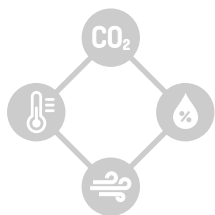


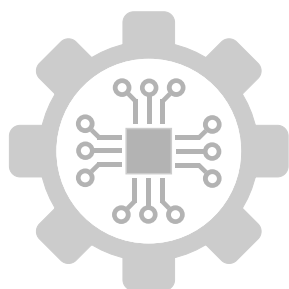


## PORTABLE CARBON DIOXIDE SENSOR

### KS-412 USER MANUAL



www.emskontrol.com



#### WHAT IS IT?

The portable carbon dioxide sensor allows you to make measurements in different environments. It precisely measures the carbon dioxide value in the environment, it instantly transmits the measured values to the digital screen. The built-in battery allows you to carry it and use it in different areas.

#### HOW DOES IT WORK?

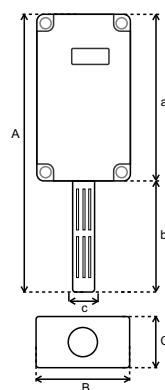
It works and charges with  $\ominus$   $\oplus$  a 12 V DC adapter. It allows you to turn the product on and off with the switch on it.

#### GENERAL FEATURES

Accurate and Precise Measuring, Internal Battery, Durable and Handy Design, Long Operating Life, IP 67 Plastic Case (Excluding Sensor)

#### AREAS OF USE

HVAC Applications, Poultry Automation and Poultry Farms, Cold Storage, Incubation Rooms, Food Storage, Air Conditioning Cabinets, Clean Rooms and Laboratories.



Sizes	
A	193 mm
B	65 mm
C	40 mm
a	115 mm
b	78 mm
c	16 mm

Technical Data	
Product Name:	Portable Carbon Dioxide Sensor
Supply Voltage:	12-24 V DC
Output:	-
Measurement Range:	0-5.000 ppm / 0-10.000 ppm
Precision:	$\pm 10$ ppm
Accuracy:	$\pm 50$ ppm + %2
Operating Temperature:	(-10°C) - (+55°C)
Storage Temperature:	(-20°C) - (+60°C)
Protection Class:	IP 67 (Excluding Sensor)

#### RULES TO BE CONSIDERED FOR SAFETY

- 1- Always read the user manual before using the device and its apparatus.
- 2- Damages caused by opening, breaking or misuse of the plastic parts of the device and its apparatus are considered out of warranty.
- 3- Keep the device and its apparatus away from external influences such as liquid, high dust, high temperature, etc. and protect them.
- 4- Do not expose the device cables to any jamming and pressure.
- 5- Our devices and apparatus should be used by paying attention to the points in the user manual. In case of damages and malfunctions arising from external use (liquid contact, falling to the ground, etc.) ask for help from the service.

#### INSTALLATION

- 1- Our portable sensors are delivered to the user as charged. As soon as you unpack the product, you can turn it on and use it using the on-off button.
- 2- Since the device is portable, you do not need to make any installation. You can measure the values in different environments by moving your charged product around in your hand.

3- If the device is to be used on the wall or in a fixed place, it is possible to connect it to the power supply with the adapter and use it wired.

4- The device starts measuring 30 seconds after switching on. It is recommended to leave the product in the environment for at least 5 minutes to get healthy measurement values.

#### ADAPTER / CHARGER / BATTERY

- 1- You can charge your device either off or on.
- 2- Reaches full charge capacity in 2.5 hours when your device is turned off.
- 3- Portable carbon dioxide sensor battery usage time is 5 hours.

#### BEFORE CALIBRATION

- 1- The product is sold as calibrated. Please do not calibrate unless necessary.
- 2- Perform calibration only when it is certain that the product is measuring incorrectly.
- 3- Compare the measurement value of the device with another device or with a clean and open air control.
- 4- If the device measures values outside the range of 350 ppm - 450 ppm in clean and open air, calibration can be performed.

