

# Fieldpiece

## Carbon Dioxide Leak Detector

### OPERATOR'S MANUAL

Model SCL2



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## Quick Start

- 1 Charge the SCL2 (see charging instructions on page 14 for details).
- 2 Power on SCL2 and allow a 30 second warm up to complete in well ventilated ambient air away from suspected leak.
- 3 Select the sensitivity using the L/M/H button.
- 4 Point the tip of the wand at suspected leak locations (see Find CO2 Leaks section on page 4 for details).

## Quick Tips

- 1 Keep the wand tip moving slowly past suspected leak locations.
- 2 Once a leak is detected, sweep the wand back over to pinpoint.
- 3 To pinpoint larger leaks adjust sensitivity.

## Certifications



C-Tick (N22675)

CE

WEEE

RoHS Compliant  
Meets SAE Standard

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## Description

The SCL2 is a portable CO2 (R-744) leak detector with a superior combination of sensitivity, speed, sensor life, battery life, portability, and ease of use.

Find leaks on commercial refrigeration systems, restaurant soda machines, or any other system using R-744. Pinpoint tiny leaks in high concentration CO2 environments with ease.

Gas is pumped through the tip of the wand into the sensor within the SCL2 body. The sensor detects changes in concentration, not absolute concentration, allowing the SCL2 to differentiate CO2 concentrations higher than concentrations normally found in ambient air.

The SCL2 detects leaks as small as 6 grams/yr (0.2 oz/yr). The SCL2 has three sensitivity settings to keep false triggering to a minimum. A quick and automatic 30 second self-calibration upon power-up ensures optimal performance.

The SCL2 comes with a wall and car charger for its ultra-compact lithium-ion battery which powers the SCL2 for 8hrs of continuous operation before a recharge is needed. That's long enough to last your entire workday.

A built-in replaceable filter blocks moisture and harmful particulates.

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## Find CO2 Leaks

Keep the SCL2 away from any areas of potential refrigerant leakage until the warm-up and calibration period is over. The warm-up and calibration sequence lasts about 30 seconds after powered on. Allow the SCL2 to fully warm-up before searching for CO2 leaks to avoid false triggering. The meter defaults to high sensitivity.

The most likely points for refrigerant leaks are at the soldered joints in refrigerant lines and changes in the cross section or direction of these lines.

The SCL2 detects changes in concentration of CO2, not the absolute concentration. This helps you to detect CO2 leaks in places that may have lots of CO2, such as a refrigerator leaking into an enclosed space. Because you are detecting a change in concentration, you should use the "double-pass" method detailed below.

- 1 The tip of the wand should be close to the line. You may need to be within 1/4" (0.63cm) of a small leak to detect it. In this case, using a second hand to guide the tip along refrigerant lines may be helpful. See Figure 1.
- 2 Keep the tip moving along refrigerant lines at

a rate of 1-3 inches (2.5-7.5cm) per second.

- 3 Once the SCL2 indicates a change in concentration (audible beep), note the spot on the line and keep the tip moving past the potential leak to refresh the air space within the SCL2 with clean air. (Note: If the SCL2 wand moves through a very high concentration of refrigerant, you may need to use it in fresh air for 4 seconds before moving to step 4 in order to clear the refrigerant within the SCL2.)
- 4 Return the tip back across the spot first indicated. When the SCL2 indicates a second change, note the spot on the line. The source of the leak will be near the midpoint between the two noted spots of indication.
- 5 Very high concentrations of refrigerant can cause an overload which can take a few seconds to clear.

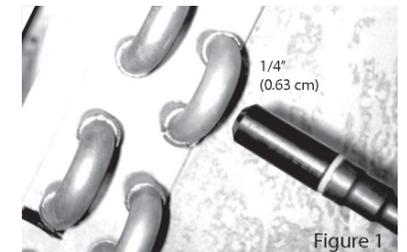
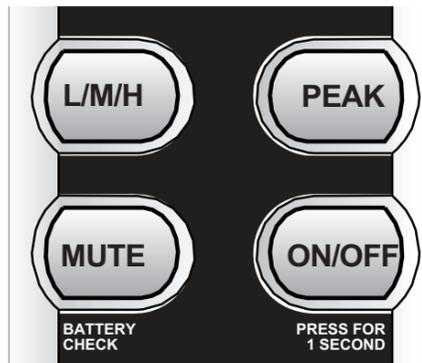


Figure 1

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## Buttons



### ON/OFF Protection

To turn on/off the SCL2 press and hold **ON/OFF** for one second. This slight delay protects against your meter turning on when stored. If you forget to turn it off it will turn off automatically in 10 minutes.

