PC-LC2

Installation Manual

Version 1.0

Industry Canada NOTICE

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorised Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

User should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Load Number assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on an interface may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

Ringer Equivalence Number: 01

AVIS: L'étiquette de l'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Industrie Canada n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, les lignes téléphoniques et les canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

AVERTISSEMENT: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être reccordée à un circuit té;éphonique bouclé utilisé par ce dispositif. La terminaison deu circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.

Indices d'equivalence de la sonnerie: 01

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION: Changes or modification not expressly approved by Sur-Gard Security Systems Ltd. could void the user's authority to operate the equipment.

Important Information

This equipment complies with Part 68 of the FCC Rules. On the back of this equipment is a label that contains among other information, the FCC registration number of this equipment.

Notification to Telephone Company

Upon request, the customer shall notify the telephone company of the particular line to which the connection will be made, and provide the FCC registration number and the ringer equivalence of the protective circuit.

FCC Registration Number: 1VDCAN-35163-AL-N

Ringer Equivalence Number: 01A

Telephone Connection Requirements

Except for the telephone company provided ringers, all connections to the telephone network shall be made through standard plugs and telephone company provided jacks, or equivalent, in such a manner as to allow for easy, immediate disconnection of the terminal equipment. Standard jacks shall be so arranged that, if the plug connected thereto is withdrawn, no interference to the operation of the equipment at the customer's premises which remains connected to the telephone network shall occur by reason of such withdrawal.

Incidence of Harm

Should terminal equipment or protective circuitry cause harm to the telephone network, the telephone company shall, where practicable, notify the customer that temporary disconnection of service may be required; however, where prior notice is not practicable, the telephone company may temporarily discontinue service if such action is deemed reasonable in the circumstances. In the case of such temporary discontinuance, the telephone company shall promptly notify the customer and will be given the opportunity to correct the situation.

Changes in Telephone Company Equipment or Facilities

The telephone company may make changes in its communications facilities, equipment, operations or procedures, where such actions are reasonably required and proper in its business. Should any such changes render the customer's terminal equipment incompatible with the telephone company facilities, the customer shall be given adequate notice to effect the modifications to maintain uninterrupted service.

General

This equipment should not be used on coin telephone lines. Connection to party line service is subject to state tariffs.

Ringer Equivalence Number (REN)

The REN is useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company.

Equipment Maintenance Facility

If you experience trouble with this telephone equipment, please contact the facility indicated below for information on obtaining service or repairs. The telephone company may ask you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

U.S. Point of Contact
Digital Security Controls Ltd.
160 Washburn St.
Lockport, NY 14094

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INTRODUCTION

The PC-LC2 is a two line multi-format digital receiver for PC computers that fits in an ISA type slot of any IBM compatible computer. The PC-LC2 includes many features, all designed to make the receiver more powerful and easier to use. The PC-LC2 can decode a variety of popular and widely used communication formats; refer to Appendix D PC-LC2 Communication Formats for a list of the available communication protocols.

The PC-LC2's real-time clock and calendar stamps all information received with the time and date, and all information is displayed on the receiver's printer and may be forwarded to a computer. The PC-LC2 features a 1024-event non-volatile memory buffer. The buffer may be printed for viewing. If the printer or computer is off-line, the PC-LC2 will retain events in the buffer and will automatically send the events to the computer or printer when communications are restored.
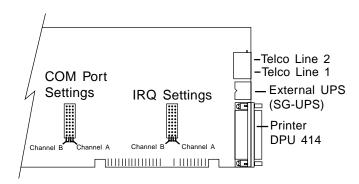
The PC-LC2 is equipped with a 1024-event non-volatile memory to record events and corresponding telephone numbers. Caller Identification (Call Display) capability is built-in and telephone numbers can be displayed, printed out, and stored in memory. Events and information stored in memory may be printed at any time.

PC REQUIREMENTS

- Windows 9x/NT operating system
- Pentium 166MHz (233 MHz Recommended)
- 32MByte RAM (64MByte Recommended)

1. The equipment SG-PC-LC2 may be used ONLY with a host computer which has a PROTECTIVE EARTH TERMINAL and is connected through a grounded power outlet.

2. The host computer shall meet all of the applicable requirements of the Low Voltage Directive (CE Approved), intended to be connected to the Public Switch Telephone Network (PSTN), and thus the INSTALLER and the USER shall take all the necessary precautions to avoid the introduction of hazards when storing, transporting, operating or maintaining the equipment PC-LC2.

3. The SG-PC-LC2 shall be mounted within the computer in a reliable manner. Internal wiring shall be routed in a manner that prevents: excessive strain on wire and on terminal connections, loosening of terminal connections, damage of conductor insulation. Do not route any wiring over the TMV circuit.

4. The external interconnection cables shall be constructed of cable acceptable for external use and shall be rated for the application with respect to it (voltage, temperature, maximum length, flammability, mechanical serviceability and the like).

5. The host computer shall have a marking stating that it must be connected to an earthed mains socket-outlet. For Sweden the marking text shall be in Swedish and it is as follows:

"Apparaten skall anslutas till jordat uttag nar den ansluts till ett matverk."

6. The installation and service of the equipment PC-LC2 must be performed by trained and qualified personnel ONLY [SERVICE PERSONNEL].

"Complete all connections before applying the Mains Voltage and Disconnect Power and Telephone lines before servicing".

POWER AND SUPERVISION

The PC-LC2 requires power from the PC's power supply, or an SG UPS can be used for up to two cards.

The connections are supervised. Any trouble conditions will be annunciated by the buzzer.

