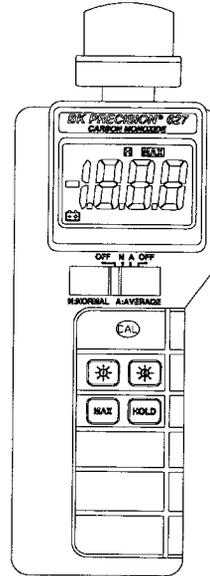


**OPERATING INSTRUCTIONS**  
**BK PRECISION® 627 CE**  
**CARBON MONOXIDE METER**



### SPECIFICATIONS

#### GENERAL

**Display:** 3 1/2 digit liquid crystal display (LCD) with maximum reading of 1999

**Low battery indication:** the "  " is displayed when the battery voltage drops below the operating level

**Operating Environment:** 32°F to 105°F (0°C to 40°C) at 15% to 90% relative humidity

**Storage Temperature:** -4°F to 140°F (-20°C to 60°C) , 0 to 80% R.H. with battery removed from meter

**Battery:** Standard 9V battery (NEDA 1604, IEC 6F22 006P)

**Battery Life:** 200 hours typical

No measurable current draw when in " off " position

**Dimensions:** 189mm(H) x 67mm(W) x 35mm(D)

**Weight:** approx.193g including battery

### OPERATING INSTRUCTIONS CARBON MONOXIDE INTRODUCTION

The carbon monoxide meter enables to measure low level of carbon monoxide in parts per million (PPM).

It is intended to measure levels of CM in still ambient air. It uses a catalytic chemical sensor that consumes no chemicals.

Life is primarily determined by the type of exposure.

The most practical application is to determine if the indoor CM levels are higher than outdoor levels and to determine the source.

This instrument detects changes in CM levels very quickly. The faster the beeper sounds, the higher the concentration of CM.

Above 200PPM, the beeper sounds continuously, and the frequency of the tone increases with the concentration of CM.

This instrument is a portable easy use 3 1/2 digit, compact sized digital carbon monoxide meter designed for simple one hand operation. Meter with Backlight LCD display.

#### WARNING

Do not take measurements directly at a tailpipe, in a furnace flue, or at a register. See precautions.

Do not rely solely on a carbon monoxide measurement to determine if a heat exchanger is bad.

See heat exchangers

### SAFETY INFORMATION

It is recommended that you read the safety and operation instructions before using CM level Health effect

|           |  |
|-----------|--|
| 0-1 ppm   | Normal background level.   |
| 9 ppm     | Maximum indoor air quality level.  |
| 50 ppm    | Maximum concentration for continuous exposure in any 8 hour average level. |
| 200 ppm   | Mild headache, fatigue, nausea and dizziness.                              |
| 400 ppm   | Frontal headache, life threatening after 3 hours.                          |
| 800 ppm   | Death within 2 hours.  |
| 1600 ppm  | Nausea within 20 minutes, death within 1 hour.                             |
| 12800 ppm | Death within 1 to 3 minutes.   |

**PRECAUTIONS**

1. Do not measure gas engine exhaust or other high CM or highly contaminated gases.  
High levels of CM and other contaminants can ruin the sensor.
2. Do not take readings directly in stream of air at register or in a flue.
3. Allow enough time for accessory head to reach ambient temperature and RH%.  
Air being measured must be stable and between 0°C and 40°C (32°F and 105°F) and 15%RH and 90%RH.  
Temperature and humidity changes can cause transient readings.  
For best results, use a Hand pump to sample the air, cool it to near room temperature, and raise the relative humidity.

**How to use**

1. Slide the switch at "Average" or "Normal" to measure the concentration of CM.
2. Let stabilize for at least 45 seconds.
3. Take the instrument outside and adjust it to zero.  
Then bring inside to take measurements.
4. Expose sensor to a still, stable air sample.  
(see precautions)  
The display reacts to the presence of CM in seconds.  
Take final reading when reading stabilizes.

**OPERATING INSTRUCTIONS**

Push Button

Back-Light Button

Press "☼" button to turn the Back-Light on.

Press "☼" button to turn the Back-Light off.

**DATA HOLD Button**

Pressing the "HOLD" key to enter the Data Hold mode, the "H" annunciator appears on the display.

