



# SENSORS FOR THIRD-PARTY DATA LOGGERS

A wide range of electronic sensors designed to assess characteristics of intact plants under study. May be used with most commercially available data loggers.

### Applications

**STEMS** A series of highly precise incremental sensors for monitoring stem diameter micro-variations in plants.

**FRUITS** A series of absolute displacement sensors enabling the recording of both the size and diurnal growth dynamics of intact fruits from 3 to 160 mm diameter.

**RELATIVE SAP FLOW** Three models of relative-rate sap flow sensor, designed for leaf petiole, stem and trunk.

**LEAF TEMPERATURE** A sub-miniature leaf temperature sensor providing high accuracy, with minimal influence on the thermal conditions of a leaf.

**ENVIRONMENTAL** Basic set of solar radiation, air temperature and humidity, and soil moisture sensors.

### Power supply

All sensors require a stabilized power supply as specified in the table below.

### Data logging

All sensors are suitable for use with most commercial data loggers and data acquisition systems. See the output specifications in the table below. PhyTech also offers its own data logger.



FI-XSM  
Small Fruit Growth



LT-2 Leaf Temperature



SF-8 Sap Flow Sensor



DE-1M Dendrometer



SD-5M and SD-6M  
Stem Microvariation



SF-4M and SF-5M Sensors



FI-TYPE  
Fruit Growth Sensors



SA-20 Auxanometer

Sensor	Measurement Range	Standard (Optional) Output	Power Requirements	Notes
SD-5M Microvariation	0 - 5000 m	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For 5 to 25 mm stem dia.
SD-6M Microvariation	0 - 5000 m	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For 2 to 7 cm stem dia.
DE-1 Dendrometer	0 - 10 mm	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	Mounted on implanted rod
FI-LM Large Fruit Growth	30 - 160 mm	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For round fruits
FI-MM Medium Fruit Growth	15 - 90 mm	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For round fruits
FI-SM Small Fruit Growth	7 - 45 mm	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For round fruits
FI-XSM Extra Small Fruit Growth	0 - 10 mm	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	Adjustable over 3 to 30 mm
LT-2M Leaf Temperature	5 - 50°C	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	Non-linear sensor
SF-4M Sap Flow Relative Rate	3 ml/h max.*	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For 1 to 5 mm stem dia.
SF-5M Sap Flow Relative Rate	3 ml/h max.*	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	10 - 30 Vdc	For 4 to 10 mm stem dia.
SF-8 Sap Flow Relative Rate	250 ml/h max.*	0 - 2 Vdc (0 - 20, or 4 - 20 mA)	8 - 13 Vdc	An implanted probe
SA-20 Auxanometer	0 - 2 m	0 - 2 Vdc	+5 Vdc 10%	A draw-thread transducer
TIR-4 Total Irradiance	1200 W/m2 max.	0 - 2 Vdc	11 - 15 Vdc	For natural daylight
ATH-2 Air Temperature and Humidity	5 - 50°C; 0 - 100%	0 - 2 Vdc (two channel)	11 - 15 Vdc	Power aspirated
ATH-3 Air Temperature and Humidity	5 - 50°C; 0 - 100%	0 - 2 Vdc (two channel)	11 - 15 Vdc	With a solar radiation shield
SMS-2 Soil Moisture	0 - 50% vol.	0 - 1 Vdc	5 - 15 Vdc	ThetaProbe

\* Tested on simulator (fiber-filled pipe)

