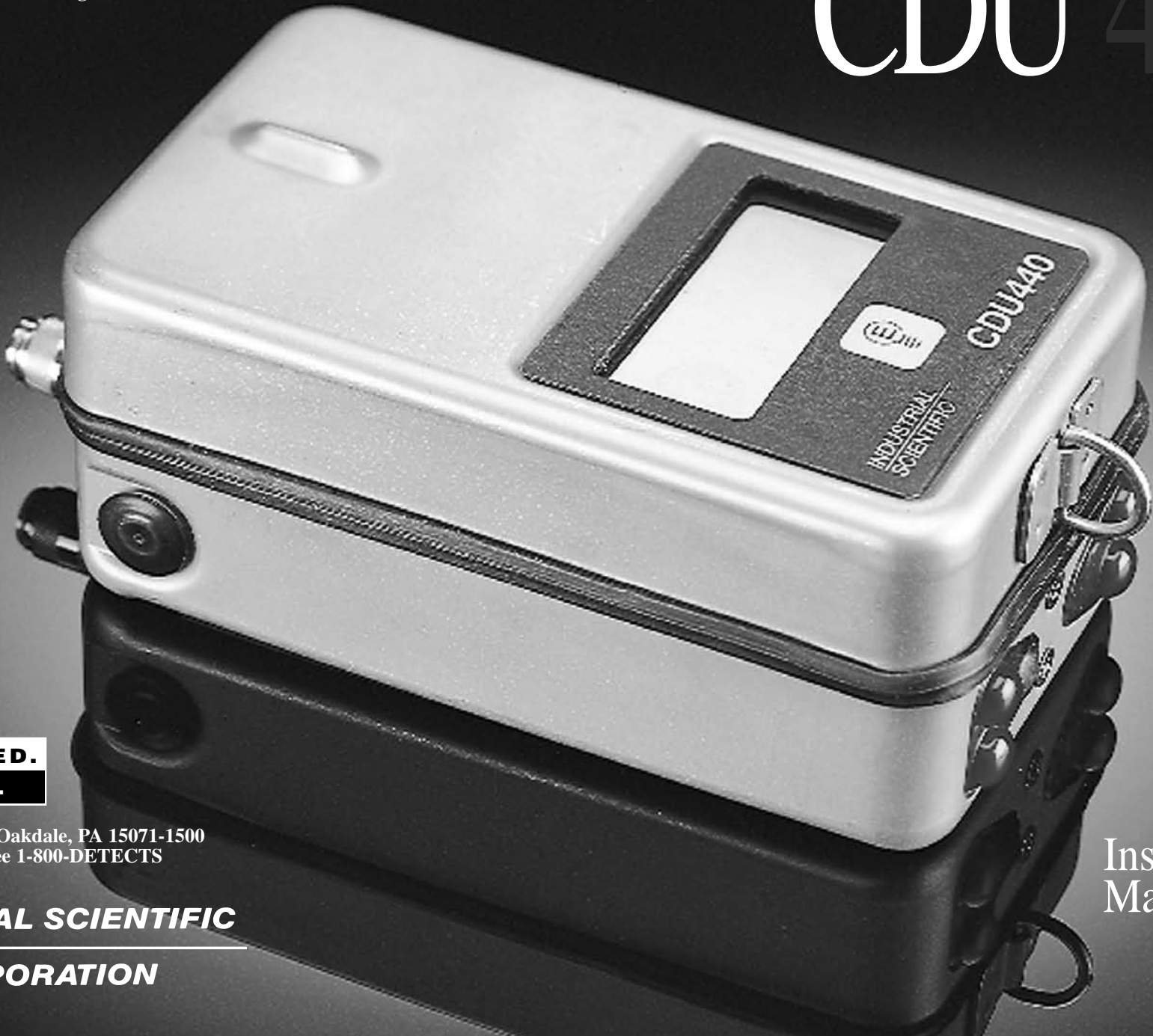


Carbon Dioxide Monitor

# CDU 440

P/N 1706-4064  
REV 1 Printed 1000-1000  
Specifications Subject to Change



**GUARANTEED.  
FOR LIFE.**

1001 Oakdale Road, Oakdale, PA 15071-1500  
412-788-4353 Toll Free 1-800-DETECTS  
FAX 412-788-8353

**INDUSTRIAL SCIENTIFIC  
CORPORATION**

Instruction  
Manual

*OUR MISSION*

*Design - Manufacture - Sell:  
Highest quality products  
for the preservation of  
life and property.*

*Provide:  
Best customer service  
available.*

Dear Valued Customer:

Thank you for buying and using Industrial Scientific's Model CDU440 Carbon Dioxide Monitor.

Your CDU440 can be relied upon for dependable service, day after day. It has been designed, manufactured, tested and proven under the most scrutinizing conditions possible. With the minimal care and maintenance described in this Instruction Manual, it will provide you with years of reliable monitoring.

I am most concerned that you be pleased with the performance of your CDU440 in the months and years ahead. I urge you to call us with any questions or comments you may have. Often times a phone call and a question can save you hours of frustration. Please never hesitate to contact me at 1-800-DETECTS (338-3287).

All of us at Industrial Scientific appreciate the opportunity to serve you.

Yours very truly,

A handwritten signature in black ink, appearing to read "Kent D. McElhattan". The signature is stylized and cursive.

