



system five

November 21, 2014:

- Added 3G4000 and 3G4000RF to UL/ULC listed transmitters in section 2.2.1
- Removed “FM approved” from section 2.3.1
- Added warning label to section 3.1 in figures 3-2 and 3-3
- Added “This equipment shall be operated by SERVICE PERSONS only within RESTRICTED ACCESS LOCATIONS; refer to this Operating Manual for all the Safety Instructions.” to section 3.1
- Updated SG-SVLFANTR, SG-SVCFANTR and SG-SVSERCAB to SG-S5LFANTR, SG-S5CFANTR and SG-S5SERCAB throughout manual.



SG-System 5 v1.0 Operating Manual

NOTE: This manual contains information regarding product use and function, in addition to manufacturer liability and restrictions pertaining to it. The entire manual should be read carefully.

1.0 Table of Contents

1.0 Table of Contents	2
2.0 Introduction	6
2.1 SG-System 5 Overview	7
2.1.1 CPM Redundancy	7
2.1.2 Diagrams	7
2.1.3 Description	9
2.1.4 Specifications	9
2.2 System Features	9
2.2.1 SG-System 5	9
2.2.2 Visual Verification	10
2.3 Approvals	10
2.3.1 Industry Approvals	10
2.3.2 UL864 Programming Requirements	11
2.3.3 Printers	11
Serial Printer	11
TCP/IP Printer	12
SG-Systems Console Software System Requirements	12
2.3.4 UL Manual Mode	12
2.3.5 SG-System 5 Power Limited Circuit Separation	12
3.0 Receiver Setup and Operation	14
3.1 SG-System 5 Quick Install Guide	15
3.1.1 Receiver Installation	17
3.1.2 SG-CPM5 LEDs	19
4.0 Hardware Descriptions and Specifications	20
4.1 SG-MLRF5	21
4.1.1 SG-MP5 Midplane	21
4.1.2 SG-S5CFANTR – SG-CPM5 Fan Tray	21
4.1.3 SG-MLRF5-RM – Mounting Rails	22
4.2 SG-CPM5 - Central Processing Module	22
4.2.1 SG-CPM5 LEDs	24
4.2.2 SG-CPM5 I/O Terminal Pin-Outs	25
4.2.2.1 UPS AC Failure – Pin 1	25
4.2.2.2 UPS DC Failure – Pin 3	25
4.2.2.3 Remote ACK – Pin 4	25
4.2.2.4 Buzzer Follow Output – Pin 7	25
4.2.2.5 Trouble Status Output – Pin 9	25
4.2.2.6 Network Status Output – Pin 11	26
4.2.3 SG-CPM5 Setup	26
4.2.3.1 Connecting the SG-CPM5 Fan Cable	26
4.2.3.2 Y-Cable	26
4.2.3.3 RTC Battery	26
4.2.3.4 EMMC Memory	26
4.2.3.5 DDR3 Memory	27
4.2.3.6 SD Card	27
4.2.4 SG-CPM5BATT - RTC Battery	27
4.2.5 SG-S5SERCAB - Y-Cable	28
4.2.5.1 Maximum Connected Cable Length	29
4.2.6 SG-CPM5 Fan Tray Replacement	29
4.2.7 UPS Setup	30
4.2.8 SG-SYS5EBUS Setup	31
4.3 SG-DRL5-IP - IP Line Card	31
4.3.1 SG-DRL5-IP Configurations	32
SG-DRL5-IP STD	32
SG-DRL5-IPF	32
SG-DRL5-IPE	32
4.3.2 SG-DRL5-IP LED Status Indicators	32
4.3.2.1 Network Fault	33
4.3.2.2 Invalid Report Condition	33
4.3.2.3 SG-CPM5 Absent	33
4.3.2.4 Ethernet Interface	33

4.3.2.5 Supervised Receiver Database	33
4.3.2.6 Profiles	34
4.3.2.7 Rules For Account Table Exceeded Messages	34
4.3.3 SG-DRL5-IP Setup	34
4.3.3.1 Line Card Fan Tray Installation	34
4.3.3.2 Paddle Card Installation	35
4.3.3.3 EMMC Memory	35
4.3.3.4 DDR3 Memory	36
4.3.3.5 SD Card	36
4.4 SG-DRL5-IP PAD – SG-DRL5-IP Paddle Card	37
4.5 SG-S5LFANTR – Line Card Fan Tray	37
4.6 SG-PSU5-600 - 600W Power Supply	37
4.6.1 SG-PSU5-600 Installation	38
4.7 SG-UIB5 - User Interface	39
4.7.1 SG-UIB5(LCD) Replacement	39
4.8 SG-SYS5MEM4 - Expandable EMMC	40
4.9 SG-SYS5DDR31 - DDR3 1GB RAM	41
4.10 SD Card	41
5.0 Operation	42
5.1 Basic Operation	43
5.1.1 Connectivity	43
5.1.2 SG-Systems Console Software	43
5.1.2.1 Visual Verification	43
5.1.2.1.1 Connectivity	43
5.1.2.1.2 Functionality	43
5.1.2.1.3 Header File	43
5.1.2.1.4 Unique ID	43
5.1.2.1.5 Automation and Printer messages	43
5.1.2.1.6 ACK	43
5.1.2.1.7 NACK from the Console or Automation Software	43
5.1.2.1.8 NACK from the Receiver	44
5.1.2.1.9 No Response from the Console software	44
5.1.2.1.10 No Response from the Receiver	44
SG-DRL5-IP – Visual Verification	44
SG-CPM5 - SG Visual commands	44
5.1.2.2 Advanced Output Protocol Specification	44
5.2 Printer	44
5.2.1 Introduction	44
5.2.2 TCP/IP	44
5.2.3 Serial	45
5.3 Automation	45
5.3.1 Automation Input/Output	45
5.3.2 Automation Compatibility	45
5.3.3 Automation Protocols	46
5.3.4 Acknowledgment of the Signal	46
5.3.5 COM Responses	46
5.3.6 Automation Absent	46
5.3.7 SIA Internal Status Output	46
5.3.8 Line card Addressing	47
5.4 Operation - LCD User Interface	47
5.4.1 Bootup	47
5.4.2 Calibration	47
5.4.3 Home Screen	48
5.4.3.1 Status Banner	48
5.4.3.2 Type - Unit IP	49
5.4.3.3 Active Mode	49
5.4.3.3.1 SG-TCP	49
5.4.3.3.2 SG- SERIAL	49
5.4.3.3.3 SG-ALL	49
5.4.3.4 Standby Mode	49
5.4.3.5 Manual Mode	49
5.4.3.6 System Trouble	49
5.4.3.6.1 No Troubles	50
5.4.3.6.2 Troubles	50

5.4.3.6.3 Trouble Screen	50
5.4.3.7 Line Card Banner	50
5.4.3.7.1 Numbering	50
5.4.3.7.2 Icons	50
5.4.3.7.3 Status Color	50
5.4.3.8 IPs	51
5.4.3.8.1 Automation IP	51
5.4.3.8.2 Console IP	51
5.4.3.8.3 Printer IP	51
5.4.3.8.4 Visual IP	51
5.4.3.9 Time and Date	51
5.4.3.10 Active User	51
5.4.3.11 User Defined Message	51
5.4.3.12 ACK Button	51
5.4.3.13 Menu Button	51
5.4.3.14 Home button	51
5.4.4 Logging In	52
5.4.4.1 Login/Options	52
5.4.4.2 Username	52
5.4.4.3 Password	52
5.4.4.4 Default Username and Password	52
5.4.4.5 Keyboard	52
5.4.4.6 Valid Username and Password	53
5.4.4.7 Invalid Username and Password	53
5.4.5 Hardware Diagnostics	54
5.4.5.1 Fan Speed Tab	54
5.4.5.2 Temperatures Tab	54
5.4.5.3 Power Consumption Screen	55
5.4.6 Admin Menu Screen	55
5.4.7 Admin access vs. User access	55
5.4.7.1 CPM options	56
5.4.7.2 View Options	56
5.4.7.3 Change SG-CPM5 Options	57
5.4.7.4 Full Keyboard Options	57
5.4.7.5 Numeric Keyboard Options	58
5.4.7.6 Selectable Options	58
5.4.7.7 Cold Boot SG-CPM5	59
5.4.7.8 Set Date Time	59
5.4.7.9 System Info	60
5.4.7.10 Brightness/Tone	60
5.4.7.11 Reset SG-CPM5	61
5.4.7.12 More Options	61
5.4.7.13 Debug Mode	62
5.4.7.14 Visual Display Test	62
5.4.8 User Menu	63
5.4.8.1 View Options	63
6.0 Options	64
6.1 SG-CPM5 Options	65
6.1.1 SG-CPM5 Options: [0XX] - IP Options	65
6.1.2 SG-CPM5 Options: [1XX] - User Name/Password Options	65
6.1.3 SG-CPM5 Options: [2XX] - System Options	66
6.1.4 SG-CPM5 Options: [3XX] - LCD Options	66
6.1.5 SG-CPM5 Options: [4XX] - Automation Options	66
6.1.6 SG-CPM5 Options: [5XX] - Printer Options	74
6.1.7 SG-CPM5 Options: [6XX] and [7XX] - Troubles	75
6.2 SG-DLR5-IP Options	77
6.2.1 SG-DLR5-IP Options: [1XX] - System Hardware	77
6.2.2 SG-DLR5-IP Options: [2XX] - Signaling Options	79
6.2.3 SG-DLR5-IP Options: [3XX] - System Troubles	79
6.2.4 SG-DLR5-IP Options: [4XX] - System Options	81
6.2.5 Profile Options	88
6.2.5.1 Dynamic Profile Options	88
Appendix A: DEC-HEX-BIN Conversion Chart	89
Appendix B: ASCII Character Chart	90

Appendix C: TCP/IP Ports	91
SG-CPM5 TCP/IP Ports	91
Appendix D: Events & Messages	92
SG-CPM5 Messages	92
SG-DRL5-IP Messages	95
LCD & Console Trouble List	98
Appendix E: Glossary	100
Warning Please Read Carefully	105
Limited Warranty	105
GENERAL DESCRIPTION of the EQUIPMENT and CLASSIFICATION	105
EULA	106
FCC Compliance Statement	107
Industry Canada	107
R&TTE Declaration of Conformity	107
Trademark	108

2.0 Introduction

In This Chapter...

2.1 SG-System 5 Overview	7
2.1.1 CPM Redundancy	7
2.1.2 Diagrams	7
2.1.3 Description	9
2.1.4 Specifications	9
2.2 System Features	9
2.2.1 SG-System 5	9
2.2.2 Visual Verification	10
2.3 Approvals	10
2.3.1 Industry Approvals	10
2.3.2 UL864 Programming Requirements	11
2.3.3 Printers	11
2.3.4 UL Manual Mode	12
2.3.5 SG-System 5 Power Limited Circuit Separation	12

2.1 SG-System 5 Overview

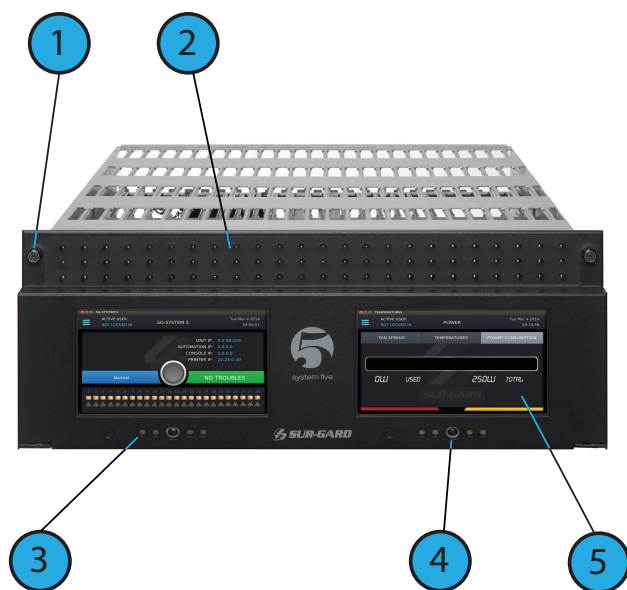
The SG-System 5 is a multi-platform receiver intended for remote monitoring of commercial fire and burglary systems. The SG-System 5 can monitor up to 24 IP communication line cards (SG-DRL5-IP) to receive and process alarm data in up to 64 pre-programmed profiles per line card. The SG-System 5's real time clock 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 serial printer port and/or TCP/IP; and viewed on the LCD of the front panel while the receiver is in the manual state. Options can be programmed using a PC with SG-Systems Console or locally using the touchscreen LCD. Each shelf can house up to 24 SG-DRL5-IP line cards.

2.1.1 CPM Redundancy

The SG-System 5 can be used in a redundant configuration using two SG-CPM5's, where the primary SG-CPM5 backs up to the secondary SG-CPM5 and vice versa. Under normal conditions, the primary SG-CPM5 is active and outputs all signals to the printer and automation, while the secondary SG-CPM5 is in standby. If the primary fails, the secondary SG-CPM5 automatically switches to active (within 30 seconds) and starts outputting signals to the printer and automation. During the switchover from standby to active, signal reception is not affected because the SG-DRL5-IP is still able to receive signals. The output to printer and automation is delayed by the length of time required to switch from standby to active.

2.1.2 Diagrams

FIGURE 2-1: SG-System 5 Front with Door Closed



1. Thumb screws to hold faceplate closed
2. Line card status indicators (top LED is watchdog, middle LED is status and bottom LED is network)
3. SG-CPM5 Status LEDs (from left to right: Console, Trouble, Network, Watchdog, Automation)
4. Quick HOME button
5. 7" resistive touch LCD screen

FIGURE 2-2: SG-System 5 FRONT with Door Open

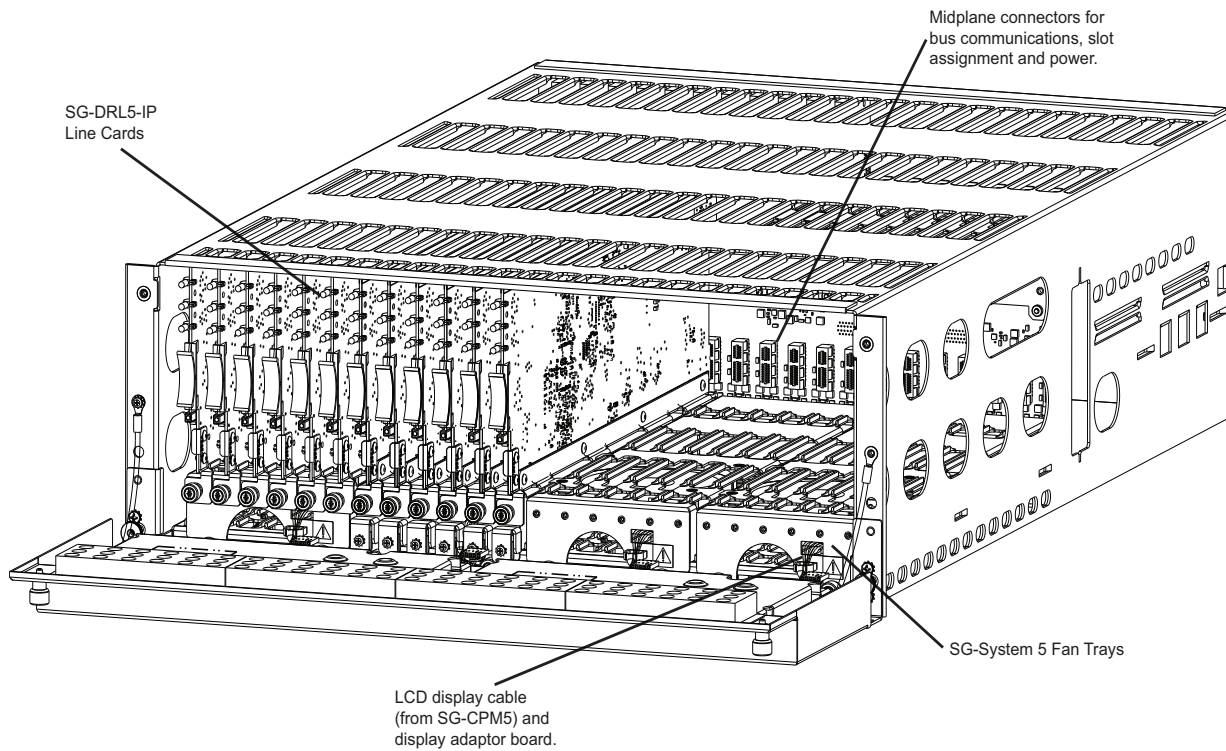
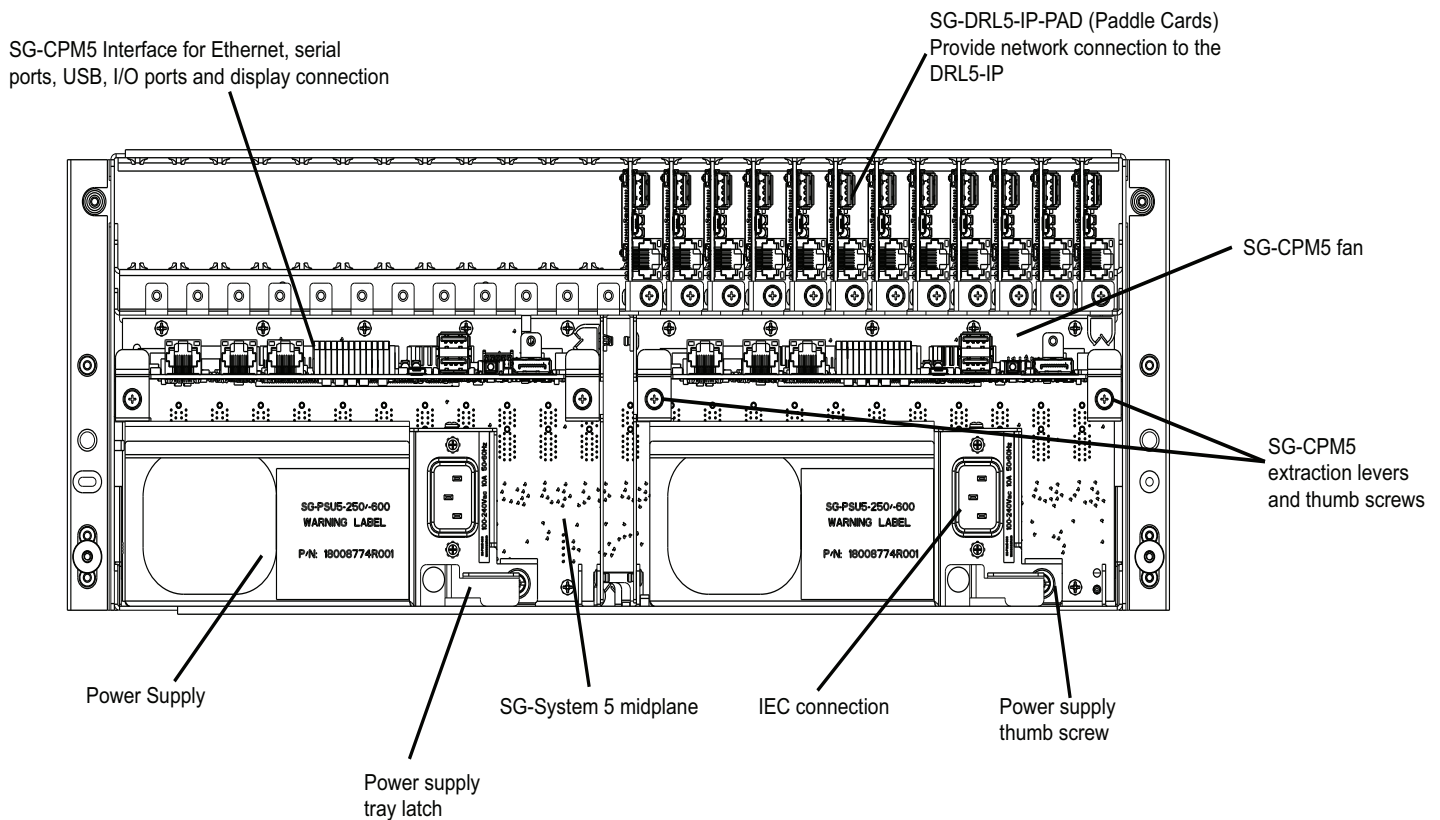


