

Fruit Dendrometer Type DF

Technical Specifications

Ecomatik

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



Model DF1

Name of the Sensor	Fruit Dendrometer Type DF1 (previously DF)
Use area	For measuring diameter growth of small sized or slow growing fruits and vegetables
Suitable for fruit size	Diameter: 0 -5 cm (frame sizes >5 cm on request)
Range of the sensor	11 mm
Resolution	The resolution of the sensor itself is infinite. The resolution of readings is determined by connected data logger, e.g. CR1300: 0.01 μm Dendrometer logger DL18: 0.2 μm
Accuracy	Dendrometer dependent: Max. $\pm 3.3\%$ of reading (stable offset) Logger dependent, e.g.: CR300: $\pm (0.04\%$ of reading + 0.3 $\mu\text{m})$ Dendrometer logger DL18: $\pm (0.1\%$ of reading + 0.45 $\mu\text{m})$
Temperature coefficient of the sensor	$<0.2 \mu\text{m}/^\circ\text{C}$ in the whole range
Linearity	$<1\%$
Environment	Outdoor condition: -25 to 70°C air temperature, 0 to 100% relative air humidity
Weight of the sensor	15 g without cable
Power supply	Stabilized Vex of 0.5 – 10 VDC, power consumption practically zero
Material	Stainless steel and Aluminium
Cable length	5 m, extendable up to 100 m



Model DF2



Model DF3

Name of the Sensor	Diameter dendrometer large	
	Type DF2	Type DF3
Use area	small/medium sized and fast growing fruits and vegetables	large sized and fast growing fruits and vegetables
Suitable for fruit size	0-13 cm (larger or smaller frame sizes on request)	0-13 cm (larger or smaller frame sizes on request)
Range of the sensor	25.4 mm	50.8 mm
Resolution	The resolution of the sensor itself is infinite. The resolution of readings is determined by connected data logger, e.g. CR300: 0.025 μm Dendrometer logger DL18: 0.4 μm	
Accuracy	Dendrometer dependent: Max. $\pm 1.97\%$ of reading (stable offset) Data logger dependent, e.g.: CR300: $\pm(0.1\%$ of reading + $0.6 \mu\text{m}$) DL18: $\pm(0.1\%$ of reading + $1 \mu\text{m}$)	
Temperature coefficient of the sensor	$< 0.2 \mu\text{m} / ^\circ\text{C}$ in the whole range	
Linearity	$< 0.7\%$	$< 0.5\%$
Environment	Outdoor condition: -25 to 70°C air temperature, 0 to 100% relative air humidity	
Weight of the sensor	26 g without cable	37 g without cable
Power supply	Stabilized Vex of 0.5 – 10 VDC, power consumption practically zero	
Material	Stainless steel and Aluminium	
Cable length	5 m, extendable up to 100 m	



Model DF4

Name of the Sensor	Clamping fruit dendrometer Type DF4, fast mounting for toolless installation
Use area	For continuous measurements of diameter of fruit and vegetables
Suitable for fruit diameter (ball shaped)	10-130 mm
Range of the sensor	130 mm (full scale, FS)
Resolution	The resolution of the sensor itself is infinite. The resolution of readings is determined by connected data logger, e.g. CR300: 0.15 μm Dendrometer logger DL18: 2.5 μm
Accuracy	Dendrometer dependent: Max. $\pm 0.8\%$ of reading (stable offset) Dependent on the connected data logger, e.g.: CR300: $\pm (0.1\%$ of reading + 3.5 $\mu\text{m})$ Dendrometer logger DL18: (0.1% of reading + 5.5 $\mu\text{m})$
Temperature coefficient of the Sensor	$< 0.015\% / ^\circ\text{C}$ of FS
Linearity	$< 1\%$
Environment	Outdoor condition: -25 to 70°C air temperature, 0 to 100% relative air humidity
Weight of the sensor	48 g without cable
Power supply and sensor output	Stabilized Vex of 0.5 – 10 VDC, power consumption practically zero. Vout always $< V_{\text{ex}}$. Factory calibrated sensor signal: Vout = $0.8 * V_{\text{ex}}$ (VDC) at 120 mm diameter (ball shaped fruit)
Material	Stainless steel and Aluminium
Cable length	5 m, extendable up to 100 m