Kent D. McElhattan  
President & CEO  
Industrial Scientific Corporation

### TABLE OF CONTENTS

1.	WARNINGS AND CAUTIONARY STATEMENTS	3
2.	UNPACKING	4
3.	CDU440 FEATURES	4
4.	INSTRUMENT OPERATION	8
4.1	Charging the Battery	8
4.2	CDU440 Sampling Probes	9
4.3	Turning the CDU440 On and Off	9
4.4	Display Backlight	10
4.5	CDU440 Operating Modes	10
4.5.1	Normal	10
4.5.2	Battery	11
4.5.3	Zero	11
4.5.4	Pump	11
4.5.5	Peak	11
4.5.6	Peak Clear	11
4.5.7	Alarm	11
4.5.8	Cal Date	12
4.6	CDU440 Alarm Indicators	12
4.6.1	Low Alarm	12
4.6.2	High Alarm	12
4.6.3	Low Flow Alarm	12
4.6.4	Low Battery Warning	12
4.6.5	Battery Failure	12
5.	CALIBRATING THE CDU440	13
5.1	Zeroing the Instrument	13
5.2	Calibrating the Instrument	13
6.	CHANGING INSTRUMENT SETTINGS	15
6.1	Alarms	16
6.2	Code	16
6.3	Default	17
7.	MAINTENANCE	18
7.1	Instrument Cleaning	18
7.2	Changing the Battery	18
7.3	Opening the Instrument for Service	19
7.4	Sensor Replacement/Service	19
8.	REPLACEMENT PARTS	22
9.	SPECIFICATIONS	23
10.	OPTIONS & ORDERING INFORMATION	24
11.	WARRANTY	25

## 1. WARNINGS AND CAUTIONARY STATEMENTS

Certain conditions or failure to observe certain necessary procedures will impair the performance of the instrument. For maximum safety and performance while using this instrument, please read and understand the conditions and procedures outlined below. If you have any questions, please call Industrial Scientific Corporation at 1-800-DETECTS (338-3287) or 412-788-4353.

- ▲ Read and fully understand the instruction manual before operating or servicing the CDU440.
- ▲ Substitution of components may impair intrinsic safety and cause an unsafe condition.
- ▲ The CDU440 must be operated with an Industrial Scientific filtered sampling probe or inline filter. Filtering is required to ensure proper instrument operation. Contamination of the sensor or supply tubing will affect reading accuracy and shorten pump life. Condensing vapors within the sensor may cause inaccurate readings.
- ▲ Sudden changes in temperature may cause temporary fluctuations in the instrument reading.
- ▲ An increase or decrease in atmospheric pressure may cause an increase or decrease in the measured gas concentration.
- ▲ The CDU440 alarm may either be enabled or disabled. Verify the alarm condition during instrument start-up.
- ▲ The CDU440 audible and visual alarms may be configured as non-latching or latching. Verify alarm type during instrument start-up.
- ▲ Use the RS-232 data logging port only in a non-hazardous location.
- ▲ Tested for intrinsic safety in explosive gas/air (21% oxygen) mixtures only.
- ▲ Conditions of safety certifications must be maintained to ensure the safety of the user.
- ▲ CDU440 is not for use in areas where volatile dust may accumulate.
- ▲ Any indication of a low flow condition cautions the user that air sampling is inadequate. User should ensure that the CDU440 has adequate air flow before continuing use.
- ▲ Failure to comply with all warnings, cautionary statements, and any directions with respect to operation, service or calibration may void the warranty and intrinsic safety certification of the CDU440 and may remove any right of claim against Industrial Scientific Corporation relating to product liability or consequential damage to any third party.

## 2. UNPACKING

The shipping box label indicates which items should have been included with the instrument. Account for each item before discarding containers.

QUANTITY	PART NUMBER	DESCRIPTION
1	1810-2947	CDU440 Carbon Dioxide Monitor
1	1706-4064	CDU440 Instruction Manual
1	1810-2307	18-inch Polycarbonate Probe
	or 1810-2305	18-inch Stainless Steel Probe
	or 1810-2418	10 ft Tubing w/Inline Filter
1	1704-2946	Maintenance Tool
1*	1810-2308	Leather Carry Case