When DATA HOLD mode is selected, the meter held the present readings and stops all further measurements.

Pressing the "HOLD" key again cancels DATA HOLD mode, causing meter to resume taking measurements.

**MAX HOLD Button**

Pressing the "MAX" key to enter the MAX HOLD mode. The meter then records and updates the maximum absolute values and the "MAX" annunciator appears on the display. Pressing the "MAX" key again to exit the MAX HOLD recording mode.

In the MAX HOLD mode, press "HOLD" key to stop the recording, press "HOLD" key again to resume recording.

5. For initial test, walk around the building, watching for the readings to go up to determine where maximum concentrations of CM are.

To measure air from register, use a pump or measure out of the air stream.

Hot blowing air can adversely affect the reading.

The temperature of the sample must be near ambient.

6. Push "MAX" to read the maximal reading.

Push "HOLD" to hold the maximal reading

Push "☼" to turn on the backlight.

Push "☼" to turn off the backlight.

7. Average mode can read a stable reading.

**Zeroing the Sensor**

Turn on the power and allow the displayed reading to stabilize before proceeding approximately 30 seconds.

Then with the instrument sampling fresh air (air that is free of CM), remove cap of cover "CAL" use attached screw driver to adjust VR which is in the hole for a reading of  $000 \pm 2$ ppm.

If you're not sure about the quality of the surrounding air, you can apply a blend of Oxygen/Nitrogen gas to the sensor as described under calibration.

If rapid temperature changes are encountered (such as from freezing to room temperatures) during the operation of the analyzer, the operator must allow the analyzer to stabilize at the ambient temperature for at least 2 minutes before taking a measurement.

**CM DETECTORS and CRACKED HEAT EXCHANGER**

A CM detector cannot tell you if a heat exchanger is good. A CM detector can indicate a heat exchanger is cracked only if all of the following conditions occur simultaneously:

1. The flame generates enough CM (lack of oxygen, excess fuel, high temp).
2. Enough exhaust gases are emitted from the heat exchanger crack.
3. The exhaust gases from the crack are not diluted too much before coming in contact with the sensor.

A cracked heat exchanger may leak CM in a small stream.

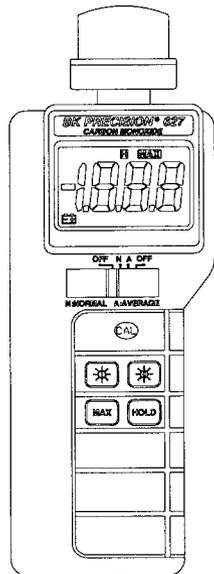
You may measure high concentrations at one point but low concentrations only an inch away.

4. The heat exchanger is the only possible source from the CM detected.

# OPERATING INSTRUCTIONS

**BK PRECISION® 627** 

## CARBON MONOXIDE METER



### SPECIFICATIONS

#### GENERAL

**Display:** 3 1/2 digit liquid crystal display (LCD) with maximum reading of 1999

**Low battery indication:** the "  " is displayed when the battery voltage drops below the operating level

**Operating Environment:** 32°F to 105°F (0°C to 40°C) at 15% to 90% relative humidity

**Storage Temperature:** -4°F to 140°F (-20°C to 60°C), 0 to 80% R.H. with battery removed from meter

**Battery:** Standard 9V battery (NEDA 1604, IEC 6F22 006P)

**Battery Life:** 200 hours typical

No measurable current draw when in " off " position

**Dimensions:** 189mm(H) x 67mm(W) x 35mm(D)

**Weight:** approx. 193g including battery

### OPERATING INSTRUCTIONS CARBON MONOXIDE

#### INTRODUCTION

The carbon monoxide meter enables to measure low levels of carbon monoxide in parts per million (PPM).

It is intended to measure levels of CM in still ambient air. It uses a catalytic chemical sensor that consumes no chemicals.

Life is primarily determined by the type of exposure.

The most practical application is to determine if the indoor CM levels are higher than outdoor levels and to determine the source.

This instrument detects changes in CM levels very quickly. The faster the beeper sounds, the higher the concentration of CM.

Above 200PPM, the beeper sounds continuously, and the frequency of the tone increases with the concentration of CM.

This instrument is a portable easy use 3 1/2 digit, compact-sized digital carbon monoxide meter designed for simple one hand operation. Meter with Backlight LCD display.

