



# PROSA-LOG

## SapflowDataAquisition



**PROSA-LOG** is small data-logger, well designed to log sapflow data from UP Sapflow sensors based on constant-heating-principle. (see Literature 1) Our special constant-current source (84mA) is already included in the weatherproof PROSA-LOG housing.

Measuring sap flow is important for understanding plant water relations and therefore is often used for studies of

- Irrigation
- tree water use
- etc.
- agronomy
- water stress

Each sapflow sensor consists of two identical manufactured needles with copper-constantan-thermocouples (Type T) and a special heating wire. Both thermocouples are connected in a way, that the signal corresponds directly with the temperature difference of both sensor elements. The temperature difference is about 10-15 °C resulting in a small signal of about 400-600µV.

Because of this small signal it is important for good measurements to keep cable length as short as possible.



Sapflow sensors installed

For this reason it is recommended to use decentral systems, i.e. prefer more small logger like PROSA-LOG instead of one big logger with a lot of channels and long cables.

The sensors should be powered continuously and a typical data-collection interval of 10-15min is recommended.

Maximum 3 Sensors can be heated and logged with one PROSA-Log unit.

Data can easily be downloaded via RS232 using Logstar or CLOG-configuration software.

Logstar (LoggerStationArchive) offers the option to combine several stations again to one large combi-station and moves all data in one Excel-sheet for further handling. The Toolbox PROSA even finds night maxima and calculates sapflow velocity and density for each channel.

CLOG-configuration software is used to configure logintervall, preset-time before start logging, clock.

### Literature

Granier, André (1985): Une nouvelle méthode pour la mesure du flux de sève brute dans le tronc des arbres, Ann.Sci.For., 1985, 42 (2), 193-200.



### Technical Data:

Channel input range: +/- 20mV  
Resolution: 0.1 µV  
Accuracy: 0.5 µV

Power Supply: 12Vdc  
Number of channels: 3  
Sensor connections: cable inlet, inside terminals to clamp wires

Optional: sockets to plug in sensors

Memory: 2500 records  
(-> 10min logintervall = 17 days)

PROSA-LOG with mounting shield  
PROSALOG including cables

Optional: memory card expansion

Logging interval: 1, 2, 5, 10, 20, 30, 60 min, 2, 3, 4, 6, 8, 12, 24 h

Housing: Alu housing, 180x180x100mm, 2500g Weather proof IP65

Communication: RS232, 19200 baud, 8 databit, no parity, 1 stopbit

Constant current source: 84mA (to run maximum three sapflow sensors Typ M)

Power consumption: 95mA in total (28Ah battery is useful for weekly exchange)



**Ordering details:**

Art.Nr. X600M\_BS:

Sapflow-Sensor SFS2 Typ M, incl. 2 alutubes, output (thermocouple Cu/Constantan) 40uV/°C, heating-wire completely covered with varnish for smooth surface, incl.70cm cable ending in IP67-connector. Please order elongation cable to ccs seperately!

Art.Nr. X604\_xm\_BD:

Cable for connection from Sapflow-Sensor to power-supply box. (fill order-no x = 5, 10, 15 or 20m). Material: PUR, shielded: best suitable for outdoor-use.

Art.Nr. X602\_4\_BS\_BL:

Blindconnector to bridge missing or damaged sensors.

Art.Nr. X602\_ccs2:

Constant Current Source for Sapflow-Sensors ccs2 (output 84mA) in IP65 housing, for up to 3 sensors, Input 12Vdc! (battery not included), please order battery and loggercable seperately.

Art.Nr. X612:

Supplement kit 1 for the Installation of Sapflow-Sensors: 100g Silikonfat, 2x Special -Driller (2,1mm), Insertiontool for Aluminium tubes, 10 Aluminium tubes, special tools for cleaning the measurement-place. Needed once per measurement site/customer.

Art.Nr. X614:

Supplement kit 2 for Sapflow-Sensors, consisting of: radiation shield, ca. 60x40cm, (Styropor-/Aluminium-folia on a robust wire-case, with elastic bands for fitting the shield around the tree),

Art.Nr. X614\_T1000 Terostat IX, 1kg box, to protect the sensors from incoming water and to fit the top of the radiation shield to the tree. (about 100-200g recommended for every sensor!)

Art.Nr. X618\_Log3: PROSA-Log 3 channel datalogger including ccs2 facilities

Art.Nr. X618\_M1:

UP sapflow-measuring system M1 consisting of: 4 channel-logger, sapflow-powersupply, 3x Sapflow-Sensors, IP65-case, 2x batteries (12V, 28Ah) with charger (all mount in weatherproof housing), 1x Supplement Kit 1, 3 x Supplement Kit 2, 3x 10m cable between sensor and powersupply; 1x PAR-Sensor with 10m cable, levelling and mounting unit for PAR-Sensor, RS-232 cable. incl. Sapflow-calculation Software ProSA. System ready-to-go.

Art.Nr. X620:

PROSA Software for calculation of sapflow density and sapflow out of logger raw data.

Other loggers with more input-channels etc are available. Please complete our questionnaire at [www.sapflow.com](http://www.sapflow.com) to ask for detailed quotations.

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