The printer is supervised for loss of power, off-line, paper out and other trouble conditions. The communication link to the computer through the RS-232 port can be monitored by the supervisory heartbeat test transmissions. *NOTE: Do not remove the PC-LC2 from the ISA slot without powering down your PC first. Removing the PC-LC2 with your PC powered up may damage the PC-LC2 and your PC.*

COMPATIBILITY

The Reporter software is packaged with the PC-LC2. The PC-LC2 also interfaces to:

MAS; DICE; SIMSII; SIS; GENESIS software

SYSTEM OVERVIEW

- Caller Identification ability
- Non-Volatile RAM for programming and event buffer
- Communication Formats:
    - 3-1, 3-1 extended, 4-1, 4-2 formats with or without Checksum, 10, 14, 20, or 40 baud
    - 4-2, 4-3, and 4-3 DTMF formats with Checksum
    - Optional* Formats: 3-2, with Baud Rates from 10 to 40
    - ACRON DTMF format
    - Contact ID (DTMF) format
    - Super Fast or High Speed DTMF format
    - DTMF 4-1 Express format (optional)
    - DTMF 4-2 Express format
    - FBI Super Fast format
    - SIA level 1 and 2: 110 and 300 baud, tonal and data acknowledge, with and without separators
    - 1024-event memory buffer
    - Real-time clock

- SG-PC-LC2 features multiprocessor with 16-bit micro-controller
- 1 parallel printer port
- Programmable system functions: serial and printer, serial only, serial with printer as stand-by, and printer only
- Fast transmission of multiple alarms to the serial and printer to ensure operator's quick response
- Continuous verification of the serial-receiver link with the heartbeat function
- Telephone line supervision

NUMBER OF LINE CARDS SUPPORTED

The system will support a maximum of 4 cards concurrently connected (8 lines).

QUICK START

RECEIVER SETUP AND OPERATION WITHOUT PROGRAMMING

UNPACKING

Carefully unpack the receiver and inspect for shipping damage. If there is any apparent damage, notify the carrier immediately.

BENCH TESTING

It is suggested that the receiver be tested before it is used for monitoring; becoming familiar with the connections and setup of the unit on the workbench will make final installation more straightforward.
The following items are required:

- PC with ISA slots or backup power supply PC-LC2
- Parallel Printer
- 2 telephone lines
- One or more dialers or digital dialer control panels. Dialers and control panels using an optocoupler phone line interface will require a connection method providing a DC current for direct connection testing.

POWER UP

When power is applied, the receiver will beep and will indicate any trouble conditions on the printer. If the Line Cards do not have telephone lines connected, the PC-LC2 card will beep.

OPERATION WITH DEFAULT PROGRAMMING

Without any changes to the factory default programming, the receiver operates as follows:

- Answers incoming calls on the first ring
- Sends 2300 Hz tone as the first handshake
- Sends 1400 Hz as the second handshake
- Sends double dual tone as the third handshake
- Sends SIA FSK as the fourth handshake

Receives all Communication formats, except: 3/2, 4/1 express, 4/1 extended, 4/2 extended and 4/2 checksum.
The above formats can be manually selected.
The signals are then sent to the parallel printer and The Reporter connected to the Master Channel COMPort.

INSTALLATION

COM PORT AND IRQ SETTINGS

Set the COM port jumper to two ports not currently being used. Do the same for the IRQ settings. Refer to the PC-LC2 Quick Install Manual for details

MOUNTING THE RECEIVER

The receiver is inserted into a spare ISA slot. The following items are recommended for a complete installation:

PRINTER CONNECTIONS

Connect the printer to the master PC-LC2 card and apply power to the printer before applying power to the receiver.

Most Centronics compatible printers can be used with the SG-PC-LC2.

The parallel printers that have been tested function with the PC-LC2 card are as follows:

- Seiko DPU-414
- Star DP-8340
- Panasonic KX-P1150
- Okidata Microline 182 Turbo

Printer cables are included in the available PC-LC2 kits

IMPORTANT: Do not use a printer cable which has only 1 common ground wire. Connect the parallel printer to the SG-PC-LC2 printer output port using a parallel printer cable.

TELEPHONE LINE CONNECTIONS

Connect the receiver inputs to its corresponding telephone line

INSTALLATION CHECK LIST

Complete	Operation
☐	2x6-pin modular cable connected to PC-LC2 and telephone line
☐	Parallel Printer Cable connected to PC-LC2 Parallel Printer Port
☐	Parallel Printer power connected

PC-LC2 DIGITAL LINE RECEIVER

GENERAL INFORMATION
The PC-LC2 16-bit microcontrollers running at 16MHz allow the system to quickly and efficiently execute several tasks at the same time.

FEATURES
- Multi-tasking allows the receiver to perform functions that might otherwise be delayed by a slow computer acknowledgement response
- 1024-event printer alarm message buffer (per line)
- 1024-event computer alarm message buffer (per line)
- Cold Boot option allows easy installation of default configuration

EVENT BUFFER
There are a maximum of 1024 events per channel, after that it overrides the oldest event.

INSTALLATION
It is recommended that a **Cold Start-up** be performed when the unit is updated with a new program version. Refer to PC-LC2 Operating Mode Cold Start-up (Cold Boot), for information.

After the cold start-up, check the configuration information listed in the Quick Reference Guide to make any required changes for your particular application.

PC-LC2 OPERATING MODE

PC-LC2 COLD START UP (COLD BOOT)
When the PC-LC2 software is upgraded, a **cold boot** will have to be performed to install the default system software. When a cold boot is performed, the time and date must be set at this time. It will read: 00:00 01/01/66 on your printer when you perform a cold boot, adjust this date and time information by connecting the PC-LC2 console software via serial and pressing the refresh button (your local PC clock will be used).

Follow the procedure described here to perform a **cold boot**.
- Power Down PC
- Disconnect PC-LC2 backup power supply (if connected)
- Remove casing
- Remove PC-LC2 from ISA slot
- Set Rotary Switch:

TO	FOR
D	Channel A
E	Channel B
F	Both Channels

- Replace PC-LC2 in ISA slot
- Power up PC (for approx. 5 seconds)
- Power down PC
- Set rotary switch back to original position
- Replace PC-LC2 back into ISA slot
- Replace casing
- Power up PC

The PC-LC2 is now ready for operation. Set the clock and calendar and configure the PC-LC2 (Refer to PC-LC2 Configuration Mode).

NOTE: Do not remove the PC-LC2 from the ISA slot without powering down your PC first. Removing the PC-LC2 with your PC powered up may damage the PC-LC2 and your PC.

