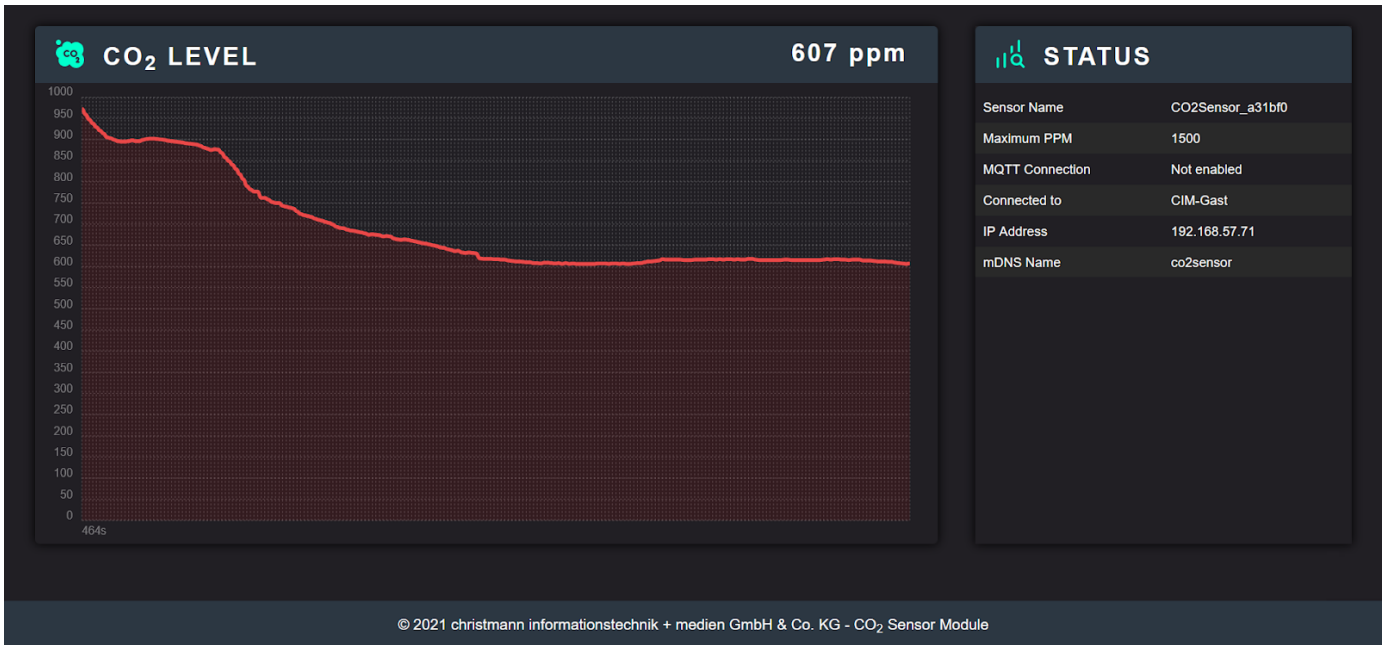
COSIO CO_2-Sensor

COSIO indicates air quality by measuring the CO_2 concentration present in the room. This allows the User to take action regarding room ventilation, for instance opening windows or regulating climate control. Chances of infection through aerosols and negative eects like drowsiness by high CO_2 levels are lowered by the active air monitoring solution provided. COSIO comes with bright LED lights that indicate the CO_2 concentration in the room. Exact CO_2 ppm values and sensor information like system status can be read from the screen in the front.

1. IoT capability

The COSIO sensor is capable of connecting to WiFi networks. Sensor data can be accessed by devices in the network or read remotely via MQTT. Upon connecting the COSIO Sensor to the power supply, a WiFi access point is opened which allows configuration over the sensor's web interface. The sensor can be connected to the local WiFi and is now accessible via the IP address that is shown on the screen.



christmann informationstechnik + medien GmbH & Co. KG
Internet: cosio.christmann.info
E-Mail: cosio@christmann.info
Telefon: 05172 98760

2. Measuring performance

COSIO comes with an NDIR infrared gas module and a measuring range from 0 ~ 5000 ppm. The sensor has a measurement accuracy of ± 50ppm and an automatic calibration routine. A manual calibration over the web interface is possible, counteracting over-time measurement drifts.

3. Cloud access

Sensor data can be collected in the cloud for a versatile and easy monitoring of Co_2 levels of multiple sensors. COSIO with WiFi comes with an MQTT interface, making easy data collection possible.

4. Optical Co2 Indication

The bright RGB LEDs light up to the room's corresponding Co_2 level with green representing good air quality (ppm < 900) and red representing bad air (ppm > 1500). The ppm zones can be adjusted in the sensor's web interface. The OLED screen displays the current Co_2 ppm value read by the sensor module.

5. Setup procedure

5.1 COSIO Standard

Setting up the standard version just requires a 5 V 1 A power source and a micro USB cable. The sensor is ready-to-use as soon as power is provided.

