SEC IR PC LINK

Instruction and Operation Manual

Sensor Electronics Corporation
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Part Number 71-4000 Version 040109

Sensor Electronics Corporation

Sensor Electronics Corporation (SEC) is an innovative manufacturer of fixed system gas detection equipment, for combustible gases, oxygen and toxic gases.

Commitment

Our quality and service are uncompromising. We back each of our products with a two-year warranty on all materials and workmanship. We offer technical support, user training and on-site service and maintenance of equipment to meet the needs of our customers.

Gas Detection Service

Individually designed maintenance packages are available for specific customer needs. Service begins with verification of the system installation that includes an initial system check and calibration. We then offer customer training programs (on-site and at factory) to insure that technical personnel fully understand operation and maintenance procedures. When on-the-spot assistance is required, service representatives are available to handle any questions or problems immediately.

Warranty

Sensor Electronics Corporation (SEC) warrants products manufactured by SEC to be free from defects in workmanship and materials for a period of two (2) years from date of shipment from the factory. Any parts returned freight pre-paid to the factory and found defective within the warranty will be repaired or replaced, at SEC's option. SEC will return repaired or replaced equipment pre-paid lowest cost freight. This warranty does not apply to items which by their nature are subject to deterioration or consumption in normal service. Such items may include:
Fuses and Batteries.
Warranty is voided by abuse including rough handling, mechanical damage, alteration or repair. This warranty covers the full extent of SEC liability and SEC is not responsible for removal, replacement costs, local repair costs, transportation costs or contingent expenses incurred without prior written approval. Sensor Electronics Corporation's obligation under this warranty shall be limited to repair or replacement of any product that has been returned to Sensor Electronics Corporation for warranty consideration. This warranty is expressly in lieu of any and all other warranties expressed or implied, and all other obligations or liabilities on the part of Sensor Electronics Corporation including but not limited to, the fitness for a particular purpose. In no event shall Sensor Electronics Corporation be liable for direct, incidental, or consequential loss or damage of any kind connected with the use of it's products or failure to function or operate properly.

Year 2000 Compliance

All Sensor Electronics products have been tested and are certified by Sensor Electronics to accurately process date/time and date/time related data from, into and between the 20^{th} and 21^{st} centuries. Sensor Electronics products neither contain nor create any logical or mathematical inconsistency, will not malfunction, and will not cease to function when processing date/time data.
Please contact Sensor Electronics for further information.

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Declaration of Conformity

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Type of Equipment:	SEC Signature EtO Monitor SEC IR PC Link
Model Number:	SEC Signature EtO Monitor - Part Number 142-0597 SEC IR PC Link - Part Number 142-0636

I hereby declare that the equipment specified above conforms to the protection requirements of the **EC DIRECTIVE 89/336/EEC** on Electromagnetic Compatibility (EMC), in accordance with the provisions of the Electromagnetic Compatibility Regulations 1992.

The following standards have been applied;

EN 50081 –1
Emissions Standard (Residential Commercial and Light Industry)

EN 50082 –1
Immunity Standard (Residential Commercial and Light Industry)

Signature _____

Patrick G. Smith
Director of Engineering

Date: August 6, 2001

I. GENERAL DESCRIPTION

The SEC IR PC LINK is designed to provide power and status indication to the family of SEC infrared gas monitors. The SEC IR PC LINK can also be used with a PC to communicate to the infrared gas monitoring device.

The SEC IR PC LINK has a selectable analog output signal that can be connected to a chart recorder, DCS, PLC, DVM or virtually any type of control system.

The SEC Signature infrared gas monitoring devices require a one time span after installation. After the spanning the SEC Signature, an annual zero calibration procedure is recommended. The SEC IR PC LINK has a Unit Zero pushbutton that can be used to perform routine zero calibration of the devices. The span and zero procedures are described later in this manual.