CONFIGURATION OPTIONS
The PC-LC2 features configuration options:

00-07	Handshake #1-8	15	Reciever
08	Caller ID Select	16	3/2 Format
09	Printer	17	4-1 Express
0D	COM Format	39-48	4-3 Event #0-F
0E	COM ACK Wait	49	HS Duration
0F	COM Heartbeat	4A	SIA Level II
10	Line Check	4B	Slave Poll
11	Buzzer	4C	Channel Status
13	Library	4D	Equivalent Line
14	Y/S Printer		

OPTION 00-07: SYSTEM HANDSHAKES

The PC-LC2 has the capability to send several handshakes to the dialer. Often it is important to select which handshake is sent first. There are 4 handshakes which can be selected *on option [00-07]*.

see handshake table below;

Handshake #	Type
0	No handshake
1	Double Dual tone handshake
2	2300Hz handshake
3	1400Hz handshake
4	SIA FSK Modem handshake

OPTION 08: CALLER IDENTIFICATION

This option allows the unit to receive Caller Identification data that is transmitted after the first ring on the telephone line. The "Call Display" service must be available and requested from a telephone company for this feature to be operational if SIA or Contact ID are to be used, select 04.

Program option 08 with one of the following:

Select	To Obtain
00	No Caller ID reception (by default).
01	Combine alarm codes & Caller ID before sending to printer only (for 10-40 baud and DTMF format)
02	Send Caller ID to computer only for each call.
03	Send Caller ID to both printer and computer for each call.
04	Send Caller ID with date/time received from the telephone company to printer only for each call.

EXAMPLE: When option 08 is selected as to 1:

> Printer: AD421234-56 5551212
> 15:30-30/03/95

The telephone number 5551212 was added with the alarm codes before sending to the printer. The following messages are also used to send Caller-ID to the printer:

"PrivateCall"   anonymous indication is received instead of the originating telephone number.

"No Call Nb"   An out-of-area or unavailable indication is received instead of the originating telephone number.

"UnKnownCal"   The originating telephone number has not been received or was not transmitted.

EXAMPLE: When option 08 is selected as 2, it will send the telephone number to the computer in the following protocol:

Serial:	4RR1AAAAAALLLTTTTTTT[DC4]
4	:caller-id format code.
RR	:receiver number (00-FF).
1	:line number (1).
AAAAAA	:account code. If account code is less than 6 digits, leading spaces will be added. If no account code is received, 6 spaces will be added.
LLL	:area code. If no area code is received, "000" will be sent. If a single digit is received for area code, "001" will be sent.
TTTTTTT	:telephone number.
[DC4]	:terminator code.

EXAMPLE: When option 08 is selected as 4:

> Printer: TEL:1114*1619 5145551212
> 16:19-14/03/95

The call was received on November 14, at 16H19m and its phone number is 5145551212.

OPTION 09: PRINTER SELECT

If option [09] is on it enables Printer detection and selection, if it is disabled the printer will not be used. Program option 09 with one of the following:

Select	To Obtain
00	No Printer
01	Enable Star 8340 printer (default setting)
02	Enable non Star printer
11	Enable Star 8340 printer only if COM1 is in failure
12	Enable non Star printer only if COM1 is in failure

To accommodate for STAR printers (which have color printing red and black) the printer option 69 can be set to 01 to allow colors.

OPTION 0D: COM FORMAT

Option [0D] determines the communication format to be used on the COM port to communicate with the computer.

Program 00-04 for Option [0D] to select one of the following:

00   COM disabled

01   Sur-Gard Format (default setting)

02   Sur-Gard Format with common event code (The event code sent to the computer will always be "A")

03   The signal sent to the computer will always be followed by a header [SOH]

04   Clock Signal Format (refer to Clock Signal Protocol)

OPTION 0E: COM ACK WAIT

Option [0E] determines the acknowledge wait time, in seconds, to be used on the COM port to communicate with the computer. Enter a decimal number from 00-99, the first digit corresponds to seconds and the second digit corresponds to 1/10th seconds.

OPTION 0F: COM HEARTBEAT

Option [0F] determines at what time interval, in seconds, the heartbeat transmission will be sent to the COM port. The heartbeat transmission is used to ensure that communications through the COM port are functioning normally. Enter a decimal number from 01 to 99 to determine the time interval between heartbeat transmissions. Program this option as "00" to disable the heartbeat transmission.

OPTION 10: LINE CHECK

When option [10] is enabled, the receiver will perform a telephone line test at intervals set in this option. If the line is faulty, a line fault message will be sent to the printer & computer. Program 00 into this location to disable this feature. When this option is disabled and a line fault occurs, nothing will be sent to the printer or computer. Program a HEX value in this location corresponding to the desired delay.

OPTION 11: MUTE BUZZER

A tone will sound when the PC-LC2 is not detecting the computer output, the printer, or the phone line. The tone may be silenced by programming Option [11] as "1".

When programmed as "1", the buzzer will not sound . When programmed as "0", the buzzer will sound. The default setting is "0".

OPTION 13: PLAIN LIBRARY

When the option [13] is enabled, the receiver will send the message to the printer with **FULL LIBRARY.**

EXAMPLE: When option 13: is enabled, alarm messages will be printed as follows:

    L01-1234-05 AlarmZn#5   21:24-28/02/94

EXAMPLE: When option 13: is disabled, alarm messages will be printed as follows:

    L01-1234-05   21:24-28/02/94

OPTION 14: ALARM MESSAGES PRINT YEAR OR SEC.

Alarm messages may be programmed to include either the year in their dates, or the seconds in their times. Program Option 14 as "1" to include the year in the alarm message date; alarm messages will be printed as follows:

L01-1234-05   AlarmZn#05   21:24-24/11/94

NOTE: The time (21:24) is represented with just hours and minutes, and that the year is added to the date (24/11/94).

Program Option 18 as "0" to include the seconds in the alarm message time; alarm messages will be printed as follows:

L01-1234-05   AlarmZn#05   21:24:30-24/11

NOTE: The time (21:24:30) now includes hours, minutes and seconds; the date (24/11) only indicates the day and the month but not the year. NOTE: This option will affect COM1 if COM1 is programmed with communication format 4.

