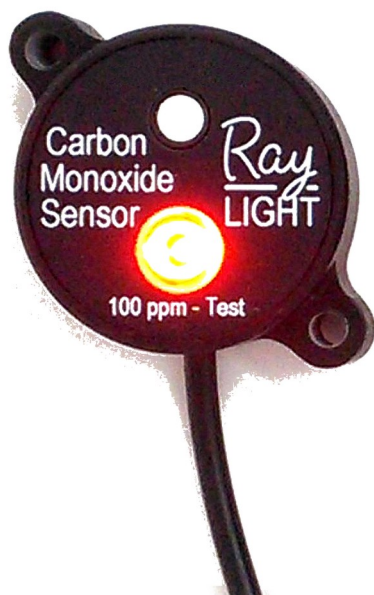


TECHNICAL DATA SHEET (EN)

CARBON MONOXIDE DETECTOR



CO SENSOR

CO concentration sensor with analog output, for connection to an EFIS or on-board computer.

To be installed in the passenger compartment. Powered by the EFIS's 5V output or the vehicle's 12V battery.

Suitable for all internal combustion engine vehicles with an enclosed cabin.



CO METER

Complete and functional measuring device with a digital display of CO concentration.

For dashboard mounting. Powered via USB or the vehicle's 12V battery.

Suitable for all internal combustion engine vehicles with an enclosed cabin.

1. Product information

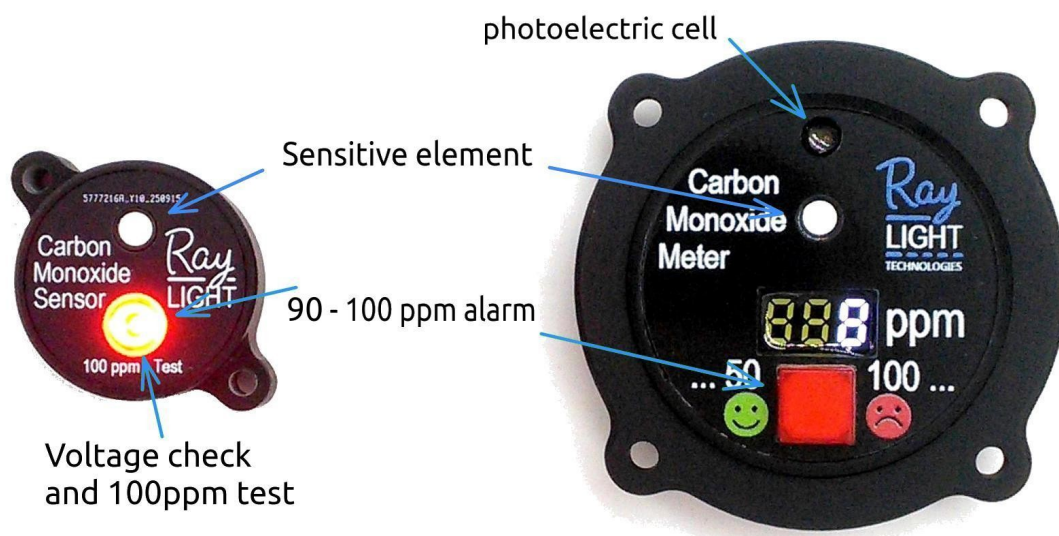
1.1. Description

Carbon monoxide, or CO, is produced by the combustion of fuel in a lack of oxygen (not to be confused with carbon dioxide, or CO₂). A rich-running engine produces a lot of carbon monoxide in its exhaust. Some of this gas can enter the passenger compartment, either through a damaged exhaust system (carburetor heater or cabin heater), or through the rear of the vehicle, which is generally under negative pressure.

Carbon monoxide is an odorless gas, but highly toxic even at low concentrations, as low as 25-50 ppm (parts per million). Two hours of exposure to 100 ppm causes headaches, fatigue, dizziness, and nausea (Lewey & Drabkin). According to ArcelorMittal, 100 ppm "is the threshold at which evacuation is necessary."