FIGURE 2-3: SG-System 5 Back



2.1.3 Description

The basic configuration consists of one 19" rack mounted chassis comprising the following:

- SG-MLRF5 - metal rack of the SG-System 5 with SG-MP5
- SG-PSU5-600 - 600W power supply unit provides power to all modules of the system
- SG-CPM5 - central processing module controls all communication to and from receiver modules and printers
- SG-UIB5 - touch screen user interface
- SG-DRL5-IP - Internet protocol line card
- SG-DRL5-IP PAD - paddle card for SG-DRL5-IP provides network connection
- SG-MLRF5-RM – Rack mount rails
- SG-S5LFANTR – Line card fan tray
- SG-S5CFANTR – SG-CPM5 fan tray
- SG-S5SERCAB – Y cable for serial connection to the SG-CPM5 for automation/printer
- SG_SYS5MEM4 – Removable EMMC memory
- SG_SYS5DDR31 – DDR3 RAM
- SG-CPM5BATT - SG-CPM5 real time clock battery

2.1.4 Specifications

Dimensions

Depth:	27.5" (69.85 cm)
Width:	19" (48.26 cm)
Height:	7" (17.78 cm)
Required Rack Space:	4U

SG-System 5 UL Electrical:

Input Voltage:	100-240 VAC, 50/60Hz.
Input Current:	8A max (RMS) @ 100VAC
Backup Power Supply:	External UPS (not supplied)

In a two SG-CPM5 configuration, a redundant SG-PSU5 can be inserted in the second slot. In the event of a SG-PSU5 failure, the redundant SG-PSU5 automatically assumes operation. These modules are hot swappable (can be removed/replaced while the system is in operation) if a working, redundant SG-PSU5 is installed.

Environmental:

Temperature:	0-49°C (32 - 120°F)
Humidity:	93%RH, Non-Condensing

Accounts:

ULC Line Security Levels: A1-A4 (active channels) or P1-P3 (passive channels)

Printers (UL/ULC Listed Installations):

Serial:	Seiko DPU-414
DACT Compatible communication formats (ULC Passive channels):	SIA, CID
Encryption:	AES 128 bit

2.2 System Features

2.2.1 SG-System 5

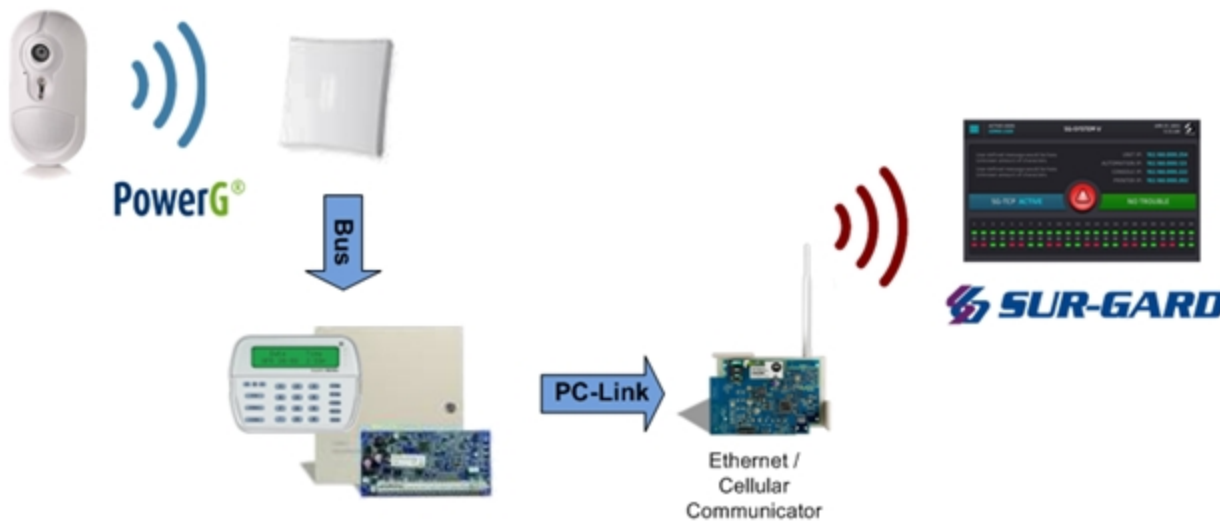
- Reduced size of 4U in height for improved receiver room logistics management
- CMS access to visual verification files through SG-Systems Console
- Upgradeable through the SG-Systems Console
- Enhanced hardware diagnostics via SG-Systems Console
- Static IP for programming of network protocols
- Real time system status via intuitive user touchscreen interface
- Supports visual verification features for DSC PowerSeries Neo
- Monitor up to 1,474,560 IP communicators (Cellular or Ethernet) with up to 24 IP line cards
- Line card capacity starting at 4,094 IP accounts, upgradable up to 61,440 via licenses
- Standard line card capacity of 512 visual verification, 512 supervised IP accounts, and 3070 unsupervised
- Upgradeable memory to handle extensive future IP account capacity

- 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 LCD/printer and automation software
- Data network polling environment for replacement of an existing DVACS network using a TL-300. Meets the 90-second ULC requirement for this option
- SIA event descriptors are used when transmitting information to the central station from the control panel through the PCLink connection
- A security function communicates to the central station when a module is removed and replaced
- The T-LINK accounts table and data encryption keys are stored in the local database

NOTE: The SG-DRL5-IP can only receive data from the following transmitters: TL150, TL250*, TL250DV, TL300*, TL300CF*, GS3055*, GS3055-I, GS3055-ICF*, GS3060*, TL26X*, GS206X*, TL26XGS*, GS31XX, 3G2060(R)*, TL2603G(R)*, 3G3070*, 3G3070RF*, 3G3070CF*, TL2803G(R)*, 3G2080(R)*, TL280(R)*, 3G4000*, 3G4000RF*
 * UL/ULC Listed, x = 0, 5.

2.2.2 Visual Verification

Visual Verification enables the system operator to view images and hear audio captured during an alarm event. The images (JPG) and audio (WAV) files are sent via Ethernet to the SG-DRL5-IP where they are converted to films (AVI) for viewing on the SG-System 5 Console. Data such as detector ID, zone ID, film type, file size, number of files in film and event time is available for each Visual Verification event.



2.3 Approvals

2.3.1 Industry Approvals

- UL 1610 Central Station Burglar Alarm Units
- UL 864 Standard for Control Units and Accessories for Fire Alarm Systems
- CAN/ULC-S304-06 Signal Receiving Centre and Premises Burglar Alarm Control Units
- CAN/ULC-S559-04 Equipment for Fire Signal Receiving Centres and Systems
- 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
- NIST validation certificate number 2913 for AES 128 bit encryption.

For UL listed installations, the equipment shall be installed in accordance with the requirements of NFPA72, NFPA70, UL827 and the authority having jurisdiction.

SG-System 5 with SG-DRL5-IP Line Card is ULC listed for active communication channel security level A1 - A4 when used in conjunction with T-Link TL250, T-Link TL300, TL260, TL260GS, GS2060, 3G2060(R), TL2603G(R), 3G3070(RF)(CF), TL2803G(R), 3G2080(R) and TL280(R) Internet/Intranet and/or GSM-GPRS 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. The receiver can be used also in conjunction with ULC listed passive communication systems based on the configuration of the systems at the protected premises.

This product has been approved by the California State of Fire Marshal (CSFM) pursuant to section 13144.1 of the California Health and Safety Code. See CSFM Listing No. 7300-1273:0157 for allowable values and/or conditions for use concerning material presented in this document. The approval is subject to reexamination, revision and possible cancellation.

2.3.2 UL864 Programming Requirements

NOTE: 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-CPM5 - UL864 Programming Requirements				
Opt #	Program Option	Permitted in UL864? (Y/N)	Possible Settings	Settings Permitted (UL 864)
202	Buzzer	N	Enabled/Disabled	Enabled
411	Heartbeat Timer	Y	00-FF	Not Allowed 00
601	CPM5 1 Fan Trouble	N	Enabled/Disabled	Enabled
602	CPM5 2 Fan Trouble	N	Enabled/Disabled	Enabled
603	PSU 1 Trouble	N	Enabled/Disabled	Enabled
604	PSU 2 Trouble	N	Enabled/Disabled	Enabled
609	UPS AC 1 Trouble	N	Enabled/Disabled	Enabled
610	UPS AC 2 Trouble	N	Enabled/Disabled	Enabled
611	UPS Battery 1 Trouble	N	Enabled/Disabled	Enabled
612	UPS Battery 2 Trouble	N	Enabled/Disabled	Enabled
615	SG-Serial Automation Sec 1 Trouble	N	Enabled/Disabled	Enabled
617	Serial CPM 1 Printer 1 Trouble	N	Enabled/Disabled	Enabled
617	Serial CPM1 Printer 1 Trouble	N	Enabled/Disabled	Enabled
618	Serial CPM 2 Printer 1 Trouble	N	Enabled/Disabled	Enabled
619	Serial CPM 1 Printer 2 Trouble	N	Enabled/Disabled	Enabled
620	Serial CPM 2 Printer 2 Trouble	N	Enabled/Disabled	Enabled
621	SG-TCP Automation Pri - Trouble	N	Enabled/Disabled	Enabled
631	SG-TCP Automation Sec - 1 Trouble	N	Enabled/Disabled	Enabled
665	TCP Printer Pri - 1 Trouble	N	Enabled/Disabled	Enabled
675	TCP Printer Sec - 1 Trouble	N	Enabled/Disabled	Enabled

SG-DRL5-IP				
Opt #	Program Option	Permitted in UL 864? (Y/N)	Possible Settings	Settings Permitted (UL 864)
221	Transmitter Absent Debounce Time	N	5-65535	200
222	Transmitter Restoral Debounce Time	N	5-65535	200
301	Transmitter Unencrypted Trouble	N	Enabled/Disabled	Enabled
302	Unknown Account Trouble	N	Enabled/Disabled	Enabled
303	Supervised Accounts Exceeded Trouble	N	Enabled/Disabled	Enabled

2.3.3 Printers

Serial Printer

For UL and ULC Listed applications, the following UL/ULC Listed printer can be used with the SG-System 5:

- Seiko DPU-414

TCP/IP Printer

For UL Listed applications, the UL Listed SG-Systems Console Software can be used with the SG-System 5.

NOTE: For ULC Listed applications, the Console Printer application is considered supplemental and is only allowed to be used in conjunction with a compatible ULC Listed printer.

SG-Systems Console Software System Requirements

Compatible operating systems:

- Microsoft Windows 2008 Server (32 and 64 bit)
- Microsoft Windows 7 (32 and 64 bit)
- Microsoft Windows 8 (32 and 64 bit)
- Microsoft Windows 8.1 (32 and 64 bit)

NOTE: Requires .NET Framework 3.51.

Hardware requirements:

- Intel Atom CPM @ 1.6GHz and 1 GB of RAM

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

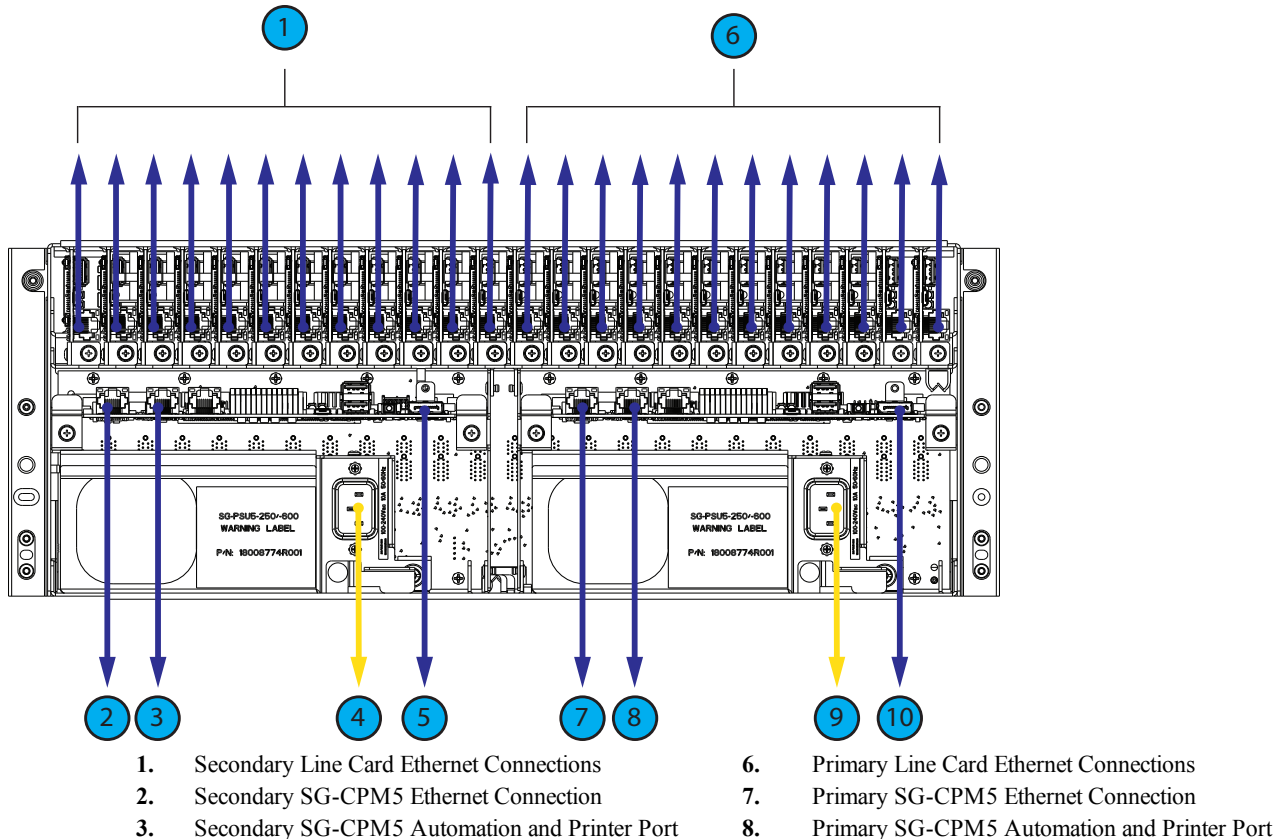
2.3.4 UL Manual Mode

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.

NOTE: A user must be logged in before acknowledging signals. A logged in user will remain logged in until a new user enters a valid user name and password or if the SG-CPM5 resets/reboots.