OPTION 15: CHANGE RECEIVER NUMBER

The receiver number is used to identify the receiver when communicating via Serial. To change the receiver number enter a value from 01-FF in Option [15]

OPTION 16: 3-2 FORMAT

The 3-2 communication format is a 10 to 20 baud format with 5-digit reporting codes. The first 3 digits represent the account code, and the last 2 digits represent the alarm code. Since 4-1 format is also 5-digit format, it is necessary to choose one or the other.

Program "1" to enable this option otherwise, program "0" to get 4-1 format.

OPTION 17: 4-1 EXPRESS FORMAT

The Ademco 4-1 express format may cause conflicts with the Sur-Gard DTMF 4-3 with checksum format. To prevent conflicts, enable option 17 by programming "1". Enabling this option will bypass the Sur-gard 4-3 with checksum format decoding.

OPTION 18: ON LINE DELAY

On line duration delay is built-in to control runaway of diallers.

A duration delay from 01-99 minutes can be programmed. The receiver starts timing when it picks up the line and when the delay expires, the receiver will hang up the call even if the dialer continues sending the data. If the duration delay is programmed as 00, this feature will be disabled.

OPTION 19-28: 3-1 / 4-1 FORMAT EVENT CODES #0-F

The receiver uses the Sur-Gard communication format to transmit data to the central station computer. Event codes corresponding to alarm codes in 10 to 40 baud formats and DTMF 4-1 to 4-3 formats are used in this unique format to enable the computer software to determine alarm types. *NOTE: The alarm digit codes, 0 or A have the same event code. The changing of the event code for alarm digit "A" has no effect.*

EXAMPLE: ALARM RECEIVED

1234 1 (ALARM CODE IS 1)

Printer: AD41 1234-1   FIRE ALARM
10:52:30 03/03

Computer: 1011ssssss1234sAss1[DC4}

The event code A has been transmitted because it corresponds to the code programmed with the alarm code 1.

OPTIONS 29-38: 3-2, 4-2 FORMAT EVENT CODES #0-F

The receiver will use the fifth digit of data received in 4-2 formats to determine the message and event code. The event code will then be transmitted to the central station computer.

NOTE: The alarm digit code 0 or A have the same event code. So, changing event code for alarm digit A has no effect.

OPTIONS 39-48: 4-3 FORMAT EVENT CODES #0-F

The receiver will use the fifth digit of data received in 4-3 formats to determine the message and event code. The event code will then be transmitted to the central station computer.

NOTE: The alarm digit codes 0 or A have the same event code. So, changing event code for alarm digit A has no effect.

OPTION 49: HANDSHAKE AND KISSOFF DURATION

Some control panels have difficulty in decoding the receiver's handshake and/or kissoff tones on noisy phone lines. This option provides a possible solution for this problem by providing longer constant tones.

A duration delay from 0.6-3.0 seconds can be programmed. The factory default setting for Handshake and Kissoff duration is 1.0 second tone. If a value greater than 3.0 is programmed, it takes the maximum value 3.0 sec. By default. The same thing applies if a value smaller than 0.6 is entered, it takes the minimum value 0.6 sec. by default.

OPTION 4A: SIA LEVEL II

The PC-LC2 provides SIA Protocol 1 for SIA level 1 RS-232 communication and SIA Protocol 2 for SIA level 1, 2, 3, RS-232 communication. Program 00 for SIA protocol 1 and 01 for SIA Protocol 2.

OPTION 4B: SLAVE POLL

This option will determine how many channels will be polled in each setup. The Default is 07.

OPTION 4C: CHANNEL STATUS

Option to 00 will use standard SG Heartbeat. Option set to 01 will use The Reporter heartbeat. Default is 01.

OPTION 4D: EQUIVALENT LINE

Option [4D] is used when an incoming signal can be received on another receiver telephone line if the original line is busy. Information printed and/or sent to the printer will indicate that the information was received on the same telephone line. The receiver message does not change.

Program 00 at option [4D], or a number from 01 to 0E

PC-LC2 SYSTEM STATUS

PC-LC2 STAND-BY MODE

The following messages are sent to the printer and computer when the receiver is powered up:

Printer: SG-PC-LC2 MAY-14-00 V1.00

Computer: 0000 A D0

After these start-up transmissions, the unit enters the Stand-by Mode and monitors the system's status

1. Data reception
2. Line fault
3. Printer error
4. COM1 Absent

1. DATA RECEPTION

The PC-LC2 decodes all information received and stores the information in its event buffer. When a valid signal is received, it sends a kissoff signal and transmits the decoded alarm signal to the printer and computer.

The unit will send each received message to the printer for review by the system operator. Two messages may be sent to the printer to indicate reception problems: the "Fault Data" and "Fault Call".

FAULT DATA MESSAGE

When this problem is encountered, the following information is transmitted to the printer and the computer:

Printer: TRBL ????-10 Fault Data

Computer: 0000 T 10

This output for account code "0000" indicates that data has been received, but is not valid (for example, there are unmatched rounds or the wrong parity). The following is an example of fault data received by the unit, and the printer output generated:

Round	Data Received	Printer Output
1st	123456	[No printout]
2nd	123446	?1234?56 Fault Data
		?1234?46 Fault Data
3rd	123356	?1233?56 Fault Data
4th	123456	?1234?56 Fault Data
5th	123346	?1233?46 Fault Data
		??????10 Fault Data

[No more data]

FAULT CALL

When this problem is encountered, the following information is transmitted to the printer and the computer:

Printer: TRBL ????-40 Fault Call
Computer: 0000 T 40

This output indicated that a call was received, but no data was detected. The call may have been a wrong number, or the calling control panel was unable to connect with the receiver handshake. If the Caller-Identification option is enabled, check the memory for the originating phone number.

If: Option [08] is programmed as 1 (Caller Identification enabled and send Caller-Identification to printer)

Then: Under normal conditions, when there are no data or call faults, the printer messages will be similar to the following:

SG43 1234-346 5551212

If a Data Fault or Call Fault occurs, the printer messages will be similar to the following:

Fault Data: TRBL ????-10 5551212
Fault Call: TRBL ????-40 5551212

NOTE: "?" represents the missing data, 5551212 represents the originating telephone number.

