SG-System III

Operating Manual

version 2.0

WARNING Please Read Carefully

Note to Installers

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system.

System Failures

This system has been carefully designed to be as effective as possible. There are circumstances, however, involving fire, burglary, or other types of emergencies where it may not provide protection. Any alarm system of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some but not all of these reasons may be:

• Inadequate Installation

A security system must be installed properly in order to provide adequate protection. Every installation should be evaluated by a security professional to ensure that all access points and areas are covered. Locks and latches on windows and doors must be secure and operate as intended. Windows, doors, walls, ceilings and other building materials must be of sufficient strength and construction to provide the level of protection expected. A reevaluation must be done during and after any construction activity. An evaluation by the fire and/or police department is highly recommended if this service is available.

• Criminal Knowledge

This system contains security features which were known to be effective at the time of manufacture. It is possible for persons with criminal intent to develop techniques which reduce the effectiveness of these features. It is important that a security system be reviewed periodically to ensure that its features remain effective and that it be updated or replaced if it is found that it does not provide the protection expected.

• Access by Intruders

Intruders may enter through an unprotected access point, circumvent a sensing device, evade detection by moving through an area of insufficient coverage, disconnect a warning device, or interfere with or prevent the proper operation of the system.

• Power Failure

Control units, intrusion detectors, smoke detectors and many other security devices require an adequate power supply for proper operation. If a device operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a security system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

• Failure of Replaceable Batteries

This system's wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

• Compromise of Radio Frequency (Wireless) Devices

Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

• System Users

A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

• Smoke Detectors

Smoke detectors that are a part of this system may not properly alert occupants of a fire for a number of reasons, some of which follow. The smoke detectors may have been improperly installed or positioned. Smoke may not be able to reach the smoke detectors, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors. Smoke detectors may not detect smoke from fires on another level of the residence or building.

Every fire is different in the amount of smoke produced and the rate of burning. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

• Motion Detectors

Motion detectors can only detect motion within the designated areas as shown in their respective installation instructions. They cannot discriminate between intruders and intended occupants. Motion detectors do not provide volumetric area protection. They have multiple beams of detection and motion can only be detected in unobstructed areas covered by these beams. They cannot detect motion which occurs behind walls, ceilings, floor, closed doors, glass partitions, glass doors or windows. Any type of tampering whether intentional or unintentional such as masking, painting, or spraying of any material on the lenses, mirrors, windows or any other part of the detection system will impair its proper operation.

Passive infrared motion detectors operate by sensing changes in temperature. However their effectiveness can be reduced when the ambient temperature rises near or above body temperature or if there are intentional or unintentional sources of heat in or near the detection area. Some of these heat sources could be heaters, radiators, stoves, barbeques, fireplaces, sunlight, steam vents, lighting and so on.

• Warning Devices

Warning devices such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If warning devices are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible warning devices may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible warning devices, however loud, may not be heard by a hearing-impaired person.

• Telephone Lines

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also an intruder may cut the telephone line or defeat its operation by more sophisticated means which may be difficult to detect.

• Insufficient Time

There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time to protect the occupants or their belongings.

• Component Failure

Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

• Inadequate Testing

Most problems that would prevent an alarm system from operating as intended can be found by regular testing and maintenance. The complete system should be tested weekly and immediately after a break-in, an attempted break-in, a fire, a storm, an earthquake, an accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

• Security and Insurance

Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

Limited Warranty

Digital Security Controls warrants the original purchaser that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Digital Security Controls shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labour and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original purchaser must promptly notify Digital Security Controls in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period. There is absolutely no warranty on software and all software products are sold as a user license under the terms of the software license agreement included with the product. The Customer assumes all responsibility for the proper selection, installation, operation and maintenance of any products purchased from DSC. Custom products are only warranted to the extent that they do not function upon delivery. In such cases, DSC can replace or credit at its option.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Digital Security Controls shall not be responsible for any customs fees, taxes, or VAT that may be due.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Digital Security Controls such as excessive voltage, mechanical shock or water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Digital Security Controls);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

Items Not Covered by Warranty

In addition to the items which void the Warranty, the following items shall not be covered by Warranty: (i) freight cost to the repair centre; (ii) products which are not identified with DSC's product label and lot number or serial number; (iii) products disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection or testing to verify any warranty claim. Access cards or tags returned for replacement under warranty will be credited or replaced at DSC's option. Products not covered by this warranty, or otherwise out of warranty due to age, misuse, or damage shall be evaluated, and a repair estimate shall be provided. No repair work will be performed until a valid purchase order is received from the Customer and a Return Merchandise Authorisation number (RMA) is issued by DSC's Customer Service.

Digital Security Controls's liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty. Under no circumstances shall Digital Security Controls be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property. The laws of some jurisdictions limit or do not allow the disclaimer of consequential damages. If the laws of such a jurisdiction apply to any claim by or against DSC, the limitations and disclaimers contained here shall be to the greatest extent permitted by law. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that the above may not apply to you.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Digital Security Controls Digital Security Controls neither assumes responsibility for, 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.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

WARNING: Digital Security Controls 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.

Installer's Lockout

Any products returned to DSC which have the Installer's Lockout option enabled and exhibit no other problems will be subject to a service charge.

Out of Warranty Repairs

Digital Security Controls will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Digital Security Controls determines to be repairable will be repaired and returned. A set fee which Digital Security Controls has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Digital Security Controls determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

GENERAL DESCRIPTION of the EQUIPMENT and CLASSIFICATION.

CLASSIFICATION

The SG-SYSTEM III equipment is a **class 1, rack-mounted, (fixed-stationary) equipment, pluggable type A using a detachable power supply cord,** designed to be **installed, operated and maintained by service personnel only** - [persons having appropriate technical training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimise the danger to themselves or other persons].

The equipment SG-SYSTEM III is designed to be installed in **restricted access locations** within an environment that provides the Pollution Degree max 2 and **overvoltages category II - nonhazardous locations, indoor only.**

The **power supply cord** serves as a means of disconnection from the **mains.** The **outlet** used to power the equipment shall be installed near the equipment and shall be easily accessible. The equipment must be connected to a socket-outlet with a protective earthing connection! The **installation** of the SG-SYSTEM III equipment must provide a reliable earth connection and it shall respect the local electrical wiring regulations.

IMPORTANT:

It is the responsibility of the installer to ensure that the SG-SYSTEM III is properly mounted within a metallic fire enclosure with a minimum thickness of 1.5 mm and the final assembly is compliant with all of the applicable requirements from the point of view of the accessibility to the energized parts (hazardous voltages, TNV circuits, etc.) as these characteristics are defined within EN60950-1: 2006 standard.

The external enclosure shall meet all of the applicable requirements from the point of view of physical requirements, e.g., steady force 250N, impact and stability. The equipment must be secured to the building structure before operation; all wiring and installation shall be in accordance with electrical codes acceptable to the authorities that have jurisdiction where the equipment is installed, serviced and operated.

Not more than 3 (three) assemblies [each consisting of 2 (two) SG-SYSTEM III equipment] mounted within the same rack shall be powered from the same branch circuit. Use a different branch circuit for any group larger than 3 (three) assemblies.

The rack must be **fixed** in place; The subassemblies shall **not be extended away** from the rack for installation and/or any other purpose.

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.

The wireways within the enclosure shall be smooth and free from sharp edges. Wires shall be protected and routed so that they do not come in contact with burrs, cooling fan or heatsinks which could cause damage to the insulation of conductors. Holes in metal shall have smooth well-rounded surfaces or shall be protected with bushings.

The **external enclosure** shall be connected to the **protective earth ground.** The external cabinet (**rack**) must be secured to the building structure before operation in a such a way to fully meet the **stability requirements** as per EN60950-1: 2006 conditions.

An adequate **marking**, visible on the front of the door (cover), **next to the access door** (or cover) of the rack, with instructions for protection once the **door** (or covers) **is** (are) removed, stating that the "telephone cord is to be disconnected prior to opening the door" (or other acceptable marking), shall be provided by the installer.

An acceptable power supply cord (detachable) shall be used in accordance with the local outlets and voltages. **It is the installer's responsibility to provide an appropriate acceptable power supply cord.**

CAUTION:

This product uses lithium batteries. Improper handling of lithium batteries may result in **heat generation, explosion or fire,** which may lead to personal injuries.

Please ensure that the above precautions are strictly observed by the related divisions including but not limited to sales, service, customers and (or) outside contractors.

The equipment SG-SYSTEM III is equipped with lithium non replaceable battery. Do not attempt to replace the battery.

CONNECTION TO THE MAINS

1. Connect first the **detachable power supply cord** to the IEC320 connector located on SG-SYSTEM III equipment.

2. Connect all the telecommunications cord-sets to the appropriate connectors.

3. Ensure that the enclosure of the equipment SG-SYSTEM III is fully installed (covers, doors, etc.) in a such a way that **hazardous voltages** and TNV Circuits will not be **accessible** when the equipment is connected to the **mains** and/or **telecommunication network**.

ATTENTION: The internal power supplies are not swappable. Disconnect power before attempting to change a power supply.

In order to change the **internal** Power Supply, first **disconnect** the **detachable power supply cord** from the socket outlet used to provide power, and then, from the IEC320 connector which is mounted on the SG-SYSTEM III equipment. Wait minimum 5 seconds to allow the capacitor (C8) within the unit to discharge. **If the fuse is suspected of having opened,** a discharge path for the involved capacitor (C8) shall be provided.

Do not touch the **heatsinks** within the equipment: these are **live parts** and/or may present a hazard related to high temperatures. In order to swap the boards **use the provided plastic handles (inserters, extractors).**

No repairs in the field are allowed. The SG-System III equipment must be returned to the manufacturer for repairs.

Introduction

Figure 1-1, SG-System III
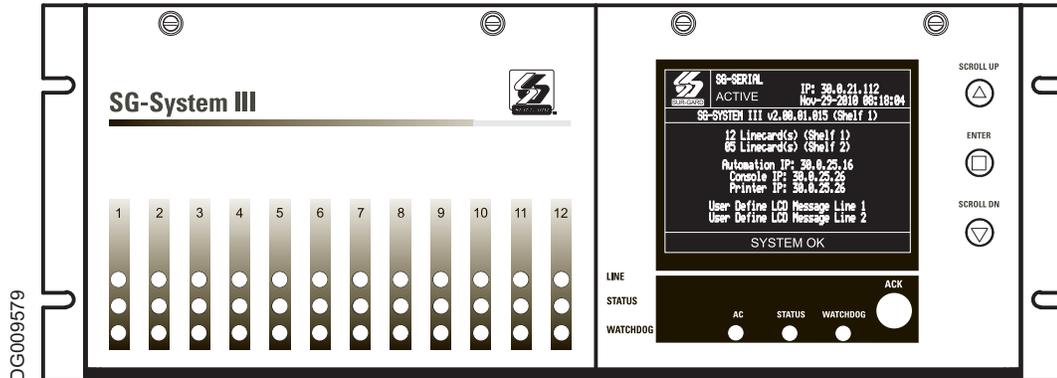
The SG-System III is a multi-platform receiver intended for remote monitoring of commercial fire and burglary systems. The SG-System III equipped with SG-DRL3/SG-DRL3E/SG-DRL3-2L/SG-DRL3-IP can monitor up to 48 telephone lines, 24 IP communication line cards, or a combination of the two. The SG-System III time and date stamps all received alarm signals which are then transmitted to a central station computer via TCP/IP or RS-232 port; transmitted directly to a printer using the parallel printer port, RS-232 printer port and/or TCP/IP; and viewed on the LCD of the front panel while the receiver is in the manual state. System configuration and phone line profiles can be programmed using a PC with SG-Systems Console or locally using the scroll buttons and LCD. Each shelf can house up to 12 SG-DRL3, SG-DRL3E, SG-DRL3-2L or SG-DRL3-IP in any combination.

System Overview

SG-DRL3/SG-DRL3E/SG-DRL3-2L

- Patented Caller Identification (Call Display) capability
- Patent pending AHS (Automatic Handshake selection)
- Patented virtual configurations
- Non-volatile memory on line cards for programming and event buffer
- Flash download for software upgrades for all supported line cards and the SG-CPM3
- DSP technology (patent pending)
- Up to 64 different options set (profiles per line card)
- Up to 8 different handshakes per profile
- Large, easy to read LCD (Liquid Crystal Display)
- All modules function individually to help ensure uninterrupted operation during hardware or software upgrades
- All cards are Hot Swappable. Cards can be removed and replaced without removing power from the system or compromising the system performance
- 24 line cards maximum per redundant receiver
- 512-event memory buffer on each individual line card
- Real-time clock
- One parallel printer port, one serial printer port, one serial automation port and one ethernet (10/100BaseT) connection per rack
- Events can be manually acknowledged by an operator.
- Programmable serial ports
- Continuous verification of the computer-receiver links with the 'heartbeat' function
- Fast transmission of multiple alarms to the computer and printer to ensure operator's quick response
- Telephone Line and Ethernet link supervision
- Rack mountable in standard 19 inch rack. For UL listed installations use IMRAK 1400 or other equivalent listed enclosure.

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SG-DRL3-IP

SG-DRL3-IP line card features include the following:
- Provides higher line security than conventional dial up panels with the polling feature.
- Quicker transmission since dialing or handshaking is not required.
- Network trouble detection is displayed on the LCD, printer and automation software.
- Static IP address for programming of the network protocols.
- Data network polling environment for replacement of an existing DVACS network. Meets the 90-second ULC requirement for this option.
- Ability to receive IP alarm messages from compatible communicators in either SIA or Contact ID.
- The T-LINK accounts and data encryption keys will be stored in the local line cards IP table.

    NOTE: The SG-DRL3-IP can receive data from all DSC IP communicators. Please see the communicator manual for compatibility limitations.

Approvals

Industry Approvals

- UL 1610 Central Station Burglar Alarm Units
- UL 864 Standard for Control Units and Accessories for Fire Alarm Systems
- CAN/ULC-S304:2016- REV 1 Control Units, Accessories and Receiving Equipment for Intrusion Alarm Systems.
- CAN/ULC-S559-13 Equipment for Fire Signal Receiving Centres and Systems
- FM approved
- EN60950-1:2006 Standard for Information Technology Equipment.
- AS/NZS 60950.1:2003 Information Technology Equipment - Safety
- CISPR22 Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurements
- EN50130-4 Immunity requirements for components of fire, intruder and social alarm systems

This equipment shall be installed in accordance with the requirements of NFPA72, NFPA70, UL827 and the authority having jurisdiction.

SG-System III with SG-DRL3-IP Line Card is ULC listed for active communication channel security level A1 - A4 when used in conjunction with T-Link TL250 and T-Link TL300(CF), TL260(R), TL280LE(R), LE2080(R), TL280(R)E, TL880LT, TL880LE, LE9080, 3G9080, HS3128/032/248, LE4010(CF), LE4020(CF), 3G4010(CF) Internet/Intranet and/or LTE/HSPA alarm communicators. For this type of application the supervision and encryption features have to be enabled.

For ULC Installations the equipment shall be installed in accordance with the requirements of ULC-S561 and ULC-S301 Standards and the authority having jurisdiction.

For UL864 Commercial Fire applications, the following compatible communicators can be used with receiver model SG-System III SW Ver. 2.0x (using line card model SG-DRL3-IP SW Ver. 2.3x):

LE4010/LE4010CF SW Ver. 5.x

LE4020/LE4020CF SW Ver. 4.x

3G4010CF SW Ver. 4.x

TL300/TL300CF SW Ver. 1.5

The transmitter supervision (Option [13] in SG-DRL3-IP line card) shall be set to 60 minutes for single path and to 6 hours for multiple path performance-based technologies.

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UL864 Programming Requirements

Table 1: UL864 Programming Requirements

NOTICE to Users, Installers, Authorities having Jurisdiction, and other involved parties			
This product incorporates field programmable software. In order for the product to comply with the requirements in the **Standard for Control Units and Accessories for Fire Alarms Systems**, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.			
SG-CPM3			
Opt# Program Option	Permitted in UL864? (Y/N)	Possible Settings	Settings Permitted (UL 864)
12 Heartbeat Timer	Y	00-FF	Not allowed 00
13 Mute Buzzer	N	ON/OFF	OFF
16 PSU 1 Mask	N	ON/OFF	OFF
17 PSU 2 Mask	N	ON/OFF	OFF
18 DCA 1 Mask	N	ON/OFF	OFF
19 DCB 1 Mask	N	ON/OFF	OFF
1A DCA 2 Mask	N	ON/OFF	OFF
1B DCB 2 Mask	N	ON/OFF	OFF
1C Reserved	N	ON/OFF	OFF
1D Reserved	N	ON/OFF	OFF
1E Fan 1 Mask	N	ON/OFF	OFF
1F Fan 2 Mask	N	ON/OFF	OFF
20 Mask UPS 1 AC	N	ON/OFF	OFF
21 Mask UPS 1 Bat	N	ON/OFF	OFF
22 Mask UPS 2 AC	N	ON/OFF	OFF
23 Mask UPS 2 Bat	N	ON/OFF	OFF
24 Mask SG TCP 1	N	ON/OFF	OFF
25 Mask SG Serial 1	N	ON/OFF	OFF
26 Mask SG TCP 2	N	ON/OFF	OFF
27 Mask SG Serial 2	N	ON/OFF	OFF
28 Mask TCP Printer 1	N	ON/OFF	OFF
29 Mask Parallel 1	N	ON/OFF	OFF
2A Mask SG Serial 1	N	ON/OFF	OFF
2B Mask TCP Printer 2	N	ON/OFF	OFF
2C Mask Parallel 2	N	ON/OFF	OFF
2D Mask SG Serial 2	N	ON/OFF	OFF
SG-DRL3/SG-DRL3-2L			
Opt# Program Option	Permitted in UL 864? (Y/N)	Possible Settings	Settings Permitted (UL 864)
04 2-Way Audio Activation Time	Y	00-FF	00
1C BUSY OUT (For SG-DRL3 only)	Y	00-FF	00
042 BUSY OUT (For SG-DRL3-2L only)	Y	00-FF	00
2F Online Time Out	Y	00-FF (00-255s)	00
7A 4 and 5 Digit Account Codes to Activate	Y	00-FF	00
7B 2-Way Audio			
7C 3-Digit Account Codes to Activate 2-Way	Y	00-FF	00
7D Audio	Y	00-FF	00
Alarm Codes to Activate 2-Way Audio	Y	00-FF	00
Audio Zone Code			
Note: for Commercial Fire applications, a DACT shall automatically initiate and complete a test signal transmission sequence to its associated receiver (SG-DRL3/SG-DRL3-2L line cards) at least once every 6 hours. The Automation Software connected to the receiver at the supervising station will indicate the absence of the test transmission (change settings from 24 hours to 6 hours).			

SG-DRL3-IP				
Opt#	Program Option	Permitted in UL 864? (Y/N)	Possible Settings	Settings Permitted (UL 864)
13	Transmitter Failure Debounce Time	Y	5-65535	3600 (1 h)/21600 (6 h)
15	Transmitter Restoral Debounce Time	Y	5-65535	300
19	Mask Transmitter Restoral	N	OFF	OFF
1A	Mask Transmitter Failure	N	OFF	OFF
1B	Mask Transmitter Swap	N	OFF	OFF
1C	Mask Transmitter Unencrypted	N	OFF	OFF
1D	Mask Invalid Report	N	OFF	OFF
1E	Mask Unknown Account	N	OFF	OFF
1F	Mask Supervised Acc Exceeded	N	OFF	OFF

Parallel Printers

For UL and ULC Listed applications the following UL/ULC Listed printer can be used with the SG-System III:
- Seiko DPU-414

Serial Printers

For UL and ULC Listed applications the following UL/ULC Listed printer can be used with the SG-System III:
- Seiko DPU-414

    NOTE: Do NOT use printer cables that have only 1 common ground wire.

UL Manual Mode

For UL manual mode, each event will activate the internal buzzer to be acknowledged manually. Each event will also be sent automatically to the connected printer.

For Central Station applications, the signaling performance of each DACT (Digital Alarm Communication Transmitter) shall be manually tracked. Failure to receive a signal from a DACT over 24 hour period shall be handled as a trouble signal.

Description (Hardware)

Basic Configuration: The basic configuration consists of one 19" rack mounted chassis comprising the following:
- SG-BP3 Backplane provides interconnection of modules and communications interface
- SG-CPM3 Module contains the CPU that controls all communication to and from up to 24 receiver modules, printers, including 2 serial ports, a parallel port and an ethernet connection.
- SG-PSU3 Power Supply Unit provides power to all modules of the system.
- SG-DC/DC3 provides 5VDC power output required for the SG-DRL3 line cards. A slot exists for a second SG-DC/DC3 voltage converter. In the event of a failure, the redundant SG-DC/DC3 can be removed/replaced without powering down the unit.
- SG-PSC3 (Power Supply Controller) monitors the states of the power and fan for each SG-MLRF3.
- SG-MLRF3: The metal rack of the SG-System III that incorporates the LCD and SG-BP3.
- SG-DRL3/DRL3E Line Card: Each SG-DRL3/DRL3E line card monitors one telephone line. Stores on the card up to 64 profiles for data management including 8 different handshaking protocols. Each card has a 512-event buffer.
- SG-DRL3-2L Line Card: Each SG-DRL3-2L line card monitors up to two telephone lines. Stores on the card up to 64 profiles for data management including 8 different handshaking protocols. Each card has a 512-event buffer.
- SG-DRL3-IP Line Card: Each SG-DRL3-IP line card supports up to 1536 IP transmitters and can supervise up to 512 transmitters. Each line card has a 512-event buffer.

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SG-BP3 Backplane

The SG-BP3 interconnects system modules and racks as well as providing communication outputs as indicated in figure 1-6.
Figure 1-2
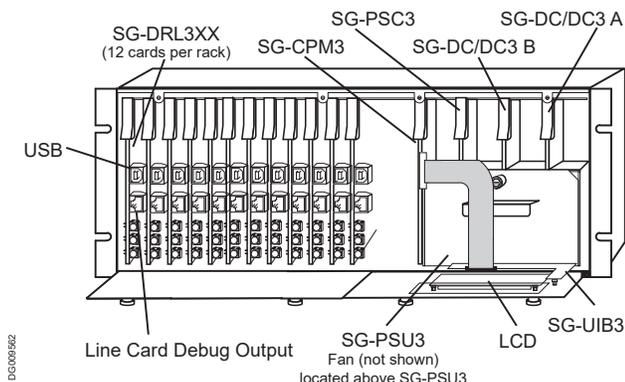
SG-PSU3 Power Supply Unit

The SG-PSU3 is the SG-System III power supply. The SG-System III requires a 120VAC/60Hz input power source. A power cord with a IEC connector is required. The model SG-System III CE requires a 240VAC, 50Hz input power source.

> NOTE: For UL/ULC installations use only 120VAC/60Hz to power the SG-System III.
> For UL installations use UL listed UPS Power Supply for protective signaling systems and/or listed burglar alarm power supply, as applicable.
> The model SG-System III CE is not UL/ULC Listed.

Electrical Specifications:

SG-System III UL
  • Input voltage range: 120VAC
  • Frequency: 60Hz
  • Input current: 2.5A max (RMS) @120VAC

SG-System III CE
  • Input voltage range: 240VAC
  • Frequency: 60Hz
  • Input current: 2.5A max (RMS) @ 240VAC

In a 2-rack configuration, a redundant SG-PSU3 can be inserted in the second shelf. In the event of a SG-PSU3 failure, the redundant SG-PSU3 automatically assumes operation. These modules are Hot Swappable (can be removed/replaced while the system is in operation) if a working redundant SG-PSU3 is installed.

SG-CPM3 Central Processing Module

The SG-CPM3 Central Processing Module collects system information and directs line card information to the appropriate outputs. Along with its built-in scroll buttons and large LCD message screen, the SG-CPM3 features TCP/IP, parallel printer and two serial RS-232 ports for computer interface capability. The printer is supervised for loss of power, off-line, paper out and other trouble conditions. The communication link to the automation computer through the RS-232 and TCP/IP port can be monitored by the supervisory heartbeat transmissions.

Line Cards

The SG-System III supports a maximum of 24 line cards. Each line card is equipped with non-volatile memory to record events. For each POTS card (SG-DRL3, SG-DRL3E and SG-DRL3-2L), calling source (Caller ID, ANI and calling name) capability is built-in and telephone numbers can be printed out, sent to automation and stored in memory. Events and informa-

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tion stored in memory may be printed at any time. The SG-DRL3-2L and SG-DRL3E may perform flash updates over the front edge USB port connection.

The SG-DRL3/SG-DRL3E/SG-DRL3-2L receives ANI (Automatic Number Identification) and/or DNIS (Dialed Number Identification Service) via the Telco connection. This information allows the Sur-Gard System III to automatically change profiles for each received call. This eliminates dedicated line pool hardware. The DNIS information is used in a look-up table, which sets up virtual line pools to identify security formats and extend account numbers. Standard DNIS is supported up to 10 digits. Each dialed number would have formerly been a line pool on conventional line cards.

The SG-DRL3-IP (UDP) Receiver Module functions as a LAN or WAN server to many remote clients (the transmitters). The SG-DRL3-IP line card receives alarm events from the transmitter/panel decoding them before forwarding the signals to the SG-CPM3 for subsequent output to the printer and automation outputs.

After a SG-DRL3-IP has been installed and configured, it will listen on a programmed port and await communications from transmitters which have been configured to connect to that specific receiver. After communication has been established, the transmitter will enter its normal operating mode (waiting for panel polls, transmit heartbeat signals, alarm messages and DLS/SA download messages). The SG-DRL3-IP will log the connection and generate the appropriate event which will be forwarded to the SG-CPM3. The SG-DRL3IP also features flash downloads through Ethernet for fast software upgrades.

When an alarm message is generated by the transmitter, it will send the message in a UDP/IP frame and transmit it to the receiver (this communication can be optionally encrypted - reference transmitter documentation to determine if encryption is supported by the device). When an alarm message is received from the transmitter/panel, the receiver will strip off the UDP frame and decrypt the message. It will then send an appropriate response (ACK or NAK) back to the transmitter/panel. The timing will follow the standard timing requirements of the panel. If the message was a valid alarm event, the event will be sent to the appropriate connected printer and automation devices.

The SG-DRL3-IP line card receives heartbeats from all network supervision enabled transmitters periodically. This allows the receiver to determine whether the transmitters are still online. The receiver maintains a table of all installed transmitters and monitors their status (presence/absence, installed software versions, MAC addresses for swap detection purposes, and other network statistics).

The SG-DRL3-IP line card can be programmed with various configuration parameters and options, including receiver IP address, sub net mask, and default gateway address. Configuration parameters are password protected. The default password can be changed for maximum security.

The SG-DRL3-IP line card is programmed with a globally unique MAC address during production. This MAC address is NOT re-programmable.

> NOTE: Each SG-DRL3-IP Receiver Module can monitor up to a maximum of 1536 accounts of which 512 accounts can be supervised.

SG-BP3X Interface Module
(One required per rack if SG-DRL3, SG-DRL3E, or DRL3-2L are used)

This 19" Rack-mounted panel interfaces with the SG-System III Telco connector to provide 24 RJ-11 connectors for direct connection to telephone lines.

> NOTE:
> SG-DRL3/SG-DRL3E: On the BP3X, the B ports are the channels used for 2-way audio or back-up telephone line.
> SG-DRL3-2L: On the BP3X the B ports are the channels used for channel 2 of the line card.

Figure 1-3 Front
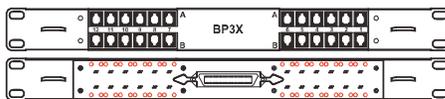
- Connections for Redundant SG-System III: Refer to Figure 1-7 SG-System III Redundancy Wiring Diagram.
- Line Card Debug Output: Connect the RJ-45 end of the debug cable to the debug output jack.
  Connect the female DB-9 connector to the serial port of a computer (COM1 port - DB-9 male).

1

Figure 1-4 SG-CPM3 Debug Cable

RJ45

Back of DB9

Pin 2	to	Pin 5
Pin 5	to	Pin 3
Pin 6	to	Pin 2
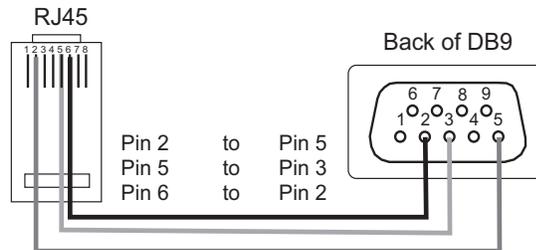
- SG-DRL3 Debug Output: Connect the RJ-45 end of the debug cable to the debug output jack on the front of the line card. Connect the female DB-9 connector to the serial port of a computer (COM1 port - DB-9 male).

Figure 1-5 SG-DRL3 Debug Cable

RJ45

Back of DB9

Pin 3	to	Pin 2
Pin 4	to	Pin 3
Pin 5	to	Pin 5
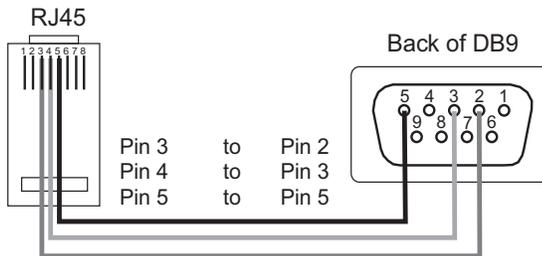
- IEC Power Connector: Provides local power line connection (cable is not supplied).

Figure 1-6, SG-System III Wiring Diagram

* For Model System III CE:
- 240Vac /50Hz
- System III CE is not UL Listed

**CAUTION: The Ethernet communication lines must be connected first to an approved (acceptable to the local authorities) type NID (Network Interface Device) before leaving the premises (e.g., UL installations, UL60950 Listed NID).

Connections for second backplane (Refer to Figure 1-7)

See System III Supervised UPS Connection diagram for details (Refer to Figure 1-8)
Note: For UL Installations:

- AC input is 120Vac / 60 Hz.
- Do not connect to a receptacle controlled by a switch.

DB25 Parallel Printer Output
Not Used
SG-CPM3 Debug Output
12 RJ-45 Connectors Not Used
Shelf Address Switch
12 RJ-45 jacks for IP connectivity for SG-DRL3-IP cards
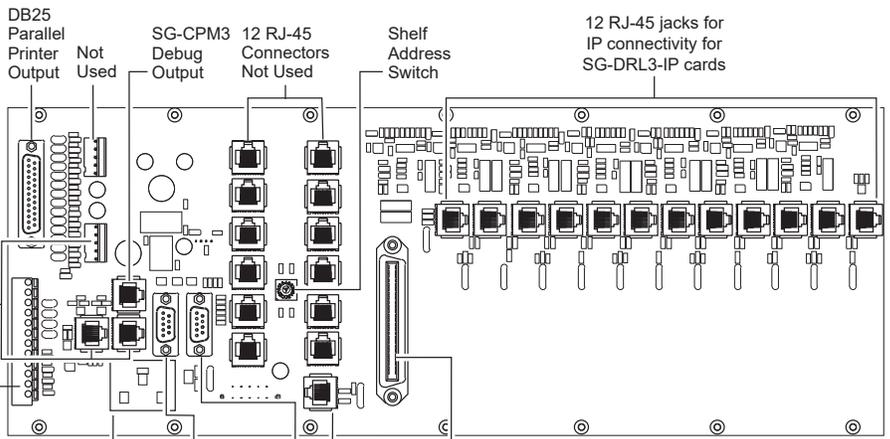
IEC Power Connector 120Vac / 60 Hz* 2.5A
AC Input circuit non power limited

RS-232 Serial Automation Output

RS-232 Serial Printer Output
All outputs supervised

Ethernet** Output 10/100 BaseT

25 Pair RJ-21 Supervised Telephone Lines (Refer to Appendix C for pin out)
Notes:
1. All external devices should be mounted in the same room as the receiver.
2. All circuits are power limited except AC input.
3. Maintain 6.5 mm (1/4") separation between power limited and non-power limited circuits.

DG009582

WARNING: **To reduce the risk of electric shock the product is provided with a grounding type power supply IEC receptacle. Connect product using an appropriate IEC cable to a grounded receptacle.**
- RS-232 Serial Automation Output: Provides serial connection to a local computer running automation software. A null modem serial cable must be used.

1

- RS-232 Serial Printer Output: Provides serial connection to a local computer or serial printer. A null modem serial cable must be used.
- 25 Pair Telco Connection: Connects directly to the local PBX or to SG-BP3X (Refer to Appendix B for pinouts).
- Ethernet Output 10/100 BaseT: Traditional automation communication is provided via port 1025 on the Ethernet connection. This primary port is a Sur-Gard standard output and provides Sur-Gard standard automation protocol output. All or a number of virtual receiver types can be mapped to the Sur-Gard output.

CAUTION: The Ethernet communication lines must be connected first to an approved (acceptable to the local authorities) type NID (Network Interface Device) before leaving the premises (e.g., UL installations, UL60950 Listed NID).