**NOTE:** \* Optional item, refer to purchase order.

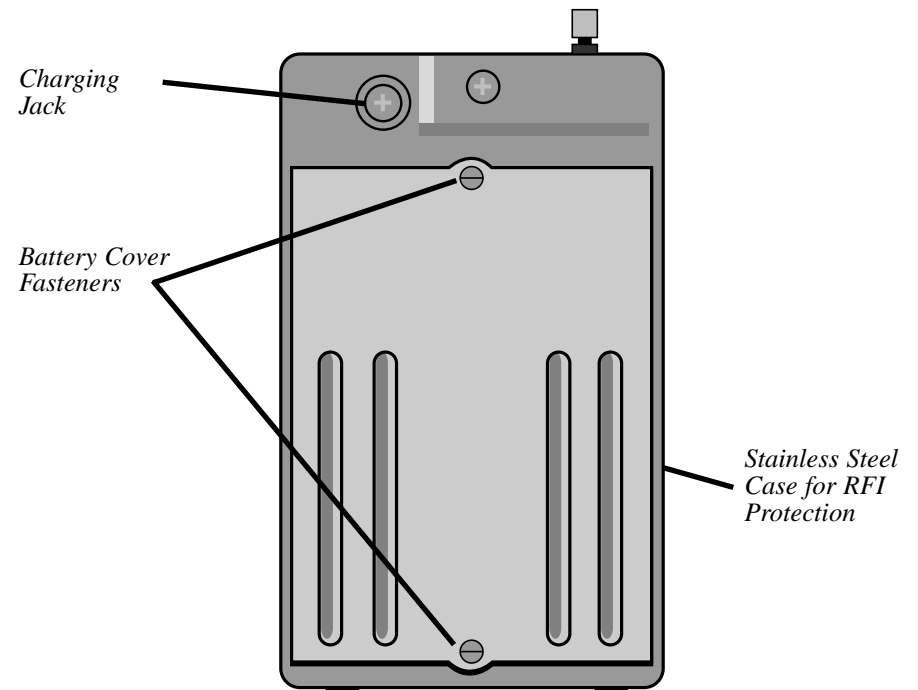
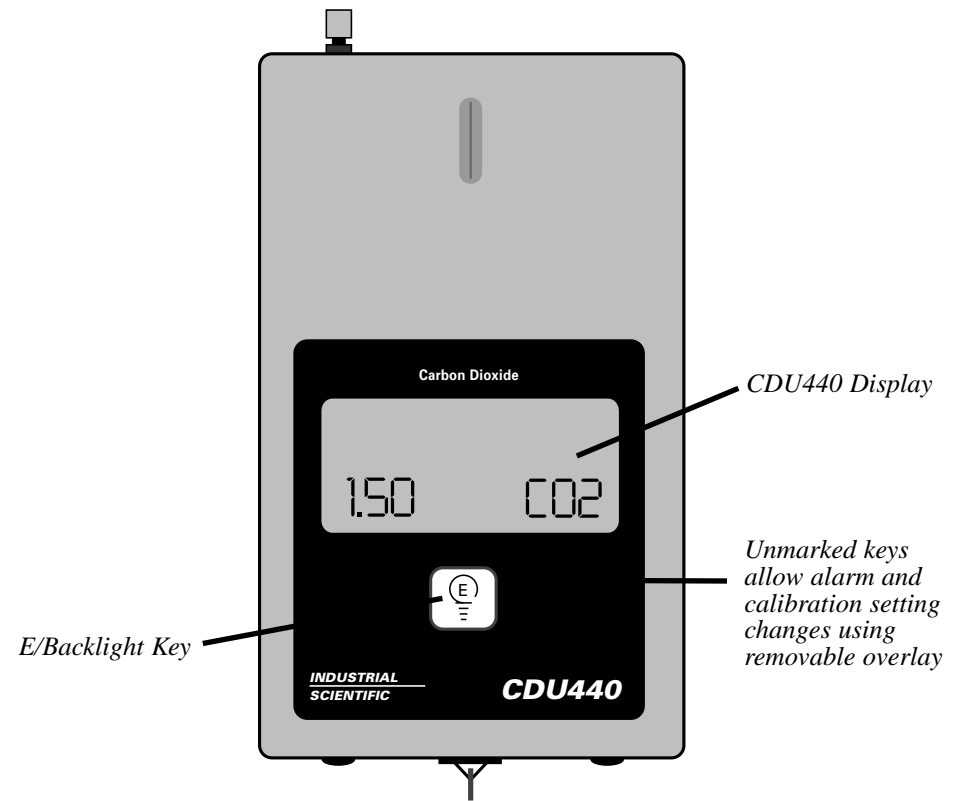
**NOTE:** Instrument probes are shipped in a separate container.

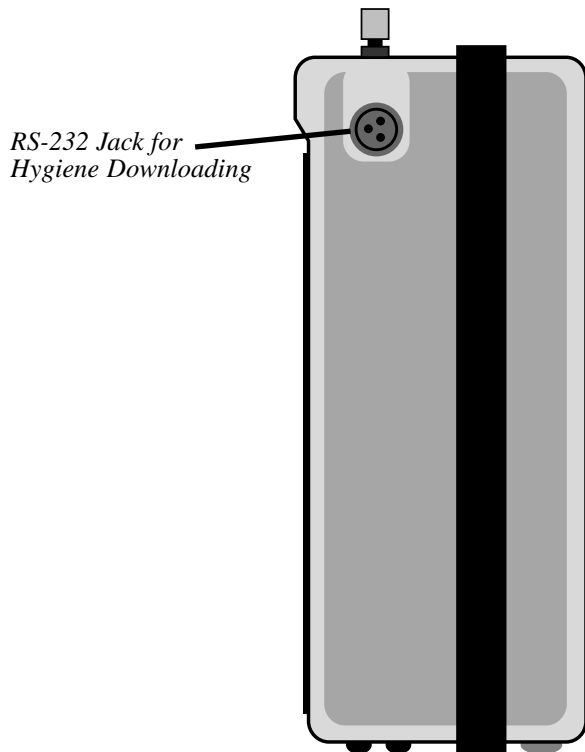
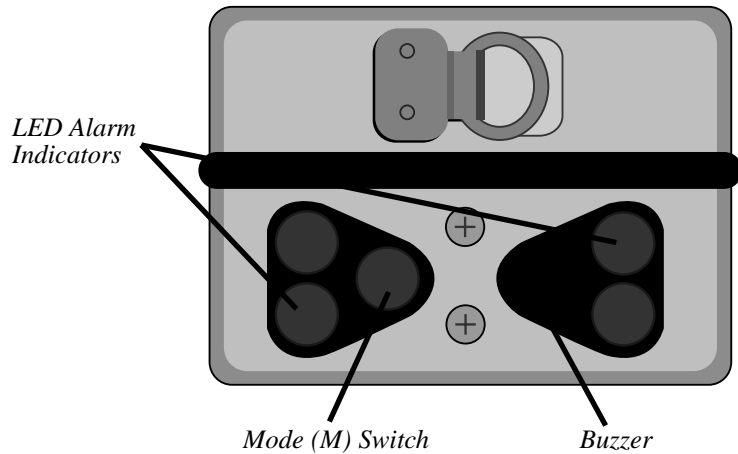
If any listed item is not found, contact either your local distributor of Industrial Scientific products, or call Industrial Scientific Corporation at 1-800-DETECTS (338-3287) in the United States and Canada, or (412) 788-4353.