If: Option [08] is programmed as 2 (Send Caller-Identification to printer when faulty data is received)

Then: Under normal conditions, where there are no data or call faults, the printer messages will be similar to the following:

SG42 1234-C6 CloseUsr6

If a Data Fault occurs, the printer message will be similar to the following:

Fault Data: TRBL ????-10 5551212

CALLER ID

If a Fault Data or Fault Call occurs and Caller ID is enabled, the printer messages will be similar to the following:

Fault Data: ??????10 5551212
Fault Call: ??????40 5551212

NOTE: "?" represents the missing data; "5551212" represents the originating telephone number.

2. LINE FAULT

The SG-PC-LC2 verifies the telephone line voltage every 2 seconds.

The following information will be transmitted to the printer and/or computer if the phone line is not detected:

    Printer: TRBL ????-20 Line Fault
    Computer: 0000 A 20

If the telephone line returns to normal, the following information will be transmitted to the printer and computer:

    Printer: TRBL ????-30 Line Restr
    Computer: 0000 R 30

3. PRINTER ERROR

If option [09] is enabled and there is a printer trouble (for example printer off-line, or paper out) the following will be transmitted to the printer and/or computer:

    Computer: 0000 A 01
    Printer: * Printer Error !

4. COM1 ABSENT

If option [0D] is enabled and COM1 is absent (for example, disconnected, or fails to send acknowledge signal) the following message will be transmitted to the printer and/or computer:

    Computer: 0000 A 05
    Printer: * Com absent !

SG-PC-LC2 COMMUNICATION FORMATS

COMMON FORMATS

- 3-1, 4-1, 4-2 formats; 10, 14, 20 baud
- 3-1, 4-2 formats with or without checksum; 40 baud
- 3-2 format;   10, 14, 20 baud (option)
- 3-1 extended 10-40 baud
- 4-1 extended 10-40 baud
- 4-2 extended 10-40 baud

SG DTMF FORMATS

Sur-Gard DTMF 4-3 and 4-3 with Checksum formats provide fast, reliable and easy to understand and decode data transmission. On-line time will be greatly reduced when using 4-3 and 4-3 with Checksum formats. The 4-1 and 4-2 DTMF formats can also be decoded by the SG-PC-LC2.

When using the 4-3 with Checksum format, Option [17] should be programmed as "00" to avoid conflict with the 4-1 Express format. The 4-3 with Checksum format is recommended for use with SG security control panels.

SG-PC-LC2 LIBRARY DECODING AND EVENT CODES TABLE

3-1 / 4-1 ALARM LIBRARY

Message	For Alarm Code	Corresponding Event Code (Options 19-28)
24HrsTest	0 (A)	T
Fire	1	A
Panic	2	A
Burglary	3	A
Alarm	4	A
Alarm	5	A
Service	6	A
Medical	7	A
LowBattery	8	A
Restore	9	R
Opening	B	O
Closing	C	C
Cancel	D	A
Restore	E	R
Trouble	F	T

3-1 EXTENDED, 3-2, 4-2, ALARM LIBRARY

Message	For Alarm Code	Corresponding Event Code (Options 29-38)
24HrTZn#	0x (Ax)	T
Fire-Zn#	1x	A
PanicZn#	2x	A
BurglZn#	3x	A
AlarmZn#	4x	A
AlarmZn#	5x	A
ServiZn#	6x	A
MedicZn#	7x	A
LwBatZn#	8x	A
RestrZn#	9x	R
OpenUsr	Bx	O
CloseUsr	Cx	C
CanclUsr	Dx	A
RestrZn	Ex	R

4-3 ALARM LIBRARY

Message	For Alarm Code	Corresponding Event Code (Options 39-48)	
	Default	Other *	
24HrTZn#	0xx (Axx)	T	0
Fire-Zn#	1xx	A	1
PanicZn#	2xx	A	2
BurglZn#	3xx	A	3
CloseUsr	4xx	C	4
Open-Usr	5xx	O	5
ServiZn#	6xx	T	6
MedicZn#	7xx	A	7
MessgZn#	8xx	A	8
RestrZn#	9xx	R	9
CloseGrp	Bxx	C	C
Open-Grp	Cxx	O	O
BypasZn#	Dxx	B	B
CanclUsr	Exx	H	H
AuxilZn#	Fxx	A	F

*These alternative codes are available. Ensure that the central station automation software is able to accept these codes if they are to be used.

EVENT CODES SUMMARY

Code	Event
0	Automatic Test
1	Fire Alarm
2	Panic Alarm
3	Burglary Alarm
4	Arming by User Number
5	Disarming by User Number
6	Service
7	Medical Emergency
8	Message
9	Restore
A	Alarm
B	Bypass
C	Arming by User Number
F	Auxiliary
H	Cancel
O	Disarming by User Number
R	Restore
T	Trouble
Z	Common Event Code
LwBatZn#	8x A
RestrZn#	9x R
OpenUsr	Bx O
CloseUsr	Cx C
CanclUsr	Dx A
RestrZn	Ex R
TroubleZn	Fx T

CONTACT ID EVENT LIBRARY

EVENT CODE CLASSIFICATIONS

The event codes have been grouped according to the type of event, as described below.

EVENT CODE CLASSIFICATIONS

The Event codes have been grouped according to the type of event, as described below.