Figure 1-7, SG-System III Redundancy Wiring Diagram

All circuits are power limited
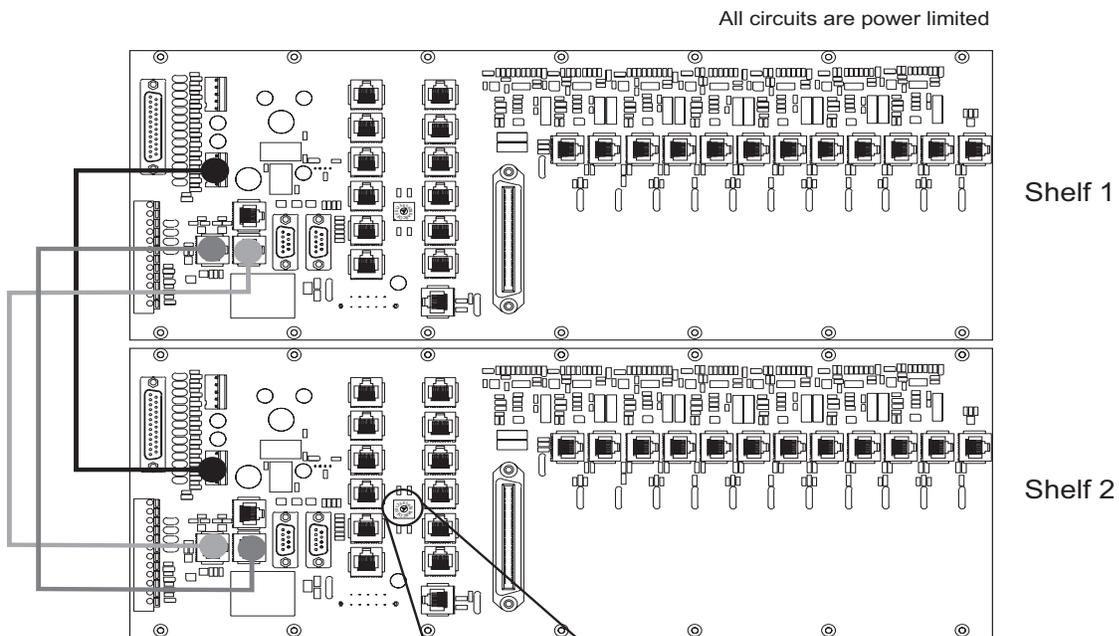
Shelf 1

Shelf 2

Use only the cables provided in the SG-System III Interconnect Pack. Failure to do so may result in damage to the unit. Using the provided RJ-45 patch cables, connect the Output of the primary SG-System III (shelf address 1) to the Input of the secondary System III (shelf address 2). Connect the Output of the secondary SG-System III to the Input of the primary SG-System III.
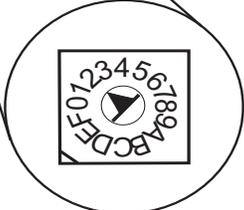
Use a small flat screwdriver to turn the shelf address switch to 2 on the secondary SG-System III.

Switch Setting	Speed (Printer and Automation)	Shelf
1	57,600	1
2	57,600	2
5	520,000	1
6	520,000	2

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Figure 1-8, SG-System III UPS Supervision Connection Diagram

SG-System III Backplane
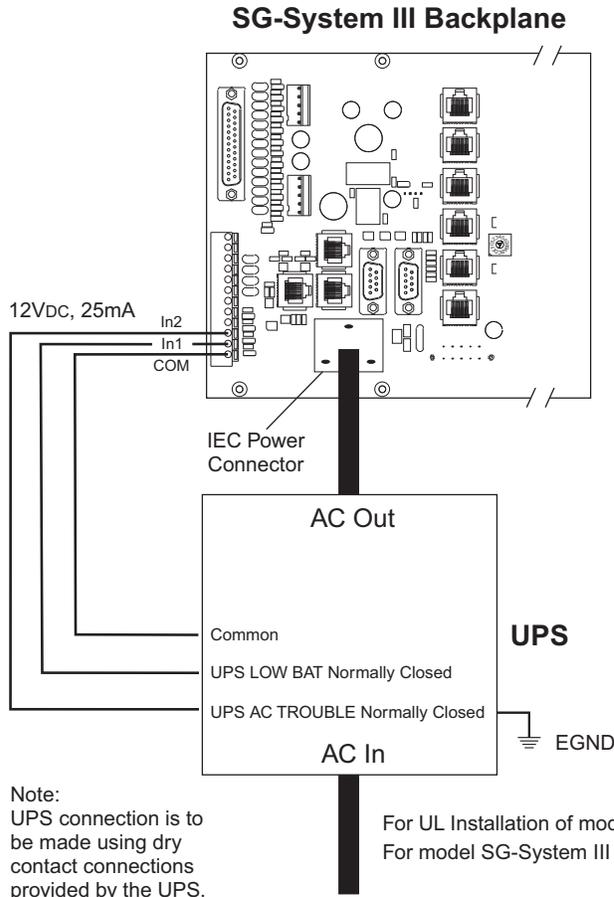
For UL/ULC installations use a UL listed UPS (Uninterruptible Power Supply) for protective-signaling systems and/or listed burglary alarm power supply, as applicable.

For ULC Installations, the equipment shall be rack mounted and energized by a permanently wired supply in accordance with C22.1, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations, section 32.
Connection to a UPS (Uninterruptible Power Supply) with minimum 24 hour standby capability is required.

12V$_{DC}$, 25mA

In2
In1
COM

IEC Power
Connector

AC Out

Common

UPS LOW BAT Normally Closed

UPS

UPS AC TROUBLE Normally Closed

EGND

AC In

Note:
UPS connection is to be made using dry contact connections provided by the UPS.

For UL Installation of model SG-System III: UPS Output 120V$_{AC}$/60Hz, 2.5A
For model SG-System III CE (not UL Listed): UPS Output 240V$_{AC}$/50Hz

WARNING: **To reduce the risk of electrical shock, the product is provided with a grounding type power supply IEC receptacle. Connect product using an appropriate IEC cable to a grounded receptacle.**

Table 2: Loading Capacities for Hunt Groups

	Number of Lines in Hunt Group				
System Loading at the Supervising Station	1	2	3	4	5-8
Number of initiating circuits	NA	5,000	10,000	20,000	20,000
Number of DACTs	NA	500	1,500	3,000	3,000
	With DACR lines processed serially (put on hold, then answered one at a time)				
Number of initiating circuits	NA	3,000	5,000	6,000	6,000
Number of DACTs	NA	300	800	1,000	1,000

NA: Not allowed

1

Figure 1-9, SG-System III Power Limited Circuit Separation from Non-Power Limited Circuit Diagram

NOTE: The power cord needs to be routed ¼ inch away from all other cables coming from or which are part of the SG-System III.
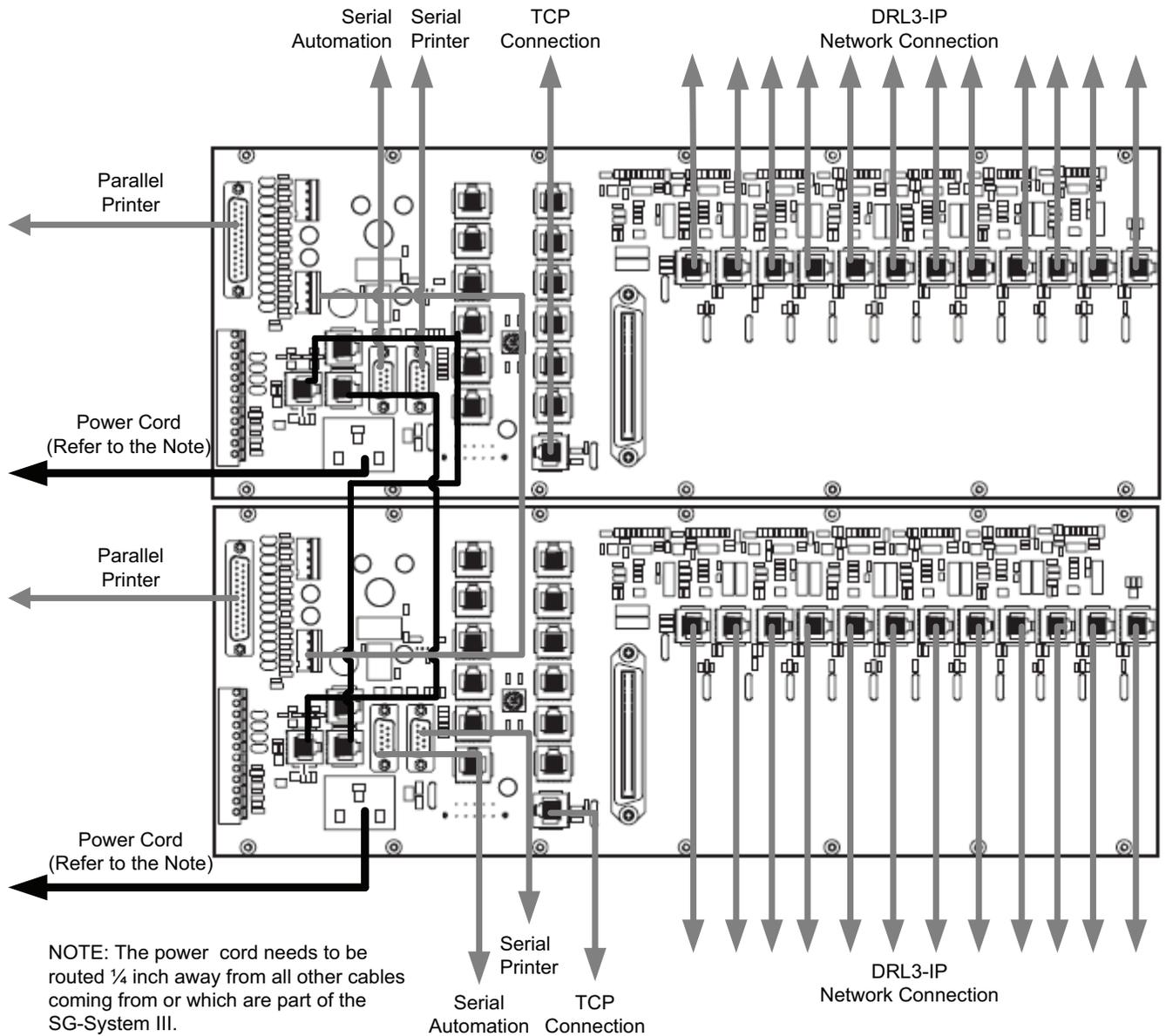
Receiver Setup and Operation

Sur-Gard recommends testing the receiver before actual installation. Becoming familiar with the connections and setup of the unit on the workbench will make final installation more straightforward.
The following items are required:

1

- IEC power supply cord
- One telephone line
- One or more dialer or digital control panel(s)

1. Unpack the components for the SG-System III.

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

2. Unscrew the front thumb screws and open the front plates.

    NOTE: Before inserting the SG-CPM3, connect the ribbon cable from the SG-UIB3 board. Before inserting the SG-PSC3 connect the LCD power cable.

3. Starting with slot 1, insert all cards in the rack to their appropriate positions. Ensure that there are no open slots between cards. (refer to figure 1-2).
4. Insert the SG-PSU3 into the rack and screw in the thumb screw.
5. Connect a telephone line to the corresponding line on the SG-BP3.
6. Connect the main power using a standard computer IEC cable (not supplied).
7. The LCD will power up and display internal troubles (e.g., printer, computer, telephone line fault). The SG-DRL3 that has the telephone line connected to it will have its red LED off. If the LED is on, make sure the telephone line is connected to the correct port.
8. Press the ACK button until all of the initial signals have been acknowledged (ACK button has stopped flashing and the buzzer has been silenced).

    NOTE: Internal diagnostics may require more than one minute during the power up sequence.

9. Send a signal from a control panel to the receiver. The signal will be displayed on the LCD. Press the [ACK] button to silence the buzzer and clear the signal from the LCD.

Description (Operation)

Operation with Default Programming

Without any changes to the factory default programming, the receiver operates as indicated below:
- Answers incoming calls on the first ring
- Sends the following handshake order:

1	2300 Hz
2	1400 Hz
3	Dual-tone
4	SIA FSK
5	ITI, Modem IIE/IIIa2
6	Modem II

- Receives most communication formats, except for 3/2, 3/1 checksum, SKFSK, 4/2 extended, and 4/2 checksum (see Option 95).
- The above formats can be manually selected
- Signals can be displayed on the debug output computer as they are received. The signals are then sent to the printer and computer connected to serial port COM1 or to the 10/100BaseT. The default event codes described in the SG-DRL3 Library Decoding and Event Codes Table will be used with the Sur-Gard automation communication protocol to send signals to the computer, if connected.
- If a computer is not connected press the [ACK] button on the SG-CPM3 to silence the buzzer and to clear the alarm(s) from the LCD display.

1

Virtual Connectivity

Each SG-CPM3 has one static IP address and a number of associated ports. The configuration management, done from the Console Software, is located on port 1024. The SG-Systems Console software is provided for Microsoft Windows operating system (refer to the console documentation for compatibility listing), which provides a graphical style menu for configuration management. Additional features are available with the SG-Systems Console software including storage of virtual receiver setups and configuration wizards.

Status Addressing

Line card status is reported via physical addressing. Shelf and slot number are assigned automatically to each line card. All device status information is in Sur-Gard format. The reporting of status on this port, automation output and printer will relate to physical addressing.

Automation Input/Output (Port 1025)

Traditional automation communication is provided via port 1025 on the Ethernet connection. This primary port is a Sur-Gard standard output and provides Sur-Gard standard automation output.

Compatibility

Central station automation software packages such as:

• MAS	• DICE	• SIMS II	• GENESYS
• S.I.S.	• IBS	• MicroKey	• Bold

support the SG-System III Sur-Gard interface. Refer to automation software specifications for compatibility.

> NOTE: Automation connections are considered supplementary per UL864 Listing. Compatibility with the automation software in a system used at a central station is intended to be handled under a separate UL1981 software and/or site certification evaluation.

Automation Protocols

The SG-System III receiver sends a variety of protocols to report signals to the central station computer via a TCP/IP and/or RS-232 port. A complete list of protocols is listed in Appendix E.

Data Byte Protocol

The SG-System III receiver uses a default configuration of 9600 Baud rate, 1-start bit, 8-data bits, 0-parity bits and 2-stop bits structure, to transmit and receive signals on the RS-232 port. This protocol can be programmed on the receiver to enable different configurations.

Acknowledgment of the Signal

The SG-System III receiver requires an acknowledgment signal [ACK] (Hex 06) from the computer software within 4 seconds for each message sent. Failure to receive the [ACK] will result in retransmission of the signal. After the fourth attempt, the SG-System III will indicate a communication failure on with the automation port. During a communication failure the SG-System III receiver will stop transmitting except for the heartbeat. In case of communication failure with the computer, the SG-System III receiver can store up to 512 events in its internal memory. Communication is resumed when the first heartbeat acknowledgment is received; all buffered information is then transmitted.

COM Responses

When the SG-CPM3 sends an event to the computer, it checks for 3 responses: ACK, NAK or Unknown/No Response. An ACK indicates that the computer automation received the event successfully. A NAK indicates the computer automation received the message but didn't understand it. The line card will attempt to send the messages 25 times. If after the 25th

attempt it receives a NAK from the computer automation, the SG-DRL3 will generate an internal communication error. After 20 NAKs the SG-CPM3 will send an internal communication error event to the printer and output the message to the printer in ASCII and attempt to move onto the next signal. Any other response from the computer automation, including no response will cause the SG-CPM3 to attempt to send the message again, up to 4 times. If after 4 attempts the SG-CPM3 does not receive a response or receives an unknown response, it will assume nothing is connected, generate an alarm and fall to the next active automaton port or manual mode.

Automation Absent

When the computer is not responding to transmissions, the SG-CPM3 will generate a 'SG-Serialx fail' or 'SG-TCP/IPx Fail' trouble. When the trouble occurs, the SG-CPM3 will continue to attempt to send a heartbeat signal to the computer until it gets a response. The SG-System III receiver will make 4 attempts, then wait for the next heartbeat period before making another 4 attempts. The typical heartbeat interval is 30 seconds.

Supervisory Heartbeat Signal Protocol (1)	
	100000sssssssssss@ssss[DC4]
00000	Receiver number (First two digits are pro-grammed section [14] of the CMP3. The remaining digits are always zeros).
s	Space Character.
@	Supervisory Signal.
[DC4]	Terminator, 14 Hex

This signal is used to supervise the communication between the receiver and computer automation. It is sent to the computer automation every 30 seconds and is programmable from the receiver. The computer automation should acknowledge this signal with an [ACK]. The SG-CPM3 can be programmed to send a heartbeat signal to the computer automation once every 01-99 seconds to test the connection between the SG-CPM3 and the computer automation (30 seconds is recommended). If a heartbeat fails to get a response from the computer automation, the SG-CPM3 will immediately transmit the heartbeat again, up to 4 attempts. The SG-System III, by default, will output the automation signals via TCP/IP. If TCP/IP fails it will switch to the Serial Automation output.

If the serial output fails, the SG-CPM3 will switch to manual mode, all signals will be displayed on the LCD and will require a manual acknowledgement. To re-establish connection with the TCP/IP a reset SG fall-back command must be generated from the Console software. If the line card buffers are full, the line cards will stop answering calls.

SG-System III SIA Internal Status Output

	0RRLLL[#0000|NYYZZZZ]
0	Protocol ID
RR	Receiver number of the SG-CPM3
LLL	Line card number, 000 signifies a SG-CPM3 Event.
0000	SG-System III account.
NYYZZ	SIA Event
[DC4]	Terminator, 14 Hex

SG-CPM3 Operating Modes

2

In This Chapter...

2

Contrast Adjust

Press the Up and Enter buttons together to increase the contrast or press Down and Enter together to decrease the contrast. This operation can be done at any time after the power up sequence.

Active Mode

In Active mode, the primary connection to the computer is via TCP/IP networking on the 10/100 BaseT Ethernet connection for the automation computer. If this fails, then the output will go via serial RS-232. A command can then be sent through the SG-Systems Console software to revert back to TCP/IP when the connection is restored. The IP of the SG-CPM3 is displayed on the screen.

Figure 2-1, Active Mode

Manual Mode

For Manual mode, each event will activate the internal buzzer to be acknowledged manually. Each event will be sent automatically to the connected printer and displayed on the SG-CPM3 LCD. Messages longer than 80 characters will be displayed on two lines. Once the signal is acknowledged, it will be cleared from the screen.

Figure 2-2, Manual Mode

NOTE: The SG-CPM3 will display a maximum of 5000 events which have not been acknowledged.

2

Standby Mode

When two SG-CPM3s are present, one SG-CPM3 will be in Active or Manual mode, and the other SG-CPM3 will be in Standby. If the active SG-CPM3 fails, the standby unit will automatically take over the control of the system. The IP of the SG-CPM3 is displayed on the screen.

Figure 2-3, Standby Mode
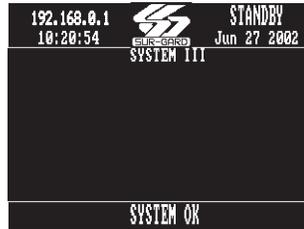
System Trouble and System Information

When a trouble is present on the SG-System III, the message "SYSTEM TROUBLE" will be displayed at the bottom of the screen.
- To view which trouble is present, press the UP and DN buttons simultaneously. All signals must be acknowledged before this is available.
- If no troubles are present, pressing the UP and DN buttons will enter open the System Information menu. In this menu items such as Version information, Product ID, IP address can be viewed. If troubles occur once the user is in the Trouble menu, pressing the UP and DN buttons again will allow the user to access the System Information menu.
- To return to the main screen, press the UP and DN buttons simultaneously, or wait for it to timeout before this is available.

AHS Table Management

New and modified AHS entries that are generated by incoming calls to line cards will be added to the backup CPM3. This operation will happen every 5 minutes. At this time, all entries that are new/modified will be synchronized with the other CPM3. If the two CPM3's are not able to communicate to each other then the synchronization of the new entries will fail.

When the SG-Systems Console sets the AHS table to the CPM3 it will be written to flash once the set is complete.

The SG-System III will log "AHS Database Full" once the AHS table has reached capacity. The SG-System III will continue to log "AHS Database Full" every day, at midnight, until space in the AHS table is made by deleting entries.

The AHS table size is 250,000 entries. This may be increased to 500,000 with the purchase of a license. Please contact your local sales representative for more information on how to acquire additional licenses.

NOTE: The SG-CPM3ROHS is required in order to have the additional AHS entries.

3 Line Card

In This Chapter...

3

Standby Mode

SG-DRL3

After start-up, the line card enters Standby mode and monitors the telephone line and the SG-CPM3. Depending on the system's status, the following conditions will be displayed for each line card:

LED	ON	OFF	FLASHING
LINE (Red)	Line Fault	Line Normal	N/A
STATUS (Yellow)	On-line	Off-line	*Error condition
WATCHDOG (Blue)	Line Card not functional		Line Card functional

*The number of flashes on the yellow LED indicates the following errors:

Flashes	Error
1	CPM absent
2	Line card clock not set
3	EBUS command to disable the line card was sent
4	Printer or computer buffer full.
5	Checksum failed when downloading flash ROM files.

SG-DRL3E

After start-up, the line card enters standby mode and monitors the telephone line and the SG-CPM3. Depending on the system's status, the following conditions will be displayed for each line card:

LED	ON	OFF	FLASHING
Channel 1			
LINE (Red)	Line Fault	Normal	
Status (Yellow)	On-line	Off-line	*Error condition
empty			
WATCHDOG (Purple)	Line Card not functional		Line Card functional

3

*The number of times the yellow LED flashes indicates the following errors:

Flashes	Error
1	CPM Absent
2	Line card clock not set
3	EBUS command to disable the line card was sent
4	Printer or computer buffer full
5	Checksum failed when downloading flash ROM files.

SG-DRL3-2L

After start-up, the line card enters Standby mode and monitors the telephone line and the SG-CPM3. Depending on the system's status, the following conditions will be displayed for each line card:

LED	ON	OFF	FLASHING
Channel 1 Line (Red) Status (Yellow)	Line Fault On-line	Normal Off-line	*Error condition
Channel 2 Line (Red) Status (Yellow)	Line Fault On-line	Normal Off-line	*Error condition
WATCHDOG (Purple)	Line Card not functional		Line Card functional

> **NOTE: The SG-DRL3-2L has two channels. The Line LED will be used to indicate the status of channel 1. The Status LED will be used to indicate the status of channel 2 per table above.**

*The number of flashes on the yellow LED indicates the following errors:

Flashes	Error
1	CPM absent
2	Line card clock not set
3	EBUS command to disable the line card was sent
4	Printer or computer buffer full.
5	Checksum failed when downloading flash ROM files.

SG-System I Operating Manual

SG-DRL3-IP

After start-up, the line card enters Standby mode and monitors the network connection and the SG-CPM3. Depending on the system's status, the following conditions will be displayed for each line card:

LED	ON	OFF	FLASHING
LINE (Green)	Network Present	Network Absent	N/A
STATUS (Yellow)	Trouble Condition(s)	Off-line	*Error condition
WATCHDOG (Blue)	Line Card not functional		Line Card functional

*The number of flashes on the yellow LED indicates the following errors:

Flashes	Error
1	CPM absent
2	Line card busy
3	Printer buffer full
4	Computer buffer full
5	Checksum failed when downloading flash ROM files.

Line Fault

The SG-DRL3/SG-DRL3E/SG-DRL3-2L verifies the telephone line voltage. The 'Line Fault' LED (Red) will come ON when the voltage drops below 12VDC.
When the line condition returns to normal, the 'Line Fault' LED will be shut OFF.

> *NOTE: Additional line fault operation if Backup Line option is enabled. See Backup Line option (Option 0E) for explanation.*

SG-CPM3 Error

If the line card cannot detect the SG-CPM3 polling, the line card will start buffering incoming calls. Up to 512 alarm messages for the printer and computer will be retained in the line card event buffer. When the event buffer is full, the line card will stop answering calls and the status LED will begin flashing. When the SG-CPM3 Error condition is corrected, the alarm messages in the event buffer will be transmitted to the SG-CPM3 with the corresponding time/date the alarm has been received.

SG-DRL3/SG-DRL3E/SG-DRL3-2L Data Reception

During data reception, the yellow STATUS LED will turn on. The line card decodes all information received and stores the information in its Event Buffer. When a valid signal is received, the line card sends a kiss-off signal and transmits the decoded alarm signal to the computer and to the printer through the SG-CPM3. The line card will send each message it receives to the printer for review by the system operator. Two messages may be sent to the printer to indicate reception problems: invalid report and communication fail.

Fault Data Message

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

3

SG-DRL3/SG-DRL3E/SG-DRL3-2L

Printer:

Jun 25 1998-11:18:07-SS/OO-SG-12-234-0000-INVALID REPORT

Computer:

012234[#0000¦NYNSSOO]

This output for account code '0000' indicates that data has been received, but is not valid (for example, there are unmatched rounds or incorrect parity).

Printer:

Jun 25 1998-11:18:07-SS/OO-SG-12-234-0000-COMMUNICATION FAIL

Computer:

012234[#0000¦NYCSSOO]

This output indicates 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's handshakes. Computer message NACKed 25 consecutive times.

Printer:

Internal Comm. Error

Computer:

RRLLL[#0000¦NRTSSOO]

NOTE: SS00 represents the shelf and slot of the line card that received the signal.

SG-DRL3-IP Fault Data Message
When this problem is encountered, the following information is transmitted to the printer and the computer:

Printer:

SG-12-234-AAAAAA-YN-*Invalid Report 192.158.8.34*

Computer:

012234[#AAAAAA¦NYN*192.158.8.34*]

This output for account code 'AAAAAA' indicates that data has been received, but is not valid (e.g.,The packet is encrypted and the SG-DRL3-IP does not have the proper key) or the T-LINK transmitter packet was rejected (NAK) four times by the receiver. Please also refer to Option 45.

Ethernet Interface

The SG-DRL3-IP has an Ethernet interface which operates as a 10BaseT/100BaseT IEEE 802.3 compliant Ethernet port. This port is accessible via a standard RJ45 connector. The IP address of the SG-DRL3-IP is programmable. The Ethernet port is used for system connections, including the transmitter and console ports.
The Ethernet communication lines must be connected first to an approved (acceptable to the local authorities) type NID (Network Interface Device) before leaving the premises (e.g., UL installations, UL60950 Listed NID).

Supervised Receiver Database

The receiver has the capability of monitoring IP transmitters that are set up as supervised units. The receiver will automatically keep track of new transmitters and indicate whenever a transmitter has been lost.

4 Programming/ Operation

In This Chapter...

4

Introduction

The SG-System III can be programmed manually using the front panel; from a local computer or remotely using the TCP/IP network and SG-Systems Console software. The Debug output is intended as a testing and troubleshooting tool. Manual programming allows the user to program all of the SG-System III options for remote and local operation. Manual programming does not support the grouping of line cards into hunt groups or line pools.

Console Software

The Console software is intended to be the primary method of programming the system. Refer to the **SG-Systems Console Manual** for details.

Debug

The debug output is another method of accessing the line card's programmed options and diagnostics features. A debug cable is required to connect by serial communication from the line card to a standard PC running Windows 95 or higher software.

> *NOTES:*
> *DRL3E/DRL3E-2L/DRL3-2L - Profiles 1-63 cannot be set through debug*
> *DRL3 - If the line card reboots, changes made with set option through debug are lost. To make changes permanent, use the Write option.*
> *ALL PROGRAMMING WITH THE DEBUG SETUP IS LOST WHEN THE SYSTEM IS POWERED DOWN OR WHEN LINE CARDS ARE REBOOTED OR REMOVED FROM THE RACK.*

Debug Cable Connectivity

- Connect the RJ-45 end of the debug cable to the debug jack on the front of the line card.
- Connect the female DB-9 connector to the serial port of a computer. For debug cable pinouts. refer to figure 1-5.

Debug Setup

- Using Windows 95 or higher, point and click on the ⊞Start button.
- Select **Programs** ▸ **Accessories** ▸ **Communications** ▸ **HyperTerminal**.
- A connection description window is displayed with a prompt on the 'Name' category. Type a name. Point and click on the 'OK' button.
- A phone number window is displayed. Choose the COM port required for connection and point and click on 'OK'.

> *NOTE: The SG-Systems Console may also be used allowing for PC's that do not have access to HyperTerminal to be able to program options and perform "logger functions". Refer to the SG-Systems console manual for setup instructions.*

Figure 4-1

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• The COMx properties windows are displayed. The configuration should be:

SG-DRL3 - bits per second	19200
SG-DRL3E/SG-DRL3-2L - bits per second	57600
SG-DRL3-IP - bits per second	19200
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	None

Figure 4-2

Set the DRL3E/DRL3-2L debug flags:
1.   Click on the 'OK' button after setting the configuration.
2.   The HyperTerminal window is displayed. Press any key. The debug menu is displayed.
3.   Press D to display the debug flags.
4.   Enter "06" for channel 1 or "07" for channel 2 and press enter. Channel 2 is on available on DRL3-2L line cards.
5.   Enter "03" and press enter.
If debug output is needed from 2 channels, repeat steps 3-5 for the other channel.

Manual Programming

The user interface consists of three buttons: the Scroll Up button, the Scroll Down button, and the Enter button. These buttons are used to access the programming of the SG-CPM3, and to view alarm and trouble messages in manual mode. They are located on the right side of the screen.

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Figure 4-3

The Configuration mode allows programming of the various features and options available on the SG-System III. To enter the Configuration mode, press the [Enter] button.

Choose user 0 and enter the Master Access Code using the buttons; the default Master Access Code is "CAFE".

When the access code is entered, the screen will display the Configuration Menu.

CPM3 Options allow the user to customize the operation of the system TCP/IP addressing, Passwords, COM settings and other system functions. Refer to the description of all CPM3 options and their default settings.

System Functions

Reset the SG-CPM3
Restarts the SG-CPM3. This is required to make the changes to some options effective. For example, the IP address.

Date and Time
Sets the date and time of the SG-System III. This can also be done from the SG-Systems Console software.

System Information
Lists information such as CPM3 version, product ID, and MAC address.

Cold Boot Line Card
A cold boot will set the line card back to factory default settings.

Visual Indicator Test
When selected, the SG-CPM3 will activate all front user interface enunciators and buzzers for 5 seconds. All LEDs will activate and all pixels on the LCD will activate (display turns white) for this duration. Any outputs set for Buzzer Follow or Trouble Output activate during this test.

> *NOTE: Visual Indicator test should not be performed while other functions are active (such as line test/AHS Flash).*

SG-CPM3 Options

> *NOTE: The following defaults are for the Primary SG-CPM3.*
> *A Secondary SG-CPM3 will have the following MASK set to ON [1C, 1D, 20, 21, 22, 23, 25, and 27] at default, the remainder will be set to OFF. This is to reflect a full redundant system.*
> *All references to OFF = option value of 00, and ON = option value of 01.*

Option 01: IP Address
Default (10.0.7.100)

This section is the IP address of the SG-CPM3. The IP Address will be entered as a dotted decimal number. Example: 192.168.002.045. Each segment of the IP address shall have a valid range from 000 to 255.

> *NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.*

Option 02: Subnet Mask
Default (255.255.0.0)

This section is the subnet mask of the SG-CPM3. The subnet mask will be entered as a dotted decimal number. Example: 255.255.000.000. Each segment of the subnet mask shall have a valid range from 000 to 255.

> *NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.*

Option 03: Gateway Address
Default (0.0.0.0)

This section is the Gateway of the SG-CPM3. The gateway address will be entered as a dotted decimal number. Example: 192.168.002.001. Each segment of the Gateway IP address shall have a valid range from 000 to 254. The gateway is used in the event that the data being sent is not on the same network as the SG-CPM3. The data will need to be sent through a router. This is the IP address of the router.

> *NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.*
>
> *NOTE: The IP address and gateway must be on the same Subnet in order to change one or the other.*

Option 04: Auto Update Time & Date
Default (0)

This option allows the automation to update the SG-CPM3 time via the TCP/IP port. When enabled, should the SG-CPM3 fail to get the time & date within 24 hours period (started after the last update is received or reset), it will generate a status message to the printer and automation, following the internal trouble protocol. The Trouble status on the SG-System III will not be affected. The Receiver Console time update function must be disabled when using this feature or there is a possibility that the SG-CPM3 will not remain synchronized with the automation PC.

Printer message: "Time&Date Update Fail"
Automation message: 0RRLLL[#0000¦NRU0000]

> *NOTE: Confirm that the automation software package supports time and date update.*

Option 05: Contrast Adjust
Default (80)

Allows the contrast of the message display screen to be adjusted. The contrast can also be adjusted from any screen by holding the UP and ENTER buttons simultaneously to increase the level, or by holding the ENTER and DOWN buttons simultaneously to decrease the level.

Option 06: Password Menu
Default (CAFE)

Allows the SG-System III users and passwords to be erased or changed. Sixteen users with 4-digit passwords are available for use on the SG-System III. User 0 is the Master user, and users 1 through F may be assigned to individual operators. The Master user will provide access to all menus, while the operators will have access to the SG-CPM3 settings as a view only (except passwords), other than to set the time and date.
This is to meet ULC-S559 Standard applicable to Fire Monitoring Equipment. All users are able to ACK alarm messages and view the Trouble menu.
To erase a user, program the password for that user to 'FFFF'.

> *NOTE: User "0" cannot be erased.*

Option 07: COM1 Baud Rate
Default (9600)

Determines the baud rate at which the SG-CPM3 will communicate to the automation software via serial port 1. Valid selections are: 1200, 2400, 4800, 9600, 19200, 38400, 57600.

> *NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.*

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Option 08: COM1 Data Bits
Default (8)

Determines the number of data bits used to communicate to the Automation Software connected on serial port 1. Choose 7 or 8 to indicate 7, or 8 data bits.

Option 09: COM1 Parity
Default (0)

Determines the parity of serial port 1.

Numeric Setting	Display	Description
0	None	no parity (default)
1	Odd	odd parity
2	Even	even parity

> ***NOTE: The number of stop bits can not be changed and will always be 2.***
> ***NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.***

Option 0A: Serial Printer Format
Default (0)

The Serial printer is COM 2 on the receiver. Setting option [0A] to "01" (this will display as CTS pin high in programming mode), will require the CTS to be set high and print to both HyperTerminal™ and physical serial printer. By setting option [0A] to "02" (this will display as DCD pin high in programming mode), DCD will need to be set high. This option affects how the COM2 Serial Port is supervised.
To disable the option set to [0].
To enable the printer messages to be outputted to a serial printer and a computer /HyperTerminal via the COM2, set to [1]. (This condition is for devices that set CTS pin HIGH.
To enable the printer messages to be outputted to a serial printer and a computer/Hyper Terminal via the COM2, set to [2].
(This condition is for devices that set the DCD pin HIGH.)
> ***NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.***

Option 0B: Serial Baud Rate
Default (3) - 9600

Determines the baud rate at which the SG-CPM3 will communicate to the serial printer connected on serial port 2.
Valid entries are: 1200, 2400 4800 9600 19200 38400, 57600.
> ***NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.***

Option 0C: Serial Data Bits
Default (8)

Determines the number of data bits used to communicate to the serial printer connected on serial port 2. Choose 7 or 8 to indicate 7 or 8 data bits.
> ***NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.***

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Option 0D: Serial Parity
Default (0)

Determines the parity of serial port 2.

