

MACURCO GAS DETECTORS

CM2B-FCK FIELD CALIBRATION KIT

CONTENTS OF KIT

1. Gas Cylinder of 50 ppm carbon monoxide (CO) in air.
2. Gas regulator with about two feet of plastic tubing. White cap on end of tubing.
3. These instructions.

GENERAL INFORMATION

The heart of the CM-2B is a microcomputer. It constantly monitors various internal operating parameters, the ambient temperature, and the carbon monoxide level. The carbon monoxide reading is determined by measuring the voltage across an electrically controlled potentiometer (EEPOT) that is connected to the CO sensor. The microcomputer takes the CO data, compensates it for temperature, then adjusts the ma output accordingly.

All CM-2B Carbon Monoxide Detectors are factory calibrated when they are shipped to the customer. This calibration should hold indefinitely. However, some jurisdictions, local standards, or customer preferences require periodic re-calibration. This Kit provides the means to fit those requirements.

Macurco recommends checking the operation of the CM-2B every six months, either through use of this Field Calibration Kit or the procedure in the operating instructions. Or, the unit may be tested by one push of the red Test switch (located on the internal cover). This will cause the unit to step its display from 0 to 150 and its output from 4 to 16 milliamps.

This kit allows the CM-2B microcomputer a reference point (50 ppm) to check the setting of the EEPOT. The procedure is fully automatic. The EEPOT stores the corrected setting in a memory device that will not be affected by power outages, or other changes.

WHERE TO DO THE CALIBRATION?

The CM-2B can be calibrated in the field (installed) or in a workshop.
You will need a watch or timer for this calibration.

CALIBRATION PROCEDURE

NOTE: CM-2B WILL HAVE TO BE IN CONTINUOUS OPERATION FOR A MINIMUM OF 72 HOURS BEFORE CALIBRATION AND BE IN CLEAN AIR.

1. Unlatch outer cover of CM-2B case.
2. Remove the lower two screws holding down the hinged cover.
3. Lift hinged cover to expose the CM-2B Printed circuit board.
4. Assemble the gas cylinder to the regulator.
5. Place the white cap from the regulator over the FIGARO TGS 203 (CO sensor).

NOTE: Have gas on CO sensor for about two minutes before proceeding.

6. Push Gray switch (labeled S2 located to the right of 28 pin microcomputer) **three** times.
 - a. After ten seconds units display should read **-c-** (calibration mode).
 - b. If display does not read **-c-** wait 20 seconds and repeat step 6.
 - c. Observe the time, or start the timer. The calibration cycle will be up to 2 1/2 minutes.
7. When the unit has successfully completed the calibration mode the display will read 050. Remove the gas from this CM-2B. This 050 reading will hold for 2 1/2 minutes, then the CM-2B will display the level of the ambient air. Go to step 9.
8. If after 2 1/2 minutes, the display reads either a continuous E08 or 000:
 - a. Remove the gas. Push the Red Test switch (located on the hinged cover) once to restart the test cycle. Go on to calibrate another unit, or disassemble the apparatus.

CM2B-FCK (CONT.)

- b. Wait at least 10 minutes, *check that the cylinder has pressure*, then try the procedure again from step 4 on the unit that read E08 or 000.
 - c. If the same unit fails to calibrate again, return it to the factory for service.
9. Disassemble the gas canister and the regulator.
 10. Reassemble the cover of the CM-2B. You are done.

NOTE: If a problem occurs, in the procedure check that CO canister has pressure. If problems persist contact the factory.

TESTING CANISTER AND REGULATOR

Several detectors can be calibrated with one FCK. The only limitation is the amount of gas in the cylinder. The cylinder has approximately 8 hours of continuous calibration run time. Replacement cylinders are available.

To check if the CO cylinder has pressure, put the white cap into a container of water. Bubbling indicates there is gas in the cylinder.

LIMITED WARRANTY

The CM2B FIELD CALIBRATION KITS are warranted to be free from defective material and workmanship for a period of one (1) year from the date of installation. If any component becomes defective during the warranty period, it will be replaced or repaired free of charge, if the unit is returned in accordance with the instructions below. This warranty does not apply to units that have been altered or had repair attempted, or that have been subjected to abuse, accidental or otherwise. The above warranty is in lieu of all other express warranties, obligations or liabilities. **THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE LIMITED TO A PERIOD OF ONE (1) YEAR FROM THE PURCHASE DATE.** Macurco shall not be liable for any incidental or consequential damages for breach of this or any other warranty express or implied arising out of or related to the use of said gas detector. Manufacturer or its agents liability shall be limited to replacement or repair as set forth above. Buyer's sole and exclusive remedies are return of the goods and repayment of the price, or repair and replacement of non-conforming goods or parts. (The Uniform Commercial Code applicable in the State of Colorado shall govern.)

RETURN INSTRUCTIONS

Call (303) 781-4062 for a Return Authorization number. Then carefully pack the calibration kit with a written description of the nature of the return. Send the unit to the following address:

Macurco
3946 South Mariposa Street
Englewood, Colorado 80110

REV. 11/95