2.3.5 SG-System 5 Power Limited Circuit Separation

FIGURE 2-4: SG-System 5 Power Limited Circuit Separation from Non-Power Limited Circuit Diagram



- | | | | |
|----|--|-----|--|
| 4. | Secondary SG-PSU5 AC Power Connection (see note) | 9. | Primary SG-PSU5 AC Power Connection (see note) |
| 5. | Secondary SG-CPM5 Display Connection | 10. | Primary SG-CPM5 Display Connection |

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 5.

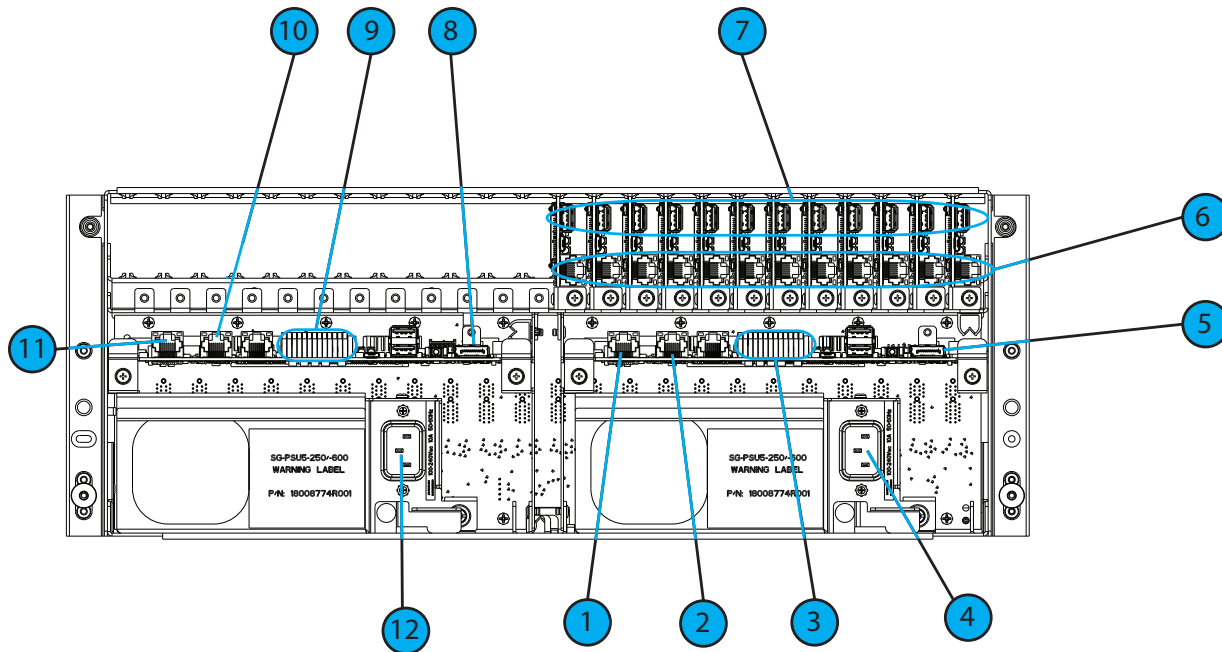
3.0 Receiver Setup and Operation

In This Chapter...

3.1 SG-System 5 Quick Install Guide	15
3.1.1 Receiver Installation	17
3.1.2 SG-CPM5 LEDs	19

3.1 SG-System 5 Quick Install Guide

FIGURE 3-1: SG-System 5 Connections (Back)



1. Primary SG-CPM5 Ethernet Connection
2. Primary SG-CPM5 Automation and Printer Port
3. Primary SG-CPM5 I/O Terminal connections
4. Primary SG-PSU5 AC Power Connection
5. Primary SG-CPM5 Display Connection
6. Line Card Ethernet Connections
7. Line Card USB Connections
8. Secondary SG-CPM5 Display Connection
9. Secondary SG-CPM5 I/O Terminal connections
10. Secondary SG-CPM5 Automation and Printer Port
11. Secondary SG-CPM5 Ethernet Connection
12. Secondary SG-PSU5 AC Power Connection

NOTE: This equipment shall be operated by **SERVICE PERSONS** only within **RESTRICTED ACCESS LOCATIONS**; refer to this Operating Manual for all the Safety Instructions.

NOTE: For equipment used at signal receiving centers and intended to facilitate IP communication (hubs, routers, NID, DSL/cable modems) 24hr backup power is required.

NOTE: To test the operation of LED indicators and LCD:

From the LCD, click the menu at the top right>> login/options>>More Options>> Visual indicator test>>yes.

NOTE: When using private, corporate, and high-speed data networks, network access and domain access policies are set to restrict unauthorized network access and 'spoofing' or 'denial of service' attacks. Select an ISP that provides redundant servers/systems, backup power, routers with firewalls enabled and methods to identify and protect against these types of attacks ('e.g., 'spoofing', 'DoS').

NOTE: Install external devices connected to SG-CPM5 Ethernet, SG-CPM5 automation printer ports and SG-CPM5 I/O terminal connections in the same room as the SG-System 5. Maintain 6.5mm (1/4") of separation between power limited and non-power limited circuits. Use power limited, supervised circuits only.

FIGURE 3-2: SG-System 5 Front with Door Open

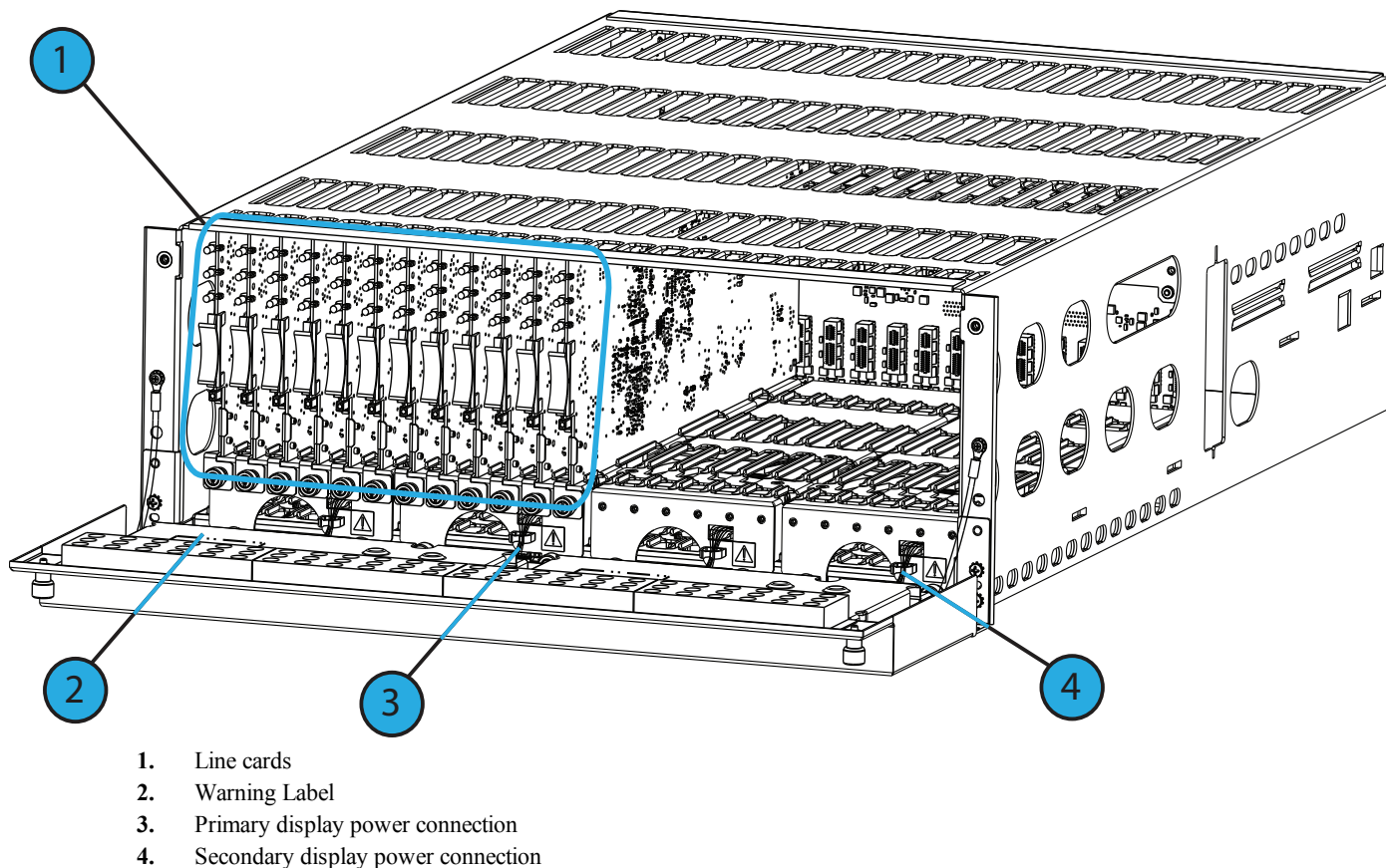
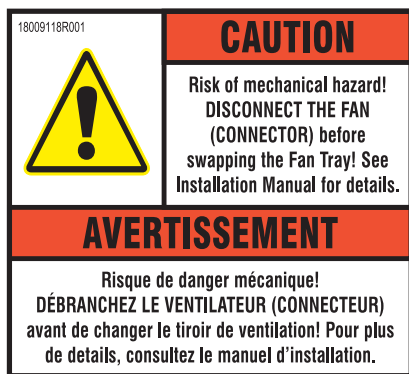


FIGURE 3-3: SG-System 5 Warning Label



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.

Do not connect to a receptacle controlled by a switch.

- RS-232 Serial Automation Output: Provides serial connection to a local computer running automation software. A null modem serial cable must be used.
- RS-232 Serial Printer Output: Provides serial connection to a local computer or serial printer. A null modem serial cable must be used.
- Ethernet Output 1 GigE: 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.

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).

NOTE: All external devices should be mounted in the same room as the receiver.

All circuits are power limited except AC input.

Maintain 6.5 mm (1/4") separation between power limited and non-power limited circuits.

All outputs are supervised.

3.1.1 Receiver Installation

Sur-Gard recommends testing the receiver before actual installation. Becoming familiar with the connections and setup of the unit on the workbench will simplify the final installation.

The following items are required:

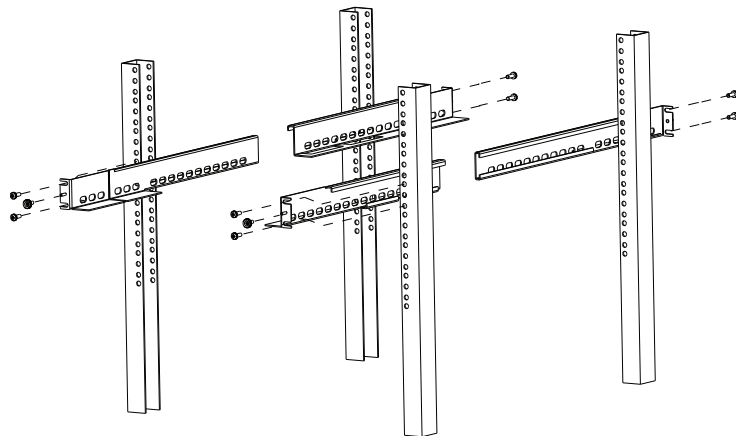
- 1 IEC power supply cord per SG-PSU5
- Phillips #1 screwdriver
- Phillips #2 screwdriver
- 5/16" [or 8mm] nut driver
- Depending on rack mounting:
 - 8 clip nuts for the 19" rack
 - 8 screws to fit into the clip nuts

1. Unpack the components for the SG-System 5.

NOTE: Carefully unpack the receiver and inspect for shipping damage. Notify the carrier immediately of any apparent damage.

2. Mount the rails to the 19" rack:
 - a. Slide the rails together.
 - b. Insert the clip nuts into the 19" rack 1U apart on the front and the back of the rack, leaving minimum 4U of space from the bottom of the rail.
 - c. Place the rails and then secure in place with rack screws (four per rail, two on the front and two on the back).
 - d. Unfasten the front rail screws and set aside.

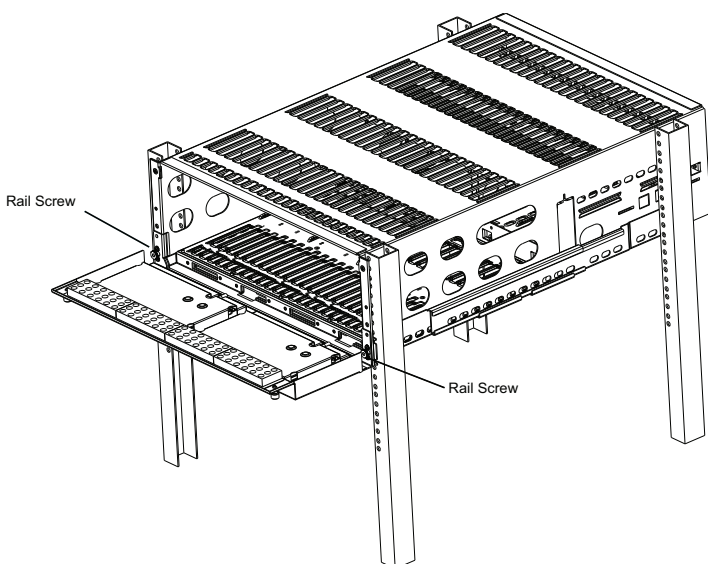
FIGURE 3-4: Rail Installation



NOTE: Maximum distance between front and rear rails is 31 inches (78.74 cm)

3. Slide the SG-MLRF5 subrack onto the rails. Caution: This component is heavy and requires two people to lift. Keep fingers clear of rails.
4. Unfasten the thumb screws and open the front plate.
5. Fasten the thumb screw set aside from the rails.

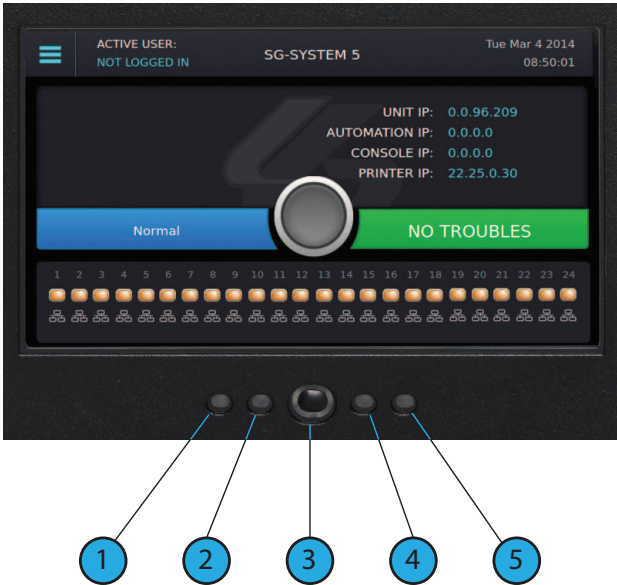
FIGURE 3-5: Securing SG-MLRF5 to Rack



6. Install optional secondary LCD:
 - a. Unscrew the four nuts holding the cover plate.
 - b. Push the blank plate from the front to remove it.
 - c. Remove the display cable from its holder in the cover plate.
 - d. Discard the cover plate.
 - e. Remove the plastic sheet covering the LCD.
 - f. Place the LCD onto the front plate.
 - g. Connect the power cable from the SG-MLRF5 to the LCD (tab up).
 - h. Attach the display cable.
 - i. Install the cable holder using the two screws provided. Ensure both the display cable and the LCD power cable are secured.
 - j. Place the metal shield on top of the LCD.
 - k. Fasten the ground strap.
 - l. Screw on all four nuts (do not over-tighten).
7. Insert the fan tray and connect the fan tray wire. Make sure the fan tray is between the two guides. Fasten the thumb screws. Repeat the process for additional fan trays.
8. Insert all cards, starting with slot 1, in the rack to their appropriate positions. Ensure there are no open slots between cards. Fasten the thumb screws.
9. Close the front plate and fasten the thumb screws.
10. At the back of the SG-System 5:
 - a. Insert the SG-CPM5 partially and connect fan (at the back). The SG-CPM5's fan connector tab should be up.
 - b. Insert the SG-CPM5 completely in the rack. Fasten the thumb screws.
 - c. Connect the LCD display port cable and a network cable to the SG-CPM5.
 - d. Insert a paddle card into each slot with a SG-DRL5-IP line card. Fasten the thumb screws.
 - e. Connect a network cable to each paddle card.
 - f. Insert the SG-PSU5(s) into the rack and fasten the thumb screw.
 - g. Connect the main power using a standard computer IEC cable (not supplied).
11. The LCD will power up and display internal troubles (e.g., printer, automation).
12. Press the ACK button and log in (Default: Admin/adminpass).
13. 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.