Numeric Setting	Display	Description
0	None	no parity (default)
1	Odd	odd parity
2	Even	even parity

> **NOTE: The number of stop bits can not be changed and will always be 2.**
> **NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.**

Option 0E: AHS Operation Options
Default (24) (disabled)

This option is used to program the time at which the AHS table will be saved to flash memory. Valid entries for this section are from 00 (12 AM) to 23 (11 PM) - and 24 (disabled).
Primary and Secondary SG-CPM3 must have this option programmed with the same value.
New and Modified AHS entries that are automatically generated by new incoming calls to line cards will be added to the backup CPM3 automatically via port 1030. This operation will happen every 5 minutes. At this time all entries that are new/modified will be synchronized with the other CPM3. If the two CPM3's are not able to communicate to each other then the synchronization of the new entries will fail.
A text message shall be outputted to the printer when AHS synchronization starts, stops, or fails.
A text message shall be outputted to the printer when AHS flash write starts, stops, or fails.

Option 0F: B32 Headers
Default (00)

Compatible with MAS B32 Automation Software through TCP/IP. To enable, change to [01].
B32 Headers apply only to TCP/IP automation messages, not serial messages or printer messages.
When enabled, ALL outgoing and incoming automation messages will contain 4 extra bytes at the start of each packet.
These four bytes are:
00 00 LL LL
Where:
LL LL = the BCD value of the size of the entire packet.
i.e., If the original length was 1B HEX bytes to be sent, the packet would be:
00 00 00 31 <original packet>
And the ACK back to the receiver would:
00 00 00 05 06

> **NOTE: The ACK back to the CPM3 (Ex."30 30-30 35 06" ASCII) will be at the end of the packet.**
> **NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.**

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Option 10: Input RRLLL Digits
Default (5)

Indicates the number of expected digits in the computer message header from the line card.

Option 11: Output RRLLL Digits
Default (5)

Indicates the number of digits the receiver will send in the header to the automation output. This should be left as 5 unless the automation software does not support the SG-System III output protocol. This will affect both System style message and Channel style messages.

Option 12: Heartbeat Timer
Default (30)

Determines at what time interval, in seconds, the heartbeat transmission will be sent to Serial Automation and TCP/IP port 1025. The heartbeat transmission is used to ensure that communications through Serial and TCP/IP are functioning normally when there is no traffic from the receiver. Any traffic from the receiver will reset the timer for the heartbeat. Therefore the heartbeat will only be sent if there is no signal sent during this programmed time. Enter a decimal number from 01 through 99 to determine the time interval between heartbeat transmissions. Enter the value 00 to disable heartbeat transmission.

> *NOTE: When 00 is used heartbeats will not be sent to automation software - this will result in the connection to the automation software being unmonitored.*
> *NOTE: For UL Listed products, 00 is not permitted.*
> *NOTE: For ULC-S304 applications, the heartbeat timer shall be set to 30 seconds.*

Option 13: Mute Buzzer
Default (OFF)

A tone will sound when the system receives an alarm and is unable to forward the alarm message to automation (COM1 or TCP/IP). If enabled, the buzzer will not sound when an alarm is received and cannot be forwarded to an automation output.

For UL Listed products, the permitted setting is OFF.

Option 14: Receiver Number
Default (01)

The receiver number is used to identify the receiver when communicating to the TCP/IP Automation, COM1 and the printer. To change the receiver number, enter a new receiver number using the hexadecimal numbers "01" to "FE". This will be for all traffic unless overridden by other options.

Option 15: Printer Test
Default (01)

When this option is enabled, a test signal will be sent to all active printer(s) at 05:00 and 17:00 hrs. This option is set to "1" (on) by default.
Printer message:
26 Nov 2003 16:41:25 - 26 Nov 2003-16:41:25-00/00-SG -01-000-0000--Printer Test Message

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Option 16: Mask PSU 1
Default (00) - off

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision of the Power Supply Unit for shelf 1. To disable reporting of the trouble, turn the appropriate option ON.

> ***NOTE: PSU 1 is the SG-PSU3 installed in shelf 1***

For UL Listed products, the permitted setting is 00.

Option 17: Mask PSU 2
Default (01) - on

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision of the Power Supply Unit for shelf 2. To disable reporting of the trouble, turn the appropriate option ON.

> ***NOTE: PSU 2 is the SG-PSU3 installed in shelf 2***

For UL Listed products, the permitted setting is 00.

Option 18: Mask DCA 1
Default (00) - off

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision of the right hand SG-DC/DC3 for shelf 1. To disable reporting of the trouble, turn the appropriate option ON.

> ***NOTE: DCA 1 is the SG-DC/DC3 installed in shelf 1.***

For UL Listed products, the permitted setting is 00.

Option 19: Mask DCB 1
Default (01) - on

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision of the left SG-DC/DC3 for shelf 1. To disable reporting of the trouble, turn the appropriate option ON.

> ***NOTE: DCB 1 is the SG-DC/DC3 installed in shelf 1.***

For UL Listed products, the permitted setting is 00.

Option 1A: Mask DCA 2
Default (00) - off

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision of the right SG-DC/DC3 for shelf 2. To disable reporting of the trouble, turn the appropriate option ON.

> ***NOTE: DCA 2 is the SG-DC/DC3 installed in shelf 2.***

For UL Listed products, the permitted setting is 00.

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Option 1B: Mask DCB 2
Default (01) - on

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision of the left SG-DC/DC3 for shelf 2. To disable reporting of the trouble, turn the appropriate option ON.

> *NOTE: DCB 2 is the SG-DC/DC3 installed in shelf 2.*

For UL Listed products, the permitted setting is 00.

Option 1E: Mask Fan 1 Fail
Default (00) - off

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision Fan trouble for shelf 1. To disable reporting of the trouble, turn the appropriate option ON.

For UL Listed products, the permitted setting is 00.

Option 1F: Mask Fan 2 Fail
Default (01) - on

Some installations may not have the full configuration. This mask option is used to enable or disable the supervision Fan trouble for shelf 2. To disable reporting of the trouble, turn the appropriate option ON.

For UL Listed products, the permitted setting is 00.

Option 20: Mask UPS AC 1
Default (01) - on

UPS AC trouble mask for shelf 1. If set, UPS AC trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)

Option 21: Mask UPS BAT 1
Default (01) - on

UPS Battery trouble mask for shelf 1. If set, UPS Battery trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)

For UL Listed products, the permitted setting is 00.

Option 22: Mask UPS AC 2
Default (01) - on

UPS AC trouble mask for shelf 2. If set, UPS AC trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)

For UL Listed products, the permitted setting is 00.

Option 23: Mask UPS BAT 2
Default (01) - on

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UPS Battery trouble mask for shelf 2. If set, UPS Battery trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
　　For UL Listed products, the permitted setting is 00.

Option 24: Mask SG TCP 1
Default (00) - off

SG TCP trouble mask for shelf 1. If set, SG TCP trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
　　For UL Listed products, the permitted setting is 00.

Option 25: Mask SG Serial 1
Default (00) - off

SG Serial Automation trouble mask for shelf 1. If set, SG Serial automation trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
　　For UL Listed products, the permitted setting is 00.

Option 26: Mask SG TCP 2
 Default (00) - off

SG TCP trouble mask for shelf 2. If set, SG TCP trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
　　For UL Listed products, the permitted setting is 00.

Option 27: Mask SG Serial 2
Default 01 - (on)

SG Serial Automation trouble mask for shelf 2. If set SG Serial automation trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
　　For UL Listed products, the permitted setting is 00.

Option 28: Mask TCP Printer 1
Default 00 - (off)

SG TCP Printer trouble mask for shelf 1. If set, SG TCP Printer trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
　　For UL Listed products, the permitted setting is 00.

Option 29: Mask Parallel Printer 1
Default 00 - (off)

SG Parallel Printer trouble mask for shelf 1. If set, SG Parallel Printer trouble conditions are not reported.

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OFF Condition reported
ON Condition not reported (masked)
>   For UL Listed products, the permitted setting is 00.

Option 2A: Mask Serial Printer 1
Default 00 - (off)

SG Serial printer trouble mask for shelf 1. If set, SG Serial Printer trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
>   For UL Listed products, the permitted setting is 00.

Option 2B: Mask TCP Printer 2
Default 01 - (on)

SG TCP Printer trouble mask for shelf 2. If set, SG TCP Printer trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
>   For UL Listed products, the permitted setting is 00.

Option 2C: Mask Parallel Printer 2
Default (01) on

SG Parallel Printer trouble mask for shelf 2. If set, SG Parallel Printer trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
>   For UL Listed products, the permitted setting is 00.

Option 2D: Mask Serial Printer 2
Default (01) on

SG Parallel Printer trouble mask for shelf 2. If set, SG Serial Printer trouble conditions are not reported.
OFF: Condition reported
ON: Condition not reported (masked)
>   For UL Listed products, the permitted setting is 00.

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Option 2E: Number of Line Cards
Default (CC) - lines

This option is used to set the number of line cards polled by the SG-CPM3. The first digit of this option sets the number of line cards for shelf 2, and the second digit sets the number of line cards for shelf 1. Valid entries are from 1 to C (Shelf 1 CPM3) and 0 to C (Shelf 2 CPM3). The number of line cards being polled must be programmed the same for each CPM3.
Line cards must be installed in order occupying each slot sequentially starting from slot 1 of shelf 1 through to slot 12, for each shelf. This option does not require that shelf 1 be fully populated with line cards prior to populating cards on the second shelf.
Examples
12 line cards on shelf 1 and 3 line cards on shelf 2
-Both CPM3 would be programmed with 3C (shelf 1 – 12 line cards, Shelf 2 – 3 line cards)
6 line cards on shelf 1 and 9 line cards on shelf 2
-Both CPM3 would be programmed with 96 (shelf 1 – 6 line cards, Shelf 2 – 9 line cards)

Option 2F: Automation Mode
Default (01) Fallback
The TCP/IP connection is the primary output of the automation computer alarms. It is estimated that sockets may appear and disappear regularly as processes are terminated and reconstituted. After 5 seconds of socket loss, a socket loss is declared and automation output is shifted to the other connection levels.
This option is controlled by two digits. The first digit controls the 6th configuration option (split shelf reporting), the second digit controls the automation mode

Value	Description
00	Loop
01	Fallback
02	All
03	IP Fallback
04	Automatic IP
10	Loop – split shelf reporting enabled
11	Fallback – split shelf reporting enabled
12	All – split shelf reporting enabled
13	Setting is not valid – return to default setting
14	Automatic IP – split shelf reporting enabled
25-FF	Setting is not valid – return to default setting

NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.

First Configuration: Loop (0)
At start-up, the SG-CPM3 III will send to the TCP/IP until it fails, proceed to the RS232 until it fails, and proceed back to the TCP/IP until it fails, and so on. If neither TCP/IP nor RS232 are present, the CPM3 will switch to manual mode. See Automation Mode Diagrams for flowcharts of each mode.

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Second Configuration: Fallback (1)
If both outputs are present, the SG-CPM3 will send to the TCP/IP until it fails, proceed to the RS232 until it fails, and if RS232 fails, switch to manual mode. While in manual mode, the SG-CPM3 will continuously try the RS232 connection and switch back to active mode if RS232 returns. The SG-CPM3 will not switch back to TCP/IP mode unless a reset SG fallback command is generated from the console. See Automation Mode Diagrams for flowcharts of each mode.

Third Configuration: All Mode (2)
The SG-CPM3 will always send to all connected outputs. If at least one output replies with an ACK, then the alarm is considered as transmitted whether the other output acknowledged it or not. This setting is NOT recommended. See Automation Mode Diagrams for flowcharts of each mode.

Fourth Configuration: IP Fallback Mode (3)
The system will send to the TCP/IP connection until it fails, reboot, and then send to the TCP/IP connection on the secondary shelf. If that fails, it will reboot, and then send to the serial output on the primary shelf. If that fails the CPM will reboot and send to the serial output on the secondary shelf. It will continue to send to the serial connection without stop, or until the reset fallback command is generated from the console, in which case it will re-try the TCP/IP connection.

Fifth Configuration: Automatic IP SG-Fallback (4)
This mode is similar to Fall Back except that when the TCP/IP connection is restored the SG-CPM3 will automatically return to the TCP/IP Interface to send events. This eliminates the need for the Reset SG Fall back from the SG-Systems Console.

Split Shelf Reporting
Split shelf reporting allows the receiver to have both shelves of the receiver output printer/automation messages independently. All signals for each shelf will be outputted by the corresponding CPM. In the event that one of the CPM modules is removed or fails, the other will automatically take over processing of all automation and printer messages.

Automation Mode Diagrams
Flow Diagram for Automation Loop Mode (0) and Automatic IP Fallback Mode (4)

4
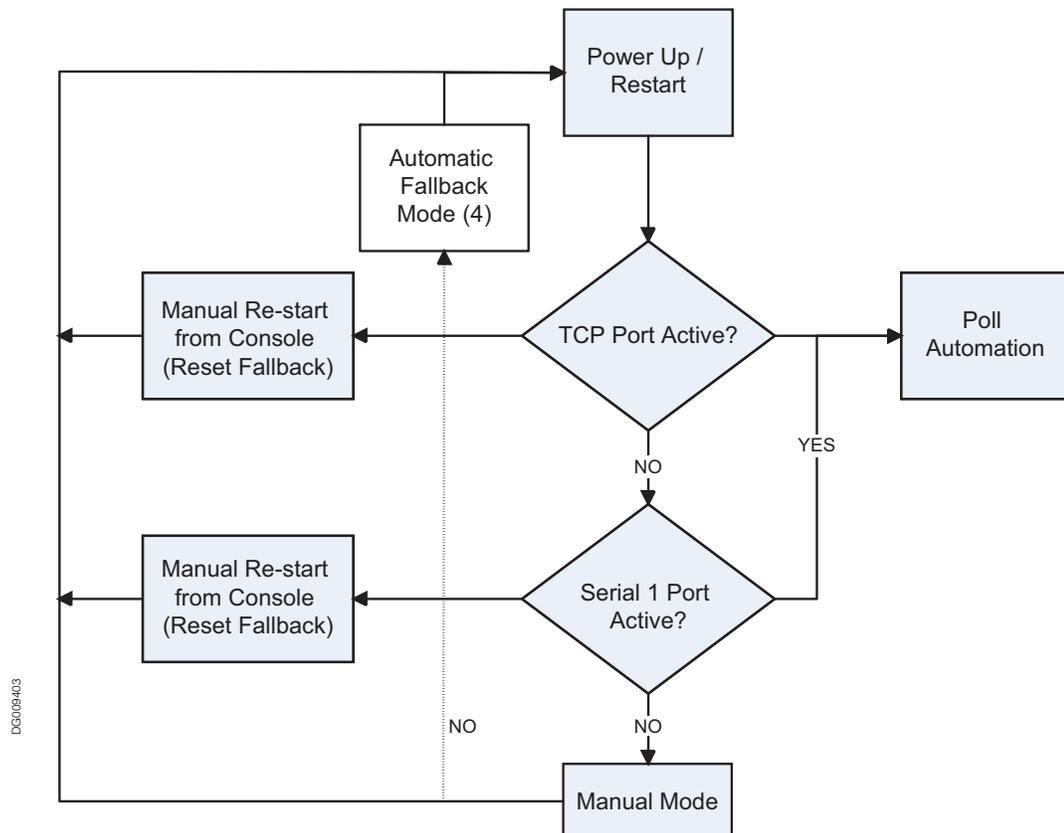
Flow Diagram for Automation Fallback Mode (1)

```
                                      ┌──────────────┐
                                      │  Power Up /  │
                                      │   Restart    │
                                      └──────┬───────┘
                                             │
                                             ▼
  ┌──────────────┐         ┌─────────────────────────┐        ┌──────────────┐
  │ Manual Re-start│ ◄──── │    TCP Port Active?     │ ─YES─► │    Poll      │
  │ from Console  │         └───────────┬─────────────┘        │  Automation  │
  │(Reset Fallback)│                    │ NO                   └──────────────┘
  └──────────────┘                      │
                                         ▼
  ┌──────────────┐         ┌─────────────────────────┐
  │ Manual Re-start│ ◄──── │   Serial 1 Port Active? │
  │ from Console  │         └─────────────────────────┘
  │(Reset Fallback)│              NO
  └──────────────┘
```

DG0094Q4
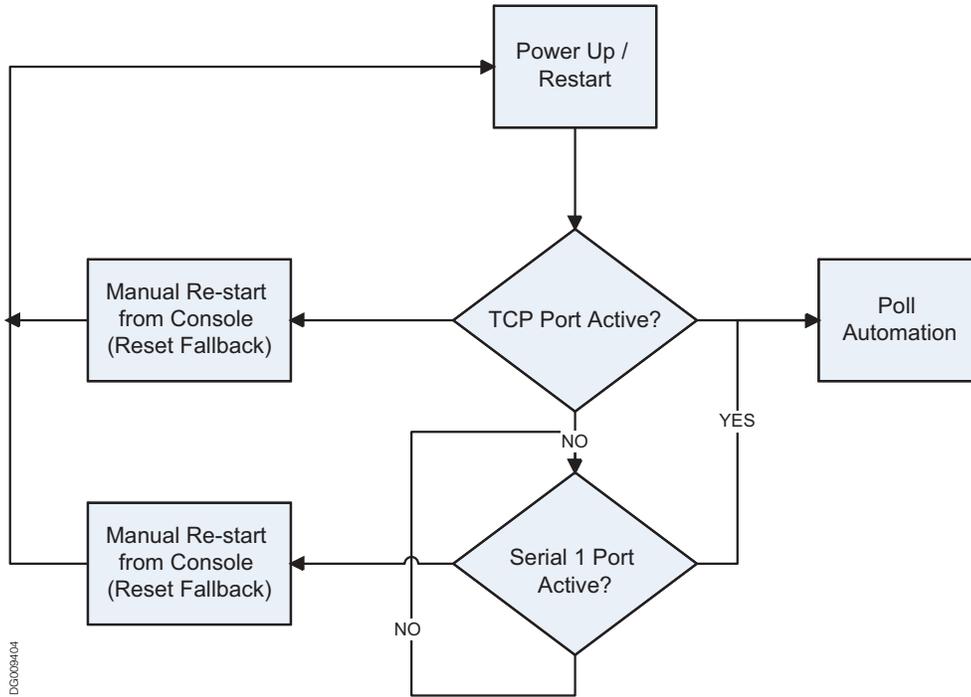
Flow Diagram for **Automation All Mode (2)**

```
                          ┌──────────────┐
                   ┌─────►│  Power Up /  │◄─────┐
                   │      │   Restart    │      │
                   │      └──────┬───────┘      │
                   │             │              │ NO
            NO     │     ┌───────┴──────┐       │
                   │     ▼              ▼       │
          ┌──────────────┐        ┌──────────────┐
          │  Serial 1 Port│        │ TCP Port     │
          │  Active?     │        │ Active?      │
          └──────┬───────┘        └──────┬───────┘
                 │ YES                   │ YES
                 └──────────┬────────────┘
                            ▼
                     ┌──────────────┐
                     │    Poll      │
                     │  Automation  │
                     └──────────────┘
```

DG0094Q1

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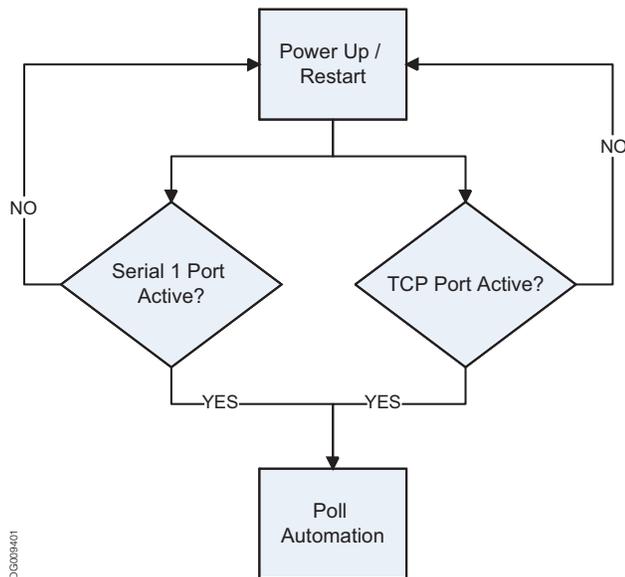
Flow Diagram for **Automation Automatic IP Fallback Mode (3)**

DG009402
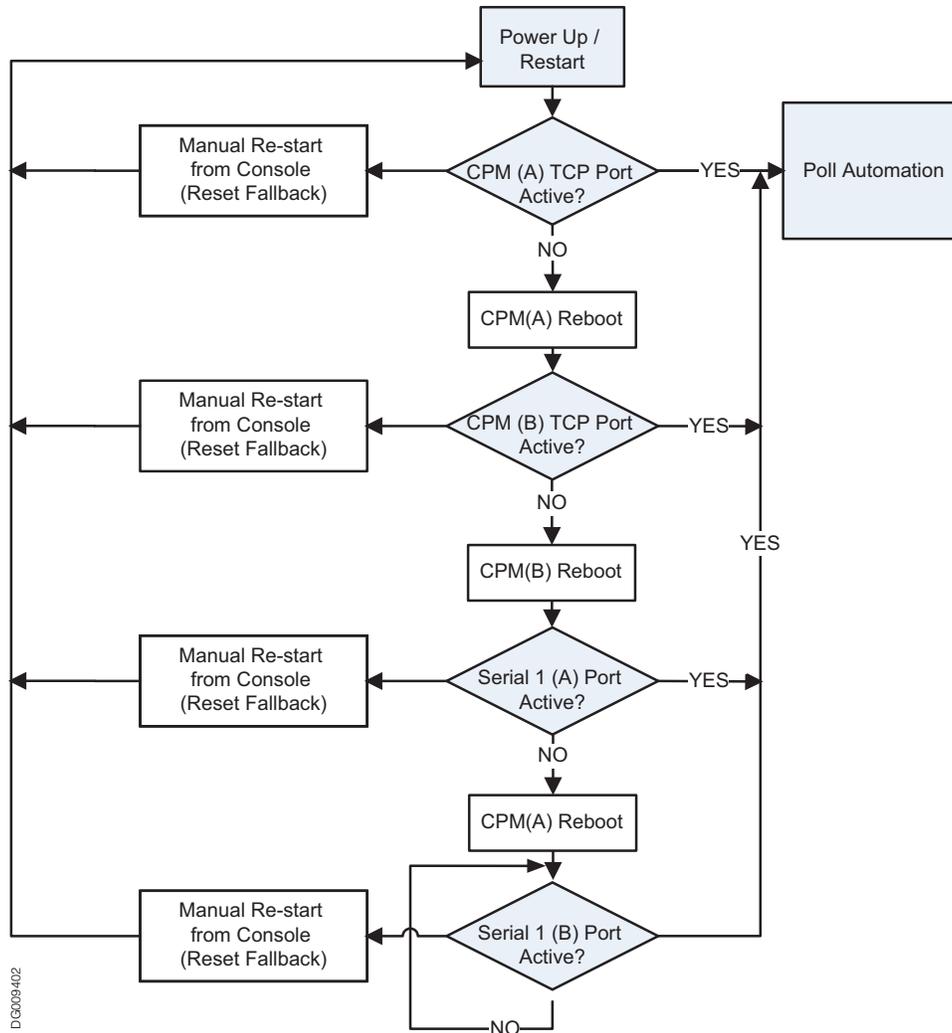
Option 30: Printer Mode
Default (00) - Loop

The printer outputs can be configured in a similar approach as the automation outputs except that only acceptable values are LOOP (01) or ALL (02). ALL is transmitting the printer message to all active ports. The first acknowledgement received will be used to process the next printer message.

> *NOTE: Order of sequence is TCP, Parallel and finally Serial. Sur-Gard does NOT recommend changing the default setting unless using more than one printer.*
>
> *NOTE: The display for programming of the Printer Mode shall display the text label for the mode rather than the numeric value (example instead of 00 - it displays LOOP, instead of 02 - it displays ALL).*
>
> *NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.*

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Option 31: ACK Wait
Default (40)
Determines the acknowledge wait time, in tenths of a second, to be used for automation outputs before the CPM3 will try again (if no response is received within this interval). This timer starts after the signal is sent to the automation.
Enter a decimal number from 40 to 99 for 4.0 seconds to 9.9 seconds.
> ***NOTE: For changes to this program option a reset of the unit is required before the new parameters are used.***

Option 32: Date Format
Default (0)

Selects the format used to represent date for printer output.
Format [1] represents US format (display will read MM/DD/YY).
Format [0] represents International format (display will read DD/MM/YY).

Option 33: Protocol ID
Default (0)

When this option is programmed as "0" the CPM3 will output its internal messages in the following format:
0RRLLL[#AAAA|Nxxyy]
When this option is programmed as "S" the SG-System III will output its internal messages in the following format:
SRRLLL[#AAAA|Nxxyy]
S,0 (zero): protocol number
RR: Receiver number
LLL: Line number
AAAA: Account code, always 0000
Nxxyy: SIA event

Option 34: Time Correct
Default (000)

The SG-System III will synchronize its time with the SG-System III console application PC. However in some situations it may be desirable to automatically correct the time of the SG-System III. The SG-System III will update its time once an hour. Valid values are -590 to +590; value represents time in tenths of a second (i.e., 243 means 24.3 seconds).
> ***NOTE: Positive values adjust the time forward and negative values adjust the time backward.***

Option 37 and Option 38: License Key
Option 37: License key #1 Default (0000 0000 0000 0000 0000 0000 0000 0000)
Option 38: License key #2 Default (0000 0000 0000 0000 0000 0000 0000 0000)

The default size of the AHS table is 250000 entries. With the purchase of a license the table size can be increased to 500000 entries. When purchasing the license key for the CPM3 the Product ID will be needed. The product ID can be found in the System Information menu or retrieved via the SG-Systems Console in the Status Menu for the CPM3. Both CPM3's will need to have a valid license entered in order to have 500000 AHS entries on each. There are two sections for the license key (Option [37]: License key #1, and Option [38]: License key #2) and both of them must be programmed correctly. If the user has entered a license key in the product that is incorrect the receiver will output a printer only message "Invalid License Key" so that the user knows that the key entered is incorrect. If the key is 0's or correct no message will be generated. A key of all zeros is disabled.
> ***NOTE: A cold boot will erase the license key.***

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Options 3E: RBUS Speed

The system communication bus (RBUS) baud rate is programmable for two different settings 57600 and 520000. Each shelf of the CPM3 can have its own baud rate programming. This is done to accommodate line cards that have different setting capabilities. Each CPM3 has two RBUS connections, one for Shelf 1 and one for Shelf 2. This will allow one CPM3 to be able to poll/retrieve messages from any line card on the system regardless of the baud rate. When configuring the System all line cards on a shelf must have the same baud rate setting. Any cards that do not have the correct setting will not be seen by the CPM3 and signals received by that line card will not be outputted.

Value	Shelf-1Bus Speed	Shelf-2Bus Speed
00	57600	57600
01	520000	57600
02	57600	520000
03	520000	520000
04 – FF	57600	57600

Line Card compatible baud rates

Line Card Type	Supported Baud Rates
SG-DRL3	57600
SG-DRL3-IP	57600
SG-DRL3E	57600 or 520000
SG-DRL3-2L	57600 or 520000

NOTE: Line cards capable of higher bus speeds will determine their bus speed based on the shelf selector switch. This method does not apply to the CPM3.

Shelf selection	Linecard RBUS Speed	Shelf to be reported (printer and automation)
1	57600	Shelf 1
2	57600	Shelf 2
3	Not valid – 57600	Shelf 1
4	Not valid – 57600	Shelf 1
5	520000	Shelf 1
6	520000	Shelf 2
7-16	Not valid– 57600	Shelf 1

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5 Advanced Programming

In this Chapter...

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Profiles Introduction

The DRL3/DRL3E/DRL3-2L 'virtual receiver' will load unique 'profiles' in order to effectively communicate with control panels. A profile is a set of pre-programmed line card options unique for a particular DNIS number. The 'DNIS' will point to a particular profile, which will then be loaded into the line card before the first handshake is sent. It is essential that the correct option be programmed for a profile in order to correctly communicate with the control panel. Each 'virtual receiver' can have a maximum of 64 profiles. To change the options for a particular profile, the SG-Systems Console software is provided. This software will allow the user/operator to edit the profiles.

> ***NOTE: DNIS (Dialled Number Identification Service): This number represents the dialled number, or the number being called. ANI (Automatic Number Identification): This number represents the source of a call and allows the system to determine the handshake protocol. Caller ID: This number identifies the source of a call. For the purpose of this document, Caller ID and ANI will be referred to as Caller ID, but both can not be used at the same time. Contact your provider to determine which service is available. DNIS cannot be used with Caller ID, only ANI.***

DNIS or Caller ID can be used for profile selection.

Line Cards Identification Number Handling:

Figure 5-1, Call Processing Flowchart

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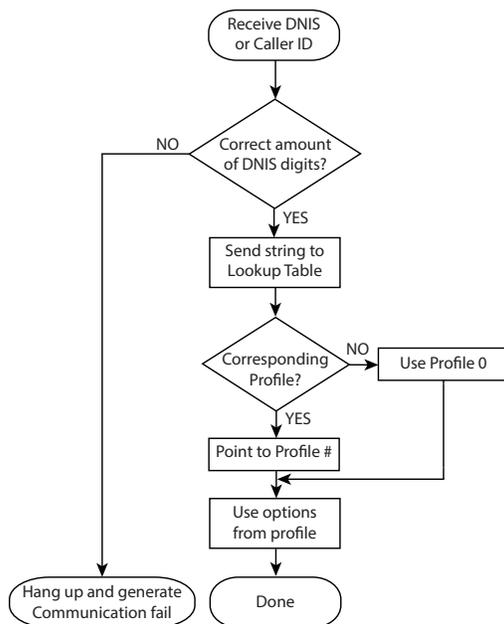
Each profile is made up of Static Options and Dynamic Options. The static options are the same for all profiles, but the dynamic options can be programmed specifically per hunt groups, panel type, etc. By receiving the DNIS or Caller ID, the appropriate profile can be selected through a look-up table "stored" on the line card.

	Profile 0 **(Default)**	**Profile 1**	**Profile 2**	**~**	**Profile 63**

00 2F	Static Options - identical for all profiles

30	Dynamic Options unique for each profile	30	Dynamic Options	30	Dynamic Options	30 ~	Dynamic Options
FF		FF		FF		FF	
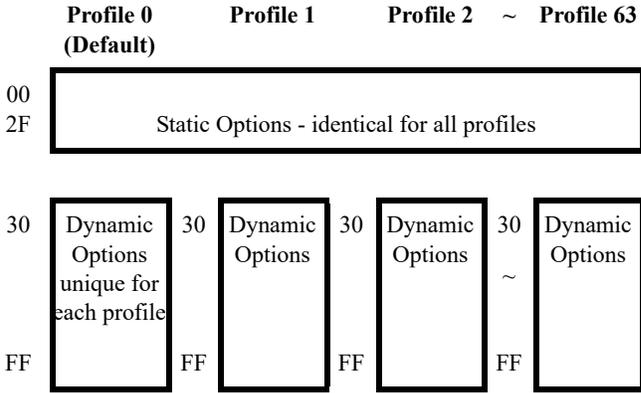
Profile 0 is the default. When no Caller ID or unknown DNIS is received, or when the received number does not point to a profile, the default will be used.

Profiles are used to reduce on-line time, and for specific customers or panel/format types, one can have a profile with certain handshakes sent first. Also, some formats require certain options, and this can be pre-defined as well. Profiles allow for a more customized system. Rather than having a line card (or a receiver itself) devoted to certain customers, the SG-System III can handle any format at any time through the use of profiles. Each line card holds its own look-up table that can be shared through line pools, or shared within the entire receiver. Two types of tables are available, but only one type can be chosen. The first type, which consists of 100,000 entries, is used strictly with DNIS of up to 5-digits.

Table type 1:

DNIS Received	**Profile# to be used**
00001	01
00002	03
00003	24
...	...
99999	45

The second type is used if ANI-Caller ID and/or DNIS are received, and can consist of up to 10,000 entries, with Caller ID or DNIS of up to 10 digits.

Table type 2:

Caller ID Number	**Convert Data**	**Profile**
05 603000	Not Used	0
05 603001	Not Used	1
05 603002	Not Used	2
05 603003	Not Used	3
DNIS Number	**Convert Data**	**Profile**
12345	54321	0
12346	54322	1
1234	54333	2

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Each portion may contain 0-100,00 entries with the total of all the entries not exceeding 10,000. The receiver will first check through the Caller ID section if a Caller ID number is received. If only a DNIS number is received, or Caller ID is received but the Caller ID was not found, it will check in the DNIS section. On a standard receiver, the Automation output would look similar to the following:

  1RRLLLssssssAAAAsYsZZ[DC4]
  1DDDDDssssssAAAAsYsZZ[DC4]

On the line card, it will replace the RRLLL, which is normally the receiver number and the line card number, by the DNIS received or the convert data found in the table. This makes possible the duplication of accounts, as long as they are dialling different numbers.

The output will become:

Where DDDDD is the DNIS number. See Option 20/120 for more information on how to enable the combined table.

SG-DRL3-2L/DRL3E System Options

Option 006: Password Menu
Default (CAFE)

This password is only required if connecting directly to the line card for Code Uploads or performing other console operations directly to the line card (VIA USB). The Password menu allows for a single password to be programmed. The password is 4 hex digits in length. All entries are valid 0000-FFFF hex.