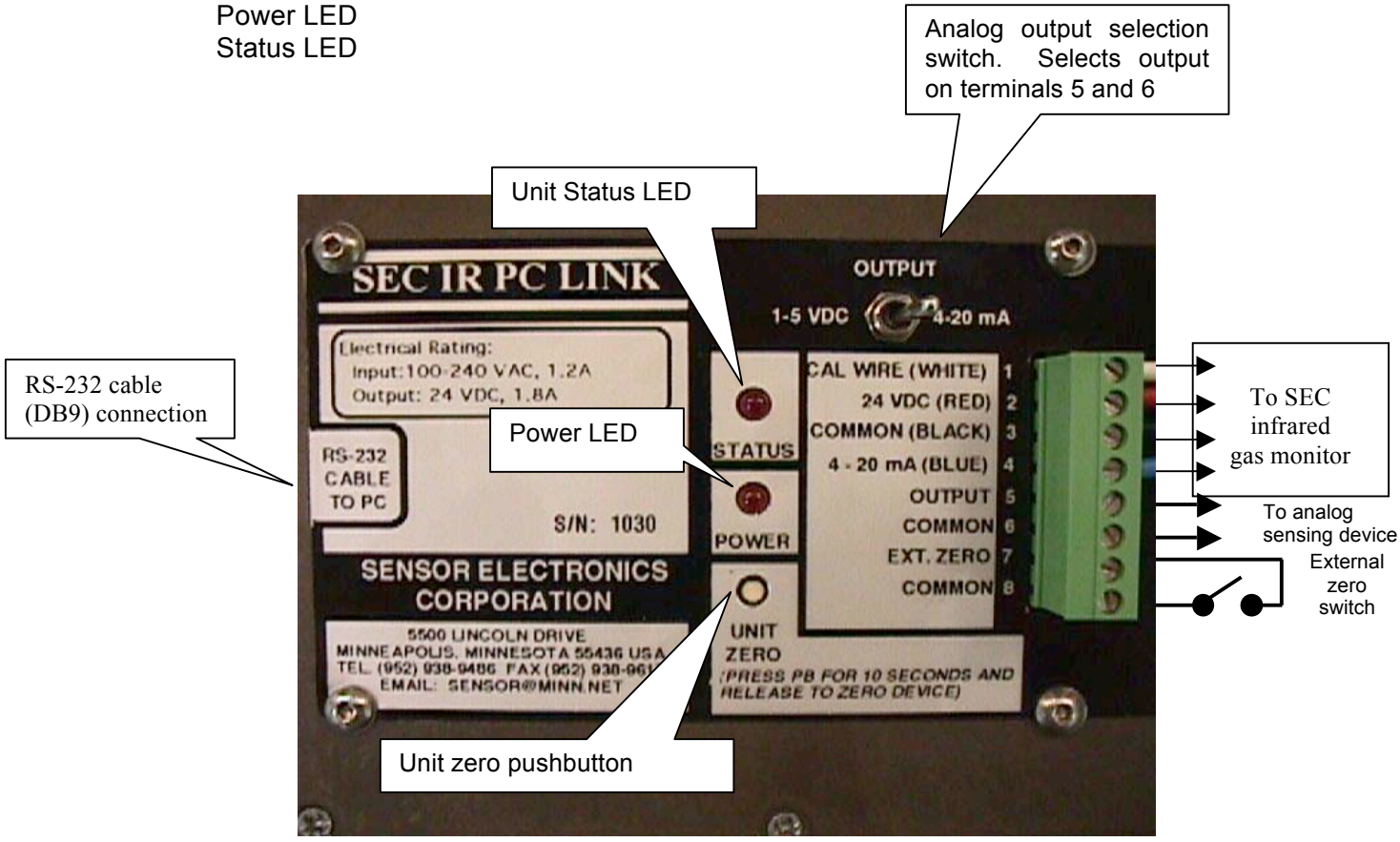
The SEC IR PC LINK package consists of the following items

(1) SEC IR PC LINK box
(1) PC Interface Cable
(1) WinPCLink Software Diskette*

**The software requires Microsoft® Windows® 95 or higher.*

Specifications

Input Power: 110 to 220 VAC.
Output Voltage: 24 VDC
Analog Output: 0 – 5 VDC or 4 – 20 mA
Digital Output: RS-232
Indicators:
Power LED
Status LED