The Carbon Monoxide Meter displays the real-time concentration of this gas, with an accuracy of ± 2 ppm (parts per million). A warning light indicates when the value exceeds 100 ppm.

The Carbon Monoxide Sensor provides an analog voltage proportional to the concentration of this gas, with an accuracy of ± 2 ppm. A warning light indicates when the value exceeds 90 ppm.



1.2. Limitations

- Operating temperature range: -10° to 50°C.
- Position the instrument so that it is in the ambient cabin air and legible, but without obstructing the pilot's view.
- Do not expose the instrument to rain or humidity.
- Do not clean the sensitive element with a solvent.
- Do not attempt to disassemble.

For certified aircraft, the instrument must not be integrated into the aircraft, and power must not be supplied by the aircraft's battery.

Raylight Technologies does not warrant its products beyond these limitations and is not responsible for the installation of the device. Raylight Technologies strongly recommends consulting a professional for installation.

Raylight Technologies uses very high-quality components, but they are not subject to a metrological calibration system. Also, the values indicated by the instrument are given for guidance purposes only and Raylight Technologies cannot be held responsible in any way for the interpretation of these values.

1.3. Specifications

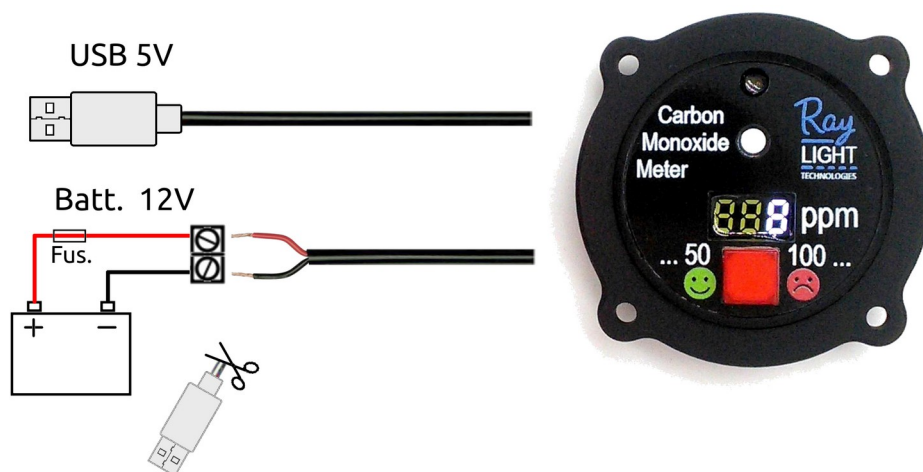
Sensor Specifications		
Measuring Range	0 – 1000 ppm	
Accuracy	± 2 ppm	
Response Time	30 s à 90 % of final value	
Operating Temperature	- 40 ... +55 °C	
Lifespan	> 5 year	
Insensitivity to :	Alcohol, ammonia, carbon dioxide, hydrogen cyanide, hydrogen sulfide, ethylene, hydrogen, isopropanol, methane, nitric oxide, nitrogen dioxide, sulfur dioxide. (depending on concentrations)	
Instrument Specifications		
	CO Meter	CO Sensor
Display	0 à 999 ppm LEDs, automatic brightness	-
Analog Output	-	10 mV / ppm *
Alarm Light	100 ppm	90 ppm
Test Button	-	Voltage Presence + 1 V calibration
Power Supply	5 ... 28 V (USB or 12 V or 24 V battery)	
Current drain	< 50 mA	< 10 mA
Protection	Overvoltage, reverse polarity	
Dimensions	Diameter 52 x 15 mm Instrument 57mm - 2" 1/4	Diameter 32 x 13 mm Instrument 32 mm – 1" 1/4
Weight	40 g	20 g

* 10 mV / ppm → 0 mV for 0 ppm ; maxi : 3,2 V for 320 ppm ; protection : 1 kOhm in série

2. Installation Manual

2.1. CO Meter Installation

The detector can be mounted on the dashboard, either using the included self-adhesive Velcro strip or in a slot for an instrument cluster (adapter included). The detector can be powered by your device's USB charger, a cigarette lighter to USB adapter, or directly from the vehicle's 12V battery. In this case, cut the wire flush with the connector, strip the wires, and connect the red wire to the positive (+) terminal of the battery and the black wire to the negative (-) terminal. The supply voltage is adjustable from 5V to 28V. The positive (+) terminal of the battery must be protected by a fuse (between 1 and 5 A).