## 3. CDU440 FEATURES

The Industrial Scientific Model CDU440 Carbon Dioxide Monitor measures the percentage by volume of CO<sub>2</sub> present in a gas sample.

- The infrared carbon dioxide sensor does not require oxygen to measure the carbon dioxide concentration and is not poisoned by other gases.
- All control and calibration keys are located externally for easy access. The MODE key located on the bottom end of the instrument switches the instrument ON/OFF and selects display modes. The embossed (E) key located on the faceplate is used for activating the backlight, and for setting instrument values. Two unmarked (+) and (-) keys are used to enter values into the instrument. There are no potentiometers to adjust.





- Microprocessor controlled calibration sequence for accurate calibration.
- Illuminated display for viewing in low light conditions. The backlight is turned on whenever an alarm is activated, or by pressing the (E) key.
- Automatic calibration check when instrument Zero function is performed.
- User enabled audible and visual alarms.
- User selectable latching or non-latching alarms.
- Round-the-clock monitoring capability using the interchangeable nickel-cadmium rechargeable, replaceable lithium, or replaceable alkaline battery packs.
- User selectable access code for security of calibration and instrument settings.
- Press and hold power switch to prevent accidental turn on or turn off.
- Optional data logging to store up to sixty hours of continuous data.

The CDU440 is certified as intrinsically safe - or pending classification - by the following agencies:

- Underwriters Laboratories (UL)
- Canadian Standards Association (CSA)
- Mine Safety and Health Administration (MSHA)
- The CDU440 complies with European EMC Directives 89/336/EEC, 92/31/EEC and 93/68/EEC.

# 4. INSTRUMENT OPERATION

## 4.1 CHARGING THE BATTERY


Before using the CDU440 with a rechargeable nickel-cadmium battery pack, fully charge the battery.


**NOTE:** *To fully charge battery, the instrument must be turned OFF while charging.*


Refer to Section 10, Options and Ordering Information, for a complete listing of available chargers.


When charging the battery pack in the instrument, turn OFF the instrument and place it on the battery charger. To charge the battery pack out of the instrument, remove the pack from the instrument and place it on the charger (See Section 7.2, Changing the Battery).


A fully charged battery pack should operate the instrument for 7 hours. When the instrument is in the normal viewing mode, the battery status indicator can be accessed by pressing the MODE key. Each segment of the battery indicator represents about one hour of normal operating time. When the battery is fully discharged, the instrument will show "BATTERY FAIL" and emit a short beep once a second. Turn off the instrument and recharge or replace the battery pack.

 ***Charging the CDU440 with no battery pack or with the lithium or alkaline battery pack installed will void the instrument warranty and intrinsic safety certification and may cause an unsafe condition.***

 ***Use only chargers manufactured by Industrial Scientific when recharging the CDU440 or the nicad battery pack.***

 ***Recharge the nicad battery pack or replace the lithium or alkaline battery pack only in non-hazardous locations.***

 ***The CDU440 is intended to be a portable battery powered device only. Do not use the instrument while connected to a battery charger.***

 ***A low battery indication by the CDU440 cautions the user that the battery pack does not hold an adequate charge.***

## 4.2 CDU440 SAMPLING PROBES

The CDU440 must be used with an approved probe or sampling line with in-line filter. Failure to use an appropriate filtered sampling device may result in contamination and malfunction of the instrument sampling pump or the infrared carbon dioxide sensor, and will void the instrument warranty. For a list of sampling probes, see Section 10, Options and Ordering Information.

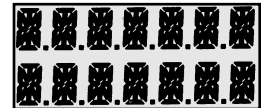
The CDU440 sample port will be closed with no sample line in place and a low pump flow condition will result. The low flow condition will be cleared when the sampling line is connected to the instrument.

To attach the sampling probe to the instrument, insert the male fitting on the sampling line into the quick connect coupling on the top of the CDU440. The sampling line will automatically lock into place. To remove the sampling line, gently pull down the collar of the quick connect coupling on the top of the instrument. The sampling line will be released.

Sampling probes contain a flow indicator within the probe handle. Proper flow should be verified by holding the probe vertically as shown on the handle and verifying that the flow indicator ball is visible.

## 4.3 TURNING THE CDU440 ON AND OFF

- Press and hold the MODE key. All segments of the display are activated to verify proper operation.
- The HOLD screen appears and the instrument sounds a beep approximately once per second.
- Hold the MODE key until the screen shows RELEASE. (Stop here if turning the instrument off.)
- After the instrument is turned ON, the following startup screens will be displayed:





**ALARM STATE.** Indicates if CDU440 alarms are set ON or OFF.



**ALARM TYPE.** Indicates CDU440 alarm type as LATCHED or UNLATCH.



**BATTERY.** Instrument display indicates battery status as OK or LOW and shows a 8-segment visual status indicator.



**DATALOG.** If a data logging module is installed, the user may start a new data logging session by pressing the enter (E) key during this screen.



**MEM LOW.** This screen appears if the data logging memory is full or if less than eight hours of data logging space is available. The CDU440 Data Logging software is required to clear the instrument.



**WARMING UP.** This screen indicates the amount of time remaining until the CDU440 begins normal operation. During this screen, instrument settings are accessed by pressing the hidden (+) and (-) keys together.