> ***NOTE: This user cannot be erased.***

Option 040: Channel Enable
Default (02)

This option is used to set the number of channels to be present on the line card. Valid entries are from 01 to 02.

01 - Only Channel one POTS is used - all reporting of status/trouble conditions for the second line will be masked and the channel will be busied out. Programming menu display will be C1.

02 - Both POTS channels are used. Programming menu display will be C1+C2. All other values are not valid. For channels that are disabled no information shall be displayed and no status troubles will be generated – any trouble conditions that exist when the channels are disabled will be restored after the unit has been reset.

> ***NOTE: This option is hidden for the DRL3E.***

Option 041: Line card number length
Default (0A)

This option is used to determine how many digits from the line card number will be sent to the output. You also have the option of displaying the number in hex or decimal. This option will also determine the Program Option 02/102/202 with one of the following:

01   Send only one hex digit to the printer or computer output (if you have a 2-digit line card number only the last digit will be sent to the output). If using DNIS to replace RRLLL then the output will be 3 digits: RRL.

02   Send 2 hex digit line card number to the output. If using DNIS to replace RRLLL then the output will be 4 digits: RRLL.

03   Send 3 hex digit line card number to the output (leading Zeros will be inserted prior to the line card number) If using DNIS to replace RRLLL then the output will be 5 digits: RRLLL.

0A   Send 3-digit line card number in decimal and the 2-digit receiver number in decimal. If using DNIS to replace RRLLL then the output will be 5 digits: RRLLL (this option will only affect message output for POTS Channels and IP Channel).

0D   Send 3-digit line card number in decimal and the 2-digit receiver number in Hex. If using DNIS to replace RRLLL then the output will be 5 digits: RRLLL.

> ***NOTE: When setting this option, the line card Number Length option should always correspond to the number of DNIS digits being received. For example, if 5 digits are being received then the line card Number Length Option should be programmed to 3. This would cause the 5 digits of DNIS DDDDD to overwrite the standard RRLLL.***

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Option 042: Line card Busy out
Default (00)

This option allows the line card to seize the phone line in case of checksum error after download or when its internal buffer is full after loss of communication with the CPM3. Program with one of the following:

00   The line is seized if any of the conditions mentioned above occur.

01   The line is NOT seized if any of the conditions mentioned above occur. Once the event buffers of the receiver are full, the oldest event in the buffer will be removed to make room for the new event(s).

04   The line will be seized if the automation computer is absent. System will busy out ONLY if the internal computer buffer is full. If there is a loss of printer(s), any new alarms will not be buffered in the internal printer buffer.

05   The line will be seized immediately if there is a loss of automation software or no communication to the CPM.

> *NOTE: The status condition will be indicated on the LED even though the unit does not busy out the line. Example – set option to 01 (do not busy out) and have a loss of time present. The status will still be displayed on the status LED, but the system will not busy out.*
> *If the option is programmed to 01, the line card will NOT buffer any new alarms once the internal buffer is full. Setting this option to 01 is NOT RECOMMENDED.*
> *If this 01 is selected, the line card will overwrite the oldest alarm with a new alarm when the internal buffer is full.*

Option 043: Line card Protocol ID
Default: (01)

RS-232 Format
S,0 (zero): protocol number
RR: Receiver number
LLL: Line number
AAAA: Account code, always 0000
Nxxyy = SIA event
[00] - Output for all internal signals is SRRL protocol
SRRLLL[#AAAA|Nxxyy]
[01] - Output for all internal signals is 0RRL (Zero) protocol
0RRLLL[#AAAA|Nxxyy]

Option 044: Line card Class Field
Default (04)

00 Send "0"s in C.L.A.S.S. field of CONCOMM/RBUS packet.
01 Send Receiver Line Card Number (RRLLL) from options in C.L.A.S.S. field.
02 Send DNIS in C.L.A.S.S. field.
03 Send Caller ID in C.L.A.S.S. field.
04 Send whatever option12 Caller Source is set to in the C.L.A.S.S. field.
05 Send the convert data from the DNIS/Caller-ID (combined) Conversion table in the C.L.A.S.S. field.
Example: DNIS is: 99802
Automation:
S99802[#1234|NBA0F10]
Printer:
03 Jun 2008 08:33:33 - 03 Jun 2004-08:33:32-01/01-SG -99-802-1234--Alarm Zone

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SG-DRL3/SG-DRL3-2L Static Options: 00 - 2F

SG-DRL3 Option 01: Line Card Number
SG-DRL3-2L Option 101/201: Line Card Number
Default (01)

The line card Number provides a virtual identification code for each line card. Hexadecimal numbers '01' to 'FE' can be programmed in Option 01/101/201 to identify line cards.

SG-DRL3 Option 02: Line Card Number Length
Default 0A

This option is used to determine how many digits from the line card number will be sent to the output. You also have the option of displaying the number in hex or decimal.
Program Option 02/102/202 with one of the following:
01 Send only one hex digit to the printer or computer output (if you have a 2-digit line card number only the last digit will be sent to the output).
02 Send 2 hex digit line card number to the output.
03 Send 3 hex digit line card number to the output (leading Zeros will be inserted prior to the line card number).
0A Send 3-digit line card number as entered (no conversion).
0D Send 3-digit line card number in decimal (conversion from decimal to hex decimal. Receiver number will be outputted as programmed without any conversions.

> ***NOTE: When setting this option, the line card Number Length option should always correspond to the number of DNIS digits being received. For example, if 5-digits are being received then the line card Number Length Option should be programmed to 3. This would cause the 5 digits of DNIS DDDDD to overwrite the standard RRLLL.***

SG-DRL3 Option 03: Internal messages RS-232
Default (01)

When this option is programmed as "00", the channel will output its internal messages in the following format:
SRRLLL[#AAAA|Nxxyy]
If it is programmed as "01" internal messages will be output as
0RRLLL[#AAAA|Nxxyy]
Where:
S, 0 (zero) = Protocol number
RR = Receiver number
LLL = Line number
AAAA = Account code, always 0000
Nxxyy = SIA event

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SG-DRL3 Option 04: 2-Way Audio Activation Time
Default (00)

This option determines how long, in 10-second increments, the 2-way audio function will be active once it is initiated. At the end of this time, the line card will hang up the line. Program a value from "01" to "FF" for 10 seconds to 2550 seconds. Three (3) minutes is the recommended length of time for the 2-way audio activation time. To disable the 2-way audio feature, program Option 04/104/204 as "00".

> ***NOTE: Enabling 2-way audio will affect NFPA 72 system loading requirements. Refer to Par. 4-5.3.2.2.2 of NFPA 72 for details.***
> ***If the alarm panel sends a listen-in code activation request and audio is enabled for this format (Option 7F/17F/27F or B0/10B/20B), the receiver will remain in 2-way voice for a period of 60 seconds even if the activation time is not programmed.***

For UL Listed products, the permitted setting is 00.

SG-DRL3 Option 05: Pre-H.S. Duration
SG-DRL3-2L Option 105/205: Pre-H.S. Duration
SG-DRL3 Default (0A),SG-DRL3E/SG-DRL3-2L Default (1A)

When the line card seizes the line, it will wait the time programmed at Option 05/105/205; then send the first handshake. The value programmed (hex) at this location will be multiplied by 100ms (e.g., 100ms, 200ms). The SG-DRL3 default is 0A, for 1000ms (100ms x default value).
The minimum time is 1 second. If the option is programmed with any value lower than 0A, the line card will use a 1 second delay. The maximum time for this option is 5 seconds (option programmed for 0x32) Option value higher than 0x32 will use a 5 second delay.

SG-DRL3 Option 09: First Ring Length
SG-DRL3-2L Option 109/209: First Ring Length
Default (05)

In order for the line card to detect an incoming ring, the ring signal must be ON for a minimum amount of time. This option allows the user to change the minimum amount of time the ring signal must be ON before the receiver will detect a valid ring length. The minimum ring duration allowed is 200 ms which corresponds to a value of 02 (200 ms). Values programmed will be multiplied by 100 ms. Values of 00 and 01 give a first ring length of 500ms.

SG-DRL3 Option 0A: Format ID Output
SG-DRL3-2L Option 10A/20A: Format ID Output
Default (00)

This option will allow the line card to output the format ID and profile that was used to receive the call. This output is to the printer only.
The format for the output:
    27 Nov 2009-18:51:25-01/06-SG -(PP|FF)-RR-LLL-EVENT MESAGE
Where PP is the profile number and FF is the format ID.

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Format ID List

Format Description	Format ID	Format Description	Format ID	Format Description	Format ID
3/8 ACRON	1	Modem II Generic	5a	3/1 Pulse (*)	4D
4/8 ACRON	2	Modem IIE or IIIa2	5b	3/2 Pulse	4E
4/1 Express (*)	10	4/3 Sescoa Super Speed	69	4/1 Pulse (*)	4F
4/2 Express	11	Sescoa Open/Close Super Speed	6A	3/1 Extended Pulse	50
3/8/1 Ademco Super Fast	13	SIA FSK Level 1, 2 and 3	6B	3/1 Partial Extended Pulse	51
4/8/1 Ademco Super Fast	14	Silent Knight FSK0	7A	4/2 Sur-Gard	7F
4/8/1 with Checksum Ademco Super Fast	15	Silent Knight FSK1	7B	4/2 with Checksum Sur-Gard	7F
Contact ID (4-Digit Account)	16	Silent Knight FSK2 o/p Type 1	7C	4/3 Sur-Gard	80
Bellcore Caller-ID	1B	Silent Knight FSK2 o/p Type 2	7D	4/3 with Checksum Sur-Gard	80
Bellcore Caller-Name	1D	4/1 Partial Extended Pulse	52	4/1 Varitech	85
DMP Serial 1	21	3/16/1 Scantronics Super Fast	2A	4/2 Varitech	86
DMP Serial 3	22	4/16/1 Scantronics Super Fast	2B	Westec 1	8A
4/3/1 FBI Super Fast	24	5/16/1 Scantronics Super Fast	2C	Westec 2	8B
4/3/1 with Checksum FBI Super Fast	25	6/16/1 Scantronics Super Fast	2D	Westec 3	8C
2/8/1 Scantronics Super Fast	26	ITI Generic	33	Westec 5	8D
5/8/1 Scantronics Super Fast	27	ITI Commader III	34	Westec 6	8E
6/8/1 Scantronics Super Fast	28	ITI Commader	36	CESA	90
2/16/1 Scantronics Super Fast	29	ITI Security Pro	37	OUTEL (*)	91
4/1 Partial Extended Pulse	52	ITI Caretaker Plus	38	ROBOFON (*)	92
4/1 Extended Pulse	53	ITI SX V	39	VONK (*)	95
4/2 Pulse	54	ITI Commander 2000	3A	ADCOR (*)	98
4/2 Extended Pulse	55	CFSK	40	Sur-Gard Generic Internal Messages	FF
5/1 Pulse (*)	56	Surtec (*)	4A	4/2 Sur-Gard	7F
Modem IIA	58	Contact ID (10-Digit Account)	4B		
Modem IIB	59	BFSK	4C		

Note: All communication formats support transmission of input zone circuit identification with the exception of the ones marked with (*).

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SG-DRL3 Option 0C: DTMF Cadence
SG-DRL3-2L Option 10C/20C: DTMF Cadence
Default (00)

This option will allow the outputted DTMF Cadence (on and off time) to be programmed in milliseconds. The DTMF Cadence option will only be used for outbound dialling when performing a 2-way audio and line test. This will not affect DTMF for communication format detection or for Contact ID generation (line test mode). DTMF on - off time tolerance is programming value +/- 5 ms.
The first digit of the option will control the DTMF on time - the second digit will control the DTMF off time, in 25mS increments from 100mS. The Default setting of 00 will have 100/100ms cadence. Valid range is from 0 to F for both ON time and OFF time.

Digit Value	Time (ms)	Digit Value	Time (ms)
0	100	6	150
1	25	7	175
2	50	8	200
3	75	9	225
4	100	A	250
5	125		

Example:
To have a DTMF cadence of 150mS (on and off time) program the option with 66. This option will also allow for cadence settings that are not symmetrical. If desired, the on and off times may be different - Example: to have DTMF on time of 75mS and an off time of 200mS, program the option as 38.

SG-DRL3 Option 0D: Line Conditions
SG-DRL3-2L Option 10D/20D: Line Conditions
Default (000)

Line Conditions is a bit enabled option - If programmed as 00, the line card will detect a single ring. If bit 1 is programmed the line card will detect the double ring. If bit 2 is enabled the line card will perform a Hook Flash as the end of the call before going on-hook to terminate the call. When the Hook Flash is performed, a 500mS delay shall be applied prior to the line card going on-hook.

Bit #	Option Description
All off	Single ring with no Hook Flash
Bit 1	Double ring detection enabled
Bit 2	Reserved - Line Reversal for BABT
Bit 3	Hook Flash on call end enabled. The Hook Flash performed on the call end will follow the time set in the Hook Flash option 11. If 2-way options are enabled to use Hook Flash then the 2-way session will complete and the Hook Flash for hang-up will be performed.

Examples:
Program the option with 00 for single ring and no Hook Flash for hang-up.
Program the option with 01 (bit 1 set) for double ring and no Hook Flash on hang-up.
Program the option with 04 (bit 3 set) bit for single ring and Hook Flash for hang-up.
Program the option with 05 (bit 1 and 3 set) for double ring and Hook Flash for hang-up.

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SG-DRL3/SG-DRL3E Option 0E: Backup Phone Line Option
Default 00

Enables or disables the Backup line of each channel. If programmed as 00, the option is disabled. If programmed as 01, the backup is enabled and, if a line fault occurs on the primary channel, the line card will switch to the auxiliary line and allow normal operation. In order to program the option for use on either channel the following programming can be done:
01 - Backup Channel enabled
00- Backup Channel Disabled

> **NOTE: If this option is turned on, then 2-way audio will not be available through the auxiliary channel. If 2-way audio is required, the Hook Flash operation of the channel must be used. With this option enabled, the LCD Line Fault message will change.**

The table below shows how the line fault LED will operate with this option enabled.

Primary Channel	Auxiliary Channel	Line Fault LED	Active Line
Not in Line Fault	Not in Line Fault	OFF	Primary
Not in Line Fault	Not in Line Fault	OFF	Primary
In Line Fault	In Line Fault	OFF	Auxiliary
In Line Fault	In Line Fault	ON	None

If the primary line goes into line fault, the line card will then switch to the Backup line and continue normal operation. If at any time the primary line is restored, the line card will finish its on-line operation (if it is currently communicating with a panel), and upon completion will switch back to the primary line.
Line Fault and Line Restoral Messages:
The line fault and line restoral messages for the primary line are the same as the backup (computer and printer messages). The line fault and line restoral messages for the auxiliary line are as indicated below:
The computer message for a line fault and line restoral on the auxiliary line are the same as the primary line.
The printer messages for the line fault and line restoral on the auxiliary line are different in that they have line number '2' in them.

> Nov 17 2007 - 08: 08: 35-SS/OO-SG-RR-LLL-0000-PHONE LINE 2 RESTORE
> Nov 17 2007- 08: 08: 35-SS/OO-SG-RR-LLL-0000-PHONE LINE 2 TROUBLE

SG-DRL3 Option 11: Hook Flash Enable/Disable
SG-DRL3-2L Option 111/211: Hook Flash Enable/Disable
Default (00)

Enables or disables ability to Hook Flash the phone line and determines its duration in increments of 10 ms.
If programmed as 00, the option is disabled. If set to anything else, multiply the decimal equivalent of the hex value by 10 ms and that is the duration. For example, if Hook Flash time of 500 ms is wanted, program Option 2A to 32 hex.

    500 ms / 10   = 50
    50 Dec   = 32 hex

SG-DRL3 Option 12: Caller Source ID Option
SG-DRL3-2L Option 112/212: Caller Source ID Option
Default (00)

This option allows the line card to receive Caller Identification data or DNIS that is transmitted after the first ring on the telephone line. The appropriate service must be available and requested from the telephone company for this feature to be operational.
00 Disabled
01 Standard Bellcore Caller ID

0X Receive X DTMF DNIS (where X = 4 to A)

10 Select ETSI DTMF Caller ID. In this mode the primary incoming line must be connected to both primary and backup connectors for phone line detection. The aux line will detect the DTMF caller ID and must be sent pre line ring.

11 Select ETSI DTMF Caller ID or BELL CORE. In this mode the primary incoming line must be connected to both primary and backup connectors for phone line detection. The aux line will detect the DTMF caller ID and must be sent pre line ring.

2X Receive X DNIS and ANI in <DNIS>T<ANI>T format, where T=terminator digit (any hex digit B - F). The second digit X must be 4 to A.

4X Receive ANI and X DNIS in <ANI>T<DNIS>T format, where T=terminator digit (any hex digit B - F). The second digit X must be 4 to A.

> *NOTE: Option 27: Caller Source Process must be set to the desired caller ID/DNIS length for this option to function correctly.*

General messages other than Caller ID or DNIS may be received and decoded by the receiver.

   •Private Call: An anonymous indication is received instead of the originating telephone number.
   •No Call No.: An out-of-area or unavailable indication is received instead of the originating telephone number.
   •Unknown Call: The originating telephone number has not been received or was not transmitted.

SG-DRL3 Option 13: Caller Source to SG Automation
SG-DRL3-2L Option 113/213: Caller Source to SG Automation
Default (00)

This option allows the transmission of the Caller Identification or ANI, to the automation output. Program Option 13/103/203 as one of the following:

Protocol	Format	
00	-	Do not send to the automation
01	4RRLL	Send to the automation (North American Caller ID)
02	URRLLL	Send to the computer (International Caller ID)
04	uRRLL	Send ANI information to the automation
05	uRRLLL	Calling Name protocol identifier

> *NOTE: Option 12/112/212 must be programmed for Caller ID (01), or ANI, (2X or 4X, where "X" represents the number of DNIS digits received +1).*

SG-DRL3 Option 14: Caller Source to Printer
SG-DRL3-2L Option 114/214: Caller Source to printer
Default (00)

This option allows the transmission of the Caller Identification or ANI, to the printer output. Program Option 14/104/204 as one of the following:

Protocol	Format	
00	-	Do not send to the printer
01	4RRLL	Send to the printer; each alarm will print an extra line, showing the Caller ID (North American Caller ID)
04	uRRLL	Send to the printer; each alarm will print an extra line, showing the ANI number

> *NOTE: Option 12/112/212 must be programmed for Caller ID (01), or ANI, (2X or 4X, where "X" represents the number of DNIS digits received +1).*

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SG-DRL3 Option 19: Fault Call Counter
SG-DRL3-2L Option 119/219: Fault Call Counter
Default (00)

This option is used for limiting the number of fault call messages (communication fail) that are sent to the printer and computer. 00: (default) will send a fault call alarm for every 10 fault calls. On power-up, the channel will send on the first fault call, and then every 10 afterwards.

00   Send fault call message every 10th fault call that occurs.

01   Send a fault call message to the automation and printer on each fault call.

SG-DRL3 Option 1A: DNIS Sensitivity
SG-DRL3-2L Option 11A/21A: DNIS Sensitivity
Default 00

Sometimes the DNIS levels are much different than the phone line conditions, and therefore it may be necessary to configure the sensitivity during the reception of DNIS.
The basic formula that the DSP uses is:

DNIS Sensitivity Option[A]
00 = -35db (value of 3F is written to DSP) (Default)
0F = -42db to 0db
3F = -35db to 0db
5F = -29db to 0db
> ***NOTE: Do not change this option unless instructed to do so by Sur-Gard Technical Support.***

SG-DRL3 Option 1C: Busy Out
Default (00)

This option allows the line card to seize the phone line in case of checksum error after download or when its internal buffer is full after loss of communication with the SG-CPM3. Program Option 1C/11C/21C with one of the following:

00   The line is seized if any of the conditions mentioned above occur.

01   The line is NOT seized if any of the conditions mentioned above occur.

04   The line will be seized if the automation computer is absent. ONLY if the internal
computer buffer is full. If there is a loss of printer(s), any new alarms will not be buff-
ered in the internal printer buffer.

05   The line will be seized immediately if there is a loss of automation software or no
communication to the
(Note: the line card has two independent printer and computer buffers).

> ***NOTE: The status condition will be indicated on the LED even though the unit does not busy out the line. Example – set option to 01 (do not busy out) and have a loss of time present. The status will still be displayed on the status LED, but the system will not busy out. If the option is programmed to 01, the line card will NOT buffer any new alarms once the internal buffer is full. Setting this option to 01 is NOT RECOMMENDED. If this 01 is selected, the line card will overwrite the oldest alarm with a new alarm when the internal buffer is full.***

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Reasons for seizing phone line:

Reason	LED Status Flashes
System absent	1
On power up, the line cards clock is not set, so it cannot put a timestamp on events coming in.	2
Command to disable line card was sent (downloading).	3
Computer or printer buffer full (If option 1C is set to 04, the line card will seize the line when any buffer is full.If option 1C is set to 05, the line card will seize the line only when the computer buffer is full).	4
Checksum failed for any one of the flash files	5
System is in manual mode.	7
System is in Line Test mode	8
Line card in recovery mode	9

SG-DRL3 Option 1F: Debug
SG-DRL3-2L Option 11F/21F: Debug
Default 01

The debug option controls the flow of debug messages to the debug port on the line card.
Please see section 4.3 debug for a complete list of settings.
As a general rule, only high priority error type messages will output, independent of what this option is set to.
This option is a bitwise option, meaning more than one option may be turned on at once, although it is not recommended to turn all options on, as it will slow down and could affect the performance of the receiver.

Bit value	Task	Description
01	Enable	Debug mode enabled
02	RBUS	Debug mode for RBUS. All commands sent to/from the line card over RBUS will be outputted when enabled
04	Reserved	For future
08	Reserved	For future
10	Reserved	For future
20	PHONE LINE	Displays the line voltage reading for the channel
40	Time	Debug timestamp on
80	Fast Enable	Fast Debug messages enabled

For each incoming call to the receiver when the debug generates the message ring on primary, the receiver shall also log the firmware version and the DSP version that is currently active on the system.
Data will only be outputted from this debug option if the debug task for the selected debug menu is enabled. This can be done via the serial debug from the console software application.
Example of debug output

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tfs2 02.621 SW Version:1.11.01.003
tfs2 02.621 DSP Version:1.90.01.045
tfs2 02.621 Ring on Pri CH2 12/1/2009 11:30:2
tfs2 02.621 DSP: Input[0f]
tfs2 03.628 DSP: Output[a1]
tfs2 03.628 sending: 2300Hz for 1000ms
tfs2 05.632 >
tfs2 05.632 6655;1816A2AAAA1E
tfs2 07.028
tfs2 07.028 (16-501002 186655E60200001)
tfs2 07.028 (16-00-01-002-6655-E602-00 PER TEST REPORT 001)
tfs2 07.029 sending: 1400Hz for 800ms
tfs2 11.033 FORMAT IS:DTMF

NOTE: Set to 01 to enable. The debug mode should only be used when required and disabled after use.

SG-DRL3 Option 20: C.L.A.S.S. Field Data
SG-DRL3-2L Option 120/220: C.L.A.S.S. Field Data
Default (04)

00	Send "0"s in C.L.A.S.S. field.
01	Send Receiver Line Card Number (RRLLL) from options in C.L.A.S.S. field.
02	Send DNIS in C.L.A.S.S. field.
03	Send Caller ID in C.L.A.S.S. field.
04	Send whatever option 12 Caller Source is set to in the C.L.A.S.S. field.
05	Send the convert data from the DNIS/Caller-ID (combined) Conversion table in the C.L.A.S.S. field.

Example: DNIS is: 99802
Automation:
S99802[#1234|NBA0F10]
Printer:
03 Jun 2004 08:33:33 - 03 Jun 2004-08:33:32-01/01-SG -99-802-1234--Alarm Zone

SG-DRL3 Option 25: Phone Line Voltage Select
SG-DRL3-2L Option 125/225: Phone Line Voltage Select
Default - (00) for approx 20V

To calculate the proper setting, use the following formula:
Phone Line Voltage = 2000 / option 25/125/225.
The debounce to detect line fault is 5.
Option 25/125/225 must be between 50 and 250, otherwise the default of 100 (64) = 20V will be used.
Note that it is not advised to decrease the Voltage level to < 20V since this affects the timing of ring detection, and may cause the channel not to detect rings.
For example, to set the phone line voltage to 15V:
2000/15 = 133 therefore set Option25/125/225 = 85.

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SG-DRL3 Option 27: Caller Source Process
SG-DRL3-2L Option 127/227: Caller Source Process
Default (05)

This option determines how many digits of Caller ID or DNIS (dependent on Option 12/112/212) the receiver will process the number of digits in range from 01 to 10 hex.

SG-DRL3 Option 2A: Hook Flash Delay
SG-DRL3-2L Option 12A/22A: Hook Flash Delay
Default (00)

This option will control the duration after dialling, before the receiver will go back on hook. The Hook Flash Delay Option contains two levels of resolution controlled by the first digit.
00 = no delay
01 - 5F = 100ms to 9500ms.
A1 - AF = 10s to 150s
xx = 9500ms.
Examples:
If Hook Flash delay time of 500ms is wanted, program option 2A to 05 hex.
If Hook Flash delay time of 120s is wanted, program option 2A to AC hex.

SG-DRL3 Option 2C: Dialler Presence
SG-DRL3-2L Option 12C/22C: Dialler Presence
Default (00)

00	Disabled
01	The receiver will begin its handshake sequence only if a valid dialer presence tone is received.
02	The receiver will begin its handshake sequence after a valid dialer presence tone is received, or a time-out occurs.

Valid tones are 980Hz, 1300Hz or 1890Hz each are +- 50Hz, for a minimum of 100ms.
Frequencies slightly outside of this window may work but unreliably. The receiver timeout period for dialler presence detection is 5 seconds.
When the Dialer Presence tone option is enabled, the Pre-handshake delay option 05/105/205 is not functional. This timing is in order to synchronize the handshakes sent by the receiver as to not over-lap with a dialer-presence tone that is recurring.

SG-DRL3 Option 2D: A.H.S.
SG-DRL3-2L Option 12D/22D: A.H.S.
Default (00)

A.H.S., Automatic Handshake Selection is the process of the line card to send a handshake to be used with the ANI. Also included in A.H.S. is the ability for the receiver to "remember" which handshakes are used for which ANI Caller ID.
The A.H.S. has the ability to be used in conjunction with the DNIS to select a predefined profile based on the DNIS table that is stored in the line card. The handshake is retrieved from the A.H.S. table, and the remainder of the options to be taken from the DNIS profile.
Also, if the panel does not respond to the handshake given by the line card, it will proceed with its handshake sequence from this profile as opposed to the default profile.
00 A.H.S. disable
01 A.H.S. enable, 10 digits
02 A.H.S. enable international
Call Blocking
When A.H.S. is active at any time the operator may want to use a call blocking type feature for particular customers (i.e., inactive accounts). The operator will be able to manually update the A.H.S. database with the SG-Systems Console software. If the operator wishes to call block

a particular customer (Caller ID), they would do this by entering for that entry the handshake value of 99. When this is sent to the line card, the line card will release the line as soon as it sees the Caller ID.

Computer Message:
0RRLLL[#0000|BLOCKED CALL]
Printer Message:
RRLLL–0000--BLOCKED CALL

SG-DRL3 Option 2E: DMP Time Location Offset
SG-DRL3-2L Option 12E/22E:DMP Time location Offset
Default (00)

This option is used when sending the update time and date command to the DMP panels. You will have to provide the Greenwich Mean Time (GMT) offset for the Sur-Gard receiver, starting at GMT and moving westerly across the Earth. For the time zones that do not fall under the 1 hour interval, the option should be left at the Greenwich Mean Time (24) setting.
An option setting of 00 is disabled - All settings above 24 must act as a disabled state (00).
When the DMP panel calls in and requests a time update, the receiver will respond with its current time and the offset value programmed in this section. The time and date of the receiver with respect to the Greenwich Mean Time (GMT). The gg values in the update time and date command are determined by starting at the GMT and moving westerly across the Earth. The table below will be used to determine the time zone for the option value.

Possible Values	Time Zone Description		Time Zone
	Military	**Civilian**	
00	Disabled	No time update will be sent to the panels	NA
24	Zulu	Greenwich Mean Time (GMT)	GMT (0)
23	Alpha	Central Europe Time (CET) Middle European Time (MET)	GMT + 1
22	Bravo	Eastern Europe Time (EET)	GMT + 2
21	Charlie	Baghdad Time (BT)	GMT + 3
20	Delta	Gulf Standard Time (GST)	GMT + 4
19	Echo	Pakistan Time (PKT)	GMT + 5
18	Foxtrot	Bangladesh Time (BDT)	GMT + 6
17	Golf	Java Time (JT)	GMT + 7
16	Hotel	China Coast Time (CCT)	GMT + 8
15	India	Japan Standard Time (JST)	GMT + 9
14	Kilo	Guam Standard Time (GST)	GMT + 10
13	Lima	Solomon Islands Time (SBT)	GMT + 11
12	Mike	New Zealand Standard Time (NZST)	GMT + 12
01	November	Cape Verde Time (CVT)	GMT - 1
02	Oscar	Greenland Eastern Standard Time (VTZ)	GMT - 2
03	Papa	Eastern Brazilian Standard Time (BST)	GMT - 3

04	Quebec	Atlantic Standard Time (AST)	GMT - 4
05	Romeo	Eastern Standard Time (EST)	GMT - 5
06	Sierra	Central Standard Time (CST)	GMT - 6
07	Tango	Mountain Standard Time (MST)	GMT - 7
08	Uniform	Pacific Standard Time (PST)	GMT - 8
09	Victor	Alaska Standard Time (AKST)	GMT - 9
10	Whiskey	Hawaii Standard Time (HST)	GMT - 10
11	X-Ray	Nome Time (NT)	GMT - 11

SG-DRL3 Option 2F: Online Time Out
SG-DRL3-2L Option 12F/22F: Online Time Out
Default (1E)

The Online Time Out option hangs up after a predetermined time delay. Time Out range can be programmed from 01 to 255 seconds (Hex 01 - FF) or until the call is completed by the panel (Hex 00). When time out occurs, the line card hangs up and generates a signal to the printer and to the automation (SIA identifier YS).
For Example:
Printer Message: "DRL Online Time-Out"
Automation: NYS0102 (shelf 01, slot 02).
00 = Disabled.
xx = Maximum number of seconds (Hex) before the receiver will automatically force termination of a call.

> ***NOTE: Depending on the order of handshakes used, the default online timeout of 30 seconds may not allow sufficient time for all handshakes to be sent before timeout occurs. This time may need to be extended to use these handshakes.***

For UL Listed products, the permitted setting is 1E (30s).

SG-DRL3/SG-DRl3-2L Dynamic Options: 30/130/230 - 3F/13F/23F

SG-DRL3 Options 30 - 3F: 3/1 - 4/1 Digit 0-F
SG-DRL3-2L Options 130/230 - 13F/23F: 3/1 - 4/1 Digit 0-F
The line card uses a unique Sur-Gard communication format to transmit data through the System 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.
The receiver will use the last digit of data received in 3/1 and 4/1 formats to determine the computer event code. The event code will then be transmitted to the central station computer. Refer to the Decoding Library for the complete set of event codes used by the line card. In Sections 30 through 3F, program ASCII codes according to the Decoding Library.
Do NOT use values other than 20-7F (ASCII).

SG-DRL3 Options 40 - 4F: 3/2 - 4/2 Digit 0-F
SG-DRL3 Options 140/240 - 14F/24F: 3/2 - 4/2 Digit 0-F
Defaults:

Option	Value	Code

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40 - 48	41	A
49	52	R
4A	41	A
4B	4F	O
4C	43	C
4D	5C	\
4E	52	R
4F	54	T

The line card will use the first digit following the account code in 4/2, 3/1 extended or 3/2 formats to determine the computer event code. The event code will then be transmitted to the central station computer. Refer to the Decoding Library for the complete set of event codes used by the channel.

In Sections 40 through 4F, program ASCII codes according to the Decoding Library.

Do NOT use values other than 20-7F (ASCII).

SG-DRL3 Options 50 - 5F: 4/3 Digit 0-F
SG-DRL3-2L Options 150/250 - 15F/25F: 4/3 Digit 0-F
Defaults:

Option	Value	Code
50 - 58	41	A
59	52	R
5A	41	A
5B	4F	O
5C	43	C
5D	5C	\
5E	52	R
5F	54	T

The line card 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. Refer to the Decoding Library for the complete set of messages and event codes used by the line card. In Sections 50 through 5F, program ASCII codes according to the Decoding Library.

Do NOT use values other than 20-7F (ASCII).

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SG-DRL3 Options 60 - 6F: Printer Words
SG-DRL3-2L Options 160/260 - 16F/26F: Printer Words
Defaults:

Option	Value	Word
60	F2	PERIODIC TEST
61	OA	REPORT
62	14	FIRE ALARM
66	1E	PANIC ALARM
64	63	BURGLARY
65	62	CLOSING
66	E5	OPENING
67	00	SERVICE
68	E4	MEDICAL*
69	61	MESSAGE
6A	F2	RESTORE
6B	C6	PERIODIC TEST
6C	C7	REPORT
6D	E6	GROUP CLOSING
6E	50	GROUP OPENING
6F	A6	ZONE BYPASS
		SYSTEM TROU-
		BLE
		CANCEL
*Use only with Model SG-System III CE. SG-System III CE is not UL Listed.		

Refer also to the Library Select Option 71. The English Printer Library is provided and can be selected by programming the event codes to the corresponding word.

For example, if the words 'exit alarm' are required when the alarm code 1 is received in 3/1 (or 4/1 formats), Option 61 must be programmed as '90'.

Refer to Appendix A for a list of available words.

