.

1. Scope of delivery

The SDI-12 dendrometer or the SDI-12 LAT-B3 is supplied in the following configuration:



2. SDI-12 Commandos

The converter is fully compliant with SDI-12 standard version 1.3, and supports SDI-12 commandos: aM!, aMC!, aC!, aCC!, aD0!, aI!, aV!, ?!, aAb! (a = current Address, b = new Address).

Dendrometer Commando/Response	LAT-B3 Commando/Response	Description
?! 0	?! 0	C: Request the single sensor address R: Address 0
0A1! 1	0A1! 1	C: Change Address from 0 to 1 R: Address 1
1M! 10033	1M! 10033	C: Start the measurement R: Address 1, Measuring duration 3 Sec. return 3 data
1D0! 1+5497.401855+22.895641+2.499995 The meaning of the data 1: address 5497.401855: dendrometer in μm 28.765214: not used (random data) 2.499995: Excitation voltage in V	1D0! 1+22.945461+22.895641+2.499995 The meaning of the data 1: address 22.945461: air temperature in $^{\circ}\text{C}$ 22.895641: Leaf temperature in $^{\circ}\text{C}$ 2.499995: Excitation voltage in V	C: Display data R: Address+ data1+ data2+data3

3. Connection to data logger

Connect the cable to the data logger as follows:

Brown: Power 3.6-24 V DC

White: Ground (GND)

Green: SDI-12 Signal

Measurement commands for Campbell loggers are (example):

SW12(1)

Delay(0,700,mSec)

SDI12Recorder(data(),1,0,"M!",1,0,-1)

SW12(0)

Measurement commands for Ydoc loggers are (example):

aMC!, Duration 0.25 Sec

4. Technical specification

Sensor protocol	SDI-12 Version 1.3
Power supply voltage	3.6 V to 24 V DC
Warming up duration	700 mSec
Power consumption	Sleep: 0.13 mA/ 5V Measurement: 4.8 mA (3 Sec.) /5 V
Noise free resolution	17 bits
Channels	2
Sensor Input type	Single ended
Supported SDI-12 commands	aM!, aMC!, aC!, aCC!, aD0!, a!, aV!, ?!, aAb! (a = current adress, b = new address)
Cable assignment	Brown: Excitation 3.6-24 V DC (Vex) White: Power/Signal Ground (GND) Green: SDI-12 Signal
Protection	Waterproof
Size	Φ: 17 mm, L: 123 mm without cable
Cable length	Standard 5 m (cable extension tested up to 100 m)