#### CALIBRATION

- 1- A clean and open area away from any carbon dioxide source should be selected for carbon dioxide calibration.
- 2- The amount of carbon dioxide in clean and open area varies between 350 ppm - 450 ppm. When calibration is done, the product takes the value at the time of calibration as 400 ppm.
- 3- When the "Calibration" button on the product is pressed and held for 5 seconds, a 10 minute countdown starts, the calibration process is completed after the countdown ends.
- 4- If the calibration process was started by mistake, you can turn off the device with the on-off switch on the device. In this way, you can cancel the calibration process that you have started by mistake.

## USER MANUAL

### DECLARATION OF CONFORMITY

Headquarters and place of production, Halkapınar Mah. 1376 Sok. Boran Plaza No:1/L Konak / İZMİR - TÜRKİYE, EMS KONTROL ELEKTRONİK VE MAKİNE SAN. TİC. A.Ş. declares that the product marked with CE, whose name and specifications are given below, covers the specified directives and provisions.

Brand: EMS KONTROL  
Product Name: KS-412  
Product Type: Portable Carbon Dioxide Sensor

Compatible Directives:

Elektromagnetic Compatibility Directive  
2014/30/EU (EMC EN 61000-6-3: 2007 + A1: 2011, EN 61000-6-1: 2007)

Low Voltage Directive  
2014/35/EU (LVD EN 60730-2-9:2010, EN 60730-1:2011)

Additional information: This product can be used in combination with other devices and compliance with the directives covers only the product. EMS KONTROL is not responsible for the compliance of entire system with the directives.

This declaration is not valid if the product is modified without our approval.



**EMS KONTROL ELEKTRONİK  
VE MAKİNE SAN. TİC. A.Ş.**  
Halkapınar Mahallesi 1376 Sok. Boran Plaza  
No:1/L Konak / İZMİR  
EĞE V.D. 334 104 4628  
Mersis No 033410446280001

### WARRANTY TERMS

1- The warranty period of the devices and apparatus starts from the invoice date and is guaranteed for 2 years against manufacturing defects.

2- Devices and apparatus are delivered to the customer in working condition in our company. On-site commissioning is subject to service fee.

3- The repair of the devices and apparatus under warranty is carried out in our company as a result of sending them with the transportation company contracted by our company. In on-site services, transportation and accommodation expenses of the service personnel belong to the customer. The cost of the working time spent on the road is added to the service fee and the collection is made in advance.

4- Maintenance of devices and apparatus is done in our company. Transportation and transportation fees of the devices and apparatus to and from our company for maintenance belong to the customer.

5- In case of malfunction of the devices and apparatus whose warranty period continues, whether the malfunction is caused by the fault of the customer or the manufacturer is tested in our company and reported with the report to be issued by our company.

6- In case of detection of manufacturer-induced faults of the devices and apparatus whose warranty period continues, the customer may request a replacement or may request that the repair costs of the devices and apparatus be fully covered by the manufacturer, provided that it does not exceed the product price.

7- In the event that the faults of the devices and apparatus whose warranty period continues are determined to be caused by the customer, all costs belong to the customer.

8- If the customer does not indicate that he/she is aware of the defects in the devices and apparatus from the date the warranty period starts or in cases where he/she is expected to be aware, he/she cannot benefit from Article 6.

9- Failures arising from the use of devices and apparatus contrary to the points in the user manual are not covered by the warranty.

10- Devices and apparatus are not covered by the warranty if they are beaten, broken or scratched by the customer.

11- Damages caused by the use of devices and apparatus of other brands and models without the approval of the manufacturer are not covered by the warranty.

12- Errors caused by rusting, oxidation and liquid contact due to working in dusty / acidic / humid environments are not covered by the warranty.