II. OPERATION / CALIBRATION

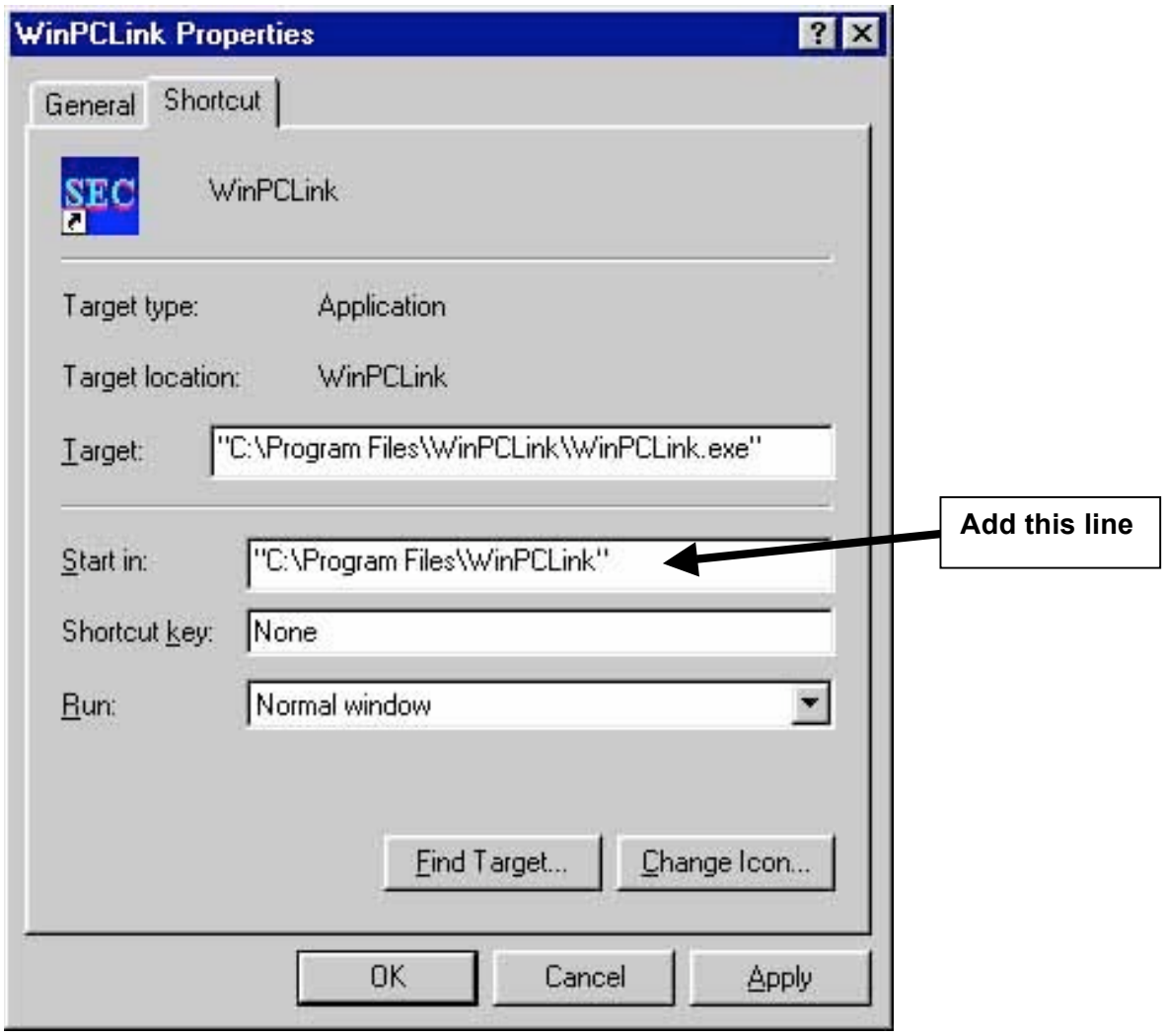
Installing WinPCLink Software

Run the Setup from the diskette or CD.