Medical Alarms - 100

100	Medical
101	Pendant transmitter
102	Fail to report in

Fire Alarms - 110

110	Fire alarm
111	Smoke
112	Combustion
113	Water Flow
114	Heat
115	Pull Station
116	Duct
117	Flame
118	Near alarm

Panic Alarms - 120

120	Panic alarm
121	Duress
122	Silent
123	Audible
124	Duress - Access Granted
125	Duress - Egress granted

Burglar Alarms - 130

130	Burglary
131	Perimeter
132	Interior
133	24 Hour
134	Entry/Exit
135	Day/Night
136	Outdoor
137	Tamper
138	Near alarm
139	Intrusion Verifier

General alarms

140	General alarm
141	Polling loop open
142	Polling loop short
143	Expansion module failure
144	Sensor tamper
145	Expansion module tamper
146	Silent Burglary
147	Sensor Supervision Failure

24 Hour Non-Burglary - 150 and 160

150	24 Hour non-burg
151	Gas detected
152	Refrigeration
153	Loss of heat
154	Water leakage
155	Foil break
156	Day trouble
157	Low bottled gas level
158	High temp
159	Low temp
161	Loss of air flow
162	Carbon Monoxide Detected
163	Tank Level

Fire supervisory - 200 and 210

200	Fire supervisory
201	Low water pressure

202	Low CO2
203	Gate valve sensor
204	Low water level
205	Pump activated
206	Pump failure

System Troubles - 300 and 310

300	System trouble
301	AC loss
302	Low system battery
303	RAM checksum bad
304	ROM checksum bad
305	System reset
306	Panel program changed
307	Self-test failure
308	System shutdown
309	Battery test failure
310	Ground fault
311	Battery Missing/Dead
312	Power Supply Overcurrent
313	Engineer Reset

Sounder/Relay Troubles - 320

320	Sounder/relay
321	Bell 1
322	Bell 2
323	Alarm relay
324	Trouble relay
325	Reversing
326	Notification Appliance ckt. #3
327	Notification Appliance ckt. #4

System Peripheral Troubles - 330 and 340

330	System Peripheral Trouble
331	Polling loop open
332	Polling loop short
333	Exp. module failure
334	Repeater failure
335	Local printer paper out
336	Local printer failure
337	Exp Mod DC Loss
338	Exp Mod Low Batt
339	Exp Mod Reset
341	Exp Mod Tamper
342	Exp Mod self-test fail
344	RF Receiver jam detect

Communication Troubles - 350 and 360

350	Communication Trouble
351	Telco 1 fault
352	Telco 2 fault
353	Long range radio xmitter fault
354	Fail to communicate event
355	Loss of radio supervision
356	Loss of central polling
357	Long Range Radio Xmtr VSWR problem

Protection Loop Troubles - 370

370	Protection loop
371	Protection loop open

372	Protection loop short
373	Fire trouble
374	Exit Error Alarm zone
375	Panic zone trouble
376	Hold-up zone trouble
377	Swinger trouble
378	Cross-zone trouble

Sensor Troubles- 380

380	Sensor trouble
381	Loss of super. - RF
382	Loss of super. - RPM
383	Sensor tamper
384	RF xmtr. low battery
385	Smoke Hi-Sens.
386	Smoke Low Sens.
387	Intrusion Hi-Sens.
388	Instrusion Low Sens.
389	Detector Self Test Fail
391	Sensor Watch Trouble
392	Drift Compensation Error
393	Maintenance Alert

Open/close - 400

400	Open/Close
401	O/C by user
402	Group O/C
403	Automatic O/C
404	Late to O/C
405	Deferred O/C
406	Cancel
407	Remote arm/disarm
408	Quick Arm
409	Keyswitch O/C

Remote Access - 410

411	Callback request made
412	Succes - download access
413	Unsuccessful access
414	System shutdown
415	Dialer shutdown
416	Successful upload

Access Control - 420 AND 430

421	Access denied
422	Access report by user
423	Forced Access
424	Egress Denied
425	Egress Granted
426	Access door propped open
427	Access point door status monitor trouble
428	Acess point request to exit trouble
429	Access program mode entry
430	Access program mode exit
431	Access threat level change
432	Access relay/trigger fail
433	Access RTE shunt
434	Access DSM shunt

System O/C - 440, 450 AND 460

441	Armed stay
442	Keyswitch armed STAY

EVENT CODE CLASSIFICATIONS CONT'D...

450	O/C by Exception
451	Early O/C
452	Late O/C
453	Fail to O/C
455	Auto Arm Fail
456	O/C Partail Arm
457	Exit Error
458	User on Premises
459	Recent Close
461	Wrong Code Entry
462	Legal Code Entry
463	Re-arm after alarm
464	Auto-arm Time Extended
465	Panic Alarm Reset
466	Service on/off premises

System Disables - 500 and 510

| 501 | Access reader diable |

Sounder/Relay disables - 520

520	Sounder/Relay disable
521	Bell 1 disable
522	Bell 2 disable
523	Alarm relay disable
524	Trouble relay disable
525	Reversing relay disable
526	Notification Appliance ckt.#3 disable

| 527 | Notification Appliance ckt.#4 disable |

System peripheral Disables - 530 and 540

| 531 | Module added |
| 532 | Module removed |

Communication Disables - 550 and 560

551	Dialer disabled
552	Radio xmitter disabled
553	Remote upload/download disabled

Bypasses - 570

570	Zone bypass
571	Fire bypass
572	24 Hour zone bypass
573	Burg. bypass
574	Group bypass
575	Swinger Bypass
576	Access zone shunt
577	Access point bypass

Test/Misc. - 600

601	Manual trigger test
602	Periodic test report
603	Periodic RF Xmission
604	Fire test
605	Status report to follow
606	Listen-in to follow
607	Walk Test Mode

608	OFF Normal Condition
609	Video Transmitter Active
611	Fire Test: Point tested
612	Fire Test: Point not tested
613	Intrusion zone walk tested
614	Fire Zone walk tested
615	Panic Zone walk tested
616	Service Request
621	Event log reset
622	Event log 50% full
623	Event log 90% full
624	Event log overflow
625	Time/Date Reset
626	Time/Date inaccurate
627	Program mode Entry
628	Program mode Exit
631	Exception Schedule change
632	Access Sched Change

PERSONNEL MONITORING - 640-650

| 641 | Senior watch trouble |
| 642 | Latch key supervision |

MISCELLANEOUS

| 654 | System Inactivity |

PC-LC2 COM STATUS REPORT MESSAGES

The PC-LC2 will send the following messages to the master COM port to report internal status conditions. PC-LC2 will use an Account Code of "0000" to indicate that it is reporting an internal condition.