SG-DRL3 Option 70: Automation Common Event Code
SG-DRL3-2L Option 170/270: Automation Common Event Code
Default (00)

Some central station software packages are unable to process an alarm using the event codes listed in the Decoding Library. Where a central station monitors thousands of accounts belonging to different companies, the same reporting codes may have different meanings for different companies. Because of this, the individual event codes in Options 30/130/230 through 5F/15F/25F cannot accurately represent the alarm condition. To overcome this, Option 70/170/270 may be programmed as indicated below:

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Program Operation:

Setting	Description
00	Use individual event codes to computer.
20, 30-39 & 41-5A	Use common event codes (space, 0-9, A-Z). When using common event codes, Sur-Gard recommends that either hexadecimal code '5A' (ASCII 'Z') or hexadecimal code '41' (ASCII 'A') be used. The 'Space' character (Hex 20) can be used as the common event code with certain automation software packages to avoid account code database changes when switching over from other brand receivers to the Sur-Gard receiver.
B0-DF	('0'-'9', 'A'-'Z' with the most significant bit set). This range will function in the same way as 30-39, 41-5A, with the exception that, for the Superfast Ademco Format, the Printer Message text will not be output.

For example: "01-002-1234-A4-".

SG-DRL3 Option 71: Library Select
SG-DRL3-2L Option 171/271: Library Select
Default (04)

Determines how to use Printer Words Options.
00 No printer words.
01 Printer words options used for 1-digit reporting code formats only; other will use pre-defined library.
02 Printer words options used for 2-digit reporting code formats only; other will use pre-defined library.
03 Printer words options used for 3-digit reporting code formats only; other will use pre-defined library.
04 Printer words options used for 1-digit and 2-digit reporting code formats only; other will use pre-defined library.
05 Printer words options used for 1-digit, 2-digit and 3-digit reporting code formats.

> ***NOTE: Option 71 is ignored when using SIA, ITI, Contact-ID, ACRON, MODEM II, MODEM IIE, MODEM IIIa², FBI SuperFast, BFSK, ADEMCO Super Fast and SK FSK1, 2 formats.***

SG-DRL3 Option 72: SIA Option
SG-DRL3-2L Option 172/272: SIA Option
Default 00000000

This option is a bit selectable Option meaning some or all of these choices may be enabled. For example, to enable "Force SIA Zone Number", and "Convert Pulse formats to SIA", set Option 72/172/272=05. To enable only "Convert Pulse to SIA" and "Convert BFSK to SIA" set Option72=0C.
Bit 0 - Force SIA Zone Number.
The receiver will decode SIA Alarms sent without Zone numbers and add '00' as the zone number to the automation output:
Example: [#1234|NriBA] becomes [#1234|NriBA00]
Example: [#1234|NBA/BH] become [#1234|NBA00/BH00]
Bit 1 - Convert SIA Account A's.
Any Account Digits received as 'A' will be converted to '0'.
Example: [#A123|NriBA01] becomes [#0123|NriBA01]
Bit 2 - Convert Pulse formats to SIA.
All Pulse Format Printer and Computer outputs will be converted to a SIA format, in a two step conversion process.
The automation Output will use the Protocol ID of 'R'.
First the type of alarm is determined by Options 30/130/230-5F/15F/25F, 70/170/270.
Secondly the type of alarm is mapped to a SIA output as per the following table.

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Example:
1234A1 becomes '1234 A 1' becomes [#1234|NBA1]

Value	Codes	SIA
41	A	BA
42	B	BA
43	C	CL
46	F	FA
48	H	HA
4F	O	OP
4D	M	MA
50	P	PA
52	R	BR
54	T	TA
5C	\	OC
62	b	BR
66	f	FH
68	h	HH
6D	m	MH
70	p	PH
74	t	TH
7C			UB

Values programmed in Options 30/130/230-5F/15F/25F, 70/170/270 other than in this table will default to UAxx for Undecoded Alarm.

Bit 3 - Convert BFSK format to SIA.

The BFSK outputs will be converted to a SIA format. The automation Output will use the Protocol ID of 'R'.

When this option is enabled it has precedence over the BFSK RS232 Option A4/1A4/2A4. The Accounts 3/x to 4/x Option76/176/276 may be used to insert a leading 0 to the account code.

Example:[#123|NFA1]

Bit 4 - Convert comma (',') to forward slash ('/')

When enabled, any commas will be converted to a forward slash.

Example: [#1234|NBA1,2,3] becomes [#1234|NBA1/2/3]

Bit 5 - SIA Recovery

Some older SIA panels require that all blocks of the call be NACK'd for the call to be complete or it would assume that if one block was acknowledged then all blocks were correctly acknowledged, and not resend the blocks that were NACK'd. This option will turn off the functionality where, if one block is NACK'd, then all blocks (regardless if they are correct or not) will be NACK'd. In order to disable the SIA recovery option, disable this bit option (default setting). By disabling the SIA recovery, the receiver will send Acknowledgement signals for the blocks that require it and NACK the ones that will require it.

To enable the SIA recovery set bit 5 to 1. If a signal has any portion of the call NACK'd then the entire call will receive a NACK. Please contact technical support for more information and updates to the list of panels affected.

Bit 6 - Pulse to SIA Hex zone numbers

This option is to be used if it is desired to have pulse conversion digits that are starting with HEX output a zone number in SIA. This option functions the same as "Convert Pulse formats to SIA" Option 172/272 - bit 2, but will also append a zone number when the pulse event code starts with a Hex Digit.

Examples – with option 72 bit 2 and 6 enabled (Option 72/172/272 = 44)

1 - Pulse signal received 1234 41
 Printer Output 1234-41-BA41
 Automation put [#1234|NBA41]

2 – Pulse signal received 1234 B2
Printer Output 1234-B2-OPB2
Automation put [#1234|NOPB2]

2 – Pulse signal received 1234 3C
Printer Output 1234-3C-BA3C
Automation put [#1234|NBA3C]

Setting this option does not affect the output of pulse signals converted to SIA that did not start with a HEX digit.

Bit 7 – Brinks Recovery

When enabled the line card will not check for an ITI carrier on a full duplex SIA (FC) handshake

SG-DRL3 Option 73: Input/Output Sensitivity
SG-DRL3-2L/DRL3E Option 173/273: Input/Output Sensitivity
Default (15)

This option serves the dual purpose of setting the DSP input sensitivity and the DSP output level. The first digit will set the input sensitivity of the DSP and the second digit will set the output level of the handshake/kiss off. Refer to the chart below for ranges. For the first digit, 0 is the most sensitive and 5 is the least sensitive. For the second digit, B is the loudest and 9 is the quietest.

First Digit Set To	Input Sensitivity	Second Digit Set To	DSP Output
0x	Most Sensitive	xB	Loudest
1x	Default	xC	
3x	Less Sensitive	xD	
5x	Least Sensitive	xE	
		xF	
		x0	
		x1	
		x2	
		x3	DRL3 default
		x4	
		x5	DRL3-2L/DRL3E default
		x6	
		x7	
		x8	
		x9	Quietest

NOTE: For more information, please contact Sur-Gard Technical Support.

SG-DRL3 Option 74: Equivalent Line Number
SG-DRL3-2L Option 174/274: Equivalent Line Number
Default (00)

The equivalent line number is used with the receiver number for sending signals to the central station software. This option may be used if there is no DNIS number being received by the line card.

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SG-DRL3 Option 75: Receiver Number
SG-DRL3-2L Option 175/275: Receiver Number
Default (01)

The receiver number is used for sending signals to the central station software. Refer to the manuals for any central station automation software being used to determine if there are any special requirements for this number. Also, check the numbers used for any other receivers in the station to ensure that numbers are not duplicated.

SG-DRL3 Option 76: Accounts 3/x to 4/x
SG-DRL3-2L Option 176/276: Accounts 3/x to 4/x
Default (00)

00 - Disabled, if the alarm is reported in 3/1, 3/1 extended, BFSK, 3/2 or 3/8 ACRON formats, a leading space will be communicated in front of the 3-digit account codes.

> Ex: 1RRLLLssssssssAAAsXsssY[DC4]

01 - If the alarm is reported in 3/1, 3/1 extended, 3/2 or 3/8 ACRON formats, a leading '0' (zero) will be communicated in front of the 3-digit account codes.

> Ex: 1RRLLLsssssss0AAAsXsssY[DC4]

02 - Alarms communicated to the computer. If the alarm is reported in 3/1, 3/1 extended, 3/2 or 3/8 ACRON formats, a leading '0' (zero) will be communicated in front of the 3-digit Account. And a '0' (zero) will be communicated in front of the 1-digit alarm code for the above formats as well as 4/1 format.

> Ex: 1011sssssss0AAAsXss0Y[DC4]

04 - If the panel is reported in SIA two leading '0' (zeros) will be communicated in front of the 3-digit account.
EX: S1011[#00AAA|Nri0/FH00]
05 - If the alarm is reported in 3/1, 3/1 extended, 3/2 BFSK, SIA, 3/8 ACRON formats then a leading '0' (zero) will be communicated in front of the 3-digit account.
If the panel is reported in SIA, two leading '00' (zeros) will be communicated in front of the 3-digit account.
06 - If the alarm is reported in 3/1, 3/1 extended, 3/2 BFSK, SIA, 3/8 ACRON formats then a leading '0' (zero) will be communicated in front of the 3-digit account and a '0' (zero) will be communicated in front of the 1-digit alarm code.
07 - If the alarm is reported in 3/1, 3/1 extended, SIA, 3/2 BFSK, 3/8 ACRON formats then a leading '0' (zero) will be communicated in front of the 3-digit account.

SG-DRL3 Option 77: Digit Replace
SG-DRL3-2L Option 177/277: Digit Replace
Default (00)

This option works in conjunction with Option A2/1A2/2A2. When Option A2/1A2/2A2 is enabled and Option 77/177/277 is programmed with an ASCII value, the receiver will replace or insert an account code digit. Option A2/1A2/2A2 determines how to replace or insert a digit.
To replace a digit, set Option A2/1A2/2A2 to 0x where x is the digit to be replaced. To insert a digit, set Option A2/1A2/2A2 to 8x where x is the digit in the account code, after which will be the inserted digit.
Example 1 (replacing):

Option 77 is set for 41 and Option A2 is set for 01:
Account code is:

> 9876 1RRLLLsssssssAAAAsXssYZ

The receiver will do the following. First it will replace the first digit (Option A2=01) of the account code (in this example "9") and replace it with the ASCII value of 41, which is an "A".
New Output:

> 1RRLLLssssssA876sXssYZ

Example 2 (inserting):
Option 77 is set to 2D and Option A2 is set for 82:
Account code is:

> 9876 1RRLLLsssssss9876sXssYZ

The receiver will do the following, it will insert the ASCII value of Option 77, in this case the ASCII value of 2D (2D is a " - ") into position two (Option A2=82), and the account code will shift to the left. Therefore it will convert account code 9876 to 9-876 as indicated below:

> 1RRLLLsssss9-876sXssYZ

* This will not affect SIA.

SG-DRL3 Option 78: Max Inter-digit
SG-DRL3-2L Option 178/278: Max Inter-digit
Default (00)

Certain old dialers may have difficulties in communicating with the line cards. The receiver provides a possible solution by programming this option. This option should be left as a default and should be changed only on the recommendation of a Sur-Gard technician. When programmed as 00, the inter-digit time is determined by the Baud rate of the format being used; all other values are in 100 ms. intervals.
00 Automatically determine inter-digit by baud rate (Default)
01 100 ms
02 200 ms
....
0A 1000 ms
....
FF 25000 ms

> *NOTE: Although this section allows all entries from 00-FF it is not recommended to program this section with a time that exceeds 3000mS (1E Hex).*

SG-DRL3 Option 79: Max Inter-burst
SG-DRL3-2L Option 179/279: Max Inter-burst
Default (00)

Certain old dialers may have difficulties in communicating with the line cards. The receiver provides the possible solution by programming this option. This option should be left as default and should be changed only on the recommendation of a Sur-Gard technician. When programmed as 00, the inter-burst has a time of 100 ms, all other values are in 10 ms increments.

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00 100 ms (default)
01 10 ms
02 20 ms... and so on

SG-DRL3 Option 7A: 4 and 5 Digit Account Codes to Activate 2-Way Audio
SG-DRL3-2L Option 17A/27A: 4 and 5 Digit Account Codes to Activate 2-Way Audio
Default (00)

This option determines which account codes will be able to activate the 2-way audio feature. Program the first digits of the desired account codes in Option 7A/17A/27A.
For example:
To allow all account codes between 1000 and 2FFF to activate the 2-way audio function, program Option 7A/17A/27A as '12'.
To allow all account codes between 3000 and 6FFF to activate the 2-way audio function, program Option 7A/17A/27A as '36'.
To disable the 2-way audio function, program Option 7A/17A/27A as '00'.

> *NOTE: The Audio Time Option04/104/204 or Hook Flash Option 11 must be enabled to activate the 2-Way Audio feature of the line card.*
> *NOTE: Option 7A/17A/27A may be used with any formats supported by the receiver.*

For UL Listed products, the permitted setting is 00.

SG-DRL3 Option 7B: 3-digit Account Codes to Activate 2-Way Audio
SG-DRL3-2L Option 17B/27B: 3-Digit Account Codes to Activate 2-Way Audio
Default (00)

This option determines which 3-digit account codes will be able to activate the 2-way audio feature. Program the first digits of the desired account codes in Option 7B/17B/27B.
For example:
To allow all 3-digit account codes between 200 and 3FF to activate the 2-way audio function, program Option 7B/17B/27B as '23'.
To allow all 3-digit account codes between 300 and 6FF to activate the 2-way audio function, program Option 7B/17B/27B as '36'.

> *NOTE: The Audio Time Option04/104/204 or Hook Flash Option 11/111/211 must be enabled to activate the 2-Way Audio feature of the line card.*
> *NOTE: Option 7B/17B/27B may be used with any 3-digit account code formats supported by the SG-System III.*

For UL Listed products, the permitted setting is 00.

SG-DRL3 Option 7C: Audio Alarm Code Range
SG-DRL3-2L Option 17C/27C: Audio Alarm Code Range
Default (00)

This option determines the range of alarm codes, which will activate the 2-way audio function. Program the first digit of the desired alarm codes in Option 7C/17C/27C.
For example:
The receiver will initiate audio by the account range, Options 7A/17A/27A and 7B/17B/27B or by Option 7C/17C/27C ALARM CODE or by both.
If all alarm codes beginning with 6, 7 and 8 are to activate 2-way audio, program Option 7C/17C/27C as '68'. Option 7C/17C/27C may be used with 10 to 40 Baud formats, DTMF 4/1, 4/2, 4/3 and Contact ID formats.
Program Option 7C/17C/27C as '00' to disable this function.
Example:

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4/2 format with account code 1234, alarm code 2 on zone 3. (1234-23)

Option 7A 17A 27A	Option 7C 17C 27C	Switch	Reason (or 7B/17B/27B) to Audio
00	1-2	Yes	Alarm code 2 falls within the code range 1-2.
1-1	00	Yes	Account code 1234 falls within the range 1-1.
2-3	00	No	Account code 1234 is outside the range 2-3.
00	3-4	No	Alarm code 2 is outside the range 3-4.
1-2	3-4	No	If both are programmed, both must be good and alarm code 2 is outside the range 3-4.
3-5	1-3	No	Both must be good and account code 1234 is outside the range 3-5.
1-4	1-5	Yes	Alarm code 2 falls within the code range 1-5, account code 1234 falls within the range 1-4.

> **NOTE: The first digit of the Contact ID event code will also follow option 7C/17C/27C.**

For UL Listed products, the permitted setting is 00.

SG-DRL3 Option 7D: Audio Zone Code
SG-DRL3-2L Option 17D/27D: Audio Zone Code
Default (00)

Audio zone code is the range of zone codes that will activate audio. The first digit is the lowest code. The second digit indicates the highest zone that will activate audio. Option 7D/17D/27D may be used with 10 to 40 Baud formats, DTMF 4/1, 4/2, and 4/3 formats.

> **NOTE: Option 7D/17D/27D Only works for DMP Serial 1 not for DMP Serial 3.**

For UL Listed products, the permitted setting is 00.

SG-DRL3 Option 7E Audio RS-232
SG-DRL3-2L Option 17E/27E Audio RS-232
Default (00)

This is the code sent to the automation software that indicates that 2-way audio has been initiated. If this option is set to '00' there will be no audio-initiated message sent to the automation output.

Setting	Description	Automation Output
00	2-way audio message disabled	No Automation Output
01	Outputs automation message with protocol "S	Send SRRLLL[#AAAA|NLFssoo][DC4]
02	Outputs automation message with protocol "O	Send 0RRLLL[#AAAA|NLFssoo][DC4]
05	Outputs automation message with protocol "S" and adds RRLL to the message as clear text	Send SRRLLL[#AAAA|NLFssoo*RRLL*][DC4]
06	Outputs automation message with protocol "O" and adds RRLL to the message as clear text	Send 0RRLLL[#AAAA|NLFssoo*RRLL*][DC4]
09	Outputs automation message with protocol "S" and adds the dialed phone number for the call transfer	SRRLLL[#AAAA|NLFssoo*#NNNNNNNNNNNNNNNN*][DC4]

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0A	Outputs automation message with protocol "O" and adds the dialed phone number for the call transfer	0RRLLL[#AAAA|NLFssoo*#NNNNNNNNNNNNNNNN*][DC4]
0D	Outputs automation message with protocol "S" and adds RRLL and the dialed phone number for the call transfer	SRRLLL[#AAAA|NLFssoo*RRLL#NNNNNNNNNNNNNNNN*][DC4]
0E	Outputs automation message with protocol "O" and adds RRLL and the dialed phone number for the call transfer	0RRLLL[#AAAA|NLFssoo*RRLL#NNNNNNNNNNNNNNNN*][DC4]
8X (X=any of the values above)	Any outputted automation message will have oo (line card slot number) changed to cc (line card channel number)	NLFssoo will become NLFs00c in all messages

Where:
ss - is receiver shelf number
oo - is receiver slot number (which line card)
c - cc is channel number of the line card
RR - is receiver number (from option 75 in hex)
LL - is line card number (from option 74 in hex)
- is a delimiter
N - is the number dialed from options A8-AF
C - is the line card channel number

> ***NOTE: When programmed with bit 1 and 2 disabled, the feature is disabled.***
> ***NOTE: When option 74 is disabled (00) it will output 00 in the LL and NOT follow option 01 as the LL.***
> ***NOTE: When enabled, Bit 1 over rides the value of bit 2. If both bit 1 and bit 2 is enabled the output is:***

> SRRLLL[#AAAA\|NLFssoo][DC4]

SG-DRL3 Option 7F: Audio Format Enable
SG-DRL3-2l Option 17F/27F: Audio Format Enable
Default (00)

This option gives you the ability to enable and disable audio for selected formats. A '1' in the formats bit position will enable the format for audio. A '0' in the formats bit position will disable audio for the format.

Bit 0	Standard 3-digit pulse and DTMF formats
Bit 1	Standard 4 and 5 Digit pulse format
Bit 2	Standard DTMF format
Bit 3	Contact ID format
Bit 4	SIA format
Bit 5	Modem II format
Bit 6	ITI Format
Bit 7	Westec format

For example, if the user wants audio to work only for 3-digit pulse and SIA formats, Option 17F/27F would have to be programmed as 11 hex which enables bit 0 and bit 4.

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SG-DRL3 Option 80: Kiss-Off to Hang-up Time
SG-DRL3-2L Option 180/280: Kiss-Off to Hang-up Time
Default (1F)

This option determines the delay between Kiss-off and the release of the line. The hex value programmed at this location will be converted to decimal and then multiplied by 100 ms to generate the delay.
Example:
Option 80 = 0A hex = 10 decimal * 100 ms = 1000 ms = 1 second delay
Option 80 = 1F hex = 10 decimal * 100 ms = 3100 ms = 3.1 second delay
Option 80 = 28 hex = 40 decimal * 100 ms = 4000 ms = 4 second delay

NOTE: This option only applies to the following formats: Pulse, DTMF, SKFSK, Robofon.

SG-DRL3 Options 81 through 88: Handshake Selection
SG-DRL3-2L Options 181/281 through 188/288: Handshake Selection
Defaults:

81	23	85	0E
82	14	86	0B
83	2D	87	00
84	0C	88	00

The channel is a multi-format receiver capable of sending several handshakes to a dialer/panel. Often it is important which handshake is sent first. Program Options 81/181/281 through 88/188/288 according to your applications.
Note that if AHS is enabled (option 2D/12D/22D), the AHS handshake will be sent before the handshakes programmed in options 81-88.
Handshake Options:

00	No handshake
14	1400 Hz
0B	Modem II handshake
0C	SIA FSK handshake
0D	Westec handshake
0E	ITI and Modem IIE handshake
0F	DMP handshake
1A	Robofon handshake
1B	CESA handshake
1C	Outel handshake
1D	Single Dual Tone handshake 1400 Hz/100ms 100ms pause and 2300 Hz/100ms tone with a kiss off of 1400 Hz
1E	Scantronics Dual Tone
1F	Vonk (no handshake)
23	2300Hz

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2D	Double dual-tone handshake1400 Hz/100ms 100ms pause and 2300 Hz/100ms tone with a kiss off of 1400 Hz.
8D	Single tone - DTMF * handshake/Kiss-off.
EC	SURTEC handshake.
FB	CFSK Full duplex handshake.
FF	Perform inter-handshake time, no tone/frequency sent.
3D	Single dual-tone handshake, DTMF buffering.
4D	Double dual-tone handshake, DTMF buffering.
5D	Single dual-tone handshake, Maximum of 16 Digits DTMF. 1400 Hz/100ms 100ms pause and 2300 Hz/100ms tone with a kiss off of 1400 Hz.
6D	Single Dual Tone, enable Fast DTMF receive mode. 1400 Hz/100ms 100ms pause and 2300 Hz/100ms tone with a kiss off of 1400 Hz.
7D	Double Dual Tone, enable Fast DTMF receive mode. 1400 Hz/100ms 100ms pause and 2300 Hz/100ms tone with a kiss off of 1400 Hz.
98	Do not perform AHS for this ANI number.
99	Immediate hang-up, AHS has blocked it.
BE	1400Hz BFSK only, no pulse.
BF	2300Hz BFSK only, no pulse.
FB	Full duplex CFSK.
FC	Full duplex SIA.
FD	FD-SIA300 - SIA FSK handshake. [see NOTE bellow]
FE	ITI handshake, Modem IIE filter.

All other frequencies can be programmed using the first two digits to represent the 3rd and 4th decimal places (01-29).

> *NOTE: The FD handshake enables changes in the SIA reception that allows panels that are not following the SIA standard to be received more consistently. For a more detailed explanation and any updates to the list of panels affected, please contact technical support.*

Examples:

10	1000 Hz	18	1800 Hz
14	1400 Hz	23	2300 Hz
16	1600 Hz		

> *NOTE: CESA must be programmed before the ITI and Outel Handshake.*
> *NOTE: When supporting the VONK format the VONK handshake should be programmed first.*
> *NOTE: When using the Vonk Handshake (1F) it is recommended to program this handshake first (Option81/ 181/281).*
> *NOTE: When using both Outel (1C) and CESA (1B) the Outel is recommended to be programmed first in the handshake order.*
> *NOTE: The CFSK uses the 4/3 printer and automation libraries.*

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SG-DRL3 Options 89 to 90: Handshake and Kiss-off Duration
SG-DRL3-2L Options 189/289 to 190/290: Handshake and Kiss-off Duration
Default (00)

Some control panels may require a different handshake duration. Each unit has increments of 100 ms, from 100 ms to a maximum of 8.1 seconds. Program Options 89/189/289 to 90 for the desired duration.

00	1 second
01	100 ms
02	200 ms
03	300 ms
04	400 ms
0A	1 second
0C	1.2 second.... and so on

Sur-Gard does not recommend programmed durations longer than 1.5 seconds, as it may not be tolerated by the alarm panel. For special applications, it may be necessary, but any durations higher than 8.1 seconds will not be accurate and may not match the duration programmed.

NOTE: These options will only affect steady tones handshakes.

Option 89/189/289: Handshake #1 duration
Option 8A/18A/28A: Handshake #2 duration
Option 8B/18B/28B: Handshake #3 duration
Option 8C/18C/28C: Handshake #4 duration
Option 8D/18D/28D: Handshake #5 duration
Option 8E/18E/28E: Handshake #6 duration
Option 8F/18F/28F: Handshake #7 duration
Option 90/190/290: Handshake #8 duration

SG-DRL3 Option 91: Inter-Handshake Duration
SG-DRL3-2L Option 191/291: Inter-Handshake Duration
Default (00)

The line card will usually wait for signals from the control panels for 4 seconds before sending the next handshake, if there are no signals received. In certain applications, control panels cannot wait long enough to get their own handshake especially if the handshake is programmed as the fifth or later handshake.
The maximum time allowed for this section is 09 (9 seconds). Program Option 91/191/291 with one of the following:

00	4-second interval	02	2-second interval
01	1-second interval	03	3-second interval

SG-DRL3 Option 92: Pulse Mode
SG-DRL3-2L Option 192/292: Pulse Mode
Default (00)

00 =	Standard Pulse Detection
01 =	50 Baud Pulse Detection
02 =	Forced (AAA) Pulse Detection, meaning only PULSE is detected.
8x =	When this bit is on, it acts as a minimum burst rejection option where x can be 1 to F(1ms to 15 ms) burst duration to reject.

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SG-DRL3 Option 93: Min Audio Tone
SG-DRL3-2L Option 193/293: Min Audio Tone
Default (00)

This option is used for 2-way audio tone detection from specific audio panels. This option should be left as default unless otherwise instructed by Sur-Gard Technical Support.

SG-DRL3 Option 94: Account Digit Stripping
SG-DRL3-2L Option 194/294: Account Digit Stripping
Default (00)

When Option 94/194/294 is set to 00 it is disabled.
When Option 94/194/294 is set to 01, the leading digit of a 4-digit account code will be stripped if it is an F.
Standard 4/2 format Output:
1RRLLLssssssAAAAsXssYZ
Example 1:
Option 94/194/294 set to 01: Panel account code is F245
104091ssssssF245sXssYZ
IF Option 94/194/294 is set to 01 the 'F' will be replaced by a space.
104091ssssssss245sXssYZ

This setting will also enable the receiver to decode special pulse extended-extended formats.
104091ssssssss245sXssYZ
If Option 94 is set to 02 than the leading digit of any account code greater than four digits will be stripped if it is a zero.
This option will work with the following formats:
    Standard Pulse and DTMF(3/x, 4/x & Extended)
    FBI
    Ademco Super Fast (4/8/1, 4/8)
    Contact ID
    ITI
    SIA
    Modem II
    SKFSK
Example 1:
Option 94 set to 02
Panel account code is 0345
104091sssssss0345sXssYZ
New Output:
104091ssssssss345sXssYZ

Details on "special pulse extended-extended" formats:
Option 94/194/294 = 01, This option applies to pulse formats. If any of the reporting code digits are an A they will be reported on the computer and printer as as an A instead of a 0.
4 digits:
If two rounds match, decode the 4 digit pulse extended format in the form of:
    26AC x2 =>KO (last digit must be C)
    CCC2 x2 =>KO (1st 3 digits must be C)
    26AF x2 =>KO (last digit must be F)
    FFF2 x2 =>KO (1st 3 digits must be C)

    26AC2F2
Otherwise decode as 3-1 extended or normal 3-1, and if the first digit is F strip it off.
5 digits:
If the checksum is good, decode the 5 digit pulse extended format in the form of:

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26ACF   =>KO (2nd last digit must be C)
CCC27   =>KO (1st 3 digits must be C)
26AFC   =>KO (2nd last digit must be F)
FFF2D   =>KO (1st 3 digits must be C)

26AC2F2

Otherwise decode as 3-1 extended or normal 3-1, and if the first digit is F strip it off.
Do normal decoding based on options (4-1, 4-1 extended, 3-1checksum, 3-2) and if the first digit is F strip it off.

6 digits:
If two rounds match, decode the 6 digit pulse extended format in the form of:
F1231F
F1231F =>KO (last two digits must be 1F to 8F)
F12301
F12301 =>KO (last two digits must be 01 to 06)
F123B2
F123B2 =>KO (last two digits must be B0 to BF)

1231F01B2
Otherwise decode as 4-2.

SG-DRL3 Option 95: 5 and 6 Digit Pulse
SG-DRL3-2L Option 195/295: 5 and 6 Digit Pulse
Default (00)

The Line card cannot distinguish between various 5-digit formats and 6-digit formats. 4/1, 3/2 and 3/1 with checksum cannot be distinguished because all of them contain a total of 5 digits. 4/2 and 5/1 cannot be distinguished because all of them contain a total of 6 digits.

Value	5 Digit Setting	6 Digit Setting
00	select 4/1 format	select 4/2 format
01	select 3/2 format*	select 4/2 format
02	select 3/1 checksum format	select 4/2 format
	select 3/1 checksum format special**	
03	select 4/1 format	select 4/2 format
	select 3/2 format*	
10	select 3/1 checksum format	select 5/1 format***
11	select 3/1 checksum format special**	select 5/1 format***
12		select 5/1 format***
13		select 5/1 format***

> *NOTE: The printer messages for the 3/2 format are the same as those used for the 4/2 format.*
>
> **NOTE: This selects 3/1 checksum only for 40 baud panels, responding on the 2300Hz handshake. For all other panels, this will be decoded as 4-1.*
>
> ***NOTE: The printer messages for the 5/1 format are the same as those used for the 4/1 format.*

Automation outputs
1RRLLLsssssssAAAAsEsssZ[DC4] (4/1)
1RRLLLssssssssAAAsEssYZ[DC4] (3/2)
1RRLLLssssssssAAAsEsssZ[DC4] (3/1)
1RRLLLsssssAAAAAsEsssZ[DC4] (5/1)
Printer outputs
RR-LLL-AAAA-Z-Message (4/1)

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RR-LLL-AAA-YZ-Message (3/2)
RR-LLL-AAA-Z-Message   (3/1)
RR-LLL-AAAAA-Z-Message (5/1)

SG-DRL3 Option 96: 4/1 Extended
SG-DRL3-2LOption 196/296: 4/1 Extended
Default (00)

Program the 4/1 Extended Option as '01' to enable combining 2 round pairs of 4/1 extended format into 4/2 output for reporting to the automation and the printer. For example, with Option 96/196/296 enabled, the security control panel may transmit the following information:
1234 3
1234 3
3333 1
3333 1
The receiver will interpret this information as: 1234 31.
The default of '00', means 4/1 Extended is disabled.

SG-DRL3 Option 97: 4/2 Extended
SG-DRL3-2L Option 197/297: 4/2 Extended
Default (00)

Program this option as '01' to combine 2 round pairs of 4/2 extended format into 4/3 output for reporting to the computer and the printer. Program one of the following:
Example 1:
1234 05
1234 05
0505 16
0505 16
The receiver will interpret this information as 1234 516.
Example 2:
1234 03
1234 03
3333 01
3333 01
The receiver will interpret this information as 1234 301.
Note that a longer on-line time is required for this format than for a standard 4/2 format. The default setting for Option 97/197/297 is '00'; when programmed as '00', the option is disabled.

SG-DRL3 Option 98: 3/1 Extend
SG-DRL3-2L Option 198/298: 3/1 Extend
Default 01

Program this option as '01' to combine 2 round pairs of 3/1 extended or 3/1 partial extended format into 3/2 output for reporting to the computer and the printer.
For example, with Option 98/198/298 enabled, the security control panel may transmit the following information:
123 3
123 3
333 1
333 1
The receiver will interpret this information as: 123 31; the default setting for Option 98/198/298 is '01'; when programmed as '00', the option is disabled.

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SG-DRL3 Option 99: DTMF 8/9 Digit Formats
SG-DRL3-2L Option 199/299: DTMF 8/9 Digit Formats
Default (00)

This option is used to eliminate decoding conflicts with the 8 and 9 digit DTMF formats. The Sur-Gard DTMF 4/3 with checksum, Ademco 4/1 Express and FBI Super Fast without checksum formats are all 8-digit DTMF formats. Also the Ademco 4/2 Express and the FBI Super Fast formats are both 9-digit DTMF formats. Therefore this option must be programmed to inform the line cards which formats will be decoded if 8 or 9-digit DTMF signals are received. The first digit will set the 9-digit DTMF format whereas the second digit of the option will set the 8-digit DTMF format.
The first digit is defined as follows:

0x	Auto detection (by format ID) of 4-2 express and FBI formats
1x	Ademco 4/2 Express
2x	FBI Super Fast

The second digit is defined as follows:

x0	Sur-Gard 4/3 with checksum
x1	Ademco 4/1 Express
x2	FBI Super Fast without checksum

Example:
To decode Ademco 4/2 Express and Sur-Gard 4/3 with checksum set Option 99/199/299 to 11.
To decode FBI Super Fast and Ademco 4/1 Express set Option 99/199/299 to 22.

SG-DRL3 Option 9A: Error Counter
SG-DRL3-2L Option 19A/29A: Error Counter
Default (00)

When this option is set, it will configure the number of consecutive bad pulse rounds before the receiver will automatically hang-up.
The default of 00 means this option is disabled and the receiver must wait for the panel to hang-up first.

SG-DRL3 Option 9B: Echo Canceller
SG-DRL3-2L Option 19B/29B: Echo Canceller
Default (00)

When enabled and an incoming call is answered, the receiver will generate a 2100 Hz tone with 180 degrees phase reversal every 450 ms for 2 seconds to suppress echo cancellation equipment.
00 Disabled
01 Enabled: Enable echo canceller

SG-DRL3 Option 9C: Acron RS-232
SG-DRL3-2L Option 19C/29C: Acron RS-232
Default 01

When this option is programmed as '00', the receiver will convert the Acron Super Fast format signal into the standard 3/2 or 4/2 format:
1RRLLLssssssAAAAsXssYY[DC4]
Where 1 = protocol number

RR = receiver number
LLL = line number
ssssss = spaces
AAAA = account code
X = Event Code
YY = Zone Number
And to the printer with the library text as:
RR-LLL-AAAA-YY-Text
If the Acron options is programmed as '01' the Acron Super Fast format will be sent to the automation as indicated below:
9RRLLLssssAAAACCCCCCCC[DC4]
Where 9 = protocol number
RR = receiver number
LLL = line number
ssss = spaces
AAAA = account code
CCCC = channel 1-4
CCCC = channel 5-8
[DC4] = terminator
And to the printer with no library text as:
RR-LLL-AAAA-CCCCCCCC-

SG-DRL3 Option 9D: MODEM II RS-232
SG-DRL3-2L Option 19D/29D: MODEM II RS-232 - Default 01
In order for the line card to receive the Modem II formats, two of the handshakes should be programmed 0B or 0E. The Modem II RS-232 option controls how the receiver will output alarms to the automation. This option is a bit-selectable option meaning more than one bit may be enabled.

