Connection of the CO_2
Sensor Aerasgard RPCO2
Part nr. 5106.1

Instruction for connection of the CO_2 sensor to the Greenspec AFP, or AFP light.

Manufacturor: S+S Germany

Name of unit: Aerasgard RPCO2

Application

Unit that measures the CO_2 concentration in air, used for the regulation of the CO_2 level in greenhouses. This is one of the main growth factors, if the plant cannot absorb CO_2 it cannot grow. Ambient levels are 400 ppm and up. Fast growing plants can lower this to <200. It is useful to add extra CO_2 for faster growth, up to a level of >1000 ppm. Too much CO_2 .harmful for people. CO_2 can be added by cogeneration burning or from a source of CO_2, like cleaned industrial exhaust gas.

The unit has an infrared sensor, placed inside of the pendle, that can be installed in the flow of a ventilator. The response time is ca 1 m, to 100% in 5 min. The sensor can be set to 3 ranges: 0-2000, 0-5000, 0-10.000 ppm.

Set it for a standard greenhouse as 0-2000, with a cogenerator as 0-5000.

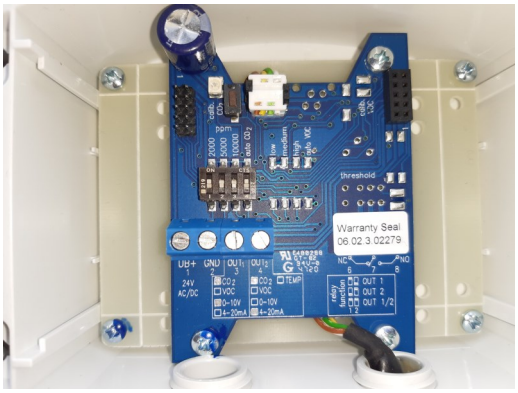
Connecting to: Electrical connection to AFP, see below. For programming see next page

Hardware Installation

Choose a suitable place, mount the electronic housing and install the sensor in the pendle in the flow of a ventilator or directly in the greenhouse.

Maintenance: Switch off the autocalibration if used in a greenhouse, calibrate manually every 6 months for high precision.

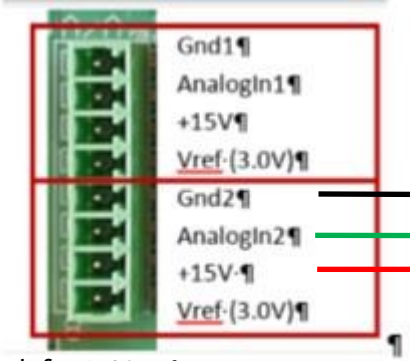
Open housing:



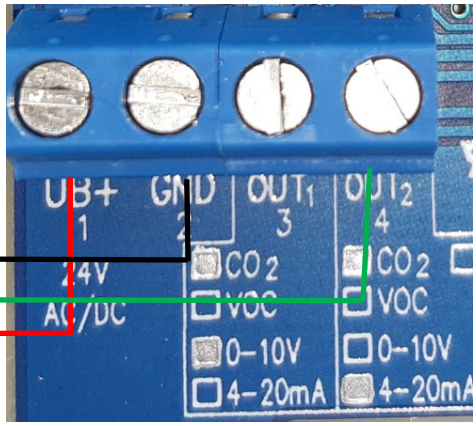
Hardware connection to AFP:

Example to connect to Analog in nr. 2:

AFP



S+S Aerasgard CO2

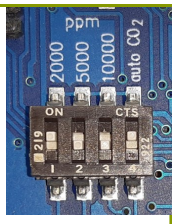


Set the dipswitch for 4-20 mA

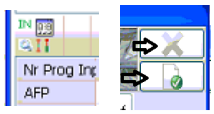
Program setting details:

Set the range with the dipswitch in the sensor as 0-2000 (without CO2 dosing) or 0-5000 (with CO2 dosing).

Set the autocalibration function on off if used in a greenhouse.



Go to AFP config, set the correct hardware inpunt number, select analog, usage at default. Give a name.



Then click on the left top symbol and you reach the calibration section:

Nr Prog Inp	5
AFP	1:AFP456 Climate:
Hard Type	0:Ana
Nr In Hard	5
Usage Typ	0:Default
Usage para	0:Default
Name	CO2
Min	-1250.0
Max	8125.0
CODAGE	4095
In Calib	0.0000
Calc. Shift	0.0000
Meas. Meth	2:Average
Meas. Peric	00:01:00
....	
NrEvent Mi	0
NrEvent Ma	0

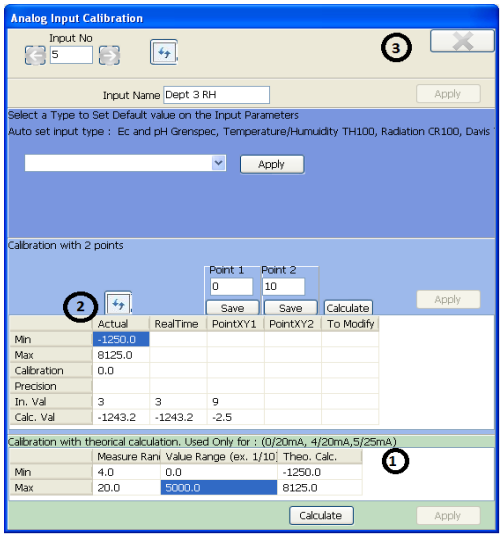
1: Go to the bottom section, set 4-20 equivalent to 0 to 2000 or 0-5000. Click on calculate and you see the theoretical range.

2: Click on apply and you will see this also in the calibrate with 2 point section.

3: After you close you will also read this range in the input settings setting (see left).

Then save the settings by clicking on the green confirm sign. After that close the window by clicking on the X.

Calibrate every 6 months by using the 2 point calibration function. See the manual for instruction.



Technical specifications

General data	S+S Regeltechnik Aerasgard RPCO2
Mechanical construction	Dimensions housing: (L x B x D) 90,9 x 80 x 48mm Weight 150g, Sensor: cable 2 m, sensor Ø25x 80mm
Materials	Polycarbonate housing
Input parameters	optical NDIR sensor (non-dispersive infra-red technology) with automatic and manual calibration Accuracy: ± 75ppm ± 5% MW up to 5,000ppm, otherwise ± 100ppm ± 5% MW @ 20°C, 45%r.H., 1013mbar, auto calibration activated. Response time <5 min for 100%
Output parameters	Current range 4 ... 20 mA, corresponds with –2000, -5000, -10.000 ppm. Output signal 4-20 mA 2 threads
Electrical connection data	Power supply 24 Vdc Consumption 100 mA
Process conditions	0...98% r.H., pollutant-free, non-precipitating air, temp. 0- +50 °C Pressure dependence 0.16% of measured value/hPa Difference to 1013mbar
Ambient conditions	Storage temperature –20 ... +50 °C Electromagnetic compatibility Interference emission and immunity acc. to EN 61326:1997 / A1:1998 Subject to modification.

GREEN SPEC

Horticulture automation

Groningen, The Netherlands

www.greenspec.nl / info@greenspec.nl