2.2. CO Sensor Installation

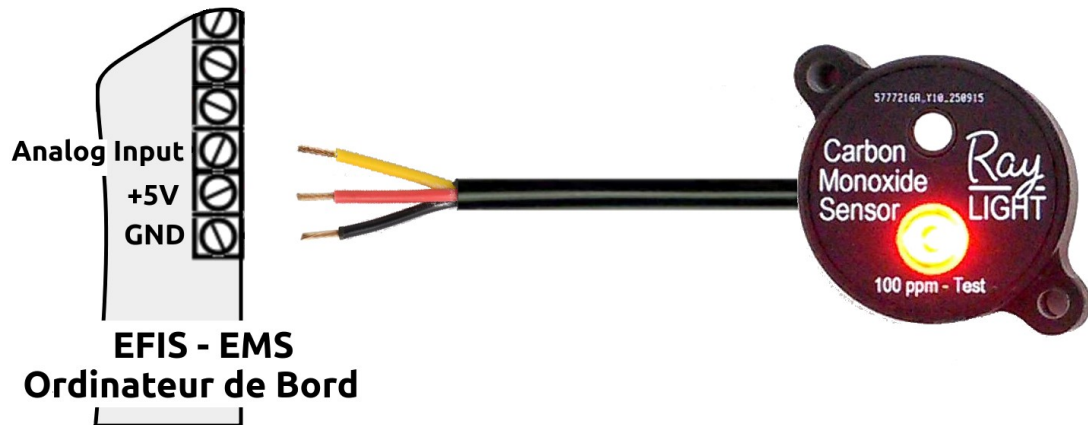
The detector can be installed on the dashboard, either using the supplied self-adhesive Velcro or in a designated 32 mm instrument slot.

The detector can be powered either by the 12 V supply to the EFIS or EMS, or by the 5 V supply from the device's EFIS or EMS. Strip the three wires and connect them to your device's EFIS or EMS:

Connect the red wire to +12V or +5V. Connect the black wire to 0V or GND. Connect the yellow wire to an analog input, e.g., 0-5V.

After powering on, calibrate your EFIS or EMS (away from any CO source):

Set the parameter on your EFIS or EMS so that it indicates 100 ppm of CO when you press the test button. Release the test button and verify that your EFIS or EMS displays 0 ppm.



Note: if needed, it is possible to shorten the cable, or lengthen it using the heat shrink sleeves provided.

Using heat-shrink tubing (if needed):

- 1/ Strip approximately 5 mm of insulation from the wires.
- 2/ Insert the stripped section into the solder ring.
- 3/ Heat with a heat gun until the solder melts.



3. Other Information

- For any information, please contact:

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- Our Frequently Asked Questions (FAQ) section is available on our website.
www.raylight.fr

Declare a non-conformity

You can report a non-conformity by returning this completed form to us .

Last Name*	First Name*	
Phone Number*	Email*	
Postal Address*	Country*	
Company*		
Hho made the sale* ?	Has the product been subjected to any shocks or impacts* ?	
Product concerned*		
Invoice or delivery number*		
When did you notice the non-conformity*?	Date noted*	
Comment* Please detail the conditions under which you used the device.		
Locality*	Date*	Signature*

☐ I certify that my statement is correct.

Fields marked with an asterisk (*) are required.

Raylight Technologies reserves the right to accept non-compliance upon receipt of the defective product. Shipping costs for the potentially defective product are the customer's responsibility. If non-compliance is proven, Raylight Technologies undertakes to reimburse the shipping costs. Raylight Technologies will not process any non-compliance reports by telephone or email.