3.1.2 SG-CPM5 LEDs



1.	Console Connected (Green)	ON = Console connected OFF = Console disconnected
2.	Trouble Status (Orange)	ON = Troubles present OFF = No troubles present
3.	Network Status (around the home button)	Blue = 1Gb/s Green = 100Mb/s Orange = 10Mb/s Red = network absent
4.	Watchdog (Blue)	Flashing = Normal , Off/On – SG-CPM5 failure
5.	Automation (Green)	ON = Automation connected and system is active Flashing = Automation is connected and system is standby OFF = Automation disconnected

4.0 Hardware Descriptions and Specifications

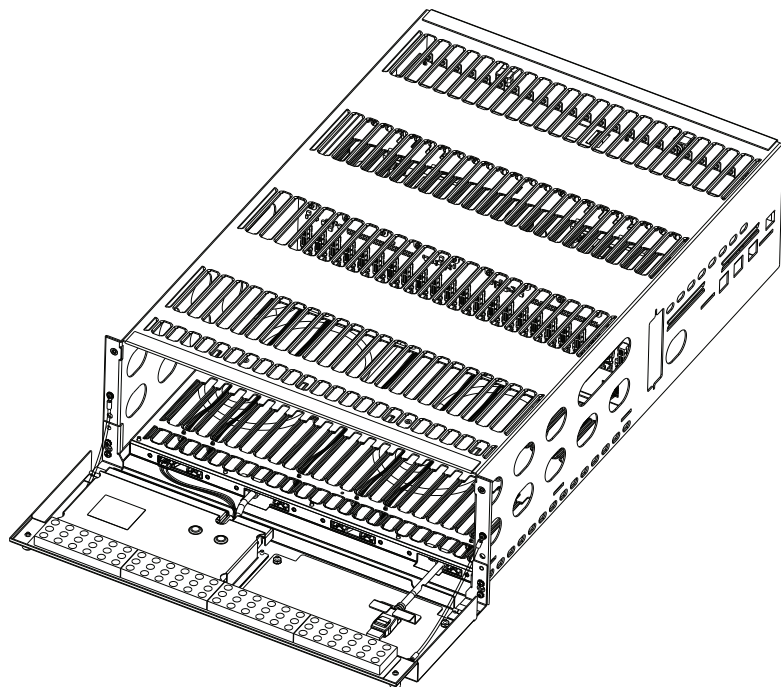
In this chapter...

4.1 SG-MLRF5	21
4.1.1 SG-MP5 Midplane	21
4.1.2 SG-S5CFANTR – SG-CPM5 Fan Tray	21
4.1.3 SG-MLRF5-RM – Mounting Rails	22
4.2 SG-CPM5 - Central Processing Module	22
4.2.1 SG-CPM5 LEDs	24
4.2.2 SG-CPM5 I/O Terminal Pin-Outs	25
4.2.3 SG-CPM5 Setup	26
4.2.4 SG-CPM5BATT - RTC Battery	27
4.2.5 SG-S5SERCAB - Y-Cable	28
4.2.6 SG-CPM5 Fan Tray Replacement	29
4.2.7 UPS Setup	30
4.2.8 SG-SYS5EBUS Setup	31
4.3 SG-DRL5-IP - IP Line Card	31
4.3.1 SG-DRL5-IP Configurations	32
4.3.2 SG-DRL5-IP LED Status Indicators	32
4.3.3 SG-DRL-IP Setup	34
4.4 SG-DRL5-IP PAD – SG-DRL5-IP Paddle Card	37
4.5 SG-S5LFANTR – Line Card Fan Tray	37
4.6 SG-PSU5-600 - 600W Power Supply	37
4.6.1 SG-PSU5-600 Installation	38
4.7 SG-UIB5 - User Interface	39
4.7.1 SG-UIB5(LCD) Replacement	39
4.8 SG-SYS5MEM4 - Expandable EMMC	40
4.9 SG-SYS5DDR31 - DDR3 1GB RAM	41
4.10 SD Card	41

4.1 SG-MLRF5

The SG-MLRF5 houses the components of the SG-System5 and is secured into a 19" rack by the SG-MLRF5-RM rails. The SG-MLRF5 ships with the mid-plane, two CPM fans and one LCD pre-installed.

FIGURE 4-1: SG-MLRF5 Rack



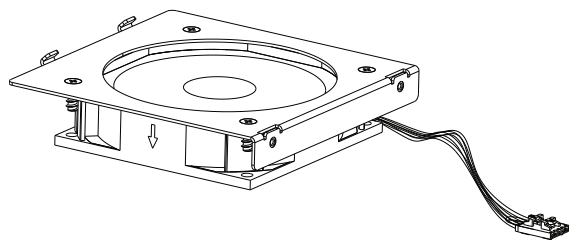
4.1.1 SG-MP5 Midplane

The SG-MP5 interconnects system modules.

4.1.2 SG-S5CFANTR – SG-CPM5 Fan Tray

The SG-S5CFANTR cools the SG-CPM5 while the SG-CPM5 is running. The SG-S5CFANTR is mounted above the SG-CPM5 in the MLRF5. It must be plugged into the SG-CPM5 to function.

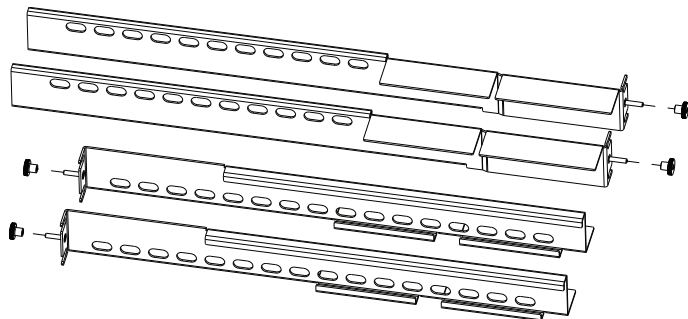
FIGURE 4-2: SG-S5CFANTR



4.1.3 SG-MLRF5-RM – Mounting Rails

The SG-MLRF5-RM are used to hold the MLRF5 in place in the 19" rack. The mounting rails are installed in the rack before the SG-MLRF5 to allow it to slide in place. The rails must be mounted on the front and back of the 19 inch rack. This product does not support racks that only have front supports. 8 clip nuts or screws (not included) are required to install each rail.

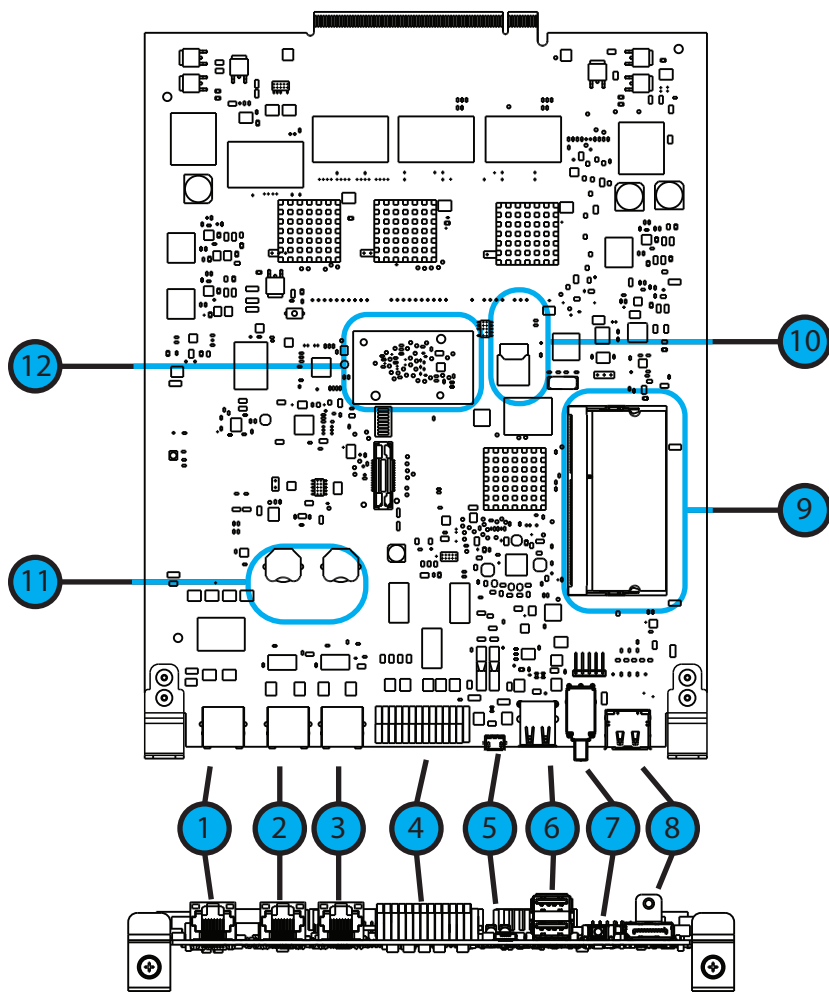
FIGURE 4-3: SG-MLRF5-RM



4.2 SG-CPM5 - Central Processing Module

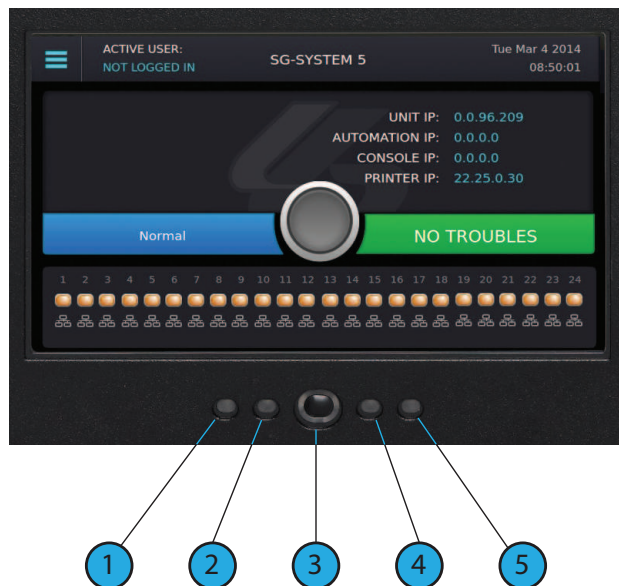
The SG-CPM5 Central Processing Module collects system information and directs line card information to the appropriate outputs. Along with its connection to the LCD touch screen, the SG-CPM5 features a TCP/IP connection (supports 10/100/1000Mbps), Serial connections for automation and printer, and I/O terminal pin outs for external ACKing and monitoring of the UPS and Buzzer/Trouble/Network follower. 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.

FIGURE 4-4: SG-CPM5



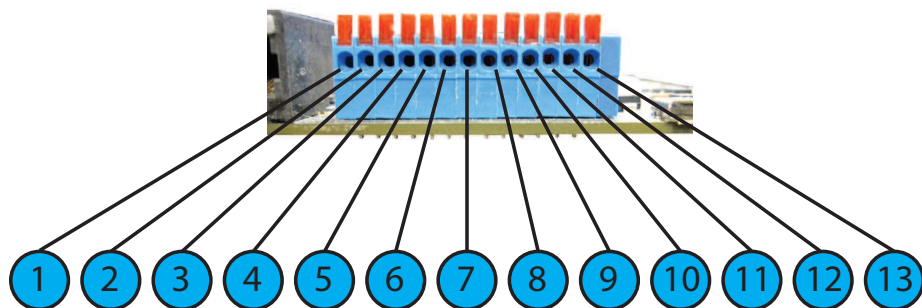
1. Ethernet - Supports 10/100/1000Mbps
2. Serial Automation 1 and Serial Printer 1
3. For Future Use
4. I/O Terminals
5. USB OTG (For Future Use)
6. USB (For Future Use)
7. Decommission Switch (For Future Use)
8. Display Port Connection
9. DDR3 Memory
10. SD Card (For Future Use)
11. Real Time Clock (RTC) Back-up Batteries
12. Expandable Module (For Future Use)

4.2.1 SG-CPM5 LEDs



1.	Console Connected (Green)	ON = Console connected OFF = Console disconnected
2.	Trouble Status (Orange)	ON = Troubles present OFF = No troubles present
3.	Network Status (around the home button)	Blue = 1Gb/s Green = 100Mb/s Orange = 10Mb/s Red = network absent
4.	Watchdog (Blue)	Flashing = Normal , Off/On – SG-CPM5 failure
5.	Automation (Green)	ON = Automation connected and system is active Flashing = Automation is connected and system is standby OFF = Automation disconnected

4.2.2 SG-CPM5 I/O Terminal Pin-Outs



- | | | |
|-----|-----------|---|
| 1. | Input 1 | UPS AC Failure: UPS AC normally closed output opens on failure. |
| 2. | GND | Common (ground) |
| 3. | Input 2 | UPS DC Failure: UPS Battery normally closed output opens on failure. |
| 4. | Input 3 | Remote ACK: When the SG-CPM5 is in manual mode pressing the ack button (front panel) or connecting this input to ground (Typically via a button) will acknowledge the first event on the LCD. |
| 5. | GND | Common (ground) |
| 6. | Input | Future Use |
| 7. | Output R1 | Follow Buzzer: Relay contact closes following the buzzer caused by manual mode. |
| 8. | R1 | Relay 1 Common |
| 9. | Output R2 | Trouble Output: Relay contact closes when the trouble (Status) LED Activates. |
| 10. | R2 | Relay 2 Common |
| 11. | Output R3 | Network Status: Relay contact closes when the network is present. |
| 12. | R3 | Relay 3 Common |
| 13. | GND | Common (Gound) |

For ULC installations Canada, the equipment shall be rack-mounted and powered by a permanently wired supply in accordance with C22.1, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations, section 32. This equipment is intended to utilize the building emergency AC supply system for their standby supply (e.g., UPS, batteries in conjunction with engine-driven generators).

4.2.2.1 UPS AC Failure – Pin 1

UPS AC Failure – this normally closed input is used with backup power supplies that support output activation for status indication. When this input is activated the SG-CPM5 will indicate a trouble condition for UPS AC Fail (see SG-CPM5 option [609] for the primary and [610] for the secondary).

4.2.2.2 UPS DC Failure – Pin 3

UPS BATT Failure – this normally closed input is used with backup power supplies that support output activation for status indication. When this input is activated the SG-CPM5 will indicate a trouble condition for UPS Battery Fail (see SG-CPM5 option [611] for the primary and [612] for the secondary).

4.2.2.3 Remote ACK – Pin 4

Remote Ack – this input is used to provide a method to acknowledge an alarm condition (while the receiver is in manual mode) from a remote location. The Remote Ack input shall be available any time that the front panel Ack button is available.

4.2.2.4 Buzzer Follow Output – Pin 7

Manual Mode Buzzer Follow – this output is activated in synchronization with the buzzer output of the SG-CPM5. Once the buzzer has been silenced/ended, the output will deactivate. This output is used to monitor the buzzer when the receiver is in a remote location.

4.2.2.5 Trouble Status Output – Pin 9

Trouble output – this output is activated with the trouble status output of the SG-System 5. Any enabled trouble condition on the system shall activate the output. Once all trouble conditions have been cleared, then the output will deactivate. This output is used to monitor trouble conditions when the receiver is in a remote location.

4.2.2.6 Network Status Output – Pin 11

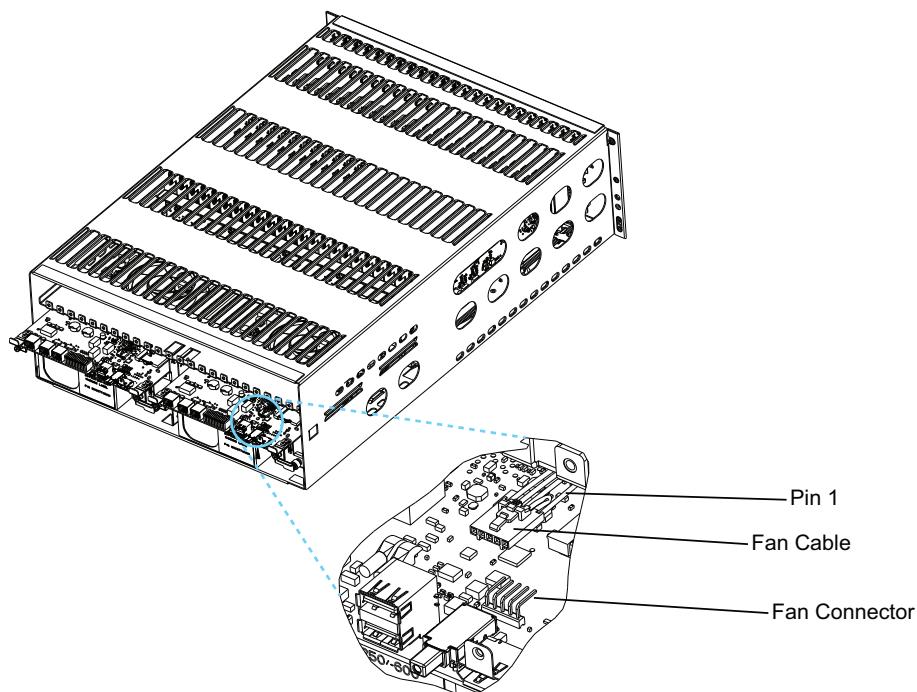
Network Status output – This output is activated when there is a network absent condition. Once the network connection is restored, this output will deactivate. This output is used to monitor the network status when the receiver is in a remote location.

4.2.3 SG-CPM5 Setup

4.2.3.1 Connecting the SG-CPM5 Fan Cable

To connect the CPM's fan cable, partially slide the SG-CPM5 into the SG-MLRF5 and connect the cable to the SG-CPM5 board with the connector facing up. Slide the SG-CPM5 all the way into the rack.

FIGURE 4-5: SG-CPM5 Fan Cable



4.2.3.2 Y-Cable

The Y-cable is used to connect the SG-CPM5's RJ-45 port to serial cables. To connect it, plug it into the second RJ-45 port from the left.

4.2.3.3 RTC Battery

The SG-CPM5 has two replaceable A76 alkaline RTC batteries. Replace batteries approximately every five years.

To replace the RTC batteries, follow these steps:

1. Unfasten the SG-CPM5 thumb screws.
2. Partially remove the SG-CPM5, disconnect the SG-CPM5 fan tray cable, then remove the SG-CPM5 fully.
3. Insert a small screwdriver into either side of the battery holder and push the battery out.
4. Insert the new battery into the holder (label up).
5. Repeat steps 3-4 for the other battery.