Bit 0:   OFF: Select protocol: 1RRLLLssssssAAAAXXYYYY[DC4]
         ON: Select protocol: 6RRLLLssssssAAAAXXYYYY[DC4]

Bit 1:   OFF: Do not convert to SIA protocol
         ON: Convert Modem II to SIA protocol: SRRLLL[#AAAA|EYYZZZ][DC4]

Bit 2   OFF: Do not convert to SIA with Modem II ASCII text blocks.
         ON: Convert to SIA protocol with Modem II ASCII text blocks as
             SRRLLL[#AAAA|EYYZZZ][DC4] and
             RRRLLL[#AAAA|A....][DC4].

Bit 3:   OFF: Only decode the first 4 digits of Modem II account codes even if more than 4 received.
         ON: Decode up to 10 digits of Modem II account codes.

The default is 0x01 meaning output with 6RRLLL protocol. Do not convert to SIA, do not process Modem II text blocks, and only decode the first 4 digits of Modem II account codes.

> *NOTE: The lowest bit will also affect the BFSK format decoding.*
> *NOTE: Ensure that the automation software supports settings 02 and 06 if the SIA protocol is desired.*

SG-DRL3 Option 9E: Scantronics Select
SG-DRL3-2L Option 19E/29E: Scantronics Select
Default (00)

When this option is programmed as '00', 14-digit DTMF will be decoded as Scantronics 4-8-1 with Checksum.
When this option is programmed as '01', 14-digit DTMF will be decoded as Scantronics 5-8-1.

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SG-DRL3 Option 9F: Ademco High Speed RS-232
SG-DRL3-2L Option 19F/29F: Ademco High Speed RS-232
Default 01

When this option is programmed as '00', the receiver will convert the High Speed format signal into 4/2 format automation:
1RRLLLsssssssAAAAsXssYY[DC4]
printer: RR-LLL-AAAA-YY-Alarm
When this option is programmed as '01' the Ademco High Speed will not be decoded, and the received data is passed to the outputs.
8RRLLLAAAAsCCCCsCCCCsC[DC4]
Where 8 = protocol number
RR = receiver number
LLL = line number
AAAA = account code
CCCC = channel 1-4
s = space
CCCC = channel 5-8
s = space
C = channel 9
[DC4] terminator
On the SG-System III this option also controls the Scantronics formats:
2-8-1,5-8-1,6-8-1 (9-digit channels) and 2-16-1,3-16-1,4-16-1,5-16-1,6-16-1 (17-digit channels).
Refer also to the 11 & 12 digit DTMF Option A0/1A0/2A0 for configuring conflicting formats.
When this option is programmed as 00, the SG-System III will convert the outputs in the corresponding 2-2,3-2,4-2,5-2 format:
automation: 1RRLLLsssssAAAAAAAsXssYY[DC4]
printer: RR-LLL-AAAAAA-YY-Alarm
When this option is programmed as '01' the Scantronics formats will not be decoded and the received data is passed to the outputs.
automation:
8RRLLLAAAAAAsCCCCsCCCCsC[DC4] (9-digit channels)
8RRLLLAAAAAAsCCCCsCCCCsCCCCsCCCCsC[DC4]
(17-digit channels)
printer:
RR-LLL-AAAAAA--cccccccccc (9-digit channels)
RR-LLL-AAAAAA--cccccccccccccccccc] (17-digit channels)
The above examples are shown with 6-digit accounts, for accounts less than this, leading digits are not sent. For example, 2-8-1 will be output as:
8RRLLLAAsccccsccccsc[DC4]
RR-LLL-AA--cccccccccc
When this option is programmed as '02', the SG-DRL3 will perform the normal 4-2 conversion using the pre-defined individual event codes, instead of Option 70/170/270 "Common Event Code". This will not affect other formats (Pulse, ITI, etc) that will use option 70/170/270.

SG-DRL3 Option A0: 11 / 12-Digit DTMF
SG-DRL3-2L Option 1A0/2A0: 11 / 12-Digit DTMF
(Acron or Scantronics) - Default (00)

When this option is programmed as '00', if 11 or 12-digit DTMF is received, it will be decoded as ACRON Format.
When this option is programmed as '01', if 11 or 12-digit DTMF is received, it will be decoded as SCANTRONICS Format..

	Incoming Format	Decoded Format
00	11-digit DTMF	Acron 3-8
00	12-digit DTMF	Acron 4-8
01	11-digit DTMF	Scantronics 2-8-1
01	12-digit DTMF	Scantronics 3-8-1

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SG-DRL3 Option A1: FBI RS-232
SG-DRL3-2L Option 1A1/2A1: FBI RS-232
Default 01

To enable the computer for FBI Super Fast protocol, program Option A1/1A1/2A1 as '01'. When enabled, the computer output will be as indicated below:
JRRLLLssssssAAAATZZEss[DC4]
Where:
J = FBI protocol identifier
RR = receiver number
LLL = line number
s = spaces
AAAA = account code
T = zone type
ZZ = zone number, in hex.
E = event code
if E = 0 and T = 0 : listen in.

SG-DRL3 Option A2: Digit Replace
SG-DRL3-2L Option 1A2/2A2: Digit Replace
Default (00)

This option works with Option 77/177/277. When Option A2/1A2/2A2 is enabled, and Option 77/177/277 is programmed with an ASCII value, the receiver will replace or insert an account code digit. Option A2/1A2/2A2 determines how to replace or insert a digit.
To replace a digit, set Option A2/1A2/2A2 to 0x where x is the digit to be replaced.
To insert a digit, set Option A2/1A2/2A2 to 8x where x is the digit in the account code, after which will be the inserted digit.

SG-DRL3 Option A3: D6500 RS-232
SG-DRL3-2L Option 1A3/2A3: D6500 RS-232
Default (00)

This option is used to strip hex digits on the automation output. The line card will emulate the Radionics 6500 RS-232 protocol on pulse formats, Ademco Express and Varitech only. When Option A3/1A3/2A3 is set to 01 the hex digit will be stripped for 1-digit reporting codes including Varitech 4/1.
Example 1: Code 1
Computer output: 104091sssssss022sAsss1
Example 2: Code B
Computer output: 104091sssssss022sOssss
If Option A3 set to 02: the hex digit will be stripped for 2-digit reporting codes including Varitech 4/2.
Example 1: Code 21
Computer output: 104091sssssss022sAss21
Example 2: Code B1
Computer output: 104091sssssss022sOsss1
If Option A3/1A3/2A3 set to 03: the hex digit will be stripped for 1 and 2-digit reporting codes including Varitech.
If Option A3/1A3/2A3 set to 04: the hex digit will be stripped for BFSK.
> **NOTE: This option will only work if Option A4/1A4/2A4 is set to 01.**

Example 1: Code 21
Computer output: 604091sssssss022sAss21
Example 2: Code B1
Computer output: 604091sssssss022sOsss1
If Option A3/1A3/2A3 is set to 05: the hex digit will be stripped for 1-digit reporting and BFSK.
If Option A3/1A3/2A3 Is set to 06: the hex digit will be stripped for 2-digit reporting and BFSK.
If Option A3/1A3/2A3 set to 07: the hex digit will be stripped for 1-digit, 2-digit and BFSK.

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If Option A3/1A3/2A3 set to 0F: the hex digit will be stripped for 1-digit, 2-digit,BFSK and Ademco Express (4-1, 4-2).

> *NOTE: Option 70/170/270 must be left as an individual event code when enabling this option.*
>
> *NOTE: When performing any conversion (Such as Pulse to Ademco HS or BFSK to Ademco HS), this option will NOT take effect.*

SG-DRL3 Option A4: BFSK RS-232
SG-DRL3-2L Option 1A4/2A4: BFSK RS-232
Default (00)

This option will dictate how the BFSK format will be outputted to the automation. At default (set to 00) the output will be as Radionics 6500. When set to 01, the output will be as a 3/1 extended format, and when set to 02 the output will be Ademco High Speed. The account code used in these examples is 055.

Value	Function	Examples
00	BFSK format will be reported as Radionics 6500. The protocol identifier will be a 6.	Example 1: Code 21 Computer Output: 604091 055sAsss2 Example 2: Code B1 Computer Output: 604091 055sOsss1
01	BFSK will be reported as a standard 3/1 extended format. The protocol identifier will be a 1.	Example 1: Code 21 Computer Output: 104091 055sAss21 Example 2: Code B1 Computer Output: 104091 055sOssB1
02	BFSK will be reported as Ademco High Speed for none-alarm events. The protocol identifier will be an 8. A leading '0' will be added to the account code to make it 4 digits in length. For alarm events (excluding fire) the output will be 4-1/4-2 , with a protocol identifier of 1, A leading '0' will be added to the account code.	Example 1: Code 21 Computer Output: 804091 0055s5155s5555s7 Computer Output: 804091 0055s1555s5555s2 Example 2: Code 41 Computer Output: 104091 0055 41 Example 2: Code B1 Computer Output: 104091 0055 41

SG-DRL3 Option A5: Sescoa Super Speed
SG-DRL3-2L Option 1A5/2A5: Sescoa Super Speed
Default 01

This option will determine how the line card decodes 7-digit pulse formats.

Setting	Sescoa Super Speed	4/2/ checksum	4/2/checksum failed double round kissoff	Decode Sescoa like SG-DRL2A
00	disabled	enabled	enabled	NO
01	enabled	disabled	disabled	NO
02	enabled	disabled	disabled	YES
03	disabled	enabled	disabled	NO

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For a list of detailed event messages for the SG-DRL2A/SG-DRL3 decoding of Sescoa format please reference the communication format document.

SG-DRL3 Option A6: ITI Adjust
SG-DRL3-2L Option 1A6/2A6: ITI Adjust
Default (00)

When set to 01, the ITI account codes will be converted to 4 digits by stripping the last digit off. For example, a panel account of 23459 will become account 2345. If the leading digit of the panel account is a 0 then it will be stripped and replaced with a space. For example, if 02349 is sent then the receiver will output 234 for the panel account.

SG-DRL3 Option A7: Silent Knight FSK2 RS-232
Default (00)

The channel provides two possible outputs to the computer for Silent Knight FSK2 format. The operation of this option is explained below:

A7 = 00	SKFSK disabled
A7 = 01	SKFSK enabled for:
	SKFSK1
	ERRLssssssAAAAYYssss[DC4]
	SKFSK2 Protocol #2
	CRRLssssAAAAAAYYZZss[DC4]
A7 = 02	SKFSK enabled for:
	SKFSK1
	ERRLssssssAAAAYYssss[DC4]
	SKFSK2 Protocol #2
	FRRLssssAAAAAAYYZZss[DC4]

SG-DRL3 Options A8 - AF: Dial-out Number For 2-way Audio Transfer
SG-DRL3-2L Options 1A8/2A8 - 1AF/2AF: Dial-out Number For 2-way Audio Transfer
Default (00)

These 8 options are used to provide the dial-out number if the user wishes to transfer the call to another extension. Up to 16 digits may be programmed including any 'Feature Command' digits. The values in these options will be sent as DTMF tones on the phone line after the following sequence takes place:

1.   The receiver has recognized the current call as a 2-way
        audio account and alarm code.

2.   The calling control panel has finished sending its
        alarms and switched into 2-way audio mode.

3.   The channel will perform a Hook Flash with the time
        value as programmed in Option 11 and then start to dial
        the digits programmed.

Options A8/1A8/2A8 - AF/1AF/2AF must be programmed in the following manner: Digits 1-9 are programmed as the numbers 1-9. The digit "A" must be programmed if a zero is needed anywhere in the dial string as the digit zero is used to indicate to the line card that there are no more digits to dial. If a '*' is needed, (e.g., *70, the transfer command in some PBX/PABX switches) program a "B". Similarly, if a '#' is needed, program a "C".

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To get the line card to wait for 3 seconds in a dial string, program a "D".
DTMF Table

DTMF Digit Sent	DTMF Digit Received	DTMF Digit Sent	DTMF Digit Received
0	End of dialling string	0	End of dialling string
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
A	0	A	0
B	*	B	*
C	C	C	C
D	3 second pause	D	3 second pause
E	E	E	E
F	F	F	F

For example: to have the receiver transfer a 2-way audio call to Ext. 51386, with a 3 second pause between the transfer command and dialing, Options A8/1A8/2A8 to AF/1AF/2AF would be programmed as the following:

```
A8 = B7          AC = 60
A9 = AD          AD = 00
AA = 51          AE = 00
AB = 38          AF = 00
```

SG-DRL3 Option B0: CCITT Audio Format Enable bits
SG-DRL3-2L Option 1B0/2B0: CCITT Audio Format Enable bits
Default (00)

This option is similar to option 7F/17F/27F. It gives you the ability to enable and disable audio for the selected CCITT formats. A '1' in the formats bit position will enable the format for audio. A '0' in the formats bit position will disable audio for the format.
Bit 0   Robofon FormatBit 4   Not Used
Bit 1   VONK FormatBit 5   Outel format
Bit 2   Stratel FormatBit 6   Not used
Bit 3   CESA FormatBit 7   Not used

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For example: If the user wants audio to work only for Robofon format, Option B0/1B0/2B0 should be programmed as 11 HEX which enables bit 0 and bit 4.

SG-DRL3 Option B1: DMP Area BIN or DEC Option
SG-DRL3-2L Option 1B1/2B1: DMP Area BIN or DEC Option
Default (00)

This option is similar to the DMP receiver.
00 = Area is sent to the automation in BINARY
01 = Area is sent to the automation in DECIMAL
The printer outputs remain unchanged.

Examples: Area is sent to the linecard as C0,
BINARY setting
Automation:
P01001 20999 L0480TIMAREA 1
P01001 20999 L0440TIMAREA 2
Printer:
00-01-001-20999--Close USR:04 AREA1 TIMAREA 1
00-01-001-20999--Close USR:04 AREA2 TIMAREA 2

DECIMAL setting
Automation:
P01001 20999 L0401TIMAREA 1
P01001 20999 L0402TIMAREA 2
Printer:
00-01-001-20999--Close USR:04 AREA1 TIMAREA 1
00-01-001-20999--Close USR:04 AREA2 TIMAREA 2

SG-DRL3 Option B2: DTMF Format Disable #1
SG-DRL3-2L Option 1B2/2B2: DTMF Format Disable #1
Default (00)

This option is bit oriented and will disable the decoding of the following DTMF formats.

Bit	Description	Example Formats
0	15 digits DTMF format	Scantronics 6-8-1
1	13 digits DTMF format	Scantronics 4-8-1, Ademco Highspeed 4
2	8 digits DTMF format	Sur-Gard 4-3 with checksum, 4-3-1 FBI Superfast, Ademco 4-1 express
3	22 digits DTMF format	Contact ID 10 digit
4	11 digits DTMF format	Acron 3, Ademco Highspeed 2, Scantronics 2-8-1
5	12 digits DTMF format	Acron 4, Ademco Highspeed 3, Scantronics 3-8-1
6	23 digits DTMF format	Scantronics 6-16-1
7	14 digits DTMF format	Scantronics 4-8-1 with checksum, Scantronics 5-8-1

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SG-DRL3 Option B4: 4/3 DTMF format type
SG-DRL3-2L Option 1B4/2B4: 4/3 DTMF format type
Default (00)

When disabled this option will allow the receiver to receive 4/3 DTMF formats as Sur-Gard 4/3. When enabled the receiver will be able to receive 4/3 DTMF as a 4/2/Checksum format.

SG-DRL3 Option B5: FSK Format disable
SG-DRL3-2L Option 1B5/2B5: FSK Format disable
Default (00)

This option is bit oriented and will disable the decoding of the following pulse formats:
Bit enabled

0x01: Varitech Disable
0x02: Silent Knight Disable
0x04: BFSK Disable
0x08: - 0x80: Not used

SG-DRL3 Option B6: 4-2 Conversion to Ademco High Speed
SG-DRL3-2L Option 1B6/2B6: 4-2 Conversion to Ademco High Speed
Default (00)

When a 4-2 format message is received on the receiver, the computer and printer messages will normally be outputted in the standard 4-2 format (option B6/1B6/2B6 set to 0). However, when this option is enabled (set to 01) the standard 4-2 opening and closing codes by users (B0 - BF and C0 - CF) will be translated to Ademco High Speed. Whenever a 4-2 code beginning with B is received, an opening report is sent and whenever a 4-2 code beginning with a C is received a closing report is sent. The User Identifier will be set to match the zone identifier of the message.
The 4-2 format signal: ACCT XY
will be converted to the Ademco High Speed format signal:
If X is B (Opening) the signal will be:ACCT Y222 2222 2
If X is C (Closing) the signal will be: ACCT Y444 4444 4
Example:
If the 4-2 opening event is:1234 B1
The translated Ademco High Speed is:1234 1222 2222 2

If the 4-2 closing event is:1234 CB
The translated Ademco High Speed is:1234 B444 4444 4

The following table outlines all possible translation into Ademco High Speed for the transmission of the standard 4-2 opening and closing codes: (Please note that account number 1234 was used for example purposes).

4-2 Format Signal	Automation Output	Printer Output
1234 B1	101001 1234 1222 2222 2	01-001 1234 1222 2222 2
1234 B2	101001 1234 2222 2222 2	01-001 1234 2222 2222 2
1234 B3	101001 1234 3222 2222 2	01-001 1234 3222 2222 2
1234 B4	101001 1234 4222 2222 2	01-001 1234 4222 2222 2
1234 B5	101001 1234 5222 2222 2	01-001 1234 5222 2222 2
1234 B6	101001 1234 6222 2222 2	01-001 1234 6222 2222 2

1234 B7	101001 1234 7222 2222 2	01-001 1234 7222 2222 2
1234 B8	101001 1234 8222 2222 2	01-001 1234 8222 2222 2
1234 B9	101001 1234 9222 2222 2	01-001 1234 9222 2222 2
1234 BA	101001 1234 0222 2222 2	01-001 1234 0222 2222 2
1234 BB	101001 1234 B222 2222 2	01-001 1234 B222 2222 2
1234 BC	101001 1234 C222 2222 2	01-001 1234 C222 2222 2
1234 BD	101001 1234 D222 2222 2	01-001 1234 D222 2222 2
1234 BE	101001 1234 E222 2222 2	01-001 1234 E222 2222 2
1234 BF	101001 1234 F222 2222 2	01-001 1234 F222 2222 2
1234 C1	101001 1234 1444 4444 4	01-001 1234 1444 4444 4
1234 C2	101001 1234 2444 4444 4	01-001 1234 2444 4444 4
1234 C3	101001 1234 3444 4444 4	01-001 1234 3444 4444 4
1234 C4	101001 1234 4444 4444 4	01-001 1234 4444 4444 4
1234 C5	101001 1234 5444 4444 4	01-001 1234 5444 4444 4
1234 C6	101001 1234 6444 4444 4	01-001 1234 6444 4444 4
1234 C7	101001 1234 7444 4444 4	01-001 1234 7444 4444 4
1234 C8	101001 1234 8444 4444 4	01-001 1234 8444 4444 4
1234 C9	101001 1234 9444 4444 4	01-001 1234 9444 4444 4
1234 CA	101001 1234 0444 4444 4	01-001 1234 0444 4444 4
1234 CB	101001 1234 B444 4444 4	01-001 1234 B444 4444 4
1234 CC	101001 1234 C444 4444 4	01-001 1234 C444 4444 4
1234 CD	101001 1234 D444 4444 4	01-001 1234 D444 4444 4
1234 CE	101001 1234 E444 4444 4	01-001 1234 E444 4444 4
1234 CF	101001 1234 F444 4444 4	01-001 1234 F444 4444 4

SG-DRL3 Option B8: DTMF Format Disable#2
SG-DRL3-2L Option 1B8/2B8: DTMF Format Disable#2
Default (00)

This option is bit oriented and will disable the decoding of the following DTMF formats.

Bit	Description	Example Formats
0	15 digits DTMF format	Scantronics 6-8-1
1	13 digits DTMF format	Scantronics 4-8-1, Ademco Highspeed 4

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Bit	Description	Example Formats
2	8 digits DTMF format	Sur-Gard 4-3 with checksum, 4-3-1 FBI Superfast, Ademco 4-1 express
3	22 digits DTMF format	Contact ID 10 digit
4	11 digits DTMF format	Acron 3, Ademco Highspeed 2, Scantronics 2-8-1
5	12 digits DTMF format	Acron 4, Ademco Highspeed 3, Scantronics 3-8-1
6	23 digits DTMF format	Scantronics 6-16-1
7	14 digits DTMF format	Scantronics 4-8-1 with checksum, Scantronics 5-8-1

SG-DRL3 Option B9: Noise/Fax Detection
SG-DRL3-2L Option 1B9/2B9: Noise/Fax Detection
Default (00)

This option will allow the receiver to perform line condition tests when the call is answered. There are two functions that are performed when a call is received: Noise Detection, and Fax Detection.
To enable Noise/Fax and Fax Tone detection set the following:

Option bit value	Setting
0000 0000	No noise or fax and tone detection
0000 0001	Noise/fax detection enabled
0000 0010	Fax tone detection enabled
0000 0011	Fax /noise and tone detection enabled

Noise/Fax Detection
This will occur during pre-init handshake duration (see Option 05/105/205) to perform the Fax/Noise test on the line. The DSP will require at least 150ms to evaluate the line and determine if it is noisy or a fax transmission is occurring. Overall, one cycle of this will require at least 250ms duration. If the pre-init handshake has not expired, the line card will perform the test again if it did not detect a Fax or Noise report. If a fax or Noise report was detected the receiver will generate a communication fail fax or a communication fail noise message.
If Noise is detected the receiver will continue to proceed through its programmed handshakes and format detection. If no valid signal is received then the receiver will log the call as a Communication Fail - Noise detected. If a valid signal is received (for example a SIA event) the signal will be processed as normal and no fail log will be made.
Fax tone detection
This will occur in the common mode detection for formats. In this check, the line card is looking for the 1170 ON report from the DSP. Once in this check, the line starts a 600 ms timer to check for the 1170 OFF report. If it sees the OFF report a valid fax tone is detected. If the line card does not detect any other formats after the last handshake, it will generate a communication fail fax message. To avoid conflicting with other formats the sync bit for SIA is checked. However, there is no way at the moment to distinguish from the modem II formats. At most the receiver will miss the first bytes of modem, but once it detects modem, the second round is properly received.
There are four types of Communication Fail messages that can be created:
  •A message is generated if the line card receives an Invalid DNIS.
  •If the line card cycles through all programmed handshakes and no data is received in response.

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Two new communication fail messages have been added to the communication fail automation and printer logs. These messages will occur in the event that the following conditions occur.
- •if a fax signal is detected
- •if a Noise call is generated

Call could not be processed because of bad DNIS structure or no response by the panel	001002[#0000|NYC0101]	01-002-0000--COMMUNICATION FAIL
Call failed due to detection of fax device on the call	001002[#0000|NYC0102]	01-002-0000--COMMUNICATION FAIL Fax
Call failed due to detection of voice on the call	001002[#0000|NYC0103]	01-002-0000--COMMUNICATION FAIL Noise

SG-DRL3 Option BA: DMP User Length
SG-DRL3-2L Option 1BA/2BA: DMP User Length
Default (00)

This option is for the variable length user and zone numbers. The first digit in the option represents the user number and the second digit represents the zone number. For example, if Option BA/1BA/2BA is set for 24 then the receiver will output a 2-digit user number and a 4-digit zone number. The default value is 00 for 2-digit user and 2-digit zone number.

> **NOTE: Option BA/1BA/2BA affects DMP Serial 1 format not DMP Serial 3.**

SG-DRL3 Option BB: Sur-Gard DTMF 4/3 Format Output
SG-DRL3-2L Option 1BB/2BB: Sur-Gard DTMF 4/3 Format Output
Default (00)

Each digit of this option controls how the 4/3 format computer output string is formatted. The first digit allows for the user and group codes for openings and closings to be combined. When programmed as "1x", group arming/disarming signals will be combined with the user code into one signal which will be sent to the computer.
Example,
Printer:
1234-B01 CloseGrp
1234-416 Close
1234-C02 OpenGrp
1234-532 Open
Computer:
1234 C1 16 (instead of 1234 C 01 and 1234 C 16)
1234 O2 32 (instead of 1234 O 02 and 1234 O 32)
If a user code is not received after the group opening/closing, the message "1234 C1 FF" will be sent; "FF" indicates that a user code was not received.

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The second digit of this option controls the user/zone number conversion. The Sur-Gard 4/3 DTMF format is made up of a 4-digit account code, a 1-digit event code, and a 2-digit hexadecimal zone code or user number. However, some central station software packages use a common event code and require decimal user codes. This option allows the user codes to be converted from hexadecimal to decimal to meet the needs of the central station software. Program with one of the following:

X0   Send the last two digits as user codes without conversion.

X1   Convert the last 2-digit user codes to decimal as shown here:

User Code Received	*User Code after Conversion*
00 to 99	00 to 99
B0 to B9	100 to 109
C0 to C9	110 to 119
D0 to D9	120 to 129
E0 to E9	130 to 139
F0 to F9	140 to 149

Example, if 1234 4B1 is received, 1234 C 101 will be sent to the computer.

X2   Send the last 3 digits as the zone codes with the 5th digit still used as the event code.
Example, if 1234 161 is received, 1234 A 161 will be sent to the computer.
When individual event codes are used, if 1234 401 is received, 1234 C 01 will be transmitted to the computer. When common event codes are used, if 1234 401 is received, 1234 Z 401 will be transmitted to the computer, where Z is the common event code.

X3   Send the last 3 digits as the zone codes and convert the user codes only to decimal.

NOTE: When the first digit of the option is set to 1 the 3-digit user codes will be combined with the group number as follows:

Code received	*Code sent to computer*
1234B01	No transmission
12344B1	1234 C1 101

6 SG-DRL3-IP Programming

In this Chapter...

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 SG-Systems Console v2.00 (or higher) software is required for programming and communication with SG-DRL3-IP Receiver Modules.

Options: 00 - 47

Options 01 - 04: Receiver IP Address
Defaults (C0), (A8), (00), (01) This represents: 192.168.000.001

This IP address identifies the SG-DRL3-IP on the IP network. Each node on the IP network must be assigned a unique IP address, which is made up of a network identifier and a host identifier. The SG-DRL3-IP can only use Static IPs, DHCP is not supported. These options specify 4 bytes of the receiver IP address, from the high byte to low byte with highest (byte 3) in section 01 and lowest (byte 0) in section 04 in hexadecimal.

Options 05 - 08: Receiver Subnet Mask Address
Default (FF), (FF), (00), (00) This represents: 255.255.000.000

A mask used to determine what subnet an IP address belongs to. The subnet is a portion of a network that shares a common address component. On TCP/IP networks, subnets are defined as all devices whose IP addresses have the same prefix. Dividing a network into subnets is useful for both security and performance reasons. These options specify 4 bytes of receiver subnet mask address, from the high byte to low byte with highest (byte 3) in section 05 and lowest (byte 0) in section 08 in hexadecimal.

Options 09 - 0C: Receiver Gateway
Default (00), (00), (00), (00) This represents 000.000.000.000

This is the address of the Gateway through which the SG-DRL3-IP must communicate to reach the transmitter. This address is applied to all modules connected to the SG-DRL3-IP.
These options specify the 4 bytes of the receiver gateway, from high byte to low byte with the highest (byte 3) in section 09 and the lowest (byte 0) in section 0C.

Options 0D - 0E: Alarm Port Number
Default (0B), (F5) This represents 3061

Use this option to set the Alarm Port connection number for your receiver. While the default value will suffice in environments involving just one receiver, Option 0D-0E can be used to differentiate receivers in a complex, multiple receiver environment. If this option is changed, IP communication modules connected to the SG-DRL3-IP must be programmed with the new receiver number. Communicators connected to the receiver will send their signals to this port.

Option 0F: Receiver Number
Default (01)

The receiver number is used for sending signals to the central station software. Refer to the manuals for any central station automation software being used to determine if there are any special requirements for this number. Also, ensure that there are no duplicate receiver numbers used.

Option 10: Line Card Number
Default (01)

The Line Card Number provides a virtual identification code for each SG-DRL3-IP module. Hexadecimal numbers "01" to "FE" can be programmed in Option 01 to identify line cards.

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Option 11: Line Card Number Length
Default (0A)

This option is used to determine how many digits from the line card number will be sent to the output. You also have the option of displaying the number in hex or decimal. Program this option with one of the following:

01	Sends only one hex digit to the printer or computer output (if you have a 2-digit line card number only the last digit will be sent to the output).
02	Sends 2 hex digit line card number to the output.
03	Send 3 hex digit line card number to the output (leading zeros will be inserted prior to the line card number).
0A	Send 3-digit line card number in decimal; send 2-digit receiver number in decimal
0D	Send 3-digit line card number in decimal

Option 12: Debug Output
Default (00)

The debug mode should only be used when required and disabled after use. Enabling the Debug option reduces the SG-DRL3-IP receiver's ability to monitor the transmitters.

00	Disabled
01	Enabled

Options 13 - 14: Transmitter Absent Debounce Time
Default (0078)

The time, in seconds, for which a transmitter configured in supervised mode must be absent before a transmitter failure condition will be reported. Valid entries are 30-65535 seconds. Value entered in hex.

> *NOTE: Transmitter Absent Time should not be less than 90 seconds. For ULC Commercial Burg Installations Security Levels A1 to A4 and ULC Commercial Fire Active communication systems, this option shall be programmed as B4 (180s). For UL Commercial Burg Installations (standard/encrypted line security), this option shall be programmed as C8 (200s). For UL Commercial Fire installations (single communication technology) this option shall be programmed as 12C (300s).*

Options 15 - 16: Transmitter Restoral Time
Default (003C)

This option determines the required time a transmitter must be present before it is registered in the Account Table and the transmitter restoral message is sent.
Transmitter Restore Time must be 30 seconds minimum.

> *NOTE: Two heartbeats must be received from the supervised IP transmitter before the register the restoral of the communicator.*
> *For UL Listed products, the permitted setting is 05AH(90s).*

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Option 19: Transmitter Restoral Trouble Mask
Default (00)

This programmable mask enables or disables the reporting of the Transmitter restoral condition on the SG-DRL3-IP receiver. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

Option 1A: Transmitter Failure Trouble Mask
Default (00)

This programmable mask enables or disables the reporting of the Transmitter failure/absent condition on the SG-DRL3-IP receiver. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

Option 1B: Transmitter Swap Trouble Mask
Default (00)

This programmable mask enables or disables the reporting of the T-LINK transmitter swap condition on the SG-DRL3-IP receiver. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

Option 1C: Transmitter Unencrypted Trouble Mask
Default (00)

This programmable mask enables or disables the reporting of the T-LINK transmitter sending an unencrypted event when the SG-DRL3-IP is expecting an encrypted event condition on the SG-DRL3-IP receiver. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

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Option 1D: Invalid Report Trouble Mask
Default (00)

This programmable mask enables or disables the reporting the invalid report condition. SG-DRL3-IP determines that the signal received is invalid, bad checksum, encryption key miss-match. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

Option 1E: Unknown Account Trouble Mask
Default (00)

This programmable mask enables or disables the reporting an unknown account report condition when the SG-DRL3-IP received is from an invalid account (not in the account table). Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

Option 1F: Accounts Exceeded Trouble Mask
Default (00)

This programmable mask enables or disables the reporting if the account table limit is exceeded when a new account tries to connect to a SG-DRL3-IP that has a full account table. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported

00	Condition reported
01	Condition not reported (masked)

NOTE: For UL Listed products, the permitted setting is 00.

Option 20: Transmitter Deleted Trouble Mask
Default (00)

This programmable mask enables or disables the reporting when a T-LINK transmitter account deleted from the table. Setting the mask to 0 signifies the trouble will be reported; setting the mask to 1 signifies the trouble will not be reported.

00	Condition reported
01	Condition not reported (masked)

6

Option 2B: Busy Out
Default (00)

The line card will stop acknowledging transmitter events under specific trouble conditions if Option 27 is programmed with the following:

00	No time set from SG-CPM3, a code corruption checksum error, or an internal buffer is in full condition
01	Line card is being downloaded
04	No time set from SG-CPM3, a code corruption checksum error, line card is being downloaded, if internal buffer is full, or loss of communication with the SG-CPM3
05	No time set from the SG-CPM3, automation computer is absent, loss of SG-CPM3, line card is being downloaded

NOTE: If this 01 is selected, the line card will overwrite the oldest alarm with a new alarm when the internal buffer is full. For UL Listed products, the permitted setting is 00.

Option 2C: Internal Messages RS-232
Default (01)

When this option is programmed as "00", the SG-DRL3-IP will output its internal messages in the following format:

SRRLLL[#AAAA|Nxxyy]

If it is programmed as "01" internal messages will be output as:

0RRLLL[#AAAA|Nxxyy]

S, 0 (zero)	= Protocol number
RR	= Receiver number
LLL	= Line number
AAAA	= Account code, always 0000
00	= Output for all internal signals is SRRL protocol
01	= Output for all internal signals is 0RRL protocol
02	= Output signals in automation protocol SRRL with leading space in the zone (DVACS only)
03	= Output signals in automation protocol 0RRL with leading space in the zone (DVACS only)

Options 3A-3B Console Port
Defaults (0B), (F8) This represents 3064

These options set the 2 byte Console Connection Port Number with high byte in section 3A and low byte in section 3B. If this option is changed, the console connected to the SG-DRL3-IP must be programmed with the new port number.

