



Bio Instruments S.R.L.

SENSORS AND SYSTEMS
FOR MONITORING GROWING PLANTS

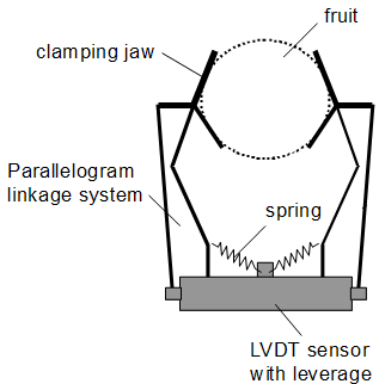
FI-LP, FI-MP, FI-SP

Fruit Growth Sensors



Introduction

A series of absolute displacement sensors provides recording both size and growth rate of intact rounded fruits in three diameter ranges within 7 to 160 mm. Original parallelogram design of moving arms provides firm and straight positioning of the sensor's flaps on a fruit under study. The FI-type sensor consists of an LVDT transducer mounted in a special clip, and a DC powered signal conditioner.



Standard cable length between sensor and signal conditioner is 1 meter. Standard cable length between signal conditioner and monitor is 4 meters.

Connection

Plug the sensor into any analog input of the PM-11 Phytomonitor or the PTM-48A Photosynthesis Monitor. In the PC program, specify the input number where the sensor is connected to.

If you use the sensor for the first time, please make the appropriate record in the Sensors Database as described on page 5 of the PM-11 Phytomonitor Terminal Emulator software Guide or on page 11 of the PTM-48A Photosynthesis Monitor User's Guide.

Sensor data

Type: FI-LP

ID: #xxxx

Description: Fruit Growth

Units: mm

Format: #.##

Measurement mode: Normal

Measurement ranges

Minimum: 30.00 mm

Maximum: 160.00 mm

Max Volts: 2.5 V

Coefficients

Standard

#	Coefficient
C0	3.00000e+001
C1	6.50000e+001
C2	0.00000e+000
C3	0.00000e+000
C4	0.00000e+000
C5	0.00000e+000

Edit

Defaults

FI-LP – Sensors Database Window in PM-11 / PTM-48A

Sensor data

Type: FI-MP

ID: #xxxx

Description: Fruit Growth

Units: mm

Format: #.##

Measurement mode: Normal

Measurement ranges

Minimum: 15.00 mm

Maximum: 90.00 mm

Max Volts: 2.5 V

Coefficients

Standard

#	Coefficient
C0	1.50000e+001
C1	3.75000e+001
C2	0.00000e+000
C3	0.00000e+000
C4	0.00000e+000
C5	0.00000e+000

Edit

Defaults

FI-MP – Sensors Database Window in PM-11 / PTM-48A

Sensor data

Type: FI-SP

ID: #xxxx

Description: Fruit Growth

Units: mm

Format: #.##

Measurement mode: Normal

Measurement ranges

Minimum: 7.00 mm

Maximum: 45.00 mm

Max Volts: 2.5 V

Coefficients

Standard

#	Coefficient
C0	7.00000e+000
C1	1.90000e+001
C2	0.00000e+000
C3	0.00000e+000
C4	0.00000e+000
C5	0.00000e+000

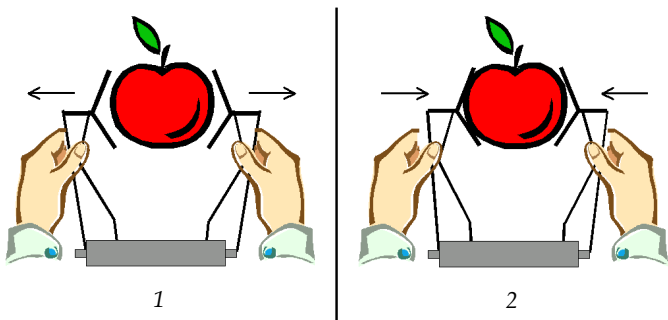
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Defaults

FI-SP – Sensors Database Window in PM-11 / PTM-48A

Installation

- Choose a fruit for attaching the sensor.
- Move clamping jaws apart so as the sensor can hold the fruit in the desired position.



- Check if the sensor holds the fruit firmly and cannot easily slide down with application of gentle force.
- Secure the sensor's cable on a stem to prevent occasional movement of the sensor.
- Check the position of the sensor regularly.

Specifications

	FI-LP	FI-MP	FI-SP
Measurement range, mm	30 to 160	15 to 90	7 to 45
Resolution, mm	0.065	0.038	0.019
Operating temperature	0 to 50 °C		
Temperature effect	< 0.02% total stroke/°C		
Protection index	IP 64		
Cable length between probe and signal conditioner	1 m		
Output cable length	4 m		



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