## 4.4 DISPLAY BACKLIGHT

The backlight is automatically switched ON when the CDU440 is in an alarm condition. To manually switch ON the backlight, press the (E) key and the backlight will remain ON for 15 seconds. For added convenience, a raised feature has been molded into the center of the key to ensure easy identification under low light conditions.

## 4.5 CDU440 OPERATING MODES

The CDU440 offers different operating modes for accessing various instrument features. To scroll through the operating modes, press and release the MODE key. The operating modes will be accessed in the following sequence:



### 4.5.1 NORMAL

The instantaneous carbon dioxide concentration is continuously displayed. When the gas concentration is greater than 1000 ppm, the readout will be displayed in percent of volume units.

### 4.5.2 BATTERY

This screen shows if the battery is “OK” or “LOW” and displays a graphical representation of the remaining operating time. Each segment is equivalent to about one hour of operation.



### 4.5.3 ZERO

This mode allows the user to zero the instrument and calibrate the infrared carbon dioxide sensor. Refer to Section 5, Calibrating the CDU440, for instruction on the use of the instrument’s automatic zero and calibration functions.



### 4.5.4 PUMP

This mode will allow the user to turn off the internal sampling pump between readings and conserve instrument battery power.



- Press MODE to access the PUMP screen.
- Press enter (E) to turn the pump off. The instrument will display the message PUMP OFF.
- Press enter (E) again to resume normal pump operation.



### 4.5.5 PEAK

This mode will display the highest level of carbon dioxide gas measured since the peak reading was last cleared.



### 4.5.6 PEAK CLEAR

This mode allows the user to clear the previous peak reading from the instrument memory.



- Press MODE until the screen shows PK CLR.
- Press enter (E) to clear the peak reading. The peak reading screen appears to verify that the peak value has been cleared properly.

**NOTE:** *If the peak reading is zero, the peak clear screen will not appear; instead the alarm control screen is accessed.*

### 4.5.7 ALARM

This mode allows the user to temporarily turn ON or OFF the audible and visual alarms.



To turn the instrument alarms ON or OFF:

- Press MODE to access the ALARM screen.
- Press enter (E) to toggle between alarms ON and OFF.

CALDATE  
103196

#### 4.5.8 CAL DATE

This mode displays the last date the CDU440 was calibrated (Month/Day/Year).

### 4.6 CDU440 ALARM INDICATORS

#### 4.6.1 LOW ALARM

When the carbon dioxide gas concentration reaches the low alarm level, the instrument emits a short beep approximately every 1.2 seconds. Refer to Section 9, Specifications, for factory alarm set points.

#### 4.6.2 HIGH ALARM

When the carbon dioxide gas concentration reaches the high alarm level, the instrument emits a high-pitched warbling tone, the four bright red LED's flash and the unit's indicator blinks. The display backlight will be activated continuously to aid viewing in low light conditions. Refer to Section 9, Specifications, for factory alarm set points.

#### 4.6.3 LOW FLOW ALARM

A pump flow alarm will occur if the sample flow is blocked or if no sample line is in place. When the sample flow is too low, the CDU440 will emit a short beep approximately every 1.2 seconds and the instrument display will indicate PUMP FLO ALM.

The pump flow alarm will be cleared automatically when the sample line is connected to the instrument or when the blockage is corrected.

#### 4.6.4 LOW BATTERY WARNING

With approximately 30-90 minutes of run time remaining, the CDU440 will emit a short beep once every 15 seconds to indicate the low battery condition.

**NOTE:** *Length of warning time will increase when the optional lithium battery pack is used.*

#### 4.6.5 BATTERY FAILURE

When the battery has insufficient charge to operate the instrument, BATTERY FAIL is displayed. The instrument stops monitoring and emits a short beep once every second.

When BATTERY FAIL appears, immediately turn OFF the instrument and recharge or replace the battery.

BATTERY  
FAIL

## 5. CALIBRATING THE CDU440


The CDU440 utilizes an automatic calibration system and has the ability to detect when calibration is necessary. The calibration will be checked each time the instrument ZERO function is performed, see Section 5.1. Unless the instrument calibration warning is activated after a normal ZEROING function, there is no need for regular calibration of the CDU440.

Zeroing and calibration will be most accurate when the instrument has been at a consistent temperature for at least one hour before calibrating.

**NOTE:** *For best accuracy, use a calibration gas concentration that is closest to the value of carbon dioxide that you expect to measure. Calibration gas flow rate should be between 0.5 and 1.0 liter per minute.*

### 5.1 ZEROING THE INSTRUMENT

The CDU440 may be zeroed without accessing the calibration system.

 **Zero the instrument only in clear air.**

- From the NORMAL reading mode, press MODE to access the ZERO operating mode.
- Connect inlet to cylinder of zero-grade air.
- Press enter (E) to start the ZEROING function.
- If the instrument detects a need for calibration when the ZEROING function is complete, the GO-CAL prompt will remain on the display and the instrument will emit a short beep once a second until the MODE or enter (E) key is pressed.

**NOTE:** *If the gas reading in ambient air is between the limits of 300 and 700 ppm, the reading may be reset to 500 ppm by pressing the (+) and (-) hidden keys simultaneously during the normal operating mode. The reading will return to the original reference point after the instrument has been turned off.*

ZERO  
PRESS

ZEROING

## 5.2 CALIBRATING THE INSTRUMENT

The CDU440 span calibration function may be entered immediately after the ZEROING function has been performed.

 **Calibration of the CDU440 should be performed only by trained personnel.**

To calibrate the CDU440:

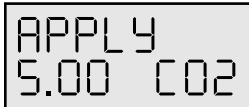
- Press enter (E) when the instrument display shows GO CAL along with the scrolling prompt PRESS (E) TO START.