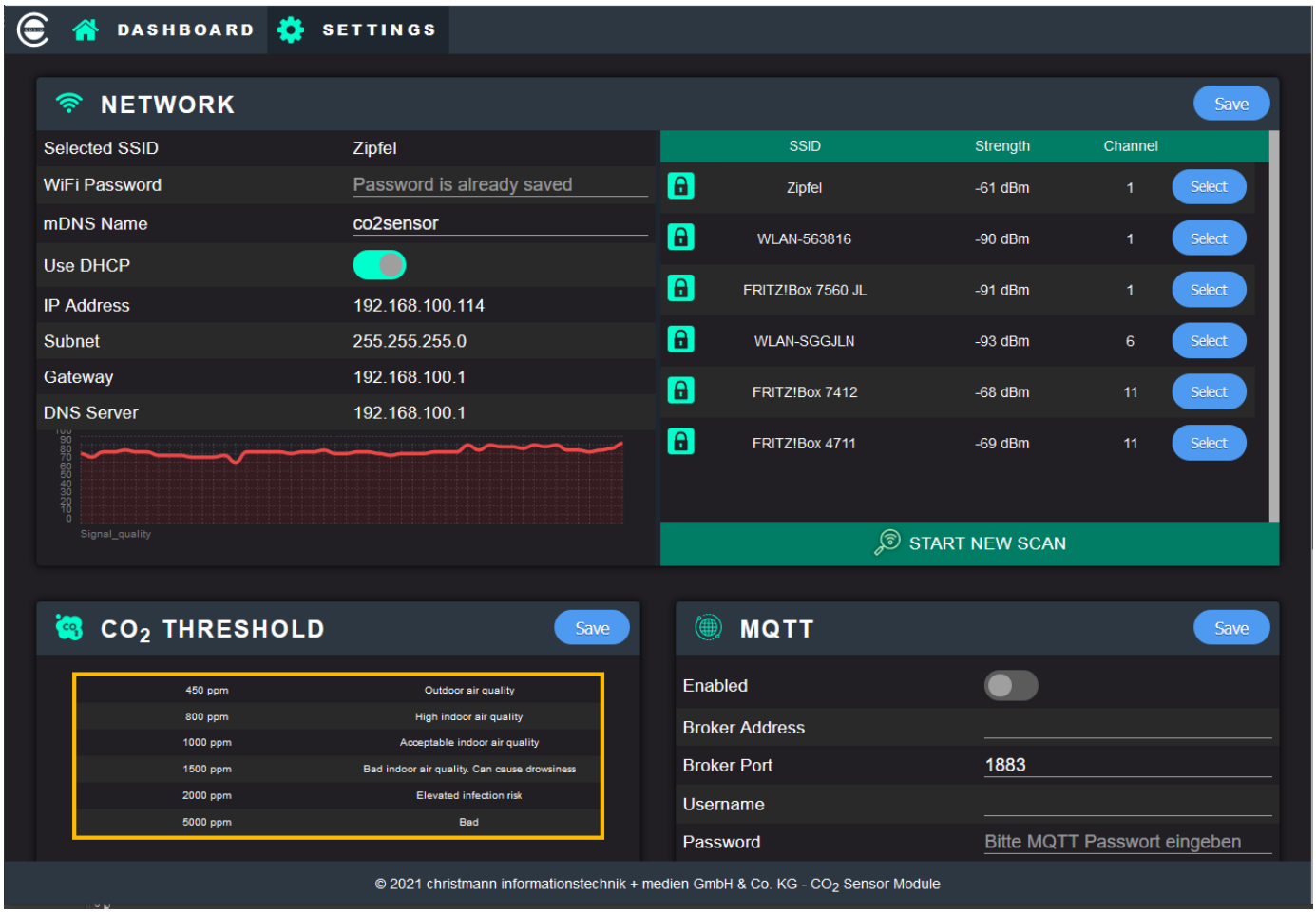
5.2 COSIO WiFi

Setting up the WiFi version requires a 5 V 1 A power source and a micro USB cable. The sensor ships without a network configuration, thus Access Point mode is activated. Configurations can be made by connecting to the sensor's WiFi network and opening the web interface.

Access Point Mode SSID	CO_2 Sensor
Access Point Mode Password	CIMcosio
Sensor Web Interface	http://192.168.4.1

5.2.1 Settings - connecting to a local WiFi network

Step 1: Scan for Networks
Step 2: Select the local WiFi Network
Step 3: (optional) place the sensor at a location with a good signal strength.
The graph in the bottom left shows the current WiFi signal strength.
Step 4: Enter WiFi Password
Step 5: Save settings and reboot sensor



The Sensor shows its IP address on the screen upon rebooting. Now the web interface can be accessed inside the local network it was connected to.

6. Calibration

The NDIR sensor module requires manual calibration every six months. This compensates sensor measurement drift and is necessary for accurate readings.
The settings tab in the web interface has the option “Manual Calibration” that calibrates the sensor on the next poweron.

Step 1: Switch on “Manual Calibration”
Step 2: Turn off device
Step 3: Expose sensor to fresh air (best if taken outside)
Step 4: Power on the sensor
Step 5: Wait twenty minutes for calibration to complete

We recommend letting the “Automatic Baseline Correction” disabled.

7. Technical Data

CO_2 Module	Winsen MH-Z19c
Measurement method	NDIR (non-dispersive infrared measurement)
Measurement range	0 ~ 5000 ppm
Energy suppy	< 5 W - 5 V 1 A micro USB
Case measurements	50x 34 x 50 mm (W x D x H)
Working temperature	0 ... 50 °C
Case material	PLA
COSIO WiFi	
WiFi standard	2.4 Ghz 802.11 b/g/n