Bio Instruments S.R.L.

SENSORS AND SYSTEMS
FOR MONITORING GROWING PLANTS

FI-XSP

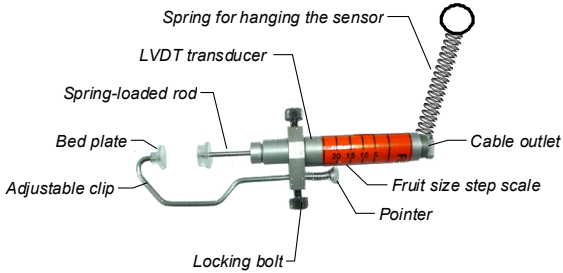
Fruit Growth Sensor
(for 4 to 30 mm fruits)

www.phyto-sensor.com

Introduction

The FI-XSP sensor is designed for monitoring growth of extra small rounded fruits, 4 to 30 mm in diameter.

The sensor includes a linear displacement transducer (LVDT) provided with a special clip for positioning the sensor on a fruit under study. The LVDT stroke is 10 mm while the bed plate position may be adjusted to the fruit size within 3 to 30 mm.

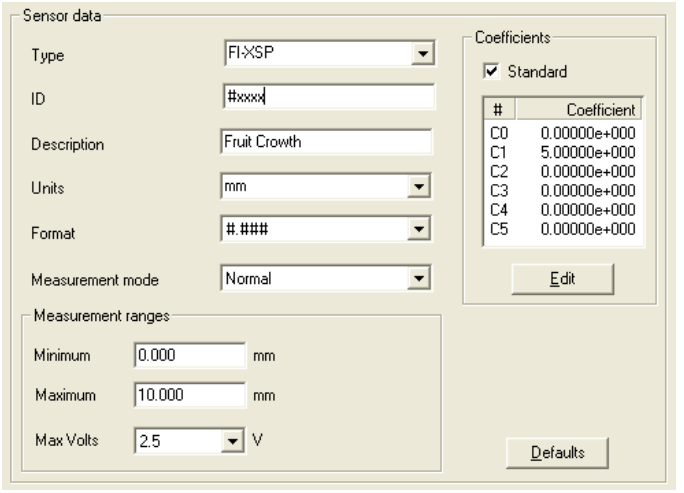


Each FI-XSP sensor is supplied with an electronic signal conditioner and 4-m output cable with the IP67 plug for connecting to the appropriate instrument.

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.

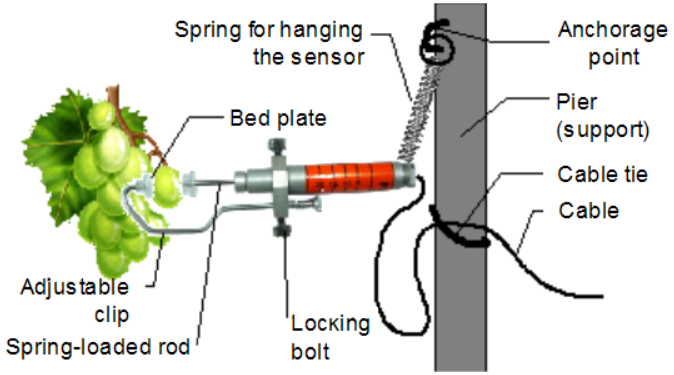
If you use the sensor for the first time, please make the appropriate record in the Sensors Database as described on page 5 of the PM-11 Phytomonitor Terminal Emulator software Guide or on page 11 of the PTM-48A Photosynthesis Monitor User's Guide.



Sensors Database Window in PM-11 / PTM-48A

Installation

Figure below illustrates a proper positioning of the sensor on a plant.



A stationary pier (support) is to be used for positioning the sensor and its cable. At first, adjust the sensor's clip to the fruit diameter by using a step scale located on the sensor's body.

1. Hang the sensor in the vicinity of the fruit using the attached hanging spring.
2. Free locking bolt and move the adjustable clip apart from LVDT transducer. Move the clip back until both a bed plate and a cup of the spring-loaded rod touch the fruit. Continue to move the clip until the pointer reaches the next closest line of the step scale. Fix the locking bolt.

The bedplate must have a firm contact to the fruit surface, which is opposite to the spring-loaded rod. Thus, the fruit is slightly gripped between the bed plate and the rod's cup.

The hanging spring holds the sensor and pulls it slightly backward, providing necessary position of the bedplate, which has to be in close contact with the fruit surface all the time. In this case, the rod moves forward and backward, relatively to the bedplate, following variations of fruit diameter.

The cable shall be secured also as it is shown in the picture.

The actual fruit size may be evaluated as a sum of a sensor reading and a step scale value indicated by the pointer.

Specifications

Adjustable range of fruit diameter	4 to 30 mm
Measurement linear range (LVDT stroke)	0 to 10 mm
Resolution	0.005 mm (w/filter)
Operating temperature	0 to 50 ℃
Temperature effect	< 0.02% total stroke/℃
Protection index	IP 64
Cable length between probe and signal conditioner	1 m
Output cable length	4 m

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