4.2.3.4 EMMC Memory

The SG-CPM5 has an optional add-on EMMC memory module that is required for the AHS table.

To replace the EMMC memory, follow these steps:

NOTE: If the EMMC is not already installed, please skip steps 3-4.

1. Unfasten the SG-CPM5 thumb screws.
2. Partially remove the SG-CPM5, disconnect the SG-CPM5 fan tray cable, then remove the SG-CPM5 fully.
3. Unfasten the two screws on the EMMC module.
4. Carefully lift the EMMC module off of the board.

5. Place the new EMMC module on the board.
6. Fasten the two EMMC screws.
7. Install the SG-CPM5 back into the SG-MLRF5.

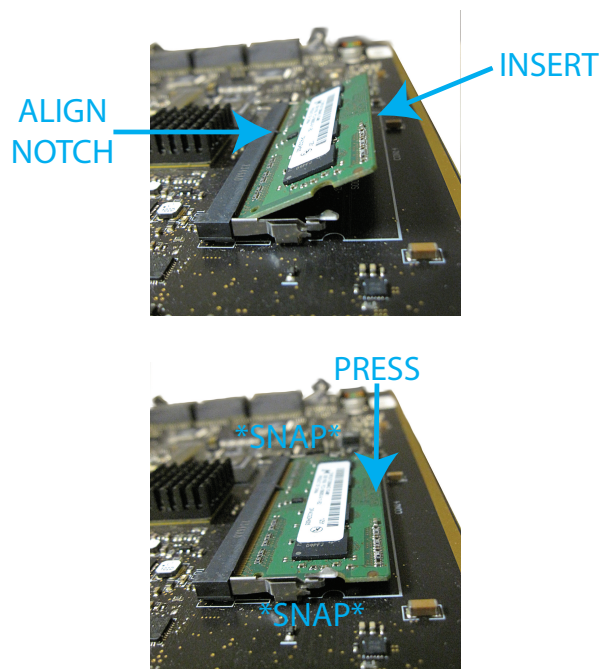
4.2.3.5 DDR3 Memory

The SG-CPM5 incorporates replaceable/upgradable DDR3 required for normal operation.

To replace the DDR3 Memory, follow these steps:

1. Unfasten the SG-CPM5 thumb screws.
2. Partially remove the SG-CPM5, disconnect the SG-CPM5 fan tray cable, then remove the SG-CPM5 fully.
3. Push the clips on either side of the DDR3 away from the board. It should lift up automatically.
4. Slide the DDR3 out at a 45 degree angle.
5. Slide the new DDR3 in at a 45 degree angle (label up).
6. Push down until the clips engage.
7. Install the SG-CPM5 back into the MLRF5.

FIGURE 4-6: DDR3 Installation



4.2.3.6 SD Card

The SG-CPM5 has an optional SD used for EN features (future use).

NOTE: The SG-CPM5 doesn't ship with an SD card

To replace the SD Card, follow these steps:

NOTE: If the SD Card is not installed already, skip step 3.

1. Unfasten the SG-CPM5 thumb screws.
2. Partially remove the SG-CPM5, disconnect the SG-CPM5 fan tray cable, then remove the SG-CPM5 fully.
3. Pull the SD card out of the holder.
4. Push the new SD card in.
5. Install the SG-CPM5 back into the SG-MLRF5.

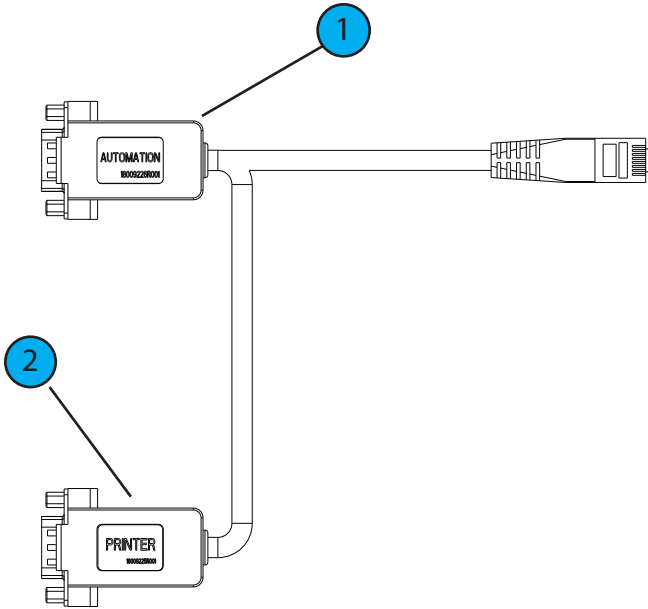
4.2.4 SG-CPM5BATT - RTC Battery

The SG-CPM5 requires two SG-CPM5BATT batteries on the board to power the Real Time Clock (RTC) circuit. These batteries allow the SG-CPM5 to track the time even when the SG-CPM5 is completely powered down.

4.2.5 SG-S5SERCAB - Y-Cable

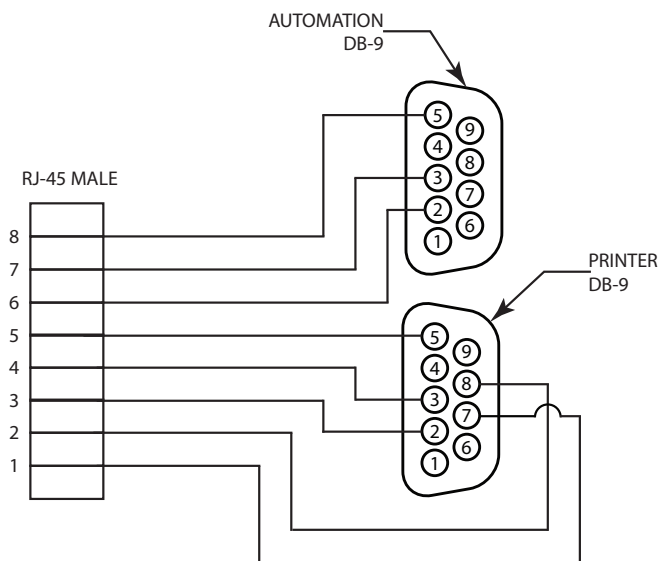
The Y connector is used to branch out the RJ-45 printer/automation port on the SG-CPM5 to two serial connections:

1. Serial port 1 is for the automation.
2. Serial port 2 is for the printer.



Serial Pin OUTS:

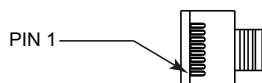
From		To	
Connector	Pin#	Connector	Pin#
RJ-45 Male	1	Printer DB-9	7
	2		8
	3		2
	4		3
	5		5
	6	Automation DB-9	2
	7		3
	8		5



DB-9 pin OUTS:

Pin#	Pin Function
1	Data Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

FIGURE 4-7: RJ-45 Pin 1 Location



4.2.5.1 Maximum Connected Cable Length

The maximum cable length from the SG-SYSTEM 5 to another device (e.g., hub, UPS) is 3ft (0.9144 meters). All connections made in the same room (termination must be within the secure premises) .

Connector	Length (feet)	Length (meters)	Typical Termination
I/O Terminal	3	0.9144	Sounding/lighting/input devices
Serial Printer	3	0.9144	Printer or PC based printer (serial port)
Serial Automation	3	0.9144	PC based software (serial port)
LAN	3	0.9144	Network switch or direct to PC (crossover cable)
IEC connector	3	0.9144	UPS backup power supply or standard wall outlet (110/220VAC)

4.2.6 SG-CPM5 Fan Tray Replacement

To replace an SG-CPM5 fan tray, first remove the SG-PSU5, the SG-CPM5 and paddle cards.

The steps are as follows:

1. Unplug the IEC cable from the power supply. Lift the red tab and unfasten the thumb screw.
2. Remove the SG-PSU5.
3. Unfasten the SG-CPM5's thumb screws. Disconnect all the wires (Ethernet, automation/printer, I/O wires, and LCD cable).
4. Partially remove the SG-CPM5, disconnect the fan cable, and then remove the SG-CPM5 fully.
5. Unfasten the paddle card thumb screws and remove the paddle cards.
6. Unfasten the fan screws.
7. Grasp the fan, push away then pull down to remove.
8. Insert the new fan by pushing up and then back.
9. Fasten the two screws, ensuring that the fan is secure.
10. Replace the paddle cards removed in previous steps.

4.2.7 UPS Setup

FIGURE 4-8: SG-System 5 UPS Supervision Connection Diagram

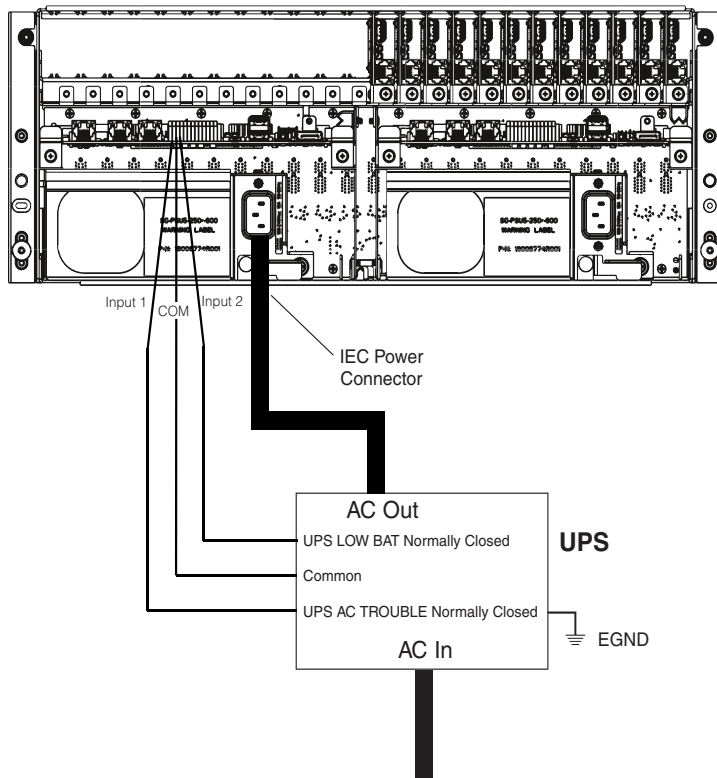
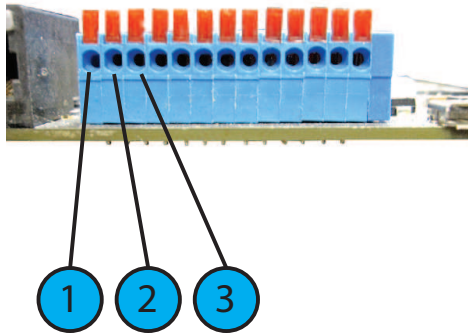


FIGURE 4-9: I/O Terminal UPS connections



1.	Input 1	UPS AC Failure: Toggles from ground to open on failure.
2.	GND	Common (ground)
3.	Input 2	UPS DC Failure: Battery of the UPS failed (toggles from ground to open on failure)

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

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

For UL and ULC installation of model SG-System 5: UPS Output 120V AC/60Hz, 5A

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.

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.

4.2.8 SG-SYS5EBUS Setup

To install the SG-SYS5EBUS in the secondary SG-CPM5 slot, allowing more than 12 SG-DRL5-IP cards can be used with one SG-CPM5, follow these steps:

1. Partially slide the SG-SYS5EBUS into the secondary SG-CPM5 slot.
2. Connect the SG-CPM5 fan.
3. Slide the fan in completely.
4. Fasten the retaining screws.

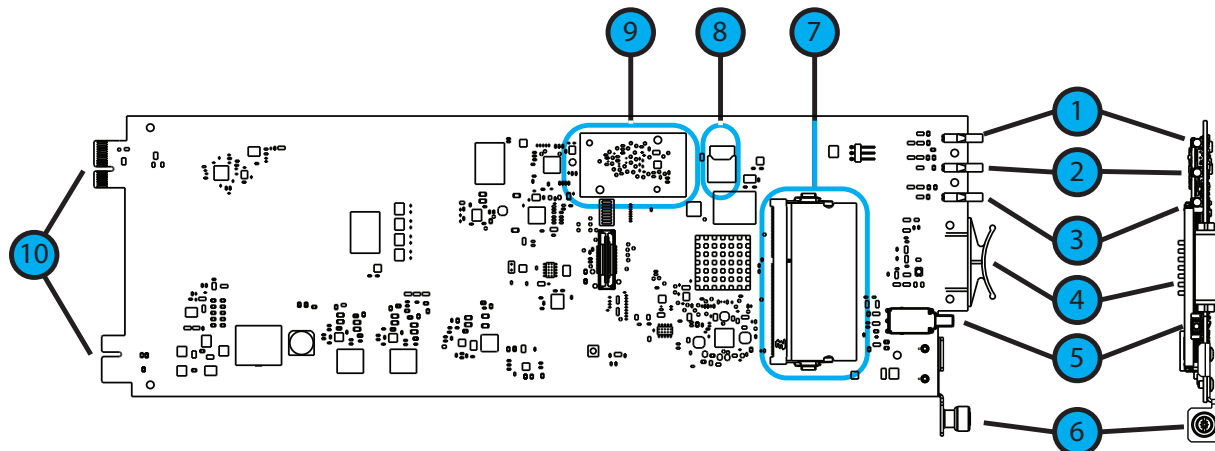
4.3 SG-DRL5-IP - IP Line Card

The SG-System 5 supports a maximum of 24 line cards. The SG-DRL5-IP cards function as a LAN or WAN server to remote transmitters. The SG-DRL5-IP line card receives alarm events from the transmitter decoding them before forwarding the signals to the SG-CPM5 for subsequent output to the printer and automation outputs.

After a SG-DRL5-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. The SG-DRL5-IP will log the connection and generate the appropriate event which will be forwarded to the SG-CPM5.

The SG-DRL5-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).

NOTE: The SG-DRL5-IP can receive data from DSC (and other compatible) IP communicators. Please see the communicator manual for compatibility limitations.



1. Watchdog LED
2. Trouble Status LED
3. Network Status LED
4. Pull Tab
5. Decommission Button
6. Thumb Screw
7. DDR Module
8. SD Card Holder
9. Expandable EMMC Module
10. Edge Connector - DO NOT TOUCH

4.3.1 SG-DRL5-IP Configurations

The following product ordering codes are available for the different configurations of the line card model SG-DRL5-IP:

SG-DRL5-IP STD

Standard Build

- 512 Visual Verification Accounts (SD card required)
- 512 Supervised Accounts
- 3072 Unsupervised Accounts
- Total accounts on each table 4096
- 1 table - 2 Additional tables (tables 2 and 3) can be unlocked with a license to the same table properties as table 1 with a valid license
- Total accounts with all 3 tables is 12228
- 1GB DDR3 memory (installed)
- 4GB EMMC memory (installed)

SG-DRL5-IPF

Full Build

- 2560 Visual Verification Accounts (SD card required)
- 2560 Supervised Accounts
- 15360 Unsupervised Accounts
- Total accounts on each table 20480
- Three Tables
- Total accounts with all 3 tables is 61440
- 1GB DDR3 memory (installed)
- 4GB EMMC memory (installed)

SG-DRL5-IPE

CE Build

- 2560 Visual Verification Accounts (SD card required)
- 2560 Supervised Accounts
- Total accounts on each table 5120
- 1 Table - 2 Additional tables can be unlocked with the same table properties as Table 1 with a valid license
- Total accounts with all 3 tables is 15360
- 1GB DDR3 memory (installed)
- 4GB EMMC memory (installed)

4.3.2 SG-DRL5-IP LED Status Indicators

After start-up, the line card enters Standby mode and monitors the network connection and the SG-CPM5. Depending on the system's status, the following conditions are displayed for each line card:

		Normal Operation	Trouble Present	Problem with Card or Rebooting	Decommission Mode
	Watchdog	Flashing	-	On or Off	Flashing
	Trouble	Off	Flashing (see trouble table)	-	Flashing Red
	Network Status	Blue – 1Gb/s Green – 100Mb/s, Orange – 10Mb/s, Red – Network Absent	-	-	Flashing Red

LEDs During Bootup

		Boot-Up	Boot Fail	Unqualified Memory
	Watchdog	Flashing	On	Off
	Trouble	Off	Off	Off
	Network Status	Flashing	On Red	On Red

Trouble Table

Flashes/Color	Error
1/Yellow	CPM absent
2/Yellow	Line card busy out
3/Yellow	Printer buffer full

Flashes/Color	Error
4Yellow	Computer buffer full
5/Yellow	Checksum failed when downloading flash ROM files.
2/Green	SD Card is 90% full
5/Green	SD Card ID Mismatch - Mismatch occurs when an SD card is not formatted using the Console or the SD card is inserted into the wrong DRL5-IP. To resolve this, either format the SD card or Re-ID the SD card using the Console. Please refer to the SG-Systems Console Manual for more detailed instructions.

4.3.2.1 Network Fault

When this problem occurs, the following information is transmitted to the printer and automation.

Printer: SG -01-001-0000-NR-Network Failure

Automation: 001001[#0000|NNT*IP.IP.IP.IP*]

When this problem restores, the following information is transmitted to the printer and automation:

Printer: SG -01-001-0000-NR-Network Restoral

Automation: 001001[#0000|NNR*IP.IP.IP.IP*]

4.3.2.2 Invalid Report Condition

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

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

Automation: 012234[#AAAAAA|NYN*192.158.8.34*]

The output for account code 'AAAAAA' indicates that data has been received but is not valid (e.g., the packet is encrypted and the SG-DRL5-IP does not have the proper key) or the T-LINK transmitter packet was rejected (NAK) four times by the receiver.