Sent to COM	Event
0000 A 01:	Printer Error
0000 R 02:	Printer Restored
0000 A 05:	COM1 Absent
0000 R 06:	COM1 Restored
0000 A D0:	System Reset
0000 T 10:	Faulty Data Received
0000 A 20:	Telephone Line Fault
0000 R 30:	Telephone Line Restored
0000 T 40:	Faulty Call; no data received

APPENDIX A: PC-LC2 Communication Formats

	Name	Handshake	Data	Baud	Format	Kiss Off
01	Ademco Slow	1400Hz	1900Hz	10	3-1, 3-1 extended, 3-2 or 4-1, 4-2	1400Hz 1400Hz
02	Silent Knight Fast	1400Hz	1900Hz	14	3-1, 3-1 extended, 3-2 or 4-1, 4-2 4-1, 4-2 extended	1400Hz 1400Hz 1400Hz
03	Franklin	2300Hz	1800Hz	20	3-1, 3-1 extended, 3-2 or 4-1, 4-2 4-1, 4-2 extended	2300Hz 2300Hz 1400Hz
04	Radionics	2300Hz	1800Hz	40	3-1, 3-1 extended, 4-2	2300Hz
05	Radionics	2300Hz	1800Hz	40	3-1 + checksum 3-1 + checksum extended 4-2 + checksum	2300Hz 2300Hz 2300Hz
06	SIA Level 1, 2	FSK MARK SPACE	FSK MARK/	110/300		tonal/ Data ack
07	Contact ID	Dual Tone 1400Hz	DTMF	DTMF	4-2-1-3-2-3	1400Hz
08	Sur-Gard	2300Hz	DTMF	DTMF	4-3	2300Hz
09	Sur-Gard	Dual Tone 1400Hz	DTMF	DTMF	4-3	1400Hz
10	Sur-Gard	2300Hz	DTMF	DTMF	4-3 + checksum	2300Hz
11	Sur-Gard	Dual Tone 1400Hz	DTMF	DTMF	4-3 + checksum	1400Hz
12	Super Fast Ademco	Dual Tone	DTMF	DTMF	4-8-1	1400Hz
14	Acron Super Fast	1400Hz	DTMF	DTMF	3-8 & 4-8	1400Hz
15	Ademco Express	Dual Tone	DTMF	DTMF	4-1 (Option), 4-2	1400Hz
16	FBI Super Fast	Dual Tone	DTMF	DTMF	4-3-1	1400Hz

APPENDIX B: DECIMAL - HEX - Binary Conversion Chart

DEC	HEX	BINARY	DEC	HEX	BINARY	DEC	HEX	BINARY	DEC	HEX	BINARY
000	00	0000 0000	064	40	0100 0000	128	80	1000 0000	192	C0	1100 0000
001	01	0000 0001	065	41	0100 0001	129	81	1000 0001	193	C1	1100 0001
002	02	0000 0010	066	42	0100 0010	130	82	1000 0010	194	C2	1100 0010
003	03	0000 0011	067	43	0100 0011	131	83	1000 0011	195	C3	1100 0011
004	04	0000 0100	068	44	0100 0100	132	84	1000 0100	196	C4	1100 0100
005	05	0000 0101	069	45	0100 0101	133	85	1000 0101	197	C5	1100 0101
006	06	0000 0110	070	46	0100 0110	134	86	1000 0110	198	C6	1100 0110
007	07	0000 0111	071	47	0100 0111	135	87	1000 0111	199	C7	1100 0111
008	08	0000 1000	072	48	0100 1000	136	88	1000 1000	200	C8	1100 1000
009	09	0000 1001	073	49	0100 1001	137	89	1000 1001	201	C9	1100 1001
010	0A	0000 1010	074	4A	0100 1010	138	8A	1000 1010	202	CA	1100 1010
011	0B	0000 1011	075	4B	0100 1011	139	8B	1000 1011	203	CB	1100 1011
012	0C	0000 1100	076	4C	0100 1100	140	8C	1000 1100	204	CC	1100 1100
013	0D	0000 1101	077	4D	0100 1101	141	8D	1000 1101	205	CD	1100 1101
014	0E	0000 1110	078	4E	0100 1110	142	8E	1000 1110	206	CE	1100 1110
015	0F	0000 1111	079	4F	0100 1111	143	8F	1000 1111	207	CF	1100 1111
016	10	0001 0000	080	50	0100 0000	144	90	1001 0000	208	D0	1101 0000
017	11	0001 0001	081	51	0101 0001	145	91	1001 0001	209	D1	1101 0001
018	12	0001 0010	082	52	0101 0010	146	92	1001 0010	210	D2	1101 0010
019	13	0001 0011	083	53	0101 0011	147	93	1001 0011	211	D3	1101 0011
020	14	0001 0100	084	54	0101 0100	148	94	1001 0100	212	D4	1101 0100
021	15	0001 0101	085	55	0101 0101	149	95	1001 0101	213	D5	1101 0101
022	16	0001 0110	086	56	0101 0110	150	96	1001 0110	214	D6	1101 0110
023	17	0001 0111	087	57	0101 0111	151	97	1001 0111	215	D7	1101 0111
024	18	0001 1000	088	58	0101 1000	152	98	1001 1000	216	D8	1101 1000
025	19	0001 1001	089	59	0101 1001	153	99	1001 1001	217	D9	1101 1001
026	1A	0001 1010	090	5A	0101 1010	154	9A	1001 1010	218	DA	1101 1010
027	1B	0001 1011	091	5B	0101 1011	155	9B	1001 1011	219	DB	1101 1011
028	1C	0001 1100	092	5C	0101 1100	156	9C	1001 1100	220	DC	1101 1100
029	1D	0001 1101	093	5D	0101 1101	157	9D	1001 1101	221	DD	1101 1101
030	1E	0001 1110	094	5E	0101 1110	158	9E	1001 1110	222	DE	1101 1110
031	1F	0001 1111	095	5F	0101 1111	159	9F	1001 1111	223	DF	1101 1111
032	20	0010 0000	096	60	0110 0000	160	A0	1010 0000	224	E0	1110 0000
033	21	0010 0001	097	61	0110 0001	161	A1	1010 0001	225	E1	1110 0001
034	22	0010 0010	098	62	0110 0010	162	A2	1010 0010	226	E2	1110 0010
035	23	0010 0011	099	63	0110 0011	163	A3	1010 0011	227	E3	1110 0011
036	24	0010 0100	100	64	0110 0100	164	A4	1010 0100	228	E4	1110 0100
037	25	0010 0101	101	65	0110 0101	165	A5	1010 0101	229	E5	1110 0101
038	26	0010 0110	102	66	0110 0110	166	A6	1010 0110	230	E6	1110 0110
039	27	0010 0111	103	67	0110 0111	167	A7	1010 0111	231	E7	1110 0111
040	28	0010 1000	104	68	0110 1000	168	A8	1010 1000	232	E8	1110 1000
041	29	0010 1001	105	69	0110 1001	169	A9	1010 1001	233	E9	1110 1001
042	2A	0010 1010	106	6A	0110 1010	170	AA	1010 1010	234	EA	1110 1010
043	2B	0010 1011	107	6B	0110 1011	171	AB	1010 1011	235	EB	1110 1011
044	2C	0010 1100	108	6C	0110 1100	172	AC	1010 1100	236	EC	1110 1100
045	2D	0010 1101	109	6D	0110 1101	173	AD	1010 1101	237	ED	1110 1101
046	2E	0010 1110	110	6E	0110 1110	174	AE	1010 1110	238	EE	1110 1110
047	2F	0010 1111	111	6F	0110 1111	175	AF	1010 1111	239	EF	1110 1111
048	30	0011 0000	112	70	0111 0000	176	B0	1011 0000	240	F0	1111 0000
049	31	0011 0001	113	71	0111 0001	177	B1	1011 0001	241	F1	1111 0001
050	32	0011 0010	114	72	0111 0010	178	B2	1011 0010	242	F2	1111 0010
051	33	0011 0011	115	73	0111 0011	179	B3	1011 0011	243	F3	1111 0011
052	34	0011 0100	116	74	0111 0100	180	B4	1011 0100	244	F4	1111 0100
053	35	0011 0101	117	75	0111 0101	181	B5	1011 0101	245	F5	1111 0101
054	36	0011 0110	118	76	0111 0110	182	B6	1011 0110	246	F6	1111 0110
055	37	0011 0111	119	77	0111 0111	183	B7	1011 0111	247	F7	1111 0111
056	38	0011 1000	120	78	0111 1000	184	B8	1011 1000	248	F8	1111 1000
057	39	0011 1001	121	79	0111 1001	185	B9	1011 1001	249	F9	1111 1001
058	3A	0011 1010	122	7A	0111 1010	186	BA	1011 1010	250	FA	1111 1010
059	3B	0011 1011	123	7B	0111 1011	187	BB	1011 1011	251	FB	1111 1011
060	3C	0011 1100	124	7C	0111 1100	188	BC	1011 1100	252	FC	1111 1100
061	3D	0011 1101	125	7D	0111 1101	189	BD	1011 1101	253	FD	1111 1101
062	3E	0011 1110	126	7E	0111 1110	190	BE	1011 1110	254	FE	1111 1110
063	3F	0011 1111	127	7F	0111 1111	191	BF	1011 1111	255	FF	1111 1111