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Options 40 - 43 Console Password
Defaults (0C), (0A), (0F), (0E) This represents CAFE.

This is the password for the Account Port communication. In order for the user to be able to retrieve/modify the account table of the receiver the application must have a password that matches this section. Applications that connect to this port are:
    T-Link Console
    SG-Receiver Consoles
    Table Loader
    DLS (downloading software)

Options 44: DNIS Replacement of RRLLL
Default (00)

When set to 00 the SG-DRL3-IP will output the RRLLL (Receiver number and line number)
When set to 01 the SG-DRL3-IP will output the DNIS received from a GS transmitter instead of the RRLLL

Option 46: Account Digit Stripping
Default (00)

The option controls the output of the account number set from 1 to 9 digits for both T-Link transmitter and panel account code. If the option is set to "00" T-Link transmitter account code will be sent to the output as 10 digits and panel account code will be sent as received.
For example if Option 46 is set to "0x07" the following will occur:

Transmitter	Output
1234567890	4567890
0000001234	0001234
0012345678	2345678

Panel	Output
567890	567890
7890	7890
00567890	0567890

If the option 46 is set to "00" the following will occur:

Transmitter	Output
1234567890	1234567890
0000001234	0000001234

Panel	Output
567890	567890
7890	7890
00567890	00567890

6

Option 47: SIM Number Output
Default (00)

This option is available with cellular transmitters. When enabled, the receiver will output the received SIM number to the printer and automation. The message will include the account number (up to 10 digits following Option 46) and the SIM number (21 digits). The automation software used with the receiver will need to support the (s) protocol via the Sur-Gard output format in order for this feature to work.

Available settings for SIM Number output:

00 – Disabled – No SIM Number output

01 – SIM Number output to printer and automation

02 – SIM Number output to printer only

03 – SIM Number output to automation only

The automation output is as follows:

sRRLLLAAAAAAAAAAASSSSSSSSSSSSSSSSSSSSS

Where:

S is the protocol identifier

RRLLL is the Receiver and Line number of the line card that received the event

A is the 10-digit account number

S is the SIM number of the transmitter that sent the event

A   Printer Words

A
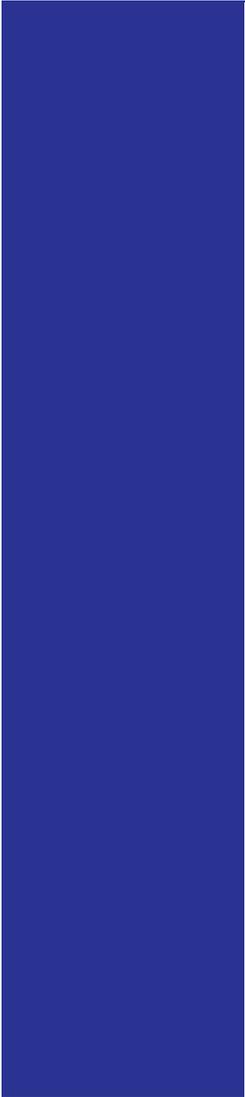
Printer Words: Options 60-6F/160-16F/260-26F

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Hex #	Printer Words		Hex #	Printer Words
00	MEDICAL*		1F	PERIMETER
01	PENDANT TRANSMITTER		20	INTERIOR
02	FAIL TO REPORT IN		21	24 HOUR
03	RESERVED		22	ENTRY/EXIT
04	RESERVED		23	DAY/NIGHT
05	RESERVED		24	OUTDOOR
06	RESERVED		25	TAMPER
07	RESERVED		26	NEAR BURGLARY ALARM
08	RESERVED		27	INTRUSION VERIFIER
09	RESERVED		28	GENERAL ALARM
0A	FIRE ALARM		29	POLLING LOOP OPEN
0B	SMOKE		2A	POLLING LOOP SHORT
0C	COMBUSTION		2B	EXPANSION MODULE FAILURE
0D	WATER FLOW		2C	SENSOR TAMPER
0E	HEAT		2D	EXPANSION MODULE TAMPER
0F	PULL STATION		2E	SILENT BURG
10	DUCT		2F	SENSOR SUPERVISION FAILURE
11	FLAME		30	RESERVED
12	NEAR FIRE ALARM		31	RESERVED
13	RESERVED		32	24 HOUR NON-BURGLARY
14	PANIC ALARM		33	GAS DETECTED*
15	DURESS ALARM		34	REFRIGERATION*
16	SILENT ALARM		35	LOSS OF HEAT*
17	AUDIBLE ALARM		36	WATER LEAKAGE*
18	DURESS		37	FOIL BREAK*
19	DURESS		38	DAY TROUBLE
1A	RESERVED		39	LOW BOTTLED GAS LEVEL *
1B	RESERVED		3A	HIGH TEMPERATURE*
1C	RESERVED		3B	LOW TEMPERATURE*
1D	RESERVED		3C	RESERVED
1E	BURGLARY		3D	LOSS OF AIR FLOW*

*   Use only with Model SG-System III CE. SG-System III CE is not UL Listed

A

Hex #	Printer Words
3E	CARBON MONOXIDE*
3F	TANK LEVEL*
40	RESERVED
41	RESERVED
42	RESERVED
43	RESERVED
44	RESERVED
45	RESERVED
46	FIRE SUPERVISORY
47	LOW WATER PRESSURE*
48	LOW CO2*
49	GATE VALVE SENSOR*
4A	LOW WATER LEVEL*
4B	PUMP ACTIVATED*
4C	PUMP FAILURE*
4D	RESERVED
4E	RESERVED
4F	RESERVED
50	SYSTEM TROUBLE
51	AC LOSS
52	LOW SYSTEM BATTERY
53	RAM CHECKSUM BAD
54	ROM CHECKSUM BAD
55	SYSTEM RESET
56	PANEL PROGRAM CHANGED
57	SELF-TEST FAILURE
58	SYSTEM SHUTDOWN
59	BATTERY TEST FAILURE
5A	GROUND FAULT
5B	BATTERY MISSING/DEAD
5C	POWER SUPPLY OVERCURRENT
5D	ENGINEER RESET

Hex #	Printer Words
5E	RESERVED
5F	RESERVED
60	RESERVED
61	RESTORE ALARM
62	OPENING ALARM
63	CLOSING ALARM
64	SOUNDER/RELAY
65	BELL 1
66	BELL 2
67	ALARM RELAY
68	TROUBLE RELAY
69	REVERSING
6A	NOTIFICATION APPLIANCE 3 CHECK
6B	NOTIFICATION APPLIANCE 4 CHECK
6C	RESERVED
6D	RESERVED
6E	SYSTEM PERIPHERAL
6F	POLLING LOOP OPEN
70	POLLING LOOP SHORT
71	EXPANSION MODULE FAILURE
72	REPEATER FAILURE
73	LOCAL PRINTER PAPER OUT
74	LOCAL PRINTER FAILURE
75	EXPANSION MODULE DC LOSS
76	EXPANSION MODULE LOW BATTERY
77	EXPANSION MODULE RESET
78	RESERVED
79	EXP. MODULE TAMPER
7A	EXP. MODULE AC LOSS
7B	EXP. MODULE SELF-TEST FAIL
7C	LOSS SUPERVISORY RF
7D	RESERVED

*** Use only with Model SG-System III CE. SG-System III CE is not UL Listed**

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</div>

Hex #	Printer Words
7E	RESERVED
7F	RESERVED
80	RESERVED
81	RESERVED
82	COMMUNICATION
83	TELCO 1 FAULT
84	TELCO 2 FAULT
85	LONG RANGE RADIO
86	FAIL TO COMMUNICATE
87	LOSS OF RADIO SUPERVISION
88	LOSS OF CENTRAL POLLING
89	VSWR
8A	RESERVED
8B	RESERVED
8C	PROTECTION LOOP
8D	PROTECTION LOOP OPEN
8E	PROTECTION LOOP SHORT
8F	FIRE TROUBLE
90	EXIT ALARM
91	PANIC ZONE TROUBLE
92	HOLDUP ZN TROUBLE
93	SWINGER TROUBLE
94	CROSS ZONE TROUBLE
95	RESERVED
96	SENSOR TROUBLE
97	LOSS OF SUPERVISORY - RF
98	LOSS OF SUPERVISORY - RPM
99	SENSOR TAMPER
9A	RF TRANSMITTER. LOW BATTERY
9B	SMOKE HI-SENSOR
9C	SMOKE LOW-SENSOR
9D	INTRUSION HI-SENSOR

Hex #	Printer Words
9E	INTRUSION LOW-SENSOR
9F	SELF TEST FAIL
A0	OPEN/CLOSE
A1	O/C BY USER
A2	GROUP O/C
A3	AUTOMATIC O/C
A4	LATE O/C
A5	DEFERRED O/C
A6	CANCEL
A7	REMOTE ARM/DISARM
A8	QUICK ARM
A9	KEYSWITCH O/C
AA	RESERVED
AB	CALLBACK REQUEST MADE
AC	SUCCESSFUL DOWNLOAD ACCESS
AD	UNSUCCESSFUL ACCESS
AE	SYSTEM SHUTDOWN
AF	DIALER SHUTDOWN
B0	SUCCESS FULL UPLOAD
B1	RESERVED
B2	RESERVED
B3	RESERVED
B4	ACCESS DENIED
B5	ACCESS REPORT BY USER
B7	FORCED ACCESS
B8	EGRESS DENIED
B9	EGRESS GRANTED
BA	ACCESS
BB	ACCESS
BC	ACCESS
BD	ACCESS
BE	RESERVED

Use only with Model SG-System III CE. SG-System III CE is not UL Listed

A

Hex #	Printer Words
BF	ARMED STAY
C0	KEYSWITCH ARMED STAY
C1	RESERVED
C2	RESERVED
C3	RESERVED
C4	RESERVED
C5	RESERVED
C6	GROUP CLOSING
C7	GROUP OPENING
C8	EXCEPTION O/C
C9	EARLY O/C
CA	LATE O/C
CB	FAIL TO O/C
CC	FAIL TO O/C
CD	AUTO ARM FAIL
CE	O/C PARTIAL ARMED
CF	EXIT ERROR
D0	USER PRESENT
D1	RECENT CLOSE
D2	SOUNDER/RELAY DISABLED
D3	BELL 1 DISABLE
D4	BELL 2 DISABLE
D5	ALARM RELAY DISABLE
D6	TROUBLE RELAY DISABLE
D7	REVERSING RELAY DISABLE
D8	NOTIFICATION APPLIANCE 3 DISABLED
D9	NOTIFICATION APPLIANCE 4 DISABLED
DA	RESERVED
DB	RESERVED
DC	RESERVED
DD	DIALER DISABLED
DE	RADIO TRANSMITTER DISABLED
DF	REMOTE UPLOAD/DOWNLOAD DISABLED

| Hex #	Printer Words
E0	RESERVED
E1	RESERVED
E2	RESERVED
E3	RESERVED
E4	MESSAGE
E5	SERVICE
E6	ZONE BYPASS
E7	FIRE BYPASS
E8	24 HOUR ZONE BYPASS
E9	BURGLARY BYPASS
EA	GROUP BYPASS
EB	SWINGER BYPASS
EC	ACCESS ZN SHUNT
ED	ACCESS POINT BYPASS
EE	RESERVED
EF	UNBYPASS
F0	RESERVED
F1	MANUAL TRIGGER TEST
F2	PERIODIC TEST REPORT
F3	PERIODIC RF TRANSMISSION
F4	FIRE TEST
F5	STATUS REPORT TO FOLLOW
F6	LISTEN-IN TO FOLLOW
F7	WALK TEST MODE
F8	OFF NORMAL CONDITION
F9	VIDEO TRANSMITTER ACTIVE
FA	RESERVED
FB	FIRE POINT TEST
FC	FIRE POINT NOT TESTED
FD	INTRUSION ZONE WALK TESTED
FE	FIRE ZONE WALK TESTED
FF	PANIC ZONE WALK TESTED

*   *Use only with Model SG-System III CE. SG-System III CE is not UL Listed*

B

Telco Connector Pin Outs

B
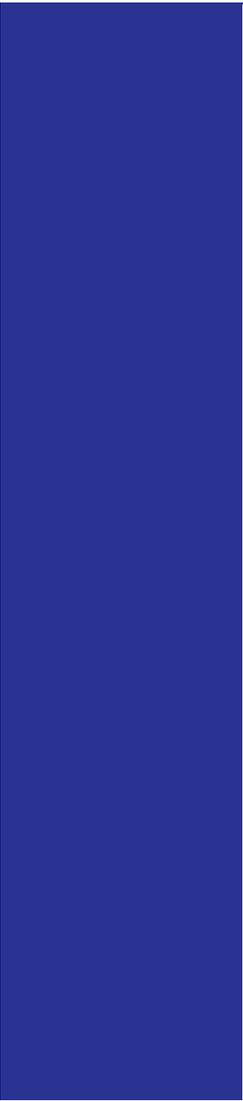
All B channels are used for 2-way audio or backup telephone line for the SG-DRL3/DRL3E.
For the SG-DRL3-2L all B channels are the second phone line input for the line card.
Pins 25,50 - Not used

| Pin		Port		Pin		Port		Pin		Port
1	26	A Tip/Ring Channel 1		9	34	A Tip/Ring Channel 5		17	42	A Tip/Ring Channel 9
2	27	B Tip/Ring Channel 1		10	35	B Tip/Ring Channel 5		18	43	B Tip/Ring Channel 9
3	28	A Tip/Ring Channel 2		11	36	A Tip/Ring Channel 6		19	44	A Tip/Ring Channel 10
4	29	B Tip/Ring Channel 2		12	37	B Tip/Ring Channel 6		20	45	B Tip/Ring Channel 10
5	30	A Tip/Ring Channel 3		13	38	A Tip/Ring Channel 7		21	46	A Tip/Ring Channel 11
6	31	B Tip/Ring Channel 3		14	39	B Tip/Ring Channel 7		22	47	B Tip/Ring Channel 11
7	32	A Tip/Ring Channel 4		15	40	A Tip/Ring Channel 8		23	48	A Tip/Ring Channel 12
8	33	B Tip/Ring Channel 4		16	41	B Tip/Ring Channel 8		24	49	B Tip/Ring Channel 12

NOTE: On the SG-BP3X the B ports are the channels used for 2-way audio or back-up telephone line; Refer to SG-DRL3 options for further information.

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C DEC-HEX-BIN Conversion Chart

C
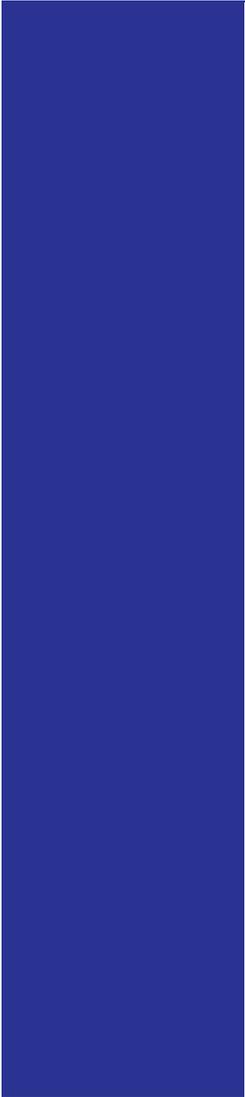
Dec	Hex	Binary	Dec	Hex	Binary
000	00	0000 0000	027	1B	0001 1011
001	01	0000 0001	028	1C	0001 1100
002	02	0000 0010	029	1D	0001 1101
003	03	0000 0011	030	1E	0001 1110
004	04	0000 0100	031	1F	0001 1111
005	05	0000 0101	032	20	0010 0000
006	06	0000 0110	033	21	0010 0001
007	07	0000 0111	034	22	0010 0010
008	08	0000 1000	035	23	0010 0011
009	09	0000 1001	036	24	0010 0100
010	0A	0000 1010	037	25	0010 0101
011	0B	0000 1011	038	26	0010 0110
012	0C	0000 1100	039	27	0010 0111
013	0D	0000 1101	040	28	0010 1000
014	0E	0000 1110	041	29	0010 1001
015	0F	0000 1111	042	2A	0001 1010
016	10	0001 0000	043	2B	0010 1011
017	11	0001 0001	044	2C	0010 1100
018	12	0001 0010	045	2D	0010 1101
019	13	0001 0011	046	2E	0010 1110
020	14	0001 0100	047	2F	0010 1111
021	15	0001 0101	048	30	0011 0000
022	16	0001 0110	049	31	0011 0001
023	17	0001 0111	050	32	0011 0010
024	18	0001 1000	051	33	0011 0011
025	19	0001 1001	052	34	0011 0100
026	1A	0001 1010	053	35	0011 0101

D ASCII Character Chart

C
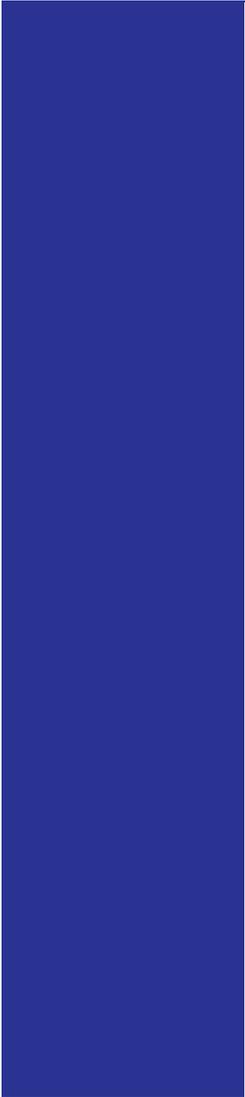
Corresponding ASCII on printer (Options [70]/[170]/[270]) Hex Character

Code	Character	Code	Character
20	Space	49	I
30	0	4A	J
31	1	4B	K
32	2	4C	L
33	3	4D	M
34	4	4E	N
35	5	4F	O
36	6	50	P
37	7	51	Q
38	8	52	R
39	9	53	S
41	A	54	T
42	B	55	U
43	C	56	V
44	D	57	W
45	E	58	X
46	F	59	Y
47	G	5A	Z
48	H	5C	\

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SG-DRL3 / SG-DRL3E / SG-DRL3-2L
Communication Formats

E
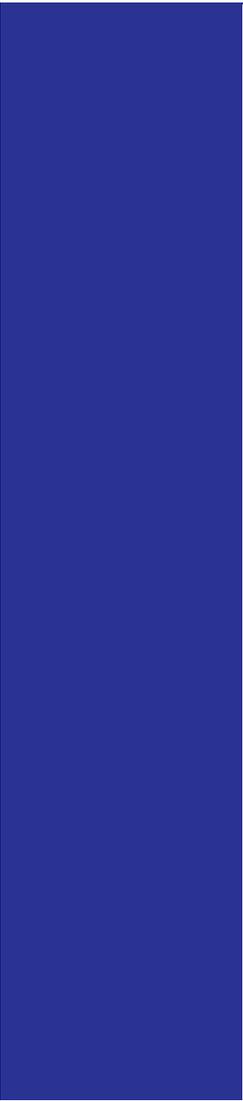
| Name	Handshake	Data	Baud	Format	Extended	Kiss Off
Acron *	1400/2300Hz	DTMF	DTMF	3/8, 4/8	NO	1400/2300Hz
Ademco Express	Dual Tone	DTMF	DTMF	4/1(option), 4/2	NO	1400Hz
Ademco Slow	1400Hz	1900Hz	10bps	3/1,4/1(or 3/2),4/2	NO	1400Hz
Ademco Slow	1400Hz	1900Hz	10bps	4/2,4/1,3/1	YES	1400Hz
Contact ID	Dual Tone	DTMF	DTMF	4/2/1/3/2/3	NO	1400Hz
Contact ID 10 Digit	Dual Tone	DTMF	DTMF	10/2/1/3/2	NO	1400Hz
FBI Super Fast	2300Hz	DTMF	DTMF	4/3/1	NO	2300Hz
Franklin	2300Hz	1800Hz	20bps	3/1,4/1(or 3/2), 4/2	NO	2300Hz
Franklin	2300Hz	1800Hz	20bps	4/2,4/1,3/1	YES	2300Hz
ITI	ITI	FSK	110/300 Baud	-	NO	ITI
Modem II	Modem II	FSK	110 Baud	FSK	NO	Modem II
Modem IIE	Modem II	FSK	300 Baud	-	NO	Modem IIE
Modem IIIa²	Modem II	FSK	300 Baud	-	NO	Modem IIIa²
Radionics	2300Hz	1800Hz	40bps	3/1,4/2	NO	2300Hz
Radionics	2300Hz	1800Hz	40bps	4/2,3/1	YES	2300Hz
Radionics	2300Hz	1800Hz	40bps	3/1+parity	NO 4/2+parity	2300Hz
Radionics	2300Hz	1800Hz	40bps	3/1+parity, 4/2+parity	YES	2300Hz
Radionics BFSK	1400Hz	FSK	42 Baud	3/2	NO	1400Hz
Radionics BFSK	2300Hz	FSK	42 Baud	3/2	NO	2300Hz
S.F. Ademco	Dual Tone	DTMF	DTMF	4/8/1	NO	1400Hz
S.F. Ademco	Dual Tone	DTMF	DTMF	4/8/1 + Checksum	NO	1400Hz
Sescoa S. Speed	2300Hz	1800Hz	40bps	4/3+Checksum	NO	2300Hz
Sescoa S. Speed	2300Hz	1800Hz	40bps	4/3+Checksum	ID O/C	2300Hz
SIA FSK Level 1, 2, and 3.	SIA	FSK	110bps/300bps	-	-	tonal, data ACK
Silent Knight Fast	1400Hz	1900Hz	14bps	3/1,4/1 (or 3/2), 4/2	NO	1400Hz
Silent Knight Fast	1400Hz	1900Hz	14bps	4/2,4/1,3/1	YES	1400Hz
Silent Knight FSK 0	1400/2300Hz	FSK	110 Baud	4/1	NO	1400/2300Hz
Silent Knight FSK1	2300Hz	FSK	110 Baud	4/2, 5/2, 6/2	NO	2300Hz
Silent Knight FSK1	1400/2300Hz	FSK	100 Baud	4/2	NO	1400/2300Hz
Silent Knight FSK2	2300Hz	FSK	110 Baud	SIA equiv.	NO	2300Hz
Silent Knight FSK2	1400/2300Hz	FSK	100 Baud	4/2	NO	1400/2300Hz
Sur-Gard	2300Hz	DTMF	DTMF	4/1,4/2,4/3	NO	2300Hz
Sur-Gard	Dual Tone	DTMF	DTMF	4/1,4/2,4/3	NO	1400Hz
Sur-Gard	2300Hz	DTMF	DTMF	4/3+Checksum	NO	2300Hz
Sur-Gard	Dual Tone	DTMF	DTMF	4/3+Checksum	NO	1400Hz
DMP Serial 1	DMP	FSK	300 Baud	DMP	NO	DMP
DMP Serial 3	DMP	FSK	300 Baud	DMP	NO	DMP
Varitech	2300Hz	FSK	110 Baud	4/1,4/2	NO	2300Hz
Scantronics	1400Hz, Dual Tone	DTMF	DTMF	4/8/1,4/16/1,2/8/1,3/8/1 6/8/1,6/16/1,2/16/1,3/16/1	NO	1400Hz
Adcor	2300Hz	Pulse	Pulse	3/1,3/2	NO	2300Hz
Westec 1,2,3,5,6	Westec	DTMF	DTMF	Westec	NO	Westec
Surtec *	Surtec	DTMF	DTMF	Surtec	NO	Surtec
CFSK Type 1*	CFSK	FSK	300 Baud	CFSK	NO	CFSK
CFSK Type 2*	CFSK	FSK	300 Baud	CFSK	NO	CFSK
CFSK Type 4*	CFSK	FSK	300 Baud	CFSK	NO	CFSK
VONK *	FSK	FSK	110bps	4/5,4/8,4/16	NO	FSK
Robofon *	Robofon	1000Hz	50bps	6/2	NO	Robofon
Outel *	1600Hz	1600Hz	10bps	2/1	NO	1600Hz
FSK 200 baud *	FSK 200	FSK	200bps	5/3	NO	FSK
Stratel *	1800Hz (3s)	DTMF	DTMF	DTMF	NO	1000 Hz (2s)
DTMF 4-2 Checksum *	1400Hz/2300Hz	DTMF	DTMF	4/2 + checksum	NO	1400/2300Hz

* Format Not UL Listed.

Ports

F
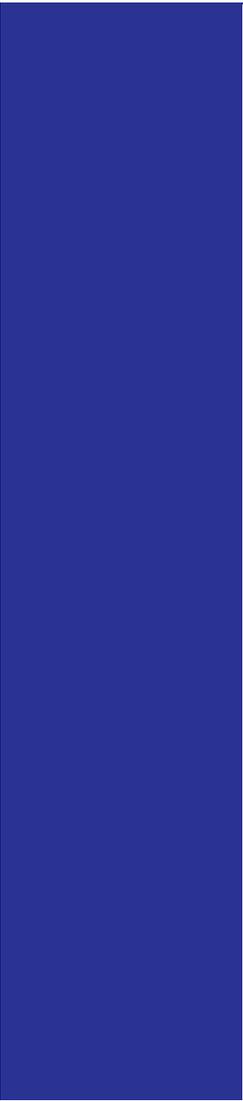
Serial Printer Port (COM2)

The serial printer port or serial computer port can be connected to a DB9 connector to act as a printer port.

*Figure 10: Printer Port*
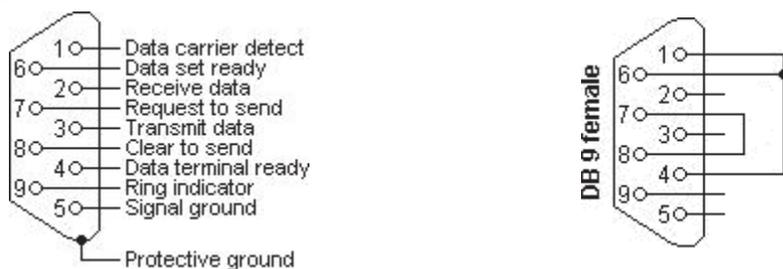
RS-232 Serial Automation

The serial automation port is used to send automation signals to the automation computer using the Sur-Gard Automation pro-tocol. Only the serial port requires RX, TX, and GRD.

RJ45 Pin no	Description in relation to SG-System I	DB9 Pin no
1	Not connected	6
2	CTS	8
3	GRD	5
4	TX	3
5	RX	2
6	DCD	1
7	RTS	7
8	Not connected	Not connected

G Events & Messages

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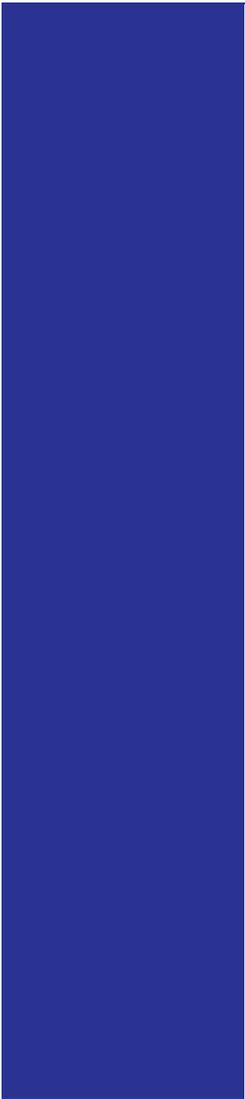
DRL3 Events & Messages

Message	Computer	Printer
Communication Fail - No Signal Send on a Call	001001[#0000|NYCssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--COMMUNICATION FAIL
Invalid Report - Bad Signal Send on a Call	001001[#0000|NYNssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--INVALID REPORT
Phone Line Trouble	001001[#0000|NLTssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--PHONE LINE TROUBLE
Phone Line Trouble Restoral	001001[#0000|NLRssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--PHONE LINE RESTORAL
Phone Line 2 Trouble	001001[#0000|NLTssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--PHONE LINE 2 TROUBLE
Phone Line 2 Trouble Restoral	001001[#0000|NLRssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--PHONE LINE 2 RESTORAL
Call has been Blocked by AHS	012345[#0000|ABLOCKEDCALL 12345 9056601075]	SG -12-345-0000--BLOCKED CALL 9056601075 12345
DSP Fault - Incorrect DSP on Power UP	001001[#0000|NYFssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--DSP FAULT
DRL-Online Timeout -Timer Expires	001001[#0000|NYSssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--DRL ON-LINE TIMEOUT
Audio Initiated	S01001[#1234|NLFssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-1234--AUDIO INITIATED
Audio Cancelled	No Automation Message	SG -01-001-1234--AUDIO CANCELLED
Line Card Coldboot	No Automation Message	SG -01-001-0000--COLDBOOT
Communication Fail - Fax Received	001001[#0000|NYCssSS*FAX*] (Where ss is shelf # and SS is slot #)	SG -01-002-0000--COMMUNICATION FAIL – FAX
Communication Fail - Due to Noise	001001[#0000|NYCssSS*NOISE*] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--COMMUNICATION FAIL - NOISE
Option has been changed	001001[#0000|NLSssSS] (Where ss is shelf # and SS is slot #)	SG -01-001-0000--Option Change
Internal Communication Error	001000[#0000|NYOssSS]	SG -01-001-0000--Internal Communication Error 3530313030312031383132333445363032333313131
Firmware Update is successful	No Automation Message	SG -01-001-0000--LC Programming
Printer Buffer Full	001001[#0000|NYB0001]	SG -01-001-0000-YB-Printer Buffer Full
Computer Buffer Full	001001[#0000|NYB0002]	SG -01-001-0000-YB-Computer Buffer Full
Software Checksum Fail	O01000[#0000|NYF0100]	SG -01-001-0000--Checksum Failed

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DRL3IP Events & Messages

Message	Computer	Printer
IP account table has been set by the console application	001001[#0000|NRB*IP.IP.IP*]	SG -01-001-0000-RB-Console Account Port Lead In
IP account table has been requested by the console application	001001[#0000|NRS*IP.IP.IP*]	SG -01-001-0000-RS-Console Account Port Lead Out
Transmitter has successful had encryption enabled (where IP is transmitters IP, and X is the transmitters account)	000001[#XXXXXXXXXX|NYZ0010]	SG -00-001-XXXXXXXXXX-YZ-*ENCRYPTION ENABLED - IP.IP.IP.IP*
The transmitter is not able to support encryption request (where IP is transmitters IP, and X is the transmitters account)	No Automation message	SG -01-001-XXXXXXXXXX--*ENCRYPTION NOT SUP-PORTED - IP.IP.IP.IP*
The transmitter is not able to support encryption request (where IP is transmitters IP, and X is the transmitters account)	No Automation message	
Transmitter has not successful had encryption enabled (where IP is transmitters IP, and X is the transmitters account)	01001[#XXXXXXXXXX|NYZ0011]	SG -01-003-XXXXXXXXXX-YZ-*ENCRYPTION SET FAIL - IP.IP.IP.IP*
Transmitter has successful had encryption disabled (where IP is transmitters IP, and X is the transmitters account)	000001[#XXXXXXXXXX|NYZ0012]	SG -00-001-XXXXXXXXXX-YZ-*ENCRYPTION DISABLED - IP.IP.IP.IP*
Transmitter has been deleted from account table (where X is the transmitters account)	000001[#XXXXXXXXXX|NJX*IP.IP.IP*]	SG -00-001-XXXXXXXXXX-JX-*Transmitter Deleted IP.IP.IP.IP*
Transmitter has been added to Account table (where X is the transmitters account)	000001[#XXXXXXXXXX|NXA*IP.IP.IP*]	SG -00-001-XXXXXXXXXX-XA-*Unknown Account IP.IP.IP.IP*
Transmitter with supervision enabled – has turned off supervision (where IP is transmitters IP, and X is the transmitters account)	001001[#XXXXXXXXXX|NYG*IP.IP.IP*]	SG -01-001-XXXXXXXXXX-YG-*Transmitter Supervision Disable IP.IP.IP.IP*
Remote shutdown has been sent to the transmitter. Where: XXXXXXXXXX is the account code of the transmitter IP.IP.IP.IP is the current IP address of the transmitter	000001[#0000000001|NYX0001]	SG -00-001-0000000001-YX-*TRANSMITTER SHUTDOWN - IP.IP.IP.IP*
Transmitter has not successful completed the shutdown command (where IP is transmitters IP, and X is the transmitters account)	001001[#XXXXXXXXXX|NYX0002	SG -01-001-XXXXXXXXXX-YX-* TRANSMITTER SHUT-DOWN FAIL IP.IP.IP.IP*
Firmware Update	No Automation message	SG -01-001-0000--LC Firmware Update Initiated
Firmware Update Failed	No Automation message	SG -00-0FF-0000--LC Firmware Update Failed
Transmitter Absent when supervised	000001[#XXXXXXXXXX|NYC*IP.IP.IP.IP*]	SG -00-001-XXXXXXXXXX-YC-*Transmitter Failure IP.IP.IP.IP*
Transmitter Restore for supervised accounts	000001[#XXXXXXXXXX|NYK*IP.IP.IP.IP*]	SG -00-001-XXXXXXXXXX-YK-*Transmitter Restoral IP.IP.IP.IP*
Transmitter Swap When the account change but MAC is the same	000001[#XXXXXXXXXX|NYS*IP.IP.IP.IP*]	SG -00-001-XXXXXXXXXX-YS-*Transmitter Swap IP.IP.IP.IP*
Invalid report when an incorrect signal is sent	000001[#XXXXXXXXXX|NYN*IP.IP.IP.IP*]	SG -00-001-XXXXXXXXXX-YN-*Invalid Report/Possible Compromise Attempt IP.IP.IP.IP*
Account Table size has been exceeded	001001[#XXXXXXXXXX|NJO*IP.IP.IP.IP*]	SG -01-001-XXXXXXXXXX-JO-*Maximum Accounts Exceeded IP.IP.IP.IP*
Option Change Message	001001[#0000|NLS0107]	SG -01-001-0000-LS-Option Change: XX YY
Console Session Denied- Incorrect Password	001000[#0000|NRD0002]	SG -01-000-0000-NRD0002-Console Session Denied
Printer Buffer Full	001001[#0000|NYB0001]	SG -01-001-0000-YB-Printer Buffer Full
Computer Buffer Full	001001[#0000|NYB0002]	SG -01-001-0000-YB-Computer Buffer Full
Computer Communication Failure	001000[#0000|NYOssSS]	SG -01-000-0000-NYOssSS-Computer: Inter-Comm Error
Printer Communication Failure	001000[#0000|NYOssSS]	SG -01-000-0000-NYOssSS-Printer: Inter-Comm Error
LC Reset	No Automation message	SG -00-0FF-0000--LC RESET by CPM