Optional Desktop Icon Setting

If you created the WinPCLink desktop icon with the setup program:

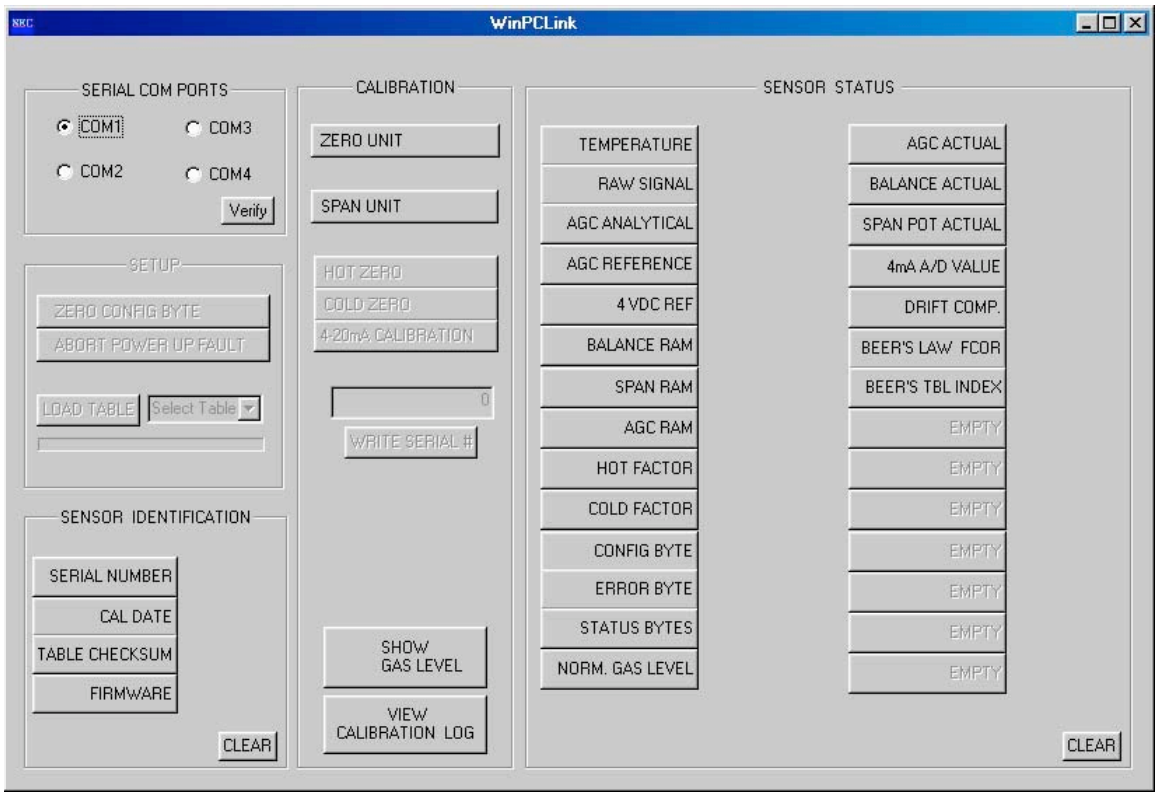
- Right-click on the icon and select **Properties**.
- Select **Shortcut** tab.
- In **Start in** field copy this line: "C:\Program Files\WinPCLink" Click on Apply button.



This will put the sensor and calibration data file in the root directory instead of on the desktop. Do the same for the shortcut in Start Menu *C:\WINDOWS\Start Menu\Programs\WinPCLink*