13- Damages that may occur during transportation of devices and apparatus are not covered by the warranty. If the customer wishes, he/she can have transportation insurance.

14- Damages caused by mains voltage / faulty electrical installation are not covered by the warranty.

15- Devices and apparatus are not covered by the warranty in case of malfunctions caused by force majeure such as fire, flood, earthquake, etc.

16- All parts of the devices and apparatus, including all parts, are covered by our company's warranty.

17- If the devices and apparatus malfunction within the warranty period, the time spent in repair shall be added to the warranty period. The repair period of the goods shall not exceed 20 working days. This period starts from the date of notification of the malfunction of the goods to the service station, in the absence of a service station, to the seller, dealer, agent, representative, importer or manufacturer - manufacturer of the goods. It is possible for the consumer to notify the malfunction by telephone, fax, e-mail, registered letter with return receipt or similar means. However, in case of dispute, the burden of proof belongs to the consumer. If the malfunction of the goods is not resolved within 20 business days, the manufacturer-manufacturer or importer; until the repair of the goods is completed, another goods with similar characteristics must be allocated to the use of the consumer.

18- Despite the consumer's right to repair the goods; -Provided that it is within the warranty period from the date of delivery to the consumer, it fails at least four times within a year or six times within the warranty period determined by the manufacturer-manufacturer and / or importer, as well as the fact that these failures make the inability to benefit from the goods continuous, -Exceeding the maximum time required for repair, -If it is determined that it is not possible to repair the malfunction with the report to be issued by the service station of the company's service station, if the service station is not available, respectively by one of its dealer, agency, representative, importer or manufacturer-manufacturer, it may request a refund or a price reduction at the rate of defect.

19- Customer may file complaints and objections to consumer courts or consumer arbitration committees.

20- The warranty certificate must be kept by the customer during the warranty period. In case of loss of the document, a second document will not be issued. In case of loss, repair and replacement of devices and apparatus will be made for a fee.



This device is a Waste Electrical and Electronic Device according to the directives applied in Europe 2002/96/EC. (WEEE) Before scrapping or throwing away this device, you must prevent its potential negative consequences for the environment and human health. Otherwise it would be inappropriate waste. This symbol on the product is intended to warn that the product should not be treated as household waste and should be delivered to electrical and electronic waste collection points. Disposal of the product must be done in accordance with local environmental regulations. You can obtain detailed information from authorized units on how to destroy, reuse and recycle the product..

#### Manufacturer's

Title: EMS KONTROL ELEKTRONİK VE MAKİNE SAN. VE TİC. A.Ş.

Address: Halkapınar Mah. 1376 Sokak Boran Plaza No:1/L Konak / İzmir-TÜRKİYE  
Telephone: 0 (232) 431 2121  
E-Mail: [info@emskontrol.com](mailto:info@emskontrol.com)

Company Stamp:

**EMS KONTROL ELEKTRONİK  
VE MAKİNE SAN. TİC. A.Ş.**  
Halkapınar Mahallesi 1376 Sok. Boran Plaza  
No:1/L Konak / İZMİR  
EĞE V.D. 334 104 4628  
Mersis No 033410446280001

#### Product's

Type: Portable Carbon Dioxide Sensor  
Brand: EMS Kontrol  
Model: KS-412  
Warranty Duration: 2 Years  
Maximum Repair Time: 20 Days  
Banderol and Serial Number:



#### Vendor Company

Title: .....  
Address: .....  
Telephone:..... Faks:.....  
E-Mail:.....  
Invoice Date and Number:.....  
Delivery Date and Place:.....  
Signature of Authorised Person:.....  
Company Stamp:.....

STAMP

#### Product's

Type: Portable Carbon Dioxide Sensor  
Brand: EMS KONTROL  
Model: KS-412

EMS Kontrol reserves the right to make changes and improvements to the product specifications and user manual.

\*For all changes, please visit [emskontrol.com](http://emskontrol.com).