APPENDIX C: PC-LC2 Programmed Number
Channel "A" Number - Channel "B" Number Conversion Chart

Settings for the rotary switch and its equivalent line card number settings.

PC-LC2 PROGRAMMED NUMBER ON THE ROTARY SWITCH	CHANNEL A NUMBER	CHANNEL B NUMBER
0	0	1
1	2	3
2	4	5
3	6	7

Settings for the rotary switch for cold boot function...

D   Cold boot channel A only
E   Cold boot channel B only
F   Cold boot both channel A and B

Limited Warranty

SG Security Communications warrants that for a period of one year from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, SG Security Communications shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of SG Security Communications, such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of SG Security Communications. This warranty contains the entire warranty. SG Security Communications neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall SG Security Communications be liable for any direct, indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

Warning

SG Security Communications recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

How to Contact Us:

Sales

For information about additional products, please call our sales number: 1-800-418-7618, or e-mail us at sales@sur-gard.com.

Technical Support

If you have questions or problems when using Sur-Gard products, you can call technical support. If you are within the United States, Puerto Rico, the U.S. Virgin Islands or Canada, you can get support by dialing 1-800-503-5869 ext.1. If you are outside these areas, please call (416) 665-4494 ext.1, or e-mail us at support@sur-gard.com.

Internet

Visit our new Sur-Gard WWW site. You will be able to search the Sur-Gard technical information database and read information about new products. You will also be able to send us your questions. Our World Wide Web address is http://www.sur-gard.com.

CE CONFORMITY

The PC-LC2 module will bear the CE symbol of conformity. This symbol is a declaration tht on account of its design and implementation, the PC-LC2 is in compliance with the currently valid versions of the following EC Directives.

> 89/36/EC   EMC Directive
>
> 73/23/EC   Low Voltage Directive
>
> 91/263/EC   Telecommunications Devices Directive

CTR21 Notes

1. This equipment has been apporved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the apporval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

   In the event of problems, you should contact your equipment supplier in the first instance.

2. This equipment was designed to work on the PSTN networks in the following countries: Austria, Belgium, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Israel, Norway, Portugal, Spain, Sweden, Switzerland, Netherlands and the UK.

   If there is special software programming to be done for a specific country, this will be noted in the programming worksheets booklet. Therefore, please consult the Worksheets booklet during programming of the equipment and take note of any special country specific requirements for the PSTN.

   If this equipment is to be connected to a PSTN in a country that is not listed above, please contact the vendor to check compatibility with the network in question.

3. This equipment has only been approved for and is only intended for use with DTMF dialing.

4. In order to comply with CTR21 regulations, the Maximum Number of Dialing Attempts that a control panel can make must not exceed 15.