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Account table is close to Full	001001[#0000|NJL*IP.IP.IP.IP*]	SG -01-001-0000-JL-*Account table 75% full IP.IP.IP.IP*
Network Fail	001001[#0000|NNT *IP.IP.IP.IP*]	SG -01-001-0000-NR-Network Failure
Network Restore	001001[#0000|NNR*IP.IP.IP.IP*]	SG -01-001-0000-NR-Network Restoral
Line Card Power up	No Automation message	SG -01-001-0000--LC Power Up vx.xx.xx.xxx
Possible Compromise Attempt	001001[#XXXXXXXXXX|NPC*IP.IP.IP.IP*] (where IP is transmitters IP, and X is the transmitters account)	SG -01-001-XXXXXXXXXX-PC-Possible Compromise Attempt
COLDBOOT was performed by User via Debug	No Automation message	SG -01-001-0000--LC COLDBOOT by DEBUG
COLDBOOT was performed by User via Console/ LCD	No Automation message	SG -01-001-0000--LC COLDBOOT by CPM
2-Way Audio Initiated	001001[#XXXXXXXXXX|NLF*#NNNNN-NNN…*]	SG -01-001-XXXX-LF-AUDIO CALLBACK INITIATED - XXXXXXXXXXXXXXXXX

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DRL3 2L Events & Messages

Message	Computer	Printer
SG-DRL3 2L Power Up where X.XX.XXX.XXX is the software version information.	001002[#0000|NRR0101]	SG -01-002-0000-NRR0101-SG-DRL3 2L v1.20.01.010 Power Up
Channel 1 Option Change (where XX is the option #, and YY is the new option setting)	001001[#0000|NLS0101]	SG -01-001-0000-NLS0101-Option Change: C1 #XX YY (Where XX= Option # and YY=Value)
Channel 2 Option Change (where XX is the option #, and YY is the new option setting)	001002[#0000|NLS0101]	SG-01-002-0000-NLS0101-Option Change: C2 #XX YY (Where XX= Option # and YY=Value)
Option change from console where C# is the channel changed (1/2 POTS channels)	001001[#0000|NLS0101	SG -01-001-0000-NLS0101-Option Change: C# #XX 'Y' (Where XX=Option # and "Y"= Value)
Printer Buffer Full (POTS Channel)	001001[#0000|NYB0001]	SG -01-001-0000-YB-Printer Buffer Full
Computer Buffer Full (POTS Channel)	001001[#0000|NYB0002]	SG -01-001-0000-YB-Computer Buffer Full
Software Checksum Fail	O01000[#0000|NYF0100]	SG -01-001-0000--Checksum Failed
Call was blocked on channel 1 (not answered) [i]	001001[#0000|ABLOCKEDCALL 12345 9056601075]	SG -01-001-0000--BLOCKED CALL 9056601075 12345
Call was blocked on channel 2 (not answered) [ii]	001129[#0000|ABLOCKEDCALL 12345 9056601075]	SG -01-129-0000--BLOCKED CALL 9056601075 12345
Panel attempted to communicate to the linecard but data was not valid.	001001[#0000|NYN0101]	SG -01-001-0000--INVALID REPORT
Communication Fail Due to No Response from the panel. CH1	001001[#0000|NYC0101]	SG -01-001-0000--COMMUNICATION FAIL
Call failed due to detection of fax device on the call – channel 1	001001[#0000|NYCssSS*FAX*] (Where ss is the shelf # and SS is the slot #)	SG -01-001-0000--COMMUNICATION FAIL – FAX
Call failed due to detection of Noise on the call – channel 1	001001[#0000|NYC0101*NOISE*]	SG -01-001-0000--COMMUNICATION FAIL - NOISE
Communication Fail Due to No Response from the panel. CH2	001129[#0000|NYC0101]	SG -01-129-0000--COMMUNICATION FAIL
Call failed due to detection of fax device on the call – channel 2	001129[#0000|NYCssSS*FAX*] (Where ss is the shelf # and SS is the slot #)	SG -01-129-0000--COMMUNICATION FAIL – FAX
Call failed due to detection of Noise on the call – channel 2	001129[#0000|NYC0101*NOISE*]	SG -01-129-0000--COMMUNICATION FAIL - NOISE
Phone line trouble channel 1.	001002[#0000|NLT0102]	SG -01-002-0000--PHONE LINE TROUBLE
Phone line restore channel 1 primary.	001002[#0000|NLR0102]	SG -01-002-0000--PHONE LINE RESTORAL
Phone line trouble channel 2.	001129[#0000|NLT0101]	SG -01-129-0000--PHONE LINE 2 TROUBLE
Phone line restore channel 2.	001129[#0000|NLR0101]	SG -01-129-0000--PHONE LINE 2 RESTORAL
DSP fault channel 1	001001[#0000|NYF0101]	SG -01-001-0000--DSP FAULT
DSP fault channel 2	001129[#0000|NYF0101]	SG -01-129-0000--DSP FAULT
Communication on-line timeout Channel 1	001001[#0000|NYS0101]	SG -01-001-0000--DRL ON-LINE TIMEOUT
Communication on-line timeout Channel 2	001129[#0000|NYS0101]	SG -01-129-0000--DRL ON-LINE TIMEOUT
Two Way Audio Initiated – channel 1 - where XXXX is the account code entering two way communication	S01001[#1234|NLF0101]	SG -01-001-1234--AUDIO INITIATED
Two Way Audio Initiated – channel 2 - where XXXX is the account code entering two way communication	S01129[#1234|NLF0101]	SG -01-129-1234--AUDIO INITIATED
Two Way Audio Cancelled – channel 1	No Automation message	SG -01-001-1234--AUDIO CANCELLED
Two Way Audio Cancelled – channel 2	No Automation message	SG -01-129-1234--AUDIO CANCELLED
COLDBOOT was performed by System	No Automation message	SG -01-001-0000--LC Coldboot by CPM
Reset by console	No Automation message	SG -01-001-0000--LC Reset by CPM
Reset by User	No Automation message	SG -01-001-0000--LC Reset by DEBUG
Firmware update has been started via USB port	No Automation message	SG -01-002-0000--LC Firmware Update Initiated (USB)

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Firmware update has failed	No Automation message	SG -01-000-0000--LC Firmware Update Failed
GET DNIS Table	No Automation message	SG -01-002-0000--GET DNIS Table
SET DNIS Table	No Automation message	SG -01-002-0000--SET DNIS Table
Line Card Default By Console	No Automation message	SG -01-001-0000--LC Coldboot by CPM
Computer Communication Failure	001000[#0000|NYOssSS]	SG -01-000-0000-NYOssSS-Computer: Inter-Comm Error
Printer Communication Failure	001000[#0000|NYOssSS]	SG -01-000-0000-NYOssSS-Printer: Inter-Comm Error

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CPM3 Events & Messages

Message	Computer	Printer
Shelf 1 PSU3 Failure	001000[#0000|NAT0000]	SG -01-000-0000-NAT0000-PSU 1 Failed
Shelf 1 PSU3 Restoral	001000[#0000|NAR0000]	SG -01-000-0000-NAR0000-PSU 1 Restored
Shelf 2 PSU3 Failure	001000[#0000|NAT0001]	SG -01-000-0000-NAT0001-PSU 2 Failed
Shelf 2 PSU3 Restoral	001000[#0000|NAR0001]	SG -01-000-0000-NAR0001-PSU 2 Restored
PSU3 Inter-Connect Cable Failure	001000[#0000|NAT0100]	SG -01-000-0000-NAT0100-PSU Cable Failed
PSU3 Inter-Connect Cable Restoral	001000[#0000|NAR0100]	SG -01-000-0000-NAR0100-PSU Cable Restored
DC/DC3 A Shelf 1 Failure	001000[#0000|NYP0100]	SG -01-000-0000-NYP0100-DCA 1 Failed
DC/DC3 A Shelf 1 Restoral	001000[#0000|NYR0100]	SG -01-000-0000-NYR0100-DCA 1 Restored
DC/DC3 B Shelf 1 Failure	001000[#0000|NYP0101]	SG -01-000-0000-NYP0101-DCB 1 Failed
DC/DC3 B Shelf 1 Restoral	001000[#0000|NYR0101]	SG -01-000-0000-NYR0101-DCB 1 Restored
DC/DC3 A Shelf 2 Failure	001000[#0000|NYP0200]	SG -01-000-0000-NYP0200-DCA 2 Failed
DC/DC3 A Shelf 2 Restoral	001000[#0000|NYR0200]	SG -01-000-0000-NYR0200-DCA 2 Restored
DC/DC3 B Shelf 2 Failure	001000[#0000|NYP0201]	SG -01-000-0000-NYP0201-DCB 2 Failed
DC/DC3 B Shelf 2 Restoral	001000[#0000|NYR0201]	SG -01-000-0000-NYR0201-DCB 2 Restored
Fan Circuit Shelf 1 Failure	001000[#0000|NYX0100]	SG -01-000-0000-NYX0100-Fan Circuit 1 Failed
Fan Circuit Shelf 1 Restoral Fan	001000[#0000|NYZ0100]	SG -01-000-0000-NYZ0100-Fan Circuit 1 Restored
Fan Circuit Shelf 2 Failure Fan	001000[#0000|NYX0200]	SG -01-000-0000-NYX0200-Fan Circuit 2 Failed
Fan Circuit Shelf 2 Restoral Fan	001000[#0000|NYZ0200]	SG -01-000-0000-NYZ0200-Fan Circuit 2 Restored
TCP/IP Shelf 1 Printer Failure	001000[#0000|NVZ0100]	SG -01-000-0000-NVZ0100-TCP/IP 1 Printer Failed
TCP/IP Shelf 1 Printer Restoral	001000[#0000|NVY0100]	SG -01-000-0000-NVY0100-TCP/IP 1 Printer Restored
TCP/IP Shelf 2 Printer Failure	001000[#0000|NVZ0200]	SG -01-000-0000-NVZ0200-TCP/IP 2 Printer Failed
TCP/IP Shelf 2 Printer Restoral	001000[#0000|NVY0200]	SG -01-000-0000-NVY0200-TCP/IP 2 Printer Restored
Parallel Shelf 1 Printer Failure	001000[#0000|NVZ0101]	SG -01-000-0000-NVZ0101-Parallel 1 Printer Failed
Parallel Shelf 1 Printer Restoral	001000[#0000|NVY0101]	SG -01-000-0000-NVY0101-Parallel 1 Printer Restored
Parallel Shelf 2 Printer Failure	001000[#0000|NVZ0201]	SG -01-000-0000-NVZ0201-Parallel 2 Printer Failed
Parallel Shelf 2 Printer Restoral	001000[#0000|NVY0201]	SG -01-000-0000-NVY0201-Parallel 2 Printer Restored
Serial Shelf 1 Printer Failure	001000[#0000|NVZ0102]	SG -01-000-0000-NVZ0102-Serial 1 printer Failed
Serial Shelf 1 Printer Restoral	001000[#0000|NVY0102]	SG -01-000-0000-NVY0102-Serial 1 printer Restored
Serial Shelf 2 Printer Failure	001000[#0000|NVZ0202]	SG -01-000-0000-NVZ0202-Serial 2 printer Failed
Serial Shelf 2 Printer Restoral	001000[#0000|NVY0202]	SG -01-000-0000-NVY0202-Serial 2 printer Restored
SG-TCP/IP Shelf 1 Failure	001000[#0000|NNT0100]	SG -01-000-0000-NNT0100-SG-TCP/IP 1 Failed
SG-TCP/IP Shelf 1 Restoral	001000[#0000|NNR0100]	SG -01-000-0000-NNR0100-SG-TCP/IP 1 Restored
SG-TCP/IP Shelf 2 Failure	001000[#0000|NNT0200]	SG -01-000-0000-NNT0200-SG-TCP/IP 2 Failed
SG-TCP/IP Shelf 2 Restoral	001000[#0000|NNR0200]	SG -01-000-0000-NNR0200-SG-TCP/IP 2 Restored
SG-Serial Shelf 1 Failure	001000[#0000|NYC0101]	SG -01-000-0000-NYC0101-SG-SERIAL 1 Failed
SG-Serial Shelf 1 Restoral	001000[#0000|NYK0101]	SG -01-000-0000-NYK0101-SG-SERIAL 1 Restored
SG-Serial Shelf 2 Failure	001000[#0000|NYC0201]	SG -01-000-0000-NYC0201-SG-SERIAL 2 Failed
SG-Serial Shelf 2 Restoral	001000[#0000|NYK0201]	SG -01-000-0000-NYK0201-SG-SERIAL 2 Restored

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Switch Into Active Mode	001000[#0000|NSC0003]	SG -01-000-0000-NSC0003-Switching To Active Mode
Switch To Manual Mode	001000[#0000|NSC0000]	SG -01-000-0000-NSC0000-Switching To Manual Mode
Switch To Normal Mode	001000[#0000|NSC0003]	SG-01-000-0000-NSC0003-Switching To Normal Mode
Switch To Standby Mode	001000[#0000|NSC0002]	SG -01-000-0000-NSC0002-Switching To Standby Mode
Line Card Absent	001000[#0000|NYDssSS] (Where ss=Shelf and SS=Slot)	SG -01-000-0000-NYDssSS-Line Card Absent (Where ss=Shelf and SS=Slot)
Line Card Restored	001000[#0000|NYEssSS] (Where ss=Shelf and SS=Slot)	SG -01-000-0000-NYEssSS-Line Card Restored (Where ss=Shelf and SS=Slot)
Internal Communication Error (Computer)	001000[#0000|NYOss00]	SG-01-000-0000-NYOss00-Computer: Inter-Comm. Error
Internal Communication Error (Printer)	001000[#0000|NYOss00]	SG-01-000-0000-NYOss00-Printer: Inter-Comm. Error
Internal Communication Error (Console)	001000[#0000|NYOss00]	SG-01-000-0000-NYOss00-Console: Inter-Comm. Error
Primary CPM3 Failure	001000[#0000|NYX0001]	SG -01-000-0000-NYX0001-Primary CPM3 Failure
Primary CPM3 Restoral	001000[#0000|NRR0001]	SG -01-000-0000-NRR0001-Primary CPM3 Restore
Secondary CPM3 Failure	001000[#0000|NYX0002]	SG -01-000-0000-NYX0002-Secondary CPM3 Failure
Secondary CPM3 Restoral	001000[#0000|NRR0002]	SG -01-000-0000-NRR0002-Secondary CPM3 Restore
Shelf 1 UPS AC Fail (PGM In)	001000[#0000|NAT0102]	SG -01-000-0000-NAT0102-UPS AC 1 Failed
Shelf 1 UPS AC Restored	001000[#0000|NAR0102]	SG -01-000-0000-NAR0102-UPS AC 1 Restored
Shelf 1 UPS Low Battery Restore	001000[#0000|NYR0102]	SG -01-000-0000-NYR0102-UPS Battery 1 Restored
Shelf 1 UPS Low Battery	001000[#0000|NYT0102]	SG -01-000-0000-NYT0102-UPS Battery 1 Low
Shelf 1 PSC Failure	001000[#0000|NAT0002]	SG-01-000-0000-NAT0002-PSC 1 Failed
Shelf 1 PSC Restoral	001000[#0000|NAR0002]	SG-01-000-0000-NAR0002-PSC 1 Restored
Shelf 2 PSC Failure	001000[#0000|NAT0003]	SG -01-000-0000-NAT0003-PSC 2 Failed
Shelf 2 PSC Restoral	001000[#0000|NAR0003]	SG-01-000-0000-NAR0003-PSC 2 Restored
Shelf 2 UPS AC Fail (PGM In)	001000[#0000|NAT0202]	SG -01-000-0000-NAT0202-UPS AC 2 Failed
Shelf 2 UPS AC Restored	001000[#0000|NAR0202]	SG -01-000-0000-NAR0202-UPS AC 2 Restored
Shelf 2 UPS Low Battery Restore	001000[#0000|NYR0202]	SG -01-000-0000-NYR0202-UPS Battery 2 Restored
Shelf 2 UPS Low Battery (PGM in)	001000[#0000|NYT0202]	SG -01-000-0000-NYT0202-UPS Battery 2 Low
Console Session Denied CPM3 Primary	001000[#0000|NRD0001]	SG -01-000-0000-NRD0001-Console Session Denied
Console Session Denied CPM3 Secondary	001000[#0000|NRD0002]	SG -01-000-0000-NRD0002-Console Session Denied
Option Change	001000[#0000|NLS0101]	SG -01-000-0000-NLS0101-Option Change: C0
Automation Time & Date Update Failed	001000[#0000|NRU0000]	SG-01-000-0000-NRU0000-Time&Date Update Fail
AHS Database Full	No Automation Message	SG-01-000-0000--CPM AHS Database Full
Reset fallback	001000[#0000|NYY0000]	SG -01-000-0000-NYY0000-Reset SG-Fallback Initiated
SG-CPM3 Power Up where X.XX.XXX.XXX is the software version information. (System III only) -Primary	001000[#0000|NRR0001]	SG -01-000-0000-NRR0001-Primary CPM3 v2.02.01.001 Power Up
SG-CPM3 Power Up where X.XX.XXX.XXX is the software version information. (System III only) -Secondary	001000[#0000|NRR0002]	SG -01-000-0000-NRR0002-Secondary CPM3 v2.02.01.001 Power Up
License key entered is incorrect	No Automation Message	SG -01-000-0000--Invalid License Key
Get AHS Table	No Automation Message	SG -01-000-0000--GET AHS Table
SET AHS TABLE	No Automation Message	SG -01-000-0000--SET AHS Table
AHS FLASH START(ACTIVE CPM)	No Automation Message	SG -01-000-0000--AHS Flash Start (ACTIVE)
AHS FLASH START(STANDBY CPM)	No Automation Message	SG -01-000-0000--AHS Flash Start (STANDBY)

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AHS FLASH DONE(ACTIVE CPM)	No Automation Message	SG -01-000-0000--AHS Flash Done (ACTIVE)
AHS FLASH DONE(STANDBY CPM)	No Automation Message	SG -01-000-0000--AHS Flash Done (STANDBY)
RESET BY CONSOLE	No Automation Message	SG -01-000-0000--RESET by CONSOLE
Invalid Password to Enter LCD Program	001000[#0000|NLX0000]	SG -01-000-0000-NLX0000-User:0 Local Programming Denied
Local Programming Begin via LCD	001000[#0000|NLB0000]	SG -01-000-0000-NLB0000-User:0 Local Programming Begins
Local Programming End via LCD	001000[#0000|NLD0000]	SG -01-000-0000-NLD0000-User:0 Local Programming Ended
Manual Mode Message Ack By User	No Automation Message	SG -01-000-0000--01/00-0000-NSC0000-Switching To Manual Mode-Acknowledged by User 0

H Glossary

H

Account	The portion of a signal which contains the information identifying the location or the owner of the alarm panel. Also referred to as account number, account code or account digits.
Acknowledgement (ACK)	A signal sent from the receiver to the panel indicating that data has been received. A positive acknowledgement (ACK) means data was received without any detected errors. (see kiss-off). A negative acknowledgement (NAK) means data was received, but there were detected errors. An acknowledgement may be sent per packet or per alarm.
AHS	**Automatic Handshake Selection**. Refers to the receiver feature which enables the line card to request the handshake to be used with a particular panel from the CPM. The CPM maintains a database of most recently used handshakes for all accounts connected to the receiver. Handshakes are stored along with the phone number of the associated alarm panel.
Alarm	A message transmitted from the panel to the receiver containing account, event, zone, user or other information. There may be one or more per call. An alarm may be repeated in the same call (if not successfully delivered in a previous attempt). An alarm will contain one or more packets. Packets can contain rounds or different information. Alarm transmission is initiated with a handshake and, if received correctly, acknowledged with a kiss-off.
ANI	**Automatic Number Identification**.
ASCII	**America Standard Code for Informational Interchange**. A seven-bit alphanumeric code used extensively in data communications. Parity is often added to the seven-bit code for error detection.
Automation	The combination of software package and PC which connects to the receiver to receive alarm events. The automation can be connected either by direct serial connection or TCP.
Automation Message	The alarm information delivered by a receiver in a specified protocol to a central station computer or network. Also referred to as a computer message
Backplane	See SG-BP3X.
Block	A group of data that specifically makes up one of the elements of an alarm. For example: account block, event block, or alarm block. One packet could contain multiple blocks.
Busy Out	A state of a line card. Under predefined criteria the line card will go off-hook so as to not process any new alarms.
Call	The process of a receiver going off-hook, receiving one or more alarms and returning on-hook.
Caller ID	An FSK format received by the line card. This format can be received prior to sending the handshakes. The Caller ID data can be used by the receiver to provide additional information to all alarms received during a call.
Capture	The ability of a receiver to store commands sent to the panel from the automation computer after all of the alarms have been sent from the panel to the receiver.
Centronics	A parallel printer interface standard. Also known as standard IEEE1284. A centronics interface is implemented on the SG-CPM3 (through the backplane) to interface to the local parallel printer.
Checksum	Additional data added to an alarm indicating whether the contents have been received correctly. This is generally done by summing all the digits in the message (mod 256) and reporting this as the checksum. Different methods of calculating a checksum may be specified in particular formats or protocols.
C.L.A.S.S.	**Custom Local Area Signaling Services**. This term is used in the telephone industry to represent all features of a telephone line, such as Caller -ID, Call Forwarding, 3-Way Calling etc.

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Client	One side of a 2-sided TCP socket connection. The client is the one responsible for initiating the socket connection with the remote host (the server). The console represents the client side of the socket connection with the SG-CPM3.
Computer Message	See Automation Message.
Console	A PC application program which can connect to the receiver and provide diagnostic/programming abilities to the user. For the SG-System III, the console connects to the SG-CPM3 via TCP/IP. Visit the Tyco website (www.tyco.com) for the latest version.
Dialer	Another name for a control panel.
DNIS	Dialed Number Identification Service.
DTMF	**Dual Tone Multiple Frequency**. A method of dialing which utilizes 2 sets of 4 tones (frequencies) each. Selecting one tone from each set will produce 16 distinct pairs. These pairs are used to dial digits when dialing a telephone number.
Ethernet	A network protocol which encompasses the lowest logical layer of the network stack, immediately above the physical layer. This protocol is governed by the IEEE and is outlined in the IEEE802.3 specification. Ethernet consists of several variations, including 10Base2, 10Base5, 10BaseT, 100BaseT, and others. 10BaseT and 100BaseT are the most prevalent.
Equivalent Line Number	An option in the receiver. By default printer and computer messages will contain the line card number. Sometimes it is necessary to output the printer and computer messages with a different line card number; in this case this option can be used to overwrite the line card number in the printer and computer outputs of the receiver.
Event	The specific type of alarm being reported by the panel.
Event Code	A term used to describe a character or group of characters in an automation output. This character(s) is used to represent the event that was reported by the panel. Example 1:Sur-Gard automation reports an alarm event using an event code of 'A', Restore as 'R', or Trouble as 'T'. Example 2: Sur-Gard automation reports using a SIA output for a burglary alarm using an event code of 'BA'.
FES	**Format Expert Systems**. The name given to a receiver task which performs the basic functions of: 1. sending handshakes; 2. detecting the format from the panel; 3. processing the alarm from the panel; 4. sending a kiss-off to the panel.
Format	The pre-established order of events and meanings of the various characters in an alarm transmitted from a panel to a receiver.
FSK	**Frequency Shift Keying**. A modulation technique used with low-speed modems (300 to 1800 bps). The carrier frequency is shifted between two discrete frequencies in accordance with the binary serial data.
Handshake	A signal sent by the receiver to a panel indicating that a connection has been established. These are either tones or modem data.
Heartbeat	A periodic signal sent from the automation outputter tasks to the automation software to verify the presence of that output. The period of this heartbeat is controlled via an option in the SG-CPM3. Alternatively, the heartbeat refers to the signal sent between SG-CPM3s to verify the presence/absence of each other.
Hook Flash	The process of the receiver going temporarily off-hook, usually in an attempt to transfer the phone call.
Hot-Swappable	Refers to the ability to add or remove particular cards to or from the system without removing power. In the SG-System III, the SG-CPM3, SG-DRL3, SG-DC/DC3 and SG-PSC3 are all fully hot-swappable.

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HTTP	**Hypertext Transfer Protocol**. A higher level protocol within the TCP/IP suite of protocols which is responsible for implementing web browsers. This is the protocol implemented by the SG-CPM3 to enable the web interface to function.
IEEE 1284	See Centronics.
IEEE 802.3	See Ethernet.
Inter-burst Time	A term for the reception of pulse formats. The time between two bursts.
Inter-digit Time	A term used for reception of pulse or DTMF formats. The time between two digits.
Internal Trouble	A trouble condition which is generated inside a receiver, as opposed to being sent as an alarm from the panel. Internal troubles are also sent to the printer and automation outputs.
Kiss-off	A term used in the security industry for a positive acknowledgement.
Line	An individual channel on a line card. Equivalent to 1 telephone line.
Line Card	A removable, hot-swappable card which contains a POTS line interface which controls 1 or more POTS lines. For SG-System III, each line card (SG-DRL3) will interface to 1 line.
Line Conditioning	Electrical compensation for attenuation and phase delay distortion exhibited by the PSTN. Conditioning is performed through the use of an equalizer.
MAC Address	**Media Access Control**. A globally unique device 6-byte address which identifies a device attached to an Ethernet network. Assignment of MAC addresses is governed by the IEEE; any OEM company which manufactures Ethernet devices must apply for and purchase an OUI (**Organizationally Unique Identifier**), which consists of a block of 16,777,216 MAC addresses, all of which have the same first 3 bytes. Subsequent allocation of addresses within that block is at the discretion of the purchaser. Each Ethernet device produced must be programmed with a different MAC address in order to guarantee that each device will function correctly on the network. For the SG-System III, the MAC address is stored in serial EEPROM on the SG-CPM3 board. It is only programmable during manufacturing.
MPC860	The Power PC microprocessor used as the main processor on the SG-CPM3 board.
Multidrop	A communication link in which a single channel is shared by several stations or nodes (DVACS is a Multidrop network). Only one station may transmit at a time. Multidrop is also referred to as multipoint.
Negative Acknowledgement (NAK)	See acknowledgement.
Off-Hook	The process of connecting to the telephone line to answer an incoming call or dial a remote device (answering).
On-Hook	The process of releasing the telephone line after completion of a call (hanging up).
Options	A set of user-configurable parameters which controls the operation of a device. In the SG-System III, both the SG-DRL3 and the SG-CPM3 contain sets of options. **Static** options are affect all Profiles on a card. **Dynamic** options are unique to each profile.
Packet	A group of digits or characters of information in an alarm.
Panel	A device (the alarm system) at the protected premises used to transmit alarms to the receiver.

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Ping	A standard network command which can be used to verify the presence of a device on a network, using the device IP address. Ping is implemented as part of the ICMP protocol and consists of the Echo Request and Echo Reply commands (poll and response respectively).
POTS	**Plain Old Telephone System**. An acronym used to describe a standard analog telephone network, or alternatively a standard analog telephone line.
Printer Message	The alarm information delivered by a receiver to a central station printer. This information is generally encapsulated in a descriptive English text message.
Profile	Generally refers to a group of options. The receiver can select a "profile" based on certain conditions.
Protocol	The pre-established order of events and meanings of the various characters in the information transmitted from a receiver to a monitoring computer.
PSTN	**Public Switched Telephone Network**. Analogous to POTS.
Receiver	The equipment used to receive alarms sent from panels. Sur-Gard's receivers are the SLR and the MLR. 'Receiver' is sometimes used interchangeably with 'line card' as it is the line card which actually receives the alarm in the MLR.
Ring	One of the wires used on a phone line. By convention this is red.
Rounds	Two or more packets of alarm information used for error checking. If two packets (rounds) are identical the packet contains valid data.
RRLLL	The part of the automation message which stores the receiver number and line card number. The length of this field is variable and is controlled via an option in both the line card and the SG-CPM3.
RS-232	An asynchronous, point-to-point serial communications protocol. Used to communicate between the SG-DRL3 and a PC for the SG-DRL3's debug output. Also used to communicate between the SG-CPM3 and the automation computer, and the SG-CPM3 and a PC for the SG-CPM3's debug output.
Server	One side of a 2-sided TCP socket connection. The server is the one responsible for receiving the socket connection with the remote host (the client). In general, a host which acts as a server can receive multiple client socket connection requests simultaneously. The SG-CPM3 acts as a server to both the console and the web interface.
SG	Sur-Gard, a brand name of DSC. Also used to describe a particular type of automation output.
SG-BP3	A motherboard-style PCB which acts as the backbone for a single shelf of a SG-System III receiver. The SG-BP3 contains sockets to which up to 12 SG-DRL3s, 1 SG-CPM3, 1 SG-PSC3 and 2 SG-DC/DC3s can be connected. Furthermore, 2 SG-BP3s can be connected together to form a 2-shelf configuration for the SG-System III receiver. The SG-BP3 also contains connections for a parallel printer and 2 serial automation COM ports, as well as an Ethernet connection. Also referred to as a backplane.
SG-BP3X	Rack mount module that converts 50 pin telco connections to 24 individual RJ11 connections.
SG-CPM3	Central Processing Module. The SG-CPM3 controls the overall operation of the SG-System III receiver, which includes multiplexing alarm signals from the line cards and sending them to the appropriate outputs.
SG-DC/DC3	The DC power supply of the SG-System III receiver.
SG-DRL3	POTS Receiver Line Card.
SG-DRL3E	Updated DRL3 platform based on the DRL3-2L.
SG-DRL3-IP	IP based line card.

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SG-DRL3-2L	Dual POTS Line Digital Receiver Line Card.
SG-MLRF3	The metal rack which is used to enclose all other modules within a single shelf of the SG-System III receiver.
SG-PSC3	Power Supply Controller.
SG-PSU3	Power Supply Unit.
SG-System III	Name given to a single entire receiver configuration, including rack, SG-CPM3(s), line card(s), power supply, etc.
SG-UIB3	User Interface Board. An L-shaped board which connects to the SG-CPM3 and contains output LEDs and 4 push buttons used for the user interface. This board also connects directly to the LCD screen.
SIA	**Security Industry Association**. Sometimes referred to as the SIA format which is an example of FSK modulation.
TCP/IP	**Transmission Control Protocol/Internet Protocol**. A standard network communications protocol. On the SG-System III, TCP/IP is used to communicate between the console and the SG-CPM3. It is also used to connect the SG-CPM3 to a TCP printer (resident on the console) and TCP automation software (runs independent of the console).
Tip	One of the wires used on a phone line. By convention this is green.
Zone	The portion of an alarm which contains the information identifying the specific zone of the panel that has been violated.

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FCC Compliance Statement

CAUTION: Changes or modifications not expressly approved by Digital Security Controls could void your authority to use this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Re-orient the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/television technician for help.

The user may find the following booklet prepared by the FCC useful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402, Stock # 004-000-00345-4.

Important Information

This equipment complies with Part 68 of the FCC Rules and the requirements adopted by the ACTA. On the side of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the Telephone Company.

SG-DRL3 Line Card
Product Identifier: US:F53AL03BSYSTEMIII
SG-DRL3-2L Line Card
Product Identifier: US:F53AL02BDRL342L
SG-DRL3E/SG-DRL3E-2L Line Card
Product Identifier: US:F53AL01BDRL34E2L
USOC Jack: RJ-21X

Telephone Connection Requirements

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer Equivalence Number (REN) The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format.

US: AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Incidence of Harm If this equipment SG-SYSTEM III causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Changes in Telephone Company Equipment or Facilities The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Equipment Maintenance Facility If trouble is experienced with this equipment SG-SYSTEM III, for repair or warranty information, please contact the facility indicated below. If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is solved. This equipment is of a type that is not intended to be repaired by the end user.

DSC c/o APL Logistics
757 Douglas Hill Rd
Lithia Springs, GA, 30122 U.S.A.

Additional Information Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

Alarm dialing equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system, computer modem, etc.) already has the telephone line in use. To do so, alarm dialing equipment must be connected to a properly installed RJ31X jack that is electrically in series with and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the figure below. If you have any questions concerning these instructions, you should consult your telephone company or a qualified installer about installing the RJ31X jack and alarm dialing equipment for you.

Customer Premises Equipment and Wiring
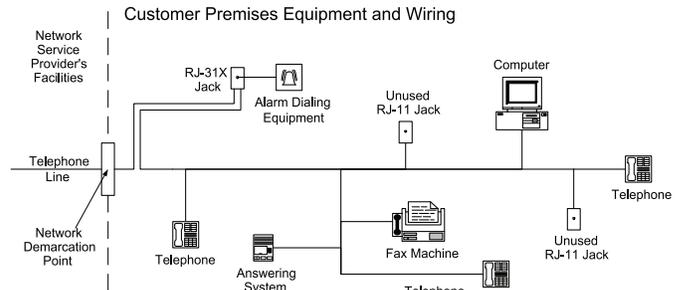
Industry Canada Statement

SG-DRL3	IC:160A-SYSTEM3
SG-DRL3-2L	IC:160A-DRL342L
SG-DRL3E/SG-DRL3E-2L	IC:160A-DRL34E2L

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

NOTICE: The Ringer Equivalence Number (REN) for this terminal is 01 when using line card model SG-DRL3, or 02 when using line card Model SG-DRL3/SG-DRL3E/SG-DRL3E-2L. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.