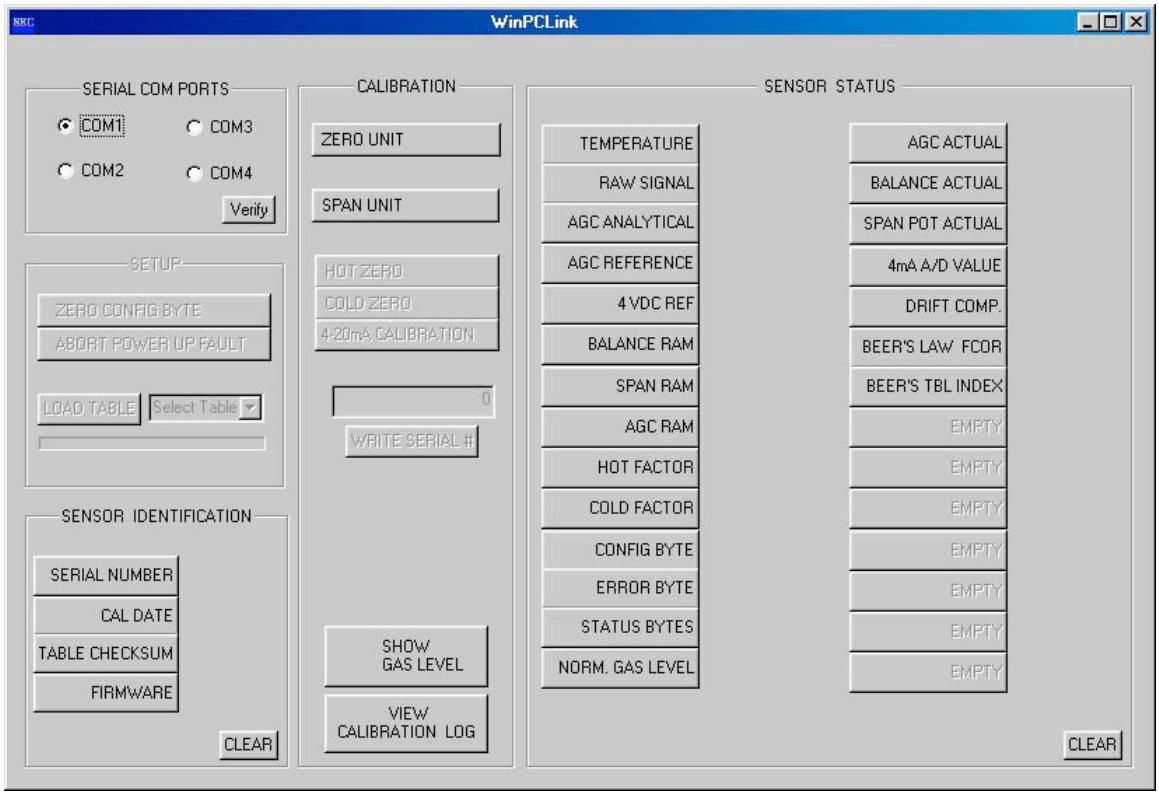
PC Communication Port Setting

The SEC WinPCLink software default communication port is COM port 1. If the SEC PC IR LINK is connected to a COM port other then COM 1, use the PC mouse pointer and click on the serial port that the PC IR LINK is connected. Click on the “Verify” button to check communication with selected port. A message box will appear confirming the port is connected. Once the port is connected the WinPCLink software is ready to run.



Read Serial Number of Device

The serial number is stamped on the housing and programmed in to the device at the factory. To electronically read the device's serial number use the PC mouse and click on the "SERIAL NUMBER" button.



The serial number of the device will appear at the right hand side of the "SERIAL NUMBER" button.

Other data from the sensor can be displayed in the SENSOR IDENTIFICATION window such as CAL DATE. Once the data is retrieved for the sensor, use the mouse pointer and click on the "CLEAR" button in the SENSOR IDENTIFICATION window to remove the data.

SEC Signature Temperature

The temperature of the SEC Signature should be at least 10º F (5.6º C) higher than the process / sterilizer temperature. To read the internal temperature of the SEC Signature use the mouse pointer and click on the "TEMPERATURE" button in the SENSOR STATUS window.

Other data can be viewed in decimal numbers (and hex) in the SENSOR STATUS window using the pointer and clicking on the button. *Most of this data is only used at the factory or for troubleshooting by factory personnel.* Once the data has been observed, click on the CLEAR button in the SENSOR STATUS window to remove the data.

SEC Signature Calibration

Zero Unit

The SEC Signature should be "zeroed" at the end of the humidity dwell cycle prior to injecting gas. To zero the device use the PC mouse pointer and click on the "ZERO UNIT" button in the CALIBRATION window. A password window will appear. Click on the window in the password box and type sec. Click on OK. A message box will ask you to confirm you wish to zero the unit. During the zeroing procedure the Status LED on the SEC IR LINK will momentary flash twice.