4.3.2.3 SG-CPM5 Absent

If the line card cannot detect the SG-CPM5 polling, it starts buffering incoming calls (depending on option [123] Busy Out). Up to 2500 alarm messages for the printer and computer are retained in the line card event buffer. When the event buffer is full, the line card stops answering calls and the status LED flashes to indicate busy out. When the SG-CPM5 error condition is corrected, alarm messages in the event buffer are transmitted to the SG-CPM5 with the corresponding time/date the alarm was received.

4.3.2.4 Ethernet Interface

The SG-DRL5-IP has an Ethernet interface which operates as a 10BaseT/100BaseT/1000BaseT. This port is accessible via a standard RJ45 connector. The IP address of the SG-DRL5-IP is programmable. The Ethernet port is used for transmitter communications. 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).

4.3.2.5 Supervised Receiver Database

The receiver has the capability of monitoring IP transmitters set up as supervised units. It automatically keeps track of new transmitters and indicates when one has been lost.

Transmitters restore differently depending on type. Older transmitters, such as the TL-250, must receive two heartbeats within the Transmitter Restoral Debounce time window (Option [222]) and one heartbeat after the window has expired within the Transmitter Absent Debounce time (Option [221]). When a heartbeat is received after the Restoral window, an event is transmitted to the printer and automation. Newer transmitters, such as the TL2803G or the 3G4000, restore immediately after receiving a second heartbeat within the programmed window.

Restoral:

Printer: SG -00-001-XXXXXXXXXXYK-*Transmitter Restoral IP.IP.IP.IP*

Automation: 000001[#XXXXXXXXXX|NYK*IP.IP.IP.IP*]

Failure:

Printer: SG -00-001-XXXXXXXXXXYC-*Transmitter Failure IP.IP.IP.IP*

Automation: 000001[#XXXXXXXXXX|NYC*IP.IP.IP.IP*]

NOTE: Newer DSC transmitters will only transmit a heartbeat after the last transmission, whereas the older transmitters will transmit a heartbeat at the programmed amount of time regardless of the alarm traffic.

NOTE: Transmitter Restore Time must be 30 seconds minimum.

NOTE: For UL Listed products, the permitted setting is 90 seconds.

NOTE: Two heartbeats must be received from the supervised IP transmitter before the register and restoral of the communicator.

4.3.2.6 Profiles

IP channel profiles are sets of customized options designed to improve efficiency when communicating with alarm control panels over IP. This is achieved by tailoring the programming of the receiver to a customer's unique parameters. Up to 64 separate profiles can be created for each SG-DRL5-IP, effectively enabling a single line card to have the capability of 64 traditional line cards. When DNIS information is received by the SG-DRL5-IP, it automatically applies the appropriate profile options.

Only profile 0 contains static line card options (e.g., line card address). Profile 0 to 64 contain unique pre-programmed options (e.g., custom supervision window, automatic encryption) for a particular DNIS or caller ID number. For a complete description of available static and dynamic options, See "Profile Options" on page 88

4.3.2.7 Rules For Account Table Exceeded Messages

The IP account table limit exceeded message is generated under the following conditions.

Any account added is written to the corresponding account type table (ie., visual verification, supervised, or unsupervised). If there is no room for the account in the account table type that is licensed, the line card will generate the appropriate message and do one of the following:

- If the account type is full, the SG-DRL5-IP will generate the message and add the account to the system. The initialization message from that account will generate the corresponding JO message. For example: if the account table is full for supervised accounts, the account will be added and the SG-DRL5-IP will output the "Supervised Account Table size has been exceeded" message. The account will still be added to the account table, responded to and output signal.
- If the account table is past capacity for total number of accounts (eg., STD line card with more than 4096 accounts), the card will output and log the correct JO message for the account table type and will not add the account to the table. The SG-DRL5-IP will **not** respond to the account. When filling accounts to "other" table type the order of insertion is:

1. Unsupervised
2. Supervised
3. Visual Verification.

The total number of accounts for the receiver account table is based on the license type added.

- Example 1 – SG-DRL5-IPS line card has 4096 accounts per table
- Example 2 – SG-DRL5-IPE line card has 5120 accounts per table
- Example 3 – SG-DRL5-IPX line card has 20480 accounts per table

Maximum Account Table size has been exceeded:

Printer: 001001 [#XXXXXXXXXX|NJO01CC*IP.IP.IP.IP*]

Automation: SG -01-001-XXXXXXXXXX-JO01CC-*Maximum Accounts Exceeded IP.IP.IP.IP*

Supervised account table size has been exceeded:

Printer: 001001 [#XXXXXXXXXX|NJO02CC*IP.IP.IP.IP*]

Automation: SG -01-001-XXXXXXXXXX-JO02CC-*Maximum Supervised Accounts Exceeded IP.IP.IP.IP*

Visual account table size has been exceeded:

Printer: 001001 [#XXXXXXXXXX|NJO03CC*IP.IP.IP.IP*]

Automation: SG -01-001-XXXXXXXXXX-JO03CC-*Maximum Visual Accounts Exceeded IP.IP.IP.IP*

Unsupervised Account Table size has been exceeded:

Printer: 001001 [#XXXXXXXXXX|NJO04CC*IP.IP.IP.IP*]

Automation: SG -01-001-XXXXXXXXXX-JO04CC-*Unsupervised Visual Accounts Exceeded IP.IP.IP.IP*

4.3.3 SG-DRL-IP Setup

The SG-DRL5-IP has modules (fan tray, paddle cards) and removable components that can be replaced. This section provides a guide for replacing each one.

4.3.3.1 Line Card Fan Tray Installation

To replace the line card fan tray, follow these steps:

NOTE: If a fan tray is not already installed, skip steps 1-4.

1. Remove any SG-DRL5-IP's that are on top of the fan tray.
2. Remove the fan tray power cable.
3. Unfasten the thumb screws.
4. Carefully remove the fan tray by pulling from the opening in the middle.
5. Place the new fan tray into the SG-MLRF5 between the two screw posts and slide in, making sure the back doesn't lift up.

NOTE: Ensure that the fan connector is not under the tray while inserting the fan tray.

6. Fasten the thumb screws.
7. Insert the fan tray power cable.

4.3.3.2 Paddle Card Installation

To replace the SG-DRL5-IP paddle cards, follow these steps:

NOTE: If a paddle card is not already installed, please skip steps 1-3.

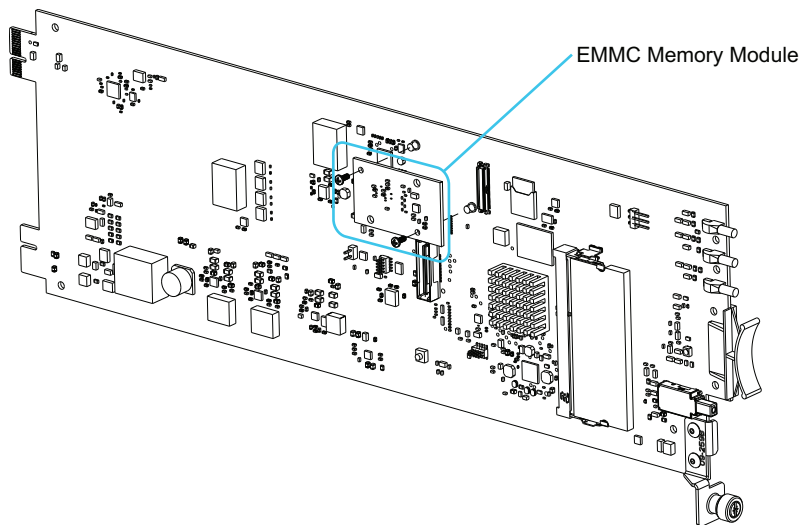
1. Remove the network cable.
2. Unfasten the thumb screw.
3. Slide the paddle card out of the SG-MLRF5.
4. Slide the new paddle card in the SG-MLRF5.
5. Screw in the thumb screw.
6. Replace the network cable.

4.3.3.3 EMMC Memory

The SG-DRL5-IP has an EMMC module that is used for the account table.

To replace the EMMC memory, follow these steps:

1. Unfasten the SG-DRL5-IP thumb screw.
2. Pull out the SG-DRL5-IP using the pull tab and remove from the rack completely.
3. Unfasten the two screws on the EMMC module.
4. Carefully lift the EMMC module off the board.
5. Place the new EMMC module on the board.
6. Secure the new EMMC to the SG-DRL5-IP with the screws removed in step 2.
7. Install the SG-DRL5-IP back into the SG-MLRF5.



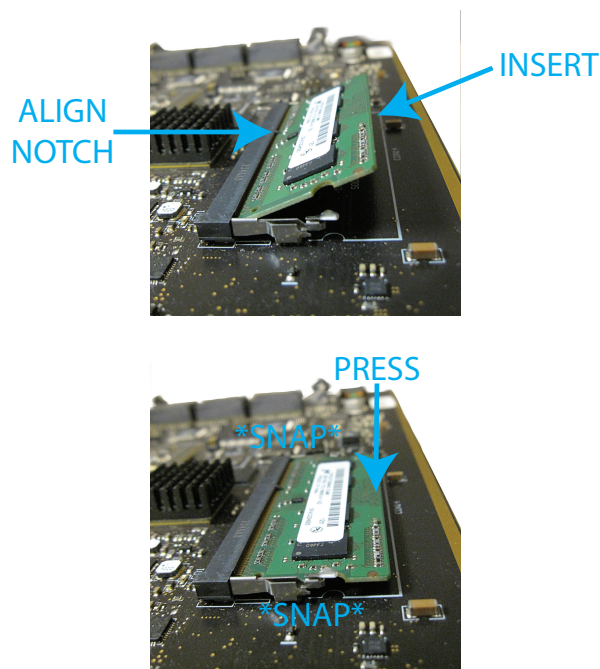
4.3.3.4 DDR3 Memory

The SG-CPM5 incorporates replaceable/upgradable DDR3 memory required for normal operation.

To replace the DDR3 Memory, follow these steps:

1. Unfasten the SG-DRL5-IP thumb screw.
2. Pull out the SG-DRL5-IP using the pull tab and remove from the SG-MLRF5 completely.
3. Push the DDR3 clips on either side of the DDR3 away from the DDR3. It should lift up automatically.
4. Slide the DDR3 out at a 45 degree angle.
5. Slide the new DDR3 in at a 45 degree angle (label up).
6. Push down until the clips engage.
7. Install the SG-CPM5 back into the SG-MLRF5.

FIGURE 4-10: DDR3 Installation



4.3.3.5 SD Card

The SG-DRL5-IP has an optional SD card that is used for visual verification.

NOTE: The SG-DRL5-IP does not ship with an SD card.

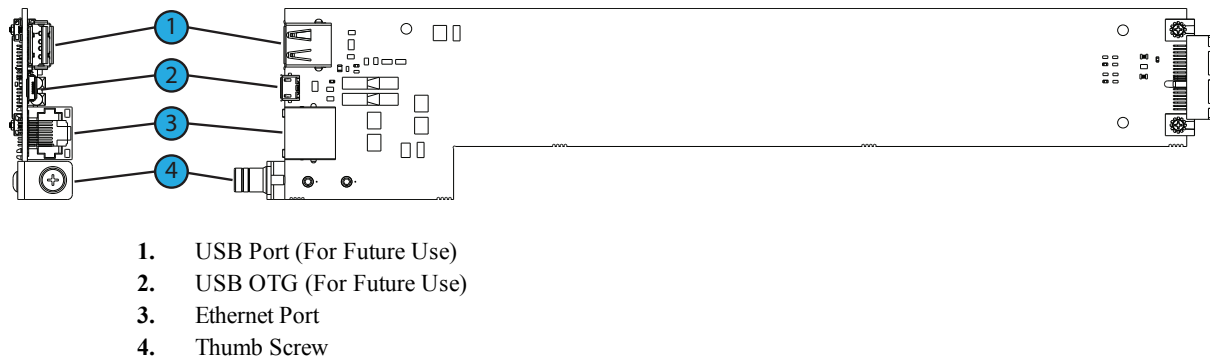
To replace the SD Card, follow these steps:

NOTE: If the SD Card is not installed already, skip step 3.

1. Unfasten the SG-DRL5-IP thumb screw.
2. Pull out the SG-DRL5-IP using the pull tab and remove from the SG-MLRF5 completely.
3. Pull the SD card out of the holder.
4. Push the new SD card in.
5. Install the SG-DRL5-IP back into the SG-MLRF5 and secure the thumb screw.

4.4 SG-DRL5-IP PAD – SG-DRL5-IP Paddle Card

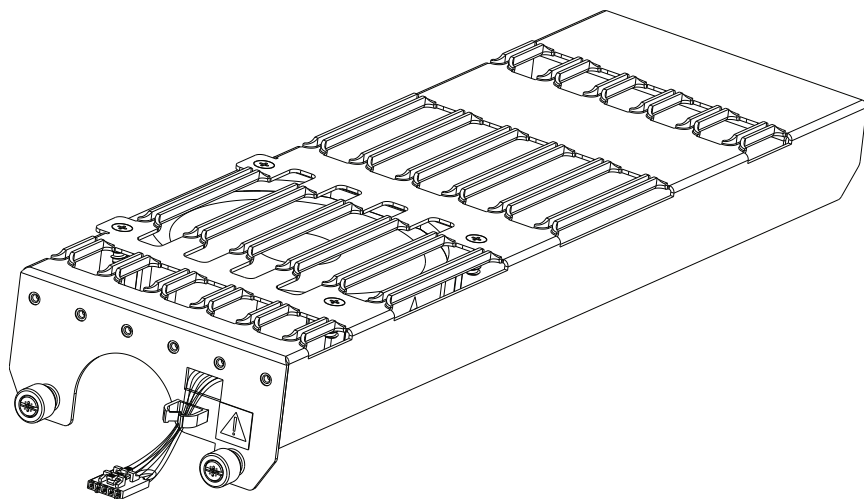
Each paddle card connects to a line card and provides a connection for an Ethernet cable.



4.5 SG-S5LFANTR – Line Card Fan Tray

The Line card fan tray is required to install the SG-DRL5-IP. The fan that is in the fan tray acts as a cooling device

FIGURE 4-11: SG-S5LFANTR



4.6 SG-PSU5-600 - 600W Power Supply

The SG-PSU5-600 is the SG-System 5 power supply. The SG-System 5 requires a 120VAC/60Hz input power source. A power cord with a IEC connector is required.

NOTE: For UL/ULC installations use only 120VAC/60Hz to power the SG-System 5. For UL installations use a UL listed UPS Power Supply for protective signaling systems and/or listed burglar alarm power supply, as applicable.

The SG-PSU5-600 red tray latch prevents the installation or removal of the power supply when the IEC connector is in place. The latch must be in the open position for the removal or insertion of the SG-PSU5-600. Any attempt to install or remove the SG-PSU5-600 when the latch is in the closed position could cause equipment failure or damage.

FIGURE 4-12: Power Supply Unit Latch Open - Installation and Removal

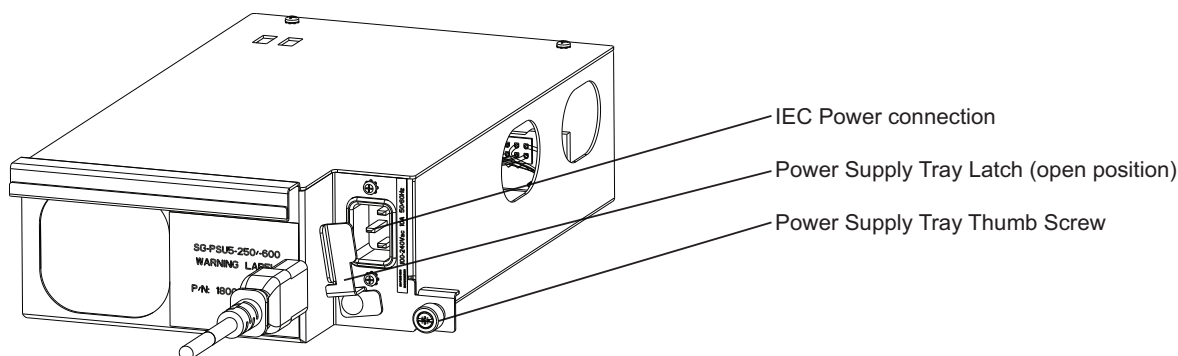


FIGURE 4-13: Power Supply Unit Latch Locked - Operating

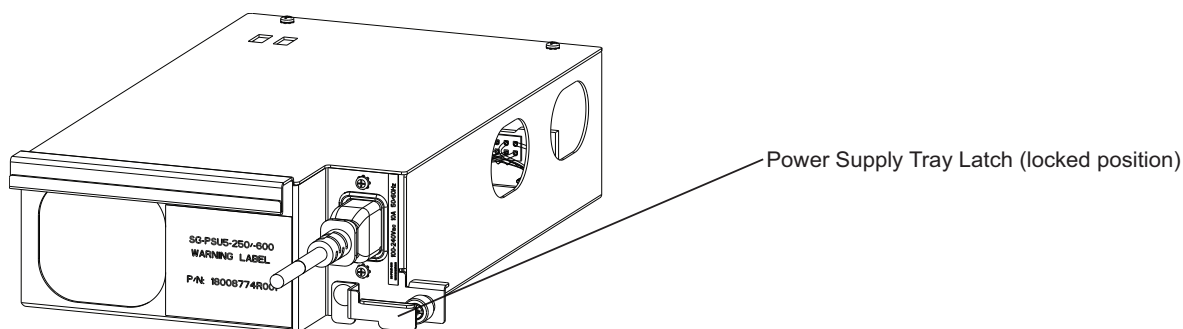
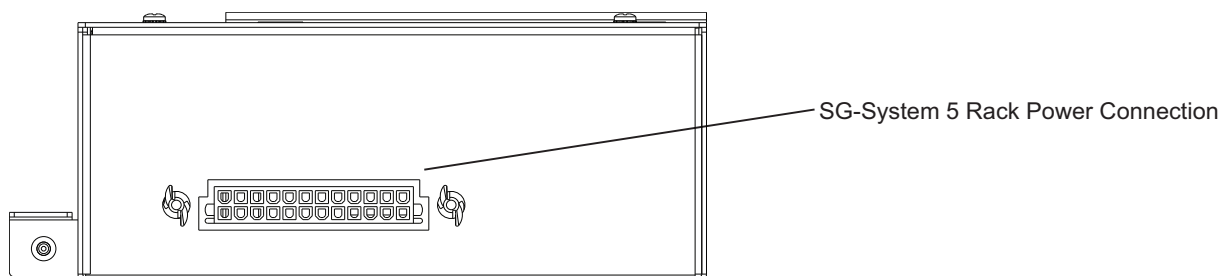


FIGURE 4-14: Power Supply Unit Rack Connection

**Electrical Specifications:**

- Input voltage range: 100 - 240VAC
- Frequency: 50/60Hz
- Input current: 8A maximum (RMS) @ 100VAC
- Wattage: 600W

In a redundant SG-System 5 configuration, a secondary SG-PSU5-600 can be inserted in the secondary slot. In the event of a SG-PSU5-600 failure, the redundant SG-PSU5-600 automatically assumes operation. These modules are Hot Swappable (can be removed/replaced while the system is in operation) if a working redundant SG-PSU5 is installed in the other power supply bay.