GO CAL  
PRESS

**NOTE:** *If the instrument access code is set to a value other than zero (00), the user will be prompted to enter the appropriate code value. For information on entering and changing the access code, see Section 6.*

- When the GO CAL prompt has been acknowledged, the CDU440 display will indicate the calibration gas value which was used for the last calibration. The instrument will wait for three minutes to sense that calibration gas has been applied. Calibration will begin automatically once 50% of the required gas concentration has been sensed by the instrument.
- When calibration has begun, the instrument will display the message SETTING CAL along with the time remaining in seconds until the calibration is complete.
- If the instrument calibration is not successful, the display will show the prompt CAL FAIL until the MODE key is pressed to exit the calibration function. Contact Industrial Scientific for service.
- If calibration is successful, the instrument will emit a short beep and the display will step to the CALDATE screen. If a datalogging module is installed in the instrument, the current date will be obtained from the datalogging module and be indicated automatically. If no datalogging module is present, the calibration date must be entered manually.



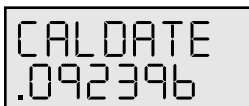
APPLY  
5.00 CO2



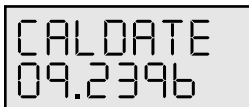
SETTING  
CAL 15



CALDATE  
092396



CALDATE  
.092396



CALDATE  
09.2396

- Use the hidden (+) and (-) keys to set the current month. The month position will be indicated in the position to the left of the decimal point in the display.
- Press (E) to enter the month and move the decimal point to the day position.
- Use the hidden (+) and (-) keys to set the current day.
- Press (E) to enter the day and move the decimal point to the year position.

- Use the hidden (+) and (-) keys to set the current year.
- Press (E) to enter the year and move the decimal point to the right most position.
- If the calibration date is correct as shown, press (E) to enter the date into memory. Otherwise press (+) to return and edit the date.



CALDATE  
0923.96

## 6. CHANGING INSTRUMENT SETTINGS

Instrument settings, including alarm values, calibration gas concentrations, alarm latch, display setting and security code may only be accessed and changed during the instrument startup sequence.

A keypad overlay is supplied to reveal the location of the hidden keys used for changing instrument settings. Remove the overlay from the protective backing and place it over the instrument faceplate. The clear portion of the overlay will cling to the display window of the faceplate and may be reused.

To access the instrument settings menus:

- Turn the CDU440 OFF and back ON again.
- When the display indicates WARMING UP, press the (+) and (-) keys simultaneously.

If the instrument security code has been set to a value other than '00', the CODE screen will be displayed along with the scrolling prompt PRESS (+) TO STEP (E) TO SET. Use the (+) and (-) keys to input the correct security code value and press (E). When the correct code has been entered successfully, the instrument will immediately enter the settings mode. If the correct code has not been entered within the warm-up time, the instrument will enter the normal operating mode.

The setting mode consists of three main functions in the following order:

ALARMS  
CODE  
DEFAULT

The scrolling prompt, PRESS (+) TO STEP (E) TO SET, appears on each screen. Press (+) to step through the list and (E) to select any of the main functions. Pressing the MODE key at any one of the main function headings will cause the instrument to return to the normal operating mode.

## 6.1 ALARMS

---

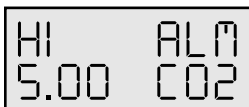


ALARMS  
PRESS

- Press (E) to enter the ALARMS function. The display will show the low alarm value and the prompt LOW ALM.
- Press (+) or (-) keys to change the alarm value.
- Press (E) to enter the displayed value and step to the next screen.
- The high alarm value will be displayed along with the prompt HI ALM. Press (+) and (-) to change the high alarm value.
- Press (E) to enter the displayed value and advance to the CODE function.



LOW ALM  
3.00 CO2



HI ALM  
5.00 CO2

## 6.2 CODE

---



CODE  
PRESS

- Press (+) from the ALARMS screen to step to the CODE screen.
- Press (E) to enter the CODE function. The present code value will be displayed along with the prompt PRESS (+) or (-) TO SET (E) TO ENTER.
- Press (+) or (-) to change the code value. Any code value may be entered from '00' to '999'.

**NOTE:** *Before entering a new access code, record the new code number in the space at the left. Once the secured menus have been exited, access cannot be regained without entering the correct code.*

- Press (E) to enter the new code. The display will advance to the DEFAULT screen.

## 6.3 DEFAULT

---

- Press (+) from the CODE screen to step to the DEFAULT screen.
- Press (E) to enter the DEFAULT function. The instrument will indicate the ALARMS screen.
- Press (+) to toggle between ALARMS SET ON and ALARMS SET OFF to enable or disable the instrument alarm functions.
- Press (E) to enter the setting and step to the LATCH screen.
- Press (+) to toggle between the LATCHED and UNLATCH settings. In the LATCHED state the instrument alarm indication will continue after the alarm condition has been cleared until the user acknowledges the alarm by pressing (E).
- Press (E) to enter the setting and step to the CAL GAS screen. The instrument will display the current value of calibration gas in percent of volume CO<sub>2</sub>.
- Press (+) or (-) to change the calibration gas value.
- Press (E) to enter the calibration gas setting.
- Press MODE to exit the instrument settings menus and resume normal operation.



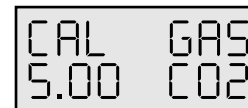
DEFAULT  
PRESS



ALARMS  
SET OFF



ALARMS  
UNLATCH



CAL GAS  
5.00 CO2

# 7. MAINTENANCE

## 7.1 INSTRUMENT CLEANING

Wipe the outside of the instrument with a soft, clean cloth. Never use solvents or cleaning solutions of any type.