Once the Zero command has been initiated the following PC screen will display "Recording Data" once the zero procedure is completed a message box will appear "Sensor Zeroed and Data Recorded". Click on the OK box. The data can be viewed by clicking on the "VIEW CALIBRATION LOG" box in the CALIBRATION window. The PC automatically updates the Signature's calibration date and time.

Span Unit

The SEC Signature should be "spanned" (one time) after the gas injection is complete and the conditions in the sterilizer are stable. To span the device use the PC mouse pointer and click on the "SPAN UNIT" button in the CALIBRATION window. A password window will appear. Click on the window in the password box and type sec. Click on OK. A message box will ask you to confirm you wish to span the unit. A message box will ask you to confirm you wish to span unit. Click the Yes button if you wish to span the unit or the No button if the SPAN UNIT was accidentally selected. During the spanning procedure the PC screen will display "Recording Data" and the Status LED on the SEC IR LINK will momentary flash three times. Once the span procedure is completed a message box will appear "Sensor Spanned and Data Recorded". Click on the OK box. The device is spanned (calibrated) to a mid range (50%) value of the full-scale value. Example: *If the unit is spanned at a concentration of 520 mg/l the full-scale range of the device is 0 to 1040 mg/l.*

The data can be viewed by clicking on the "VIEW CALIBRATION LOG" box in the CALIBRATION window. The PC automatically updates the Signature's calibration date and time.

Unit Status Byte

The SEC Signature can be queried for status information. To retrieve current status of the SEC Signature use the mouse pointer and click on the "STATUS BYTE" button in the SENSOR STATUS window. Unit status can also be identified according to the flash rate of the Status LED on the SEC IR PC LINK. See chart for LED flash rate status indication.
During the units warm up period (Flash Rate 5) the SEC Signature will not communicate to the WinPCLink software.

UNIT STATUS FLASH CODES

-LED will flash at the designated rate based on the current Unit Status.

Decimal Flash Rate	**Status Byte (hex) Value**	**Corresponding Unit Status**	**Description**
1	0	Unit Running	Unit is measuring gas and adjusting 4-20ma output accordingly.
2	2	Unit Zero Calibrating	Unit goes through its *zero calibration* procedure.
3	3	Unit Spanning	Unit goes through its *spanning* procedure.
4	4	Unit 4-20ma Calibrating	Unit goes through its *4-20ma-calibration* procedure.
5	5	Unit Warm-up	Unit is waiting for source device to reach its operating temperature.
6	6	Power-up Fault	Unit has determined a *Power-Up* fault condition.
7	7	Calibration Fault	Unit has determined an error during *calibration* procedure.
8	8	Span Fault	Unit has determined an error during *spanning* procedure.
9	9	Unit Fault	Unit has determined a *Unit_Fault* condition.
10	A	Optics Fault	Unit has determined an *Optics_Fault* condition.
11	B	Zero Drift Fault	Unit has determined a *Zero_Drift_Fault* condition.
12	C	Configuration Fault	Unit has never been *Zeroed, Spanned, Source* calibrated, or E^2 has a Header byte error.
13	D	Hot Zero	
14	E	Cool Zero	
15	F	Down Loading Table	
16	10	Reference Ch Fault	AGC Pot out of range
17	11	Analytical Ch Fault	Balance Pot out of range

Production Certificate

Each IR PC Link is supplied with a completed Production Certificate. The following is an example of the document.