### L/M/H Sensitivity

Set the sensitivity level by pressing **L/M/H**. Low (L), medium (M), or high (H) sensitivity will be indicated by their respective LED.

The higher the concentration of refrigerant in the ambient air, the lower the sensitivity setting should be to minimize false trips.

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### Mute and Battery Check

Pressing **MUTE** toggles the sound of the SCL2 on and off. In addition, holding the MUTE button for one second will display the remaining percent of battery charge on the LED bar graph.

### Peak Mode

To activate Peak mode, press **PEAK**. When activated, the highest LED will stay lit when gas is detected. The Peak function holds the highest change in concentration sensed while continuing to detect leaks. This is useful when detecting around corners when the LED bar graph is not visible. To deactivate, press PEAK button again. The last peak measured will be cleared.

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### Turbo Mode

The TURBO function is an additional 4th sensitivity that pushes the SCL2 to its highest possible sensitivity. This feature is activated by pressing **PEAK** four times in succession, and can only be activated while on the high (H) sensitivity level.

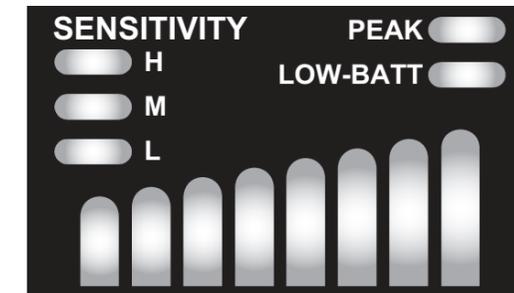
When in TURBO mode the first green LED on SCL2 will strobe, and the audio detection sound will be a solid tone.

To exit the TURBO mode, press the PEAK button again four times in succession, or switch from high (H) to one of the other sensitivities levels.

Beware: While in TURBO mode the SCL2 is extremely sensitive and will more easily trigger on abrupt or violent motions as well as very small changes in refrigerant levels. Handle with care when in TURBO mode.

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## LED Indicators



### LED Bar Graph Display

The eight segment LED display indicates the degree of change in refrigerant concentration. As the concentration of refrigerant in the air increases, so does the number of lit bars on the display.

### Low-Batt LED

- 1 While detector is in use, the Low-Batt LED will turn solid red indicating approximately 1 hour of battery life left.
- 2 While detector is charging, the Low-Batt LED will flash red on and off indicating the meter is charging.
- 3 When detector is fully charged, the Low-Batt LED will turn off indicating the meter is fully charged.

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### H/M/L LEDs

High (red), medium (amber), or low (green) LED will turn solid indicating what sensitivity is selected.

### Peak LED

Light solid amber when Peak mode is activated.

### ⚠ WARNING ⚠

DO NOT operate the SCL2 in the presence of gasoline, natural gas, propane, or in other combustible atmospheres.

DO NOT use the SCL2 without the proper filter correctly installed.

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## Specifications

**Sensing element:** Enhanced infrared photo optics

**Sensor life:** Up to 10 years

**Refrigerants:** R-744 Carbon Dioxide (CO<sub>2</sub>)

**Sensitivity Levels:**

High: Up to 6 grams/yr (0.2oz/yr)

Medium: Up to 14 grams/yr (0.5oz/yr)

Low: Up to 28 grams/yr (1oz/yr)

**Response time:** 1 second

**Recovery time:** ~4 seconds

**Auto off:** 10 minutes after no activity

**Battery:** 3.7VDC (nominal), rechargeable lithium ion user-replaceable battery.

**Battery life:** 8 hours continuous use prior to needing a charge. Degradation (30%) after 500 charge/discharge cycles or two years, whichever comes first.

**Low battery LED:** Lights when approximately 1 hour of battery life remains.

**Charge time:** Less than 4 hours (either charger)

**Operating environment:** 32°F (0°C) to 104°F (40°C) at <75%RH (non-condensing)

**Storage environment:** <80%RH meter and batt.

For 80% battery recovery:

-4°F (-20°C) to 140°F (60°C) less than 1 month

-4°F (-20°C) to 113°F (45°C) less than 3 months

-4°F (-20°C) to 68°F (20°C) less than 1 year

## Included Accessories

Use model RRE2 when detecting in tight spaces, such as through a condenser grille. Model RFE2 extends the wand to 25.5" (65cm). The blow molded case, model holds accessories and chargers.