#### WARNING

Do not take measurements directly at a tailpipe, in a furnace flue, or at a register. See precautions.

Do not rely solely on a carbon monoxide measurement to determine if a heat exchanger is bad.

See heat exchangers

### SAFETY INFORMATION

It is recommended that you read the safety and operation instructions before using CM level Health effect

0-1 ppm Normal background level.

9 ppm Maximum indoor air quality level.

50 ppm Maximum concentration for continuous exposure in any 8 hour average level.

200 ppm Mild headache, fatigue, nausea and dizziness.

400 ppm Frontal headache, life threatening after 3 hours.

800 ppm Death within 2 hours.

1600 ppm Nausea within 20 minutes, death within 1 hour.

12800 ppm Death within 1 to 3 minutes.

### PRECAUTIONS

1. Do not measure gas engine exhaust or other high CM or highly contaminated gases.

High levels of CM and other contaminants can ruin the sensor.

2. Do not take readings directly in stream of air at register or in a flue.

3. Allow enough time for accessory head to reach ambient temperature and RH%.

Air being measured must be stable and between 0°C and 40°C (32°F and 105°F) and 15%RH and 90%RH.

Temperature and humidity changes can cause transient readings.

For best results, use a Hand pump to sample the air, cool it to near room temperature, and raise the relative humidity.

### How to use

1. Slide the switch at "Average" or "Normal" to measure the concentration of CM.

2. Let stabilize for at least 45 seconds.

3. Take the instrument outside and adjust it to zero. Then bring inside to take measurements.

4. Expose sensor to a still, stable air sample. (see precautions)

The display reacts to the presence of CM in seconds. Take final reading when reading stabilizes.

### OPERATING INSTRUCTIONS

**Push Button**

**Back-Light Button**

Press "  " button to turn the Back-Light on.

Press "  " button to turn the Back-Light off.

#### DATA HOLD Button

Pressing the " HOLD " key to enter the Data Hold mode, the "  " annunciator appears on the display.

When DATA HOLD mode is selected, the meter held the present readings and stops all further measurements.

Pressing the " HOLD " key again cancels DATA HOLD mode, causing meter to resume taking measurements.

#### MAX HOLD Button

Pressing the " MAX " key to enter the MAX HOLD mode. The meter then records and updates the maximum absolute values and the "  " annunciator appears on the display. Pressing the " MAX " key again to exit the MAX HOLD recording mode.

In the MAX HOLD mode, press " HOLD " key to stop the recording, press " HOLD " key again to resume recording.

5. For initial test, walk around the building, watching for the readings to go up to determine where maximum concentrations of CM are.

To measure air from register, use a pump or measure out of the air stream.

Hot blowing air can adversely affect the reading.

The temperature of the sample must be near ambient.

6. Push "MAX" to read the maximal reading.

Push "HOLD" to hold the maximal reading

Push "  " to turn on the backlight .

Push "  " to turn off the backlight.

7. Average mode can read a stable reading.

### Zeroing the Sensor

Turn on the power and allow the displayed reading to stabilize before proceeding approximately 30 seconds.

Then with the instrument sampling fresh air (air that is free of CM), remove cap of cover "CAL" use attached screw driver to adjust VR which is in the hole for a reading of 000±2ppm.

If you're not sure about the quality of the surrounding air, you can apply a blend of Oxygen/Nitrogen gas to the sensor as described under calibration.

If rapid temperature changes are encountered (such as from freezing to room temperatures) during the operation of the analyzer, the operator must allow the analyzer to stabilize at the ambient temperature for at least 2 minutes before taking a measurement.

### CM DETECTORS and CRACKED HEAT EXCHANGER

A CM detector cannot tell you if a heat exchanger is good. A CM detector can indicate a heat exchanger is cracked only if all of the following conditions occur simultaneously:

1. The flame generates enough CM (lack of oxygen, excess fuel, high temp).

2. Enough exhaust gases are emitted from the heat exchanger crack.

3. The exhaust gases from the crack are not diluted too much before coming in contact with the sensor.

A cracked heat exchanger may leak CM in a small stream.

You may measure high concentrations at one point but low concentrations only an inch away.

4. The heat exchanger is the only possible source from the CM detected.