PRODUCT CERTIFICATION

Document Number 7201
Revision 1.003

DEVICE TYPE: SEC PC IR LINK
PART NUMBER: 142-0636
SERIAL NUMBER:

CHECK SUM:
MANUFACTURE DATE:
INITIAL TEST DATE:
START BURN IN DATE:
END BURN IN DATE:

FUNCTIONAL TESTING

24 VDC		RS-232 COMM PORT		1-5 VDC		4-20 mA		ZERO PUSH BUTTON		EXTERNAL ZERO INPUT	
MEASURED VALUE	PASS	FAIL	PASS	FAIL	PASS	FAIL	PASS	FAIL	PASS	FAIL	

TEST PERSON SIGNATURE **DATE**

_____ _____

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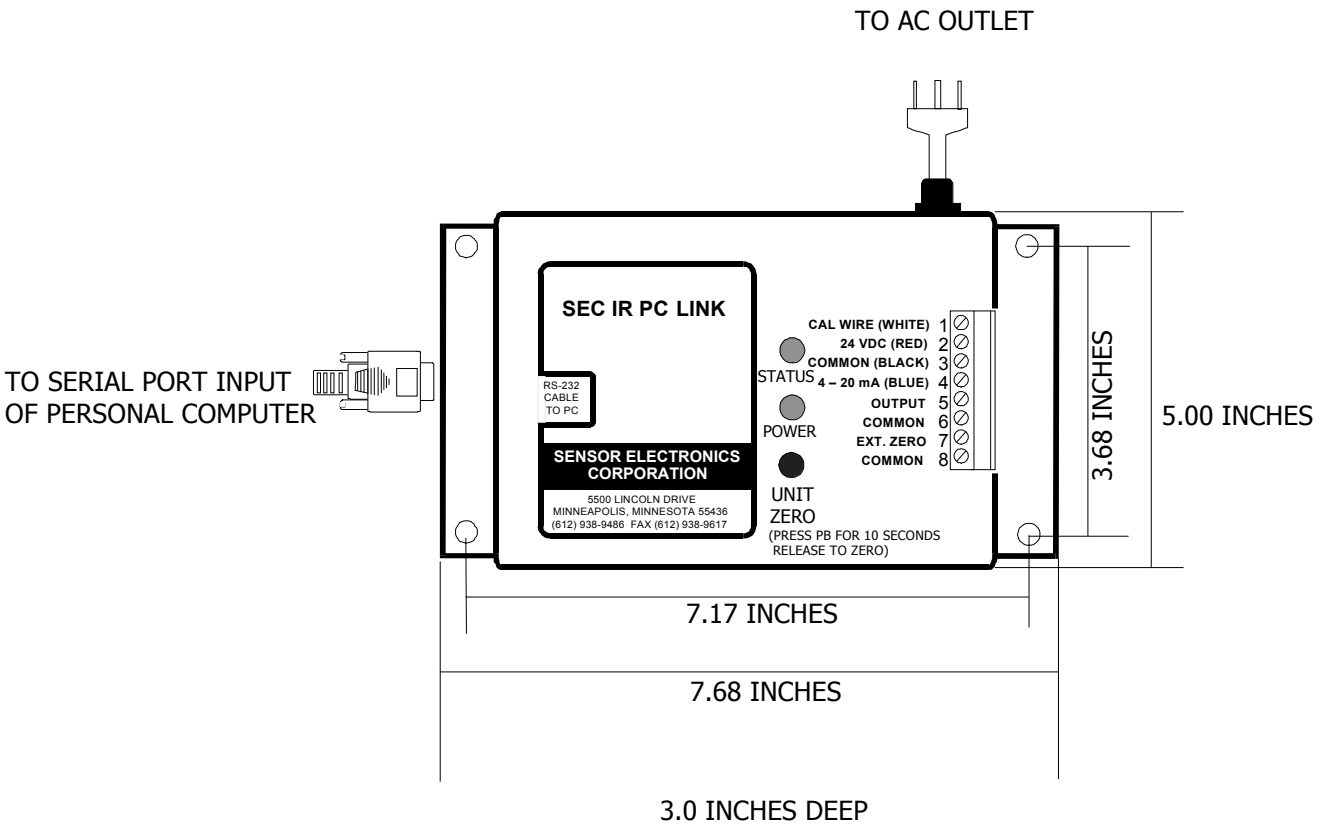
III. PARTS LIST

Description	Part Number
SEC IR PC LINK	142-0634
9 Pin Interface Cable	147-1001
SEC IR PC LINK Kit	142-0636



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SEC IR PC LINK
WIRING & DIMENSIONAL
DIAGRAM