## 7.2 CHANGING THE BATTERY

- Hold the instrument with battery cover facing up.
- Turn the battery cover latches counter-clockwise one quarter of a turn using the maintenance tool supplied or a small flat blade screwdriver to release the cover.
- Gently press down on the bottom of the battery pack to release the top contacts.
- Grasp the clear tab on the battery and lift out.
- Insert replacement battery, and replace battery cover.
- Turn the latches one quarter turn in the clockwise direction to secure the battery cover.

**!** *Observe all local laws and regulations with regard to battery disposal.*

**!** *Replace battery with nicad battery pack (p/n 1704-1872) or lithium battery pack (p/n 1704-9889) or alkaline battery pack (p/n 1706-7174) only.*

**!** *Replace lithium battery cells with two Duracell 3.0 volt DL123A, Sanyo 3.0 volt CR123A or Panasonic 3.0 volt CR123A battery cells only. Do not mix battery types from different manufacturers.*

**!** *Attempting to remove the cells from the sealed nicad battery pack will void the warranty and intrinsic safety certification and may cause an unsafe condition.*



## 7.3 OPENING THE INSTRUMENT FOR SERVICE

- Remove the battery cover and battery pack.
- Remove the three screws that secure the instrument case halves.
- Grasp the bottom half of the instrument with one hand. Using the other hand, lift the top until it clears the sensor.
- Unplug the keypad flex cable from the circuit board by pulling straight up on the flex cable.

**!** *Disassemble or service the CDU440 only in non-hazardous locations to avoid risk of explosion.*

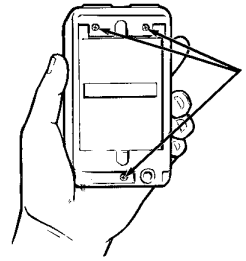
**!** *Service and repair by agents unauthorized by Industrial Scientific Corporation may void the warranty and intrinsic safety certification and may result in an unsafe condition.*

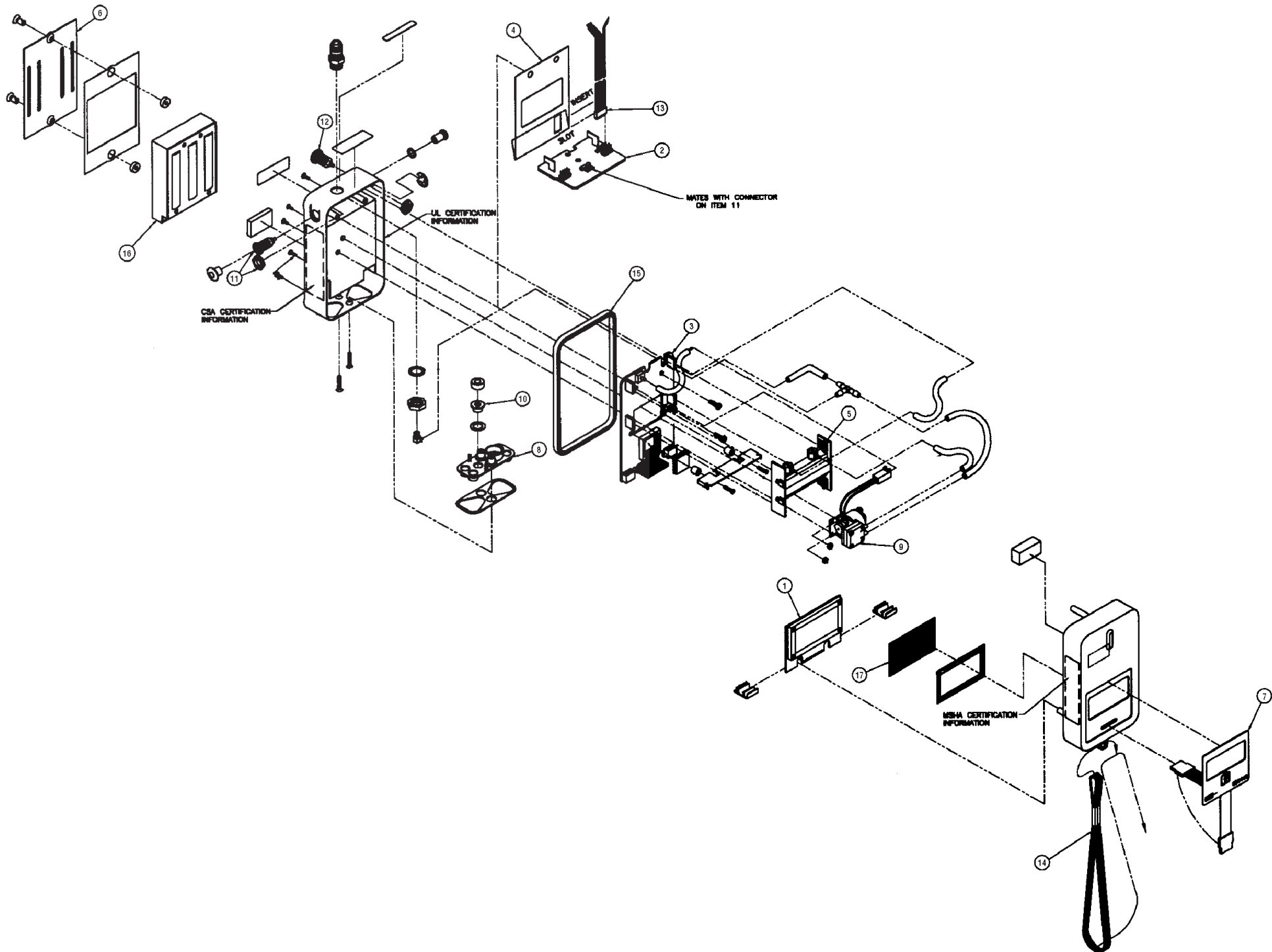
**!** *Use only approved Industrial Scientific replacement parts when servicing the CDU440.*

## 7.4 SENSOR REPLACEMENT/SERVICING

Replacement of the sensor must be made by the Industrial Scientific Service Department.