NOTE: A SG-PSU5-600 and a SG-PSU5-250 cannot be used in the same SG-MLRF5

4.6.1 SG-PSU5-600 Installation

To replace the SG-PSU5-600 in a SG-MLRF5, follow these steps:

NOTE: If a SG-PSU5-600 is already installed, skip steps 1-3.

1. Pull out the IEC cable from the SG-PSU5.
2. Lift the red safety tab and unfasten the thumb screw.
3. Pull the SG-PSU5 out of the SG-MLRF5.
4. Slide the new SG-PSU5 into the SG-MLRF5.
5. Fasten the thumb screw and slide the red safety tab down.
6. Plug in the IEC cable.

4.7 SG-UIB5 - User Interface

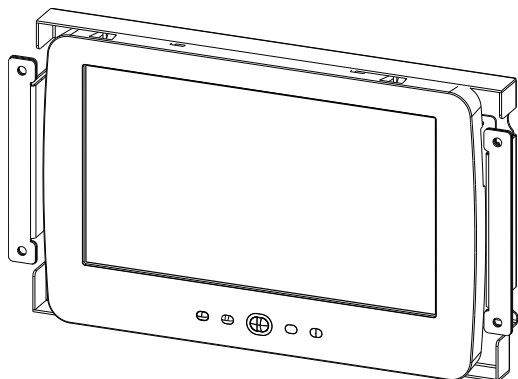
The SG-UIB5 is used to configure and interact with the system. The SG-UIB5 has a resistive touch screen that allows the user to acknowledge alarms when the SG-System 5 is in manual and program the SG-CPM5. The SG-UIB5 must be connected to the SG-CPM5 in order to operate.

NOTE: The SG-MLRF5 ships with one LCD and the secondary LCD must be installed separately for the secondary SG-CPM5.

The SG-UIB5 displays:

- Manual/Active/Standby
- Troubles
- The System time
- User programmable LCD message
- Hardware Diagnostics
- SG-CPM5 Programming Options

FIGURE 4-15: SG-UIB5 LCD Module



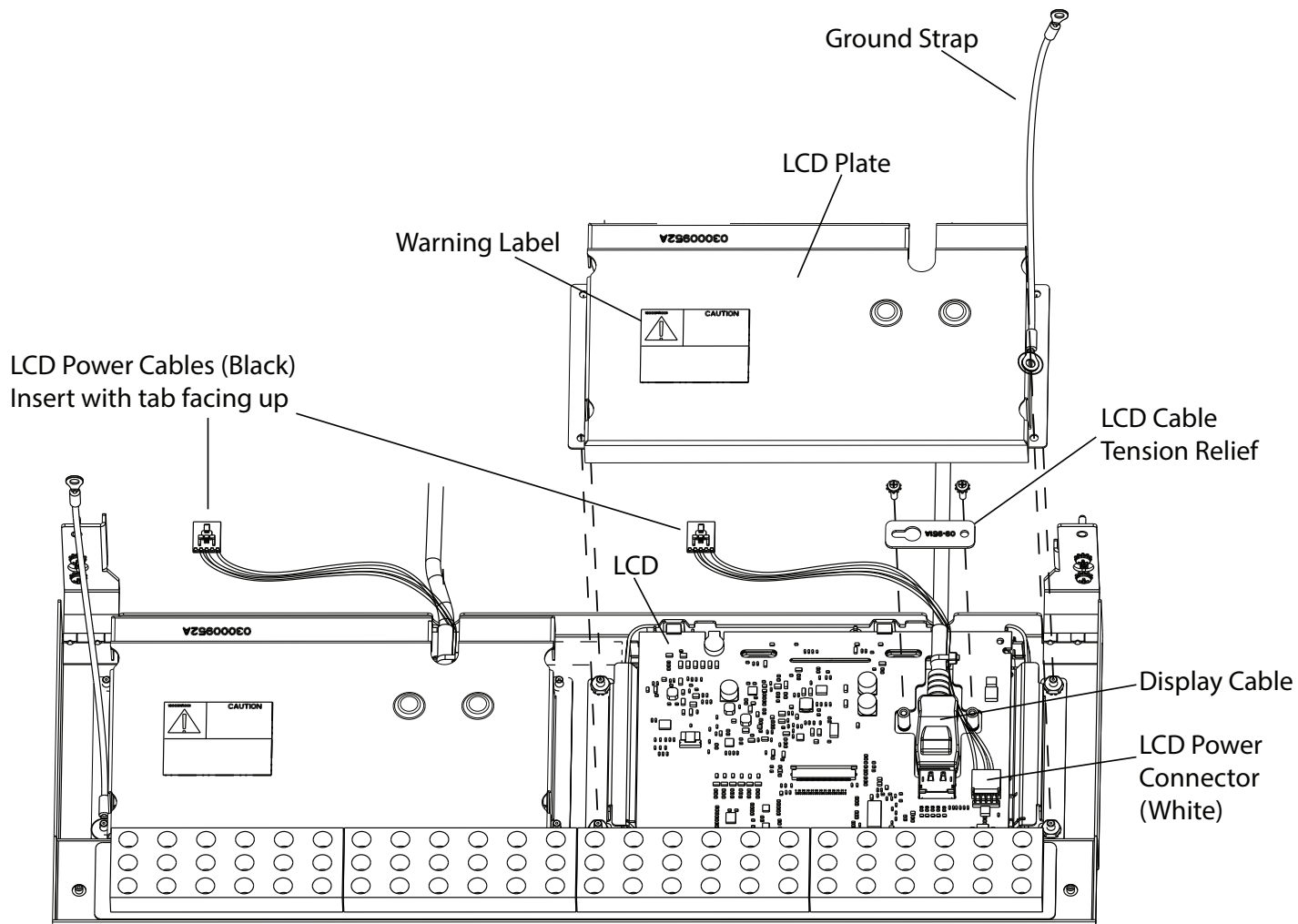
4.7.1 SG-UIB5(LCD) Replacement

To replace the SG-UIB5, follow these steps:

NOTE: If an LCD is not installed but has a blank plate, these steps are completed in the initial setup above.

1. Unfasten the four nuts holding the LCD.
2. Lift off the ground strap.
3. Lift off the metal shield.
4. Unfasten the LCD cable holder and place aside.
5. Unclip the LCD cable by pushing down.
6. Unplug the LCD power cable from the LCD.
7. Lift off the LCD board.
8. Remove the plastic sheet covering the new LCD.
9. Place the LCD onto the front plate.
10. Connect the power cable from the SG-MLRF5 to the LCD (tab up).
11. Attach the display cable.
12. Install the display cable holder with the two screws (both the display cable and the LCD power cable must be under this).
13. Insert a tie wrap around the LCD power cable and display cable.
14. Place the metal shield on top of the LCD.
15. Replace the ground strap.
16. Fasten all four nuts (do not over-tighten).

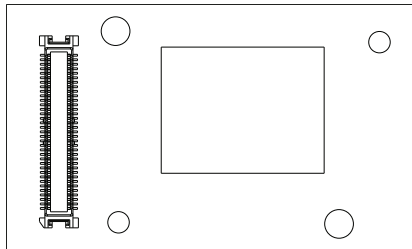
FIGURE 4-16: SG-UIB5 Installation



4.8 SG-SYS5MEM4 - Expandable EMMC

The expandable EMMC stores the account table and non-volatile event storage on the SG-DRL5-IP.

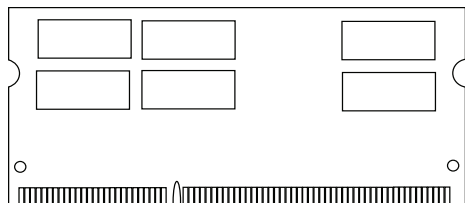
FIGURE 4-17: SG-SYS5MEM4



4.9 SG-SYS5DDR31 - DDR3 1GB RAM

FIGURE 4-18: SG-SYS5DDR31

The DDR3 is random access memory (RAM) required for operation. Only Sur-Gard qualified DDR3 RAM will function with the SG-CPM5 and the DRL5-IP.

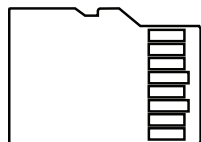


4.10 SD Card

The SD is required for the SG-DRL5-IP to work with Visual Verification. Recommend 4GB, class 4, with a maximum size of 32GB. Sur-Gard recommends using UHS (Ultra High Speedcards) for best performance

NOTE: The SD card is not shipped with the product.

FIGURE 4-19: SD card



5.0 Operation

In This Chapter...

5.1 Basic Operation	43
5.1.1 Connectivity	43
5.1.2 SG-Systems Console Software	43
5.2 Printer	44
5.2.1 Introduction	44
5.2.2 TCP/IP	44
5.2.3 Serial	45
5.3 Automation	45
5.3.1 Automation Input/Output	45
5.3.2 Automation Compatibility	45
5.3.3 Automation Protocols	46
5.3.4 Acknowledgment of the Signal	46
5.3.5 COM Responses	46
5.3.6 Automation Absent	46
5.3.7 SIA Internal Status Output	46
5.3.8 Line card Addressing	47
5.4 Operation - LCD User Interface	47
5.4.1 Bootup	47
5.4.2 Calibration	47
5.4.3 Home Screen	48
5.4.4 Logging In	52
5.4.5 Hardware Diagnostics	54
5.4.6 Admin Menu Screen	55
5.4.7 Admin access vs. User access	55
5.4.8 User Menu	63

5.1 Basic Operation

5.1.1 Connectivity

Each SG-CPM5 has one static IP address and a number of associated ports. The configuration management, done from the SG-Systems 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. Additional features are available with the SG-Systems Console software including storage of virtual receiver setups and configuration wizards.

5.1.2 SG-Systems 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.

5.1.2.1 Visual Verification

This port is used by the SG-Systems Console to accept Visual verification Files such as Images, Sound, and Movie files.

5.1.2.1.1 Connectivity

The Visual verification port is TCP/IP port 2025 on the SG-CPM5 that the Console connects to.

5.1.2.1.2 Functionality

All the commands are XML files that are transmitted over the TCP/IP stream. The XML files parse all the information generated by the receiver for each visual verification event.

5.1.2.1.3 Header File

Included in each folder is an XML file that contains account and alarm specific information. This file can be viewed with any text editor.

5.1.2.1.4 Unique ID

The Unique ID is a number that is unique to each film, making it easier to look up.

The Unique ID is a 20-digit number in which the first ten digits are the 10-digit transmitter account number.

5.1.2.1.5 Automation and Printer messages

When a Visual verification event is received, the SG-System 5 will output a message to automation and printer.

Automation message: 001001[#XXXXXXXXXX]Idu255]

Printer message: SG -01-001-XXXX-Idu255 -IMAGE VERIFICATION INITIATED

5.1.2.1.6 ACK

Once a command is issued by either the SG-System 5 or the Console Software/Automation Software it should return an ACK within 4 seconds.

5.1.2.1.7 NACK from the Console or Automation Software

If the receiver sends any command and receives a NACK response from the Console software the receiver will re-send this command up to 4 times. After the fourth NACK to the same message, the system shall generate an internal communication error and output the applicable information for the event to the printer. The system will not change the automation slot that it is currently in as the response to the message is a valid command (NACK). If at any time in the sequence the system receives an ACK to the message the system shall accept this and clear any counters for the previous failed attempts.

The automation/printer message will be outputted via the SG-automation/printer path indicating that a message has failed:

Visual verification output 001000[#0000]NYOssSS]

Communication Failure SG -01-000-0000-NYOssSS-Visual: Inter-Comm Error: DDDDD AAAAAAAAAA – Unique ID

After the 4th re-try, the Line card will move onto the next command that it has to send.

5.1.2.1.8 NACK from the Receiver

If the Console software receives a NACK while sending any command from the receiver, it will re-send the command up to four times. After the fourth attempt, the Console software will generate an error in the command log to indicate that the command failed. If at any time in the sequence the system receives an ACK to the message the system shall accept this and clear any counters for the previous failed attempts.

Depending on the reason the application software should generate different messages. It should only generate this message after the 4th re-try:

Reason="Invalid Command" – This should generate a message that says, "Invalid Command"

Reason="Corrupt" – This should generate a message that says, "Unable to read command"

Reason="LC Absent" – This should generate a message that says, "Line card not present"

5.1.2.1.9 No Response from the Console software

If the Console software doesn't respond to a command from the receiver, the receiver will re-send the command up to 4 times with an inter-attempt time of four seconds. After the 4th attempt has timed out the receiver will check to see if there is any other commands being sent or ACK'ed/responded to. If after this last attempt the Application software still doesn't provide an ACK/Response, the SG-CPM5 will gracefully close the visual verification port. If at any time in the sequence the system receives an ACK to the message the system shall accept this and clear any counters for the previous failed attempts.

If the Console connection is closed, the receiver will gracefully close the TCP/IP socket connection.

5.1.2.1.10 No Response from the Receiver

SG-DRL5-IP – Visual Verification

When the SG-DRL5-IP doesn't respond to a command from the application software, the application will retransmit the command after four seconds up to four additional times.

SG-CPM5 - SG Visual commands

When the SG-CPM5 doesn't respond to commands from the application software the application software will retransmit the command after 2 seconds up to 4 additional times. When the SG-CPM5/SG-DRL5 is not responding to the output transmissions, the SG-CPM5 will generate a trouble.

5.1.2.2 Advanced Output Protocol Specification

Please refer to the Advanced Output Protocol for a detailed explanation of each of the commands

5.2 Printer

5.2.1 Introduction

The SG-CPM5 has 2 printer ports, one for TCP/IP and one for Serial. The SG-System 5 outputs internal and external events to these printer ports

5.2.2 TCP/IP

The TCP/IP printer port is port 1027 and is connected via the Ethernet port on the back of the SG-CPM5. It can be connected using the Console or a 3rd Party Printer Application. There needs to be a Heartbeat every 25 seconds generated by the Application to keep the TCP/IP port alive.

5.2.3 Serial

The Serial Port is located on the back of the SG-CPM5 via a RJ-45 port. There is an optional Y-Cable that connects to this port that allows a Serial cable to be connected. If a Printer is to be connected then a Straight-through Serial Female-Female cable should be used

Straight Through Cable		
DB9		DB9
Pin #	Connects To	Pin #
1	<----->	1
2	<----->	2
3	<----->	3
4	<----->	4
5	<----->	5
6	<----->	6
7	<----->	7
8	<----->	8
9	<----->	9

If connecting to a Serial Port on a Computer, a Null modem Female-Male cable should be used.

Null Modem Cable		
DB9		DB9
Pin #	Connects To	Pin #
1	<----->	4
2	<----->	3
3	<----->	2
4	<----->	1,6
5	<----->	5
6	<----->	4
7	<----->	8
8	<----->	7
9	<----->	9

5.3 Automation

5.3.1 Automation Input/Output

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

5.3.2 Automation Compatibility

Central station automation software packages support the SG-System 5 Sur-Gard interface. Refer to automation software specifications for compatibility.

Automation Supported:

- MAS
- DICE
- SIMS II
- GENESYS
- S.I.S.
- IBS

- MicroKey
- Bold

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.

5.3.3 Automation Protocols

The SG-System 5 receiver sends ContactID and SIA to report signals to the central station computer via a TCP/IP and/or RS-232 serial port.