All accessories shown are included with the SCL2.



## Lithium Battery Care

The SCL2 contains a very powerful lithium ion battery. For a long battery life and safe operation, you must observe the following:

### Cautions

- 1 Do not expose the battery to temperatures higher than 140°F (60°C).
- 2 Do not charge the battery in or nearby heated places, such as fire, hot vehicles, or direct sunlight.
- 3 Do not solder directly onto the battery.
- 4 Do not expose the battery to direct impact or throw it.
- 5 Do not get the battery wet.
- 6 Do not deform or pierce the battery in any way.
- 7 If there is any battery leakage, do not touch the battery. In the case that electrolyte gets into the eyes, flush with fresh water, do not rub, and see a physician immediately.
- 8 Replace immediately if there is any deformity, bad smell, color change, or other abnormality.
- 9 The battery is user-replaceable and can be purchased at most electronic stores. The following batteries are known to be compatible with the SCL2: Fuji Film: NP-120, PENTAX: DLI-7, RICON: DB-43

## Charging

Two chargers are included with the SCL2. The AC charger plugs into a wall outlet and the car charger plugs into a car cigarette lighter DC plug.

- 1 The battery is partially charged when packaged. Fully charge the battery before first use.
- 2 The LOW-BATT LED will light red when the battery is low.
- 3 To recharge the SCL2, plug one end of the charger into the top of the SCL2 and the other into the power source. LOW-BATT will blink while charging until the battery is fully charged. When the SCL2 battery is fully charged, LOW-BATT turns off.
- 4 Charge within operating environment specified in the Specifications section on page 11.
- 5 Avoid frequent full discharges. Several partial discharges with frequent recharges are better for lithium-ion batteries. Unlike nickel-based batteries they have no charge memory, and do not need to be discharged before charging.

## Storage

The battery should have a 40%-50% charge during prolonged storage of a month or longer. See Specifications section in this manual for proper storage environment.

Battery life is dramatically reduced if the battery is stored fully charged and/or at high temperatures.

## Maintenance

Clean the exterior with a dry cloth. Do not use liquid.

### Filter Assessment & Replacement

The filter blocks moisture and other contaminants from the sensor. When it gets wet, it constricts flow of air and will have to be replaced. Unscrew the sensor tip and replace the white filter so that the rounded end is closest to the tip of the wand. Use only the Fieldpiece supplied filter.

You can order extra bags of replacement parts (Part# RFL2) from your local distributor.

## Limited Warranty

This meter is warranted against defects in material or workmanship for one year from date of purchase from an authorized Fieldpiece dealer. Fieldpiece will replace or repair the defective unit, at its option, subject to verification of the defect.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument.

Any implied warranties arising from the sale of a Fieldpiece product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. Fieldpiece shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim of such damage, expenses, or economic loss.

State laws vary. The above limitations or exclusions may not apply to you.

**Fieldpiece**  
Designed in USA  
MADE IN TAIWAN

## Obtaining Service

Email Fieldpiece warranty department at [fpwarranty@fieldpiece.com](mailto:fpwarranty@fieldpiece.com) for current fixed price repair service. Send check or money order made out to Fieldpiece Instruments for the amount quoted. If your meter is under warranty there will be no cost for the repair/replacement. Send your meter, freight prepaid, to Fieldpiece Instruments. Send proof of date and location of purchase for in-warranty service. The meter will be repaired or replaced, at the option of Fieldpiece, and returned via least cost transportation.

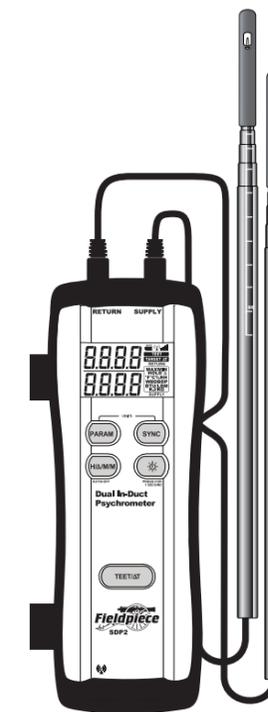
For international customers, warranty for products purchased outside of the U.S. should be handled through local distributors. Visit our website to find your local distributor.

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