**!** *DO NOT DISASSEMBLE THE SENSOR. Any servicing that requires opening the sensor may alter the characteristics and accuracy of the sensor.*





## 8. REPLACEMENT PARTS

ITEM	PART NUMBER	DESCRIPTION (QTY)
1	1704-2680	Display P.C. Board Assembly (1)
2	1705-0660	Alarm P.C. Board Assembly (1)
3	1705-1242	Main P.C. Board Assembly (1)
4	1705-2444	Main Board Insulator (1)
5*	1705-6128	%CO <sub>2</sub> Sensor Assembly (1)
6	1703-7169	Battery Case Cover (1)
7	1706-0146	Keypad/Faceplate (1)
8	1703-7045	Alarm Bezel (1)
9	1705-1703	Pump Assembly with Leads (1)
10	1704-8927	Mode Button (1)
11	1703-8134	RS-232 Receptacle, 3 Contact (1)
12	1704-2151	Charging Jack (1)
13	1704-1823	5 Conductor Cable (1)
14	1704-9876	Instrument Strap (1)
15	1703-1782	RFI Case Gasket (1)
16	1704-1872	Nicad Battery Pack (1)
or	1704-9889	Lithium Battery Pack (1)
17	1705-0295	RFI Screen (1)

\* Factory Replaceable Part.

## 9. SPECIFICATIONS

### MEASURING RANGE:

0-6% by volume carbon dioxide

**RESOLUTION:** 10ppm; 0-1000 ppm  
0.01% (100 ppm); 0.10-6%

**ACCURACY (@ TEMP OF CALIBRATION):**  
± 10% of reading or 2 counts (whichever is greater)

**ACCURACY (OVER TEMPERATURE RANGE):**  
± 20% of reading or 4 counts (whichever is greater)

**ALARM SET POINTS:** Low ALARM 3.00% CO<sub>2</sub>  
High ALARM 5.00% CO<sub>2</sub>

**CASE MATERIAL:** Stainless steel (type 304)

**DIMENSIONS:** 4.75"L x 2.75"W x 2"H  
(121 X 70 X 51 mm)

**WEIGHT:** ≤ 30 ounces (≤ 850 g)

**SENSOR TYPE:** Infrared absorption carbon dioxide sensor

**DISPLAY:** Alpha-numeric liquid crystal

**POWER SOURCE:** Rechargeable nickel-cadmium battery pack or replaceable lithium pack

**INSTRUMENT OPERATING TIME (CONTINUOUS RUN TIME AT ROOM TEMPERATURE, NON-ALARMING OPERATION):**

7 hours minimum with rechargeable nickel-cadmium or alkaline battery pack

14 hours minimum with replaceable lithium pack

**OPERATING TEMP. RANGE:**  
-15°C to +50°C (5°F to 122°F)

**OPERATING HUMIDITY RANGE:**  
0-100% RH when used with sampling probe and water trap filter

Specifications subject to change without notice.



*All performance claims are based on the CDU440 having adequate battery charge and air flow.*

## 10. OPTIONS & ORDERING INFORMATION

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<b>PART NUMBER</b>	<b>DESCRIPTION</b>
1810-2947	CDU440 Chassis (w/o battery pack or probe)
1704-1872	Rechargeable Nickel Cadmium Battery Pack
1704-9889	Replaceable Lithium Battery Pack
1810-2307	18 inch Polycarbonate Probe
1810-2305	18-inch Stainless Steel Probe
1810-2418	10 ft Tubing w/Inline Filter
1810-3275	Calibration Kit, 5.0% CO <sub>2</sub> with Demand Flow Regulator
1810-3051	CDU440 Datalogging Kit
1810-2308	Leather Carrying case for CDU440
1810-2145	12 VDC Compact Economy Charger
1810-2252	115 VAC Compact Economy Charger
1810-2255	115VAC Four Unit Dual Rate Charger
1810-2517	230VAC Four Unit Dual Rate Charger
1810-2558	115VAC Two Unit Dual Rate Charger
1810-2566	230VAC Two Unit Dual Rate Charger
1810-3218	Cylinder, Cal. Gas, 5.0% CO <sub>2</sub> (34 liters)
1810-0693	Cylinder, Cal. Gas, Zero Air (34 liters)
1810-0933	Flow Regulator with Pressure Gauge (for 34 liter cylinders, 0.5 liter/minute)
1810-3564	Demand Flow Regulator (for 34 liter cylinders)

## 11. WARRANTY

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Industrial Scientific portable gas monitoring instruments are warranted to be free from defects in material and workmanship for as long as the instrument is in service.

The above warranty does not include sensors, battery packs, internal pumps or filters, all of which are warranted to be free from defects in material and workmanship for eighteen months from the date of shipment, or one year from the date of first use, whichever occurs first, except where otherwise stated in writing in Industrial Scientific literature accompanying the product.

All other Industrial Scientific products are warranted to be free from defects in material and workmanship for a period of eighteen (18) months from the date of shipment, or one (1) year from the date of first use, whichever occurs first, except where otherwise stated in writing in Industrial Scientific literature accompanying the product.

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