



Bio Instruments S.R.L.

SENSORS AND SYSTEMS
FOR MONITORING GROWING PLANTS

TIR-4T-SDI12

Pyranometer

Quick Start Guide



phyto-sensor.com

Introduction

The TIR-4T Pyranometer is a silicon-cell photodiode device based on the [SP-110-SS](#) Pyranometer (Apogee Instruments, USA), and calibrated to estimate all of the solar radiation energy in Watts per square meter.

All silicon-cell photodiode pyranometers sub-sample the shortwave radiation spectrum (from 360 to 1120 nm), and are calibrated to predict all of the solar radiation (from 280 to 2800 nm). For this reason, they should only be used to measure unobstructed solar radiation. The pyranometers should not be used to measure electric lights, under canopies of vegetation or to measure reflected radiation.

This cosine-corrected sensor is designed to maintain its accuracy when radiation comes from low zenith angles.

Connection

The sequence and correctness of the connection must be observed! The shield shall be grounded at the data loggers side or connected to the 'minus' contact of the power source.

Connection order



| | | |
|---|--------|--------------------|
| 1 | White | Ground |
| 2 | Black | Shield |
| 3 | Yellow | SDI12 Input/Output |
| 4 | Red | Power 5 to 24 Vdc |

Installation

Keep TIR-4T at vertical position.

Data reading

In accordance with SDI12 Standard ([version 1.3](#)).

Power supply

The sensor is to be powered from an external regulated power supply with 5 to 24 Vdc @ 5 mA output voltage.

Customer support

If you ever need assistance with your sensor, or if you just have questions or feedback, please e-mail at support@phyto-sensor.com. Please include as part of your message your name, address, phone, and fax number along with a description of your problem.

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Specifications

| | |
|-----------------------|----------------------------------|
| Calibration | Natural sunlight |
| Measurement range | from 0 to 2000 W m ⁻² |
| Absolute accuracy | ±5% |
| Repeatability | ±1% |
| Cosine response | ±5% at 75° zenith angle |
| Field of View | 180° |
| Spectral Range | 360 to 1120 nm |
| Output | SDI12 |
| Power supply | from 5 to 24 Vdc @ 5 mA max |
| Operating temperature | 0 to 50 °C |
| Dimensions | 24 Ø × 33 H mm |
| Mass (with cable) | 180 g |
| Cable length | 5 m |
| Protection index | IP67 |