Radiation sensor 360-1120 nm
Apogee SP214

Art. nr. 3156.1

Data sheet of Greenspec product with instruction on connection to the Greenspec AFP and AFP lite

This Pyranometer sensor from Apogee measures the main portion of the light from the sun and other light sources.

It is a useful sensor to evaluate the total energy from the sun. The pyranometer is very useful for regulating the climate condition in greenhouses and to control the irrigation inside and outside of greenhouses: with high radiation the temperature rises, so more ventilation and often more irrigation is needed.

The sensor can measure both sunlight and artificial light but only if the radiation is in the range of 360 to 1120 nm. The value is quantified in the unit W/m^2 . For the 4-20 mA version the sensitivity is 125 W/m^2 per mA. This means the range you can measure is 0-2000 .

This unit cannot directly be compared with a PAR sensor, which measures light in the range of 400 to 700 nm and quantifies the light that plants need for photosynthesis. But the values correlate somewhat with each other: if the pyranometer measures a high value in its range of 360 to 1100 nm, this covers at least all the light that plants use to grow.

It is important to mount it on a larger plate that is then carefully positioned horizontally. Check this with a level. Inside the greenhouse care must be taken that there is no shade onto the sensor from either the construction or leaves. All electronics are included in the sensor.

Maintenance is rarely needed, but do check for bird droppings. The sensor is waterproof. It can be disconnected from the cable at the sensor head, for easy mounting and maintenance. Clean with water and a soft towel. To check if the sensor works shine the light of your mobile on it, that gives a response

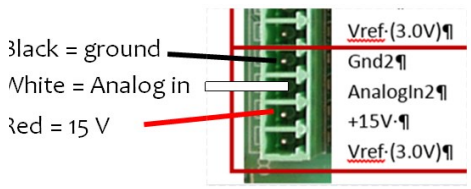
Cable connectors are attached directly to the head.

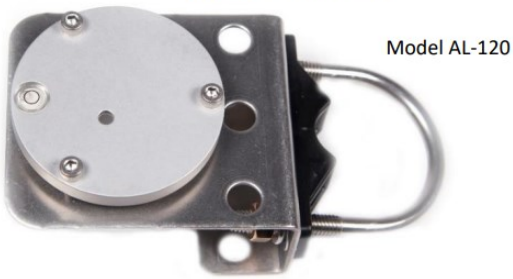
Installation hardware

Mount the unit with the nylon screw onto a larger plate. (do not use a metal screw). Position this plate horizontal with the cable towards the north pole. Take off the plastic cover when the sensor is in use. Apogee supplies a practical mountng plate.

Check that no shadows can interfere with the sensor.

Connect the 3 wires as described, connect grey wire nr. 4 to ground.





Model AL-120

Software configuration in the AFP input menu

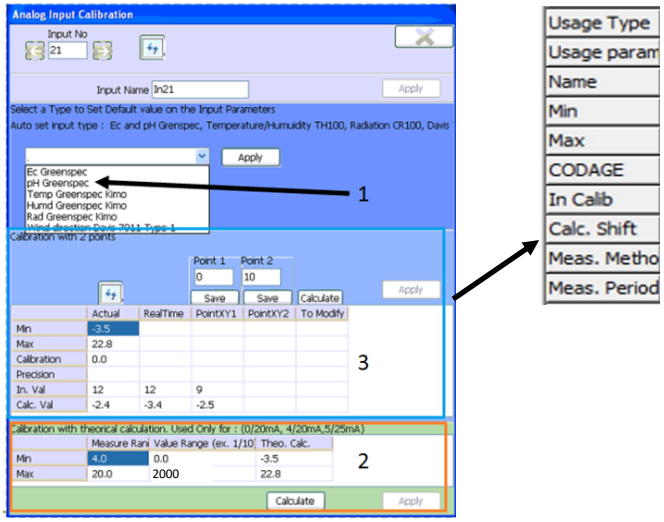
Identify the sensor in AFP config:

Select type Analog, select the correct input number, give the name PAR sensor.

Set the values as indicated in the calibration in **option 2**. Fill in: 4-20 mA, range 0-2000, press calculation and apply.

Now cover the sensor so that no light comes into it and check that the value goes to zero.

If the value is not zero, correct in the input settings by setting the opposite value in calculated shift, so if you read –10m set the shift to 10, if you read +5, set the shift to –5. This correction is important for a correct daily sum.



For installation or maintenance the sensor can be disconnected at the sensor head. Do follow these instructions!

Tightening: Connectors are designed to be firmly finger-tightened only. There is an o-ring inside the connector that can be overly compressed if a wrench is used. Pay attention to thread alignment to avoid cross-threading. When fully tightened, 1-2 threads may still be visible.

WARNING: Do not tighten the connector by twisting the black cable or sensor head, only twist the metal connector (yellow arrows).

Technical specifications	
General data	Apogee SP-214
Mechanical construction	Dimensions: diameter 30mm, height 37 mm, weight approx. 0,14 kg, with 5 m cable
Materials	Steel housing, anodized black, polymer optical window, nylon screw.
Input parameters	Measuring range: 0-2000 W/m^2
Output parameters	Instantaneous, range 360-1120 nm. Measuring error 1 % , drift<2% per yr.
Electrical connection data	Power supply 7-24 VDC Power consumption 22 mA
Process conditions	Operating temperature range –40 - +70 °C, humidity 0-100% Position horizontal, with cable to true north, check carefully for any possible shadow
Ambient conditions	Storage temperature –10 … +70 °C Ingress protection IP 68 Install when dry, else trapped water may enter connector. Electromagnetic compatibility acc. to 2014/30/EU Electromagnetic Compatibility (EMC) Directive 2011/65/EU Restriction of Hazardous Substances (RoHS 2) Directive 2015/863/EU Amending Annex II to Directive 2011/65/EU (RoHS 3)
Warrantee	4 years

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