FIGURE 1

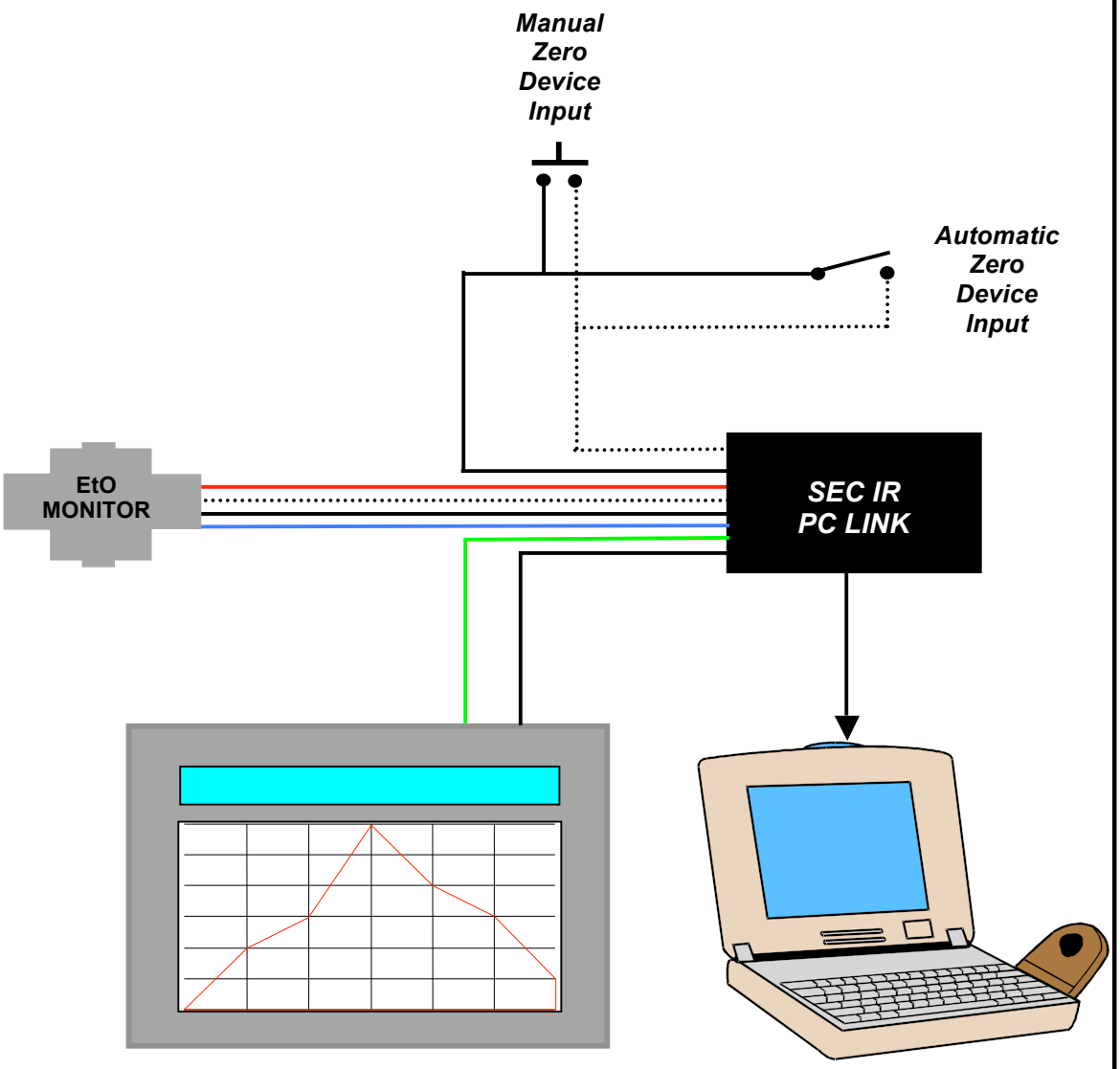

Chart Recorder
PLC, DAS, DCS, DVM
(Any control or monitoring system that accepts a 4-20 mA or 0-5 VDC signal)

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BLOCK WIRING DIAGRAM
SEC IR PC LINK

FIGURE 2