5.3.4 Acknowledgment of the Signal

The SG-System 5 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 5 will indicate a communication failure on the automation port. During a communication failure the SG-System 5 receiver will stop transmitting except for the heartbeat. In case of communication failure with the computer, each SG-DRL5-IP can store up to 2500 events in its internal memory and the SG-CPM5 can store 50 events for its own internal events. Communication is resumed when the first heartbeat acknowledgment is received; all buffered information is then transmitted.

5.3.5 COM Responses

When the SG-CPM5 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 message 26 times. If after the 26th attempt it receives a NAK from the computer automation, the SG-DRL5 will generate an internal communication error. The SG-CPM5 will send the 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-CPM5 to attempt to send the message again, up to 4 times. If after 4 attempts the SG-CPM5 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.

5.3.6 Automation Absent

When the computer is not responding to transmissions, the SG-CPM5 will generate a 'SG-Serialx fail' or 'SG-TCP/IPx Fail' trouble. When the trouble occurs, the SG-CPM5 will continue to attempt to send a heartbeat signal to the computer until it gets a response. The SG-System 5 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)	
	100000ssssssssss@ssss[DC4]
1	Protocol ID
RR000	Receiver number (RR is set in SG-CPM5 option [408])
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-CPM5 can be programmed to send a heartbeat signal to the computer automation once every 01-99 seconds to test the connection between the SG-CPM5 and the computer automation (30 seconds is recommended). If a heartbeat fails to get a response from the computer automation, the SG-CPM5 will immediately transmit the heartbeat again, up to 4 attempts. The SG-System 5, by default, will output the automation signals via TCP/IP. If TCP/IP fails to the next Automation slot.

5.3.7 SIA Internal Status Output

The SG-CPM5/DRL5-IP will generate internal events to the printer and automation such as troubles. The following format below is followed for the automation messages. A full list of internal events for the Printer/automation is listed in Appendix D - "Events & Messages"

0RRLLL[#0000 NYYZZZZ][DC4]	
0	Protocol ID
RR	Programmed receiver number (SG-CPM5 option [408] or SG-DRL5-IP option [111])
LLL	Line card number (Channel 1 [112], Channel 2 [113], Channel 3 [114]) 000 signifies a SG-CPM5 Event.
0000	SG-System 5 account.

NYZZ	SIA Event
[DC4]	Terminator, 14 Hex

5.3.8 Line card Addressing

Line card status is reported via physical addressing. Slot number is 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.

5.4 Operation - LCD User Interface

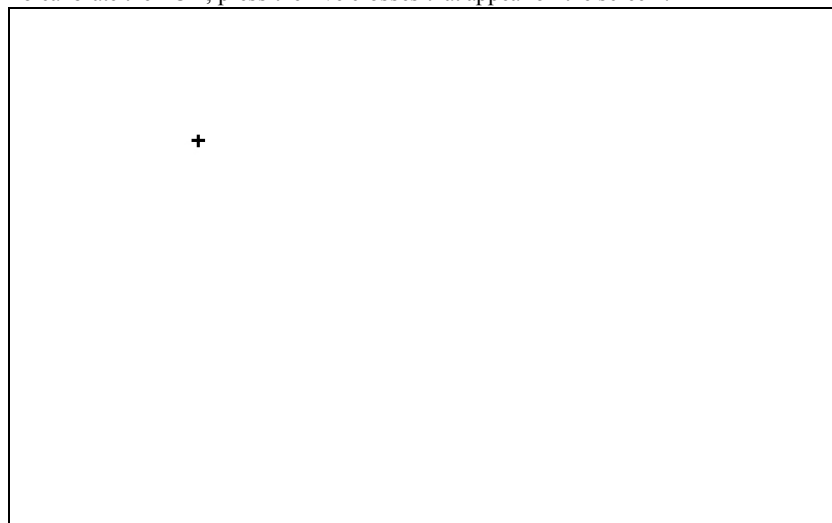
5.4.1 Bootup

While the SG-CPM5 is booting up, a splash screen with the System 5 logo is displayed.

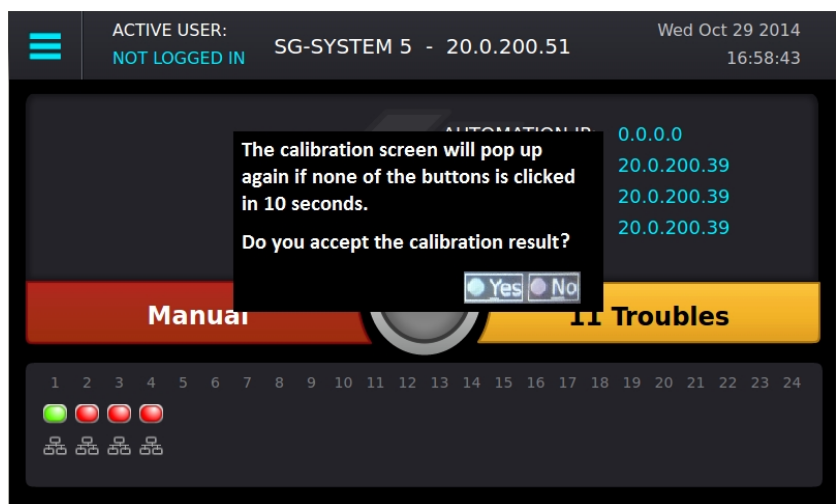


5.4.2 Calibration

When the CPM5 is first powered up, there may be a calibration required. Calibration can also be initiated from the Console. To calibrate the LCD, press the five crosses that appear on the screen .



After calibrating the screen, a confirmation message will appear. Press “Yes” if all five crosses were pressed successfully. Press “No” to try again.

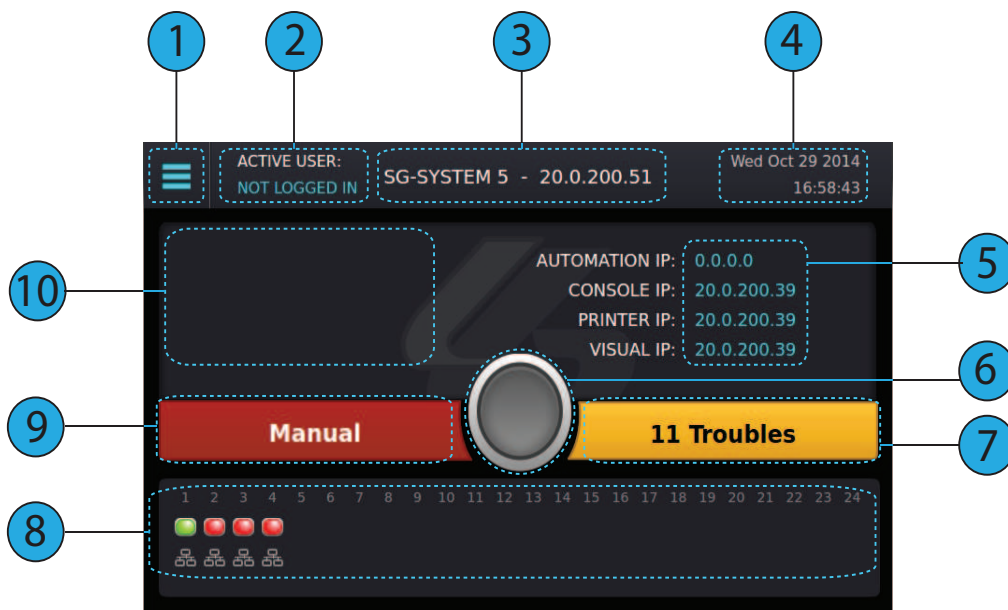


5.4.3 Home Screen

The Home screen displays the overall state of the SG-CPM5 and line cards including:

1. Menu Button
2. Active User
3. Title with the Unit IP
4. Time/Date
5. IP Addresses of Computers Connected to the SG-CPM5
6. ACK Button
7. Trouble status
8. Line Card Status
9. Status Banner (ACTIVE/MANUAL/STANDBY)
10. User Defined Messages

After 60 seconds without user activity, all user and administrator screens (except for the Hardware Diagnostics screen) time out and jump to the Home screen.



5.4.3.1 Status Banner

The Status banner displays whether the SG-CPM5 is in Active, Manual, or Standby and which automation slot is currently outputting to displayed SG-TCP, SG-SERIAL or SG-ALL.

This banner is displayed in reduced size on other user screens.

5.4.3.2 Type - Unit IP

The top/middle of the screen displays the type of System and the SG-CPM5's IP address. For the SG-System 5, it displays "SG-SYSTEM 5 - X.X.X.X"

5.4.3.3 Active Mode

The SG-CPM5 is Active when sending signals to automation. When in this mode, the Status banner displays "Active" and the color is blue.

5.4.3.3.1 SG-TCP

The status banner will show SG-TCP when it is currently outputting the signals to the TCP port.

5.4.3.3.2 SG- SERIAL

The status banner will show SG-SERIAL when it is currently outputting the signals to the Serial port.

5.4.3.3.3 SG-ALL

The status banner will show SG-ALL when Option [401] is set to ALL Mode so is currently outputting the signals to TCP and SERIAL.

5.4.3.4 Standby Mode

When the SG-CPM5 is not active, it is in Standby mode. In this mode, the Status banner displays "Standby" and the color of the banner is blue.

5.4.3.5 Manual Mode

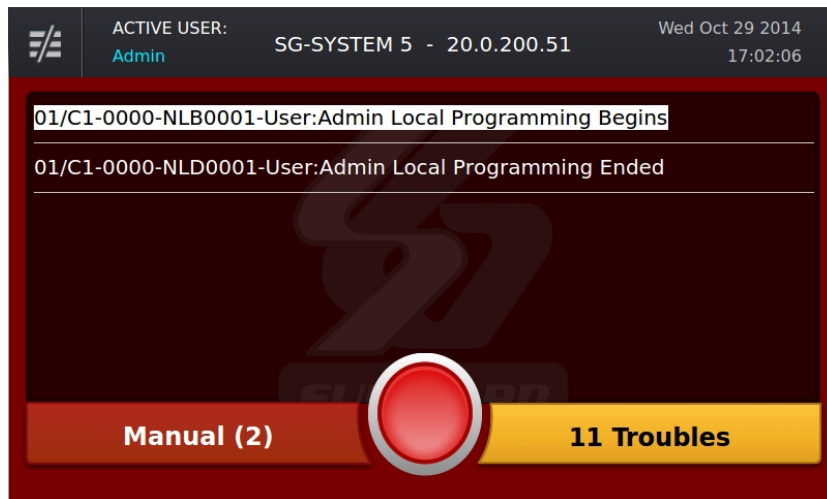
The SG-CPM5 is in Manual mode when NOT sending signals to automation software and when not the standby SG-CPM5.

When in MANUAL MODE, the Status banner displays "Manual" and the color is red. The number of pending events requiring acknowledgment are displayed in this banner.

If acknowledgment events are pending, the ACK button, along with the Status and Trouble banners, slide over the line card widget. The pending events are displayed where the user defined message and IPs were displayed. When an incoming alarm arrives, the buzzer sounds and the ACK button flashes. If more events are present than can be displayed on the screen, a scroll bar is displayed to the right. Once an event is acknowledged, the display returns to the top of the list.

A user must be logged in to acknowledge events.

On screens other than the Home Screen, a red flashing ACK condition is shown via a flashing red screen border.



5.4.3.6 System Trouble

The Trouble Banner indicates the presence of system troubles and is located on the right of the Home screen beside the ACK button. If pending alarms require acknowledgment, and the SG-CPM5 is in manual mode, this bar covers the Line cards.

While not on the Home screen, this banner remains visible in reduced size. The color of the banner is the same as on the Home screen.

5.4.3.6.1 No Troubles

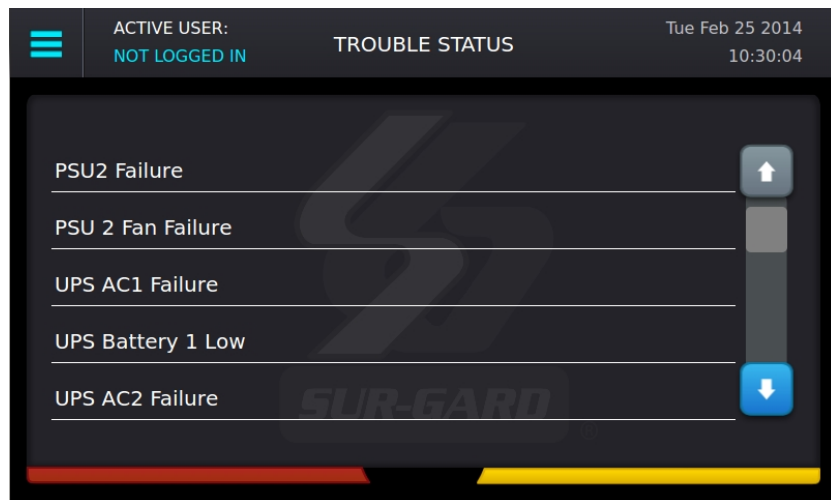
If no system troubles are present, the banner displays “No Troubles” and the color of the banner is Green.

5.4.3.6.2 Troubles

If system troubles are present, the banner displays “X Troubles,” where X is the number of System troubles. The color of the banner is yellow.

5.4.3.6.3 Trouble Screen

The Trouble Status screen displays the current list of SG-CPM5 troubles, including problems with the power supplies, batteries, fans, printers, etc. To navigate to the trouble screen, either click on the trouble banner or click the menu and then "Trouble Status." Scroll arrows provide access to the next or previous page of troubles.



5.4.3.7 Line Card Banner

The Line Card banner displays the line cards being polled by the SG-CPM5. This banner displays the type of line card (indicated by an icon), as well as the status of the line card (indicated by color).

If the SG-CPM5 is in manual mode and alarms are pending acknowledgment, the Status banner, ACK button, and Trouble banner slide down and the Line Card banner disappears.

5.4.3.7.1 Numbering

The slot number of each SG-DRL5-IP (1-24) is displayed at the top of the Line Card banner.

5.4.3.7.2 Icons

The following icons indicate the type of line card:



– SG-DRL5-IP icon

If the card is removed from the rack, the icon disappears within 60 seconds.

5.4.3.7.3 Status Color

The mode and/or network speed of each line card is indicated by the color above and below the line card icons.

The status color indicates the mode and/or network speed:

SG-DRL5-IP







Blue OK and 1GB/s network



Green OK and 100Mb/s network



Orange OK and 10Mb/s network

-  Red Network Fault
-  Grey No status received or no communication from the line card. Unless the line card status changes, this indicator will disappear within one minute.
-  Yellow Busied out
-  Purple Decommissioned

5.4.3.8 IPs

Four IP's are displayed above the Trouble banner: Automation IP, Console IP, Printer IP and Visual IP. These IPs are hidden if the system is in Manual mode with pending alarms to be acknowledged.

5.4.3.8.1 Automation IP

This displays the IP address of the automation computer connected to the automation port of the SG-CPM5. The automation port is port 1025.

5.4.3.8.2 Console IP

This displays the IP address of the SG-Systems Console Server installed on the Console port of the SG-CPM5. The Console port of the SG-CPM5 is 1024.

5.4.3.8.3 Printer IP

This displays the IP address of the SG-Systems Console Server or third party Printer software installed on the Printer port of the SG-CPM5. The printer port of the SG-CPM5 is 1027.

5.4.3.8.4 Visual IP

This displays the IP address of the SG-Systems Console Server or third party Visual Verification software installed on the Visual Verification port of the SG-CPM5. The Visual Verification port of the SG-CPM5 is 2025.

5.4.3.9 Time and Date

The Time and Date is displayed at the top right of the screen in the format:

Mon Jun 17 2013

12:30:40 PM

5.4.3.10 Active User

This displays the user currently logged in.

5.4.3.11 User Defined Message

User defined messages are displayed below the active user.

5.4.3.12 ACK Button

The ACK button is displayed in the middle of the Home screen. When the SG-CPM5 is in Active, Standby or Manual mode with no pending alarms to be acknowledged this button is gray. When the system is in Manual mode with pending alarms, this button slides down to enable the user to record the alarm and then press the ACK button to acknowledge the top event.

5.4.3.13 Menu Button

The menu button at the top left opens a menu that enables navigation to the Home Screen, LOGIN/Options, Trouble Status, Hardware Diagnostics and Back.

This menu is accessible at all times except when the system is in Manual mode with pending alarms to be acknowledged.

5.4.3.14 Home button

The Home button, located below the LCD screen, returns the display to the Home screen. This is the physical button below the LCD screen.

5.4.4 Logging In

5.4.4.1 Login/Options

This screen provides access to username and password entry.



5.4.4.2 Username

The text box on the left is for the username. The username must be 1-8 characters long and can contain A-Z, a-z, 0-9 and space. The username cannot be only a space.

5.4.4.3 Password

The text box on the right is for the password. The password must be 8-20 characters long and can be A-Z, a-z, 0-9.

Click the Eye icon inside the text box to show the password characters as they are typed. By default, characters are hidden and each character will display as *(asterisk).

5.4.4.4 Default Username and Password

Administrator – User 1

Username : Admin

Password : adminpass

User 2-16

Username : User [X]

Users 2-16 do not have passwords. Assign a password with the LCD or Console using the Admin login.

Coldboot – Login to coldboot the system

Use this login to set the options back to default if the admin password is lost.

Username : Coldboot

Password : resetoption

5.4.4.5 Keyboard

Use the keyboard at the bottom of the screen to type a-z and 0-9. Press the Shift key to change to capitals for the next letter typed. Press and hold the Shift key for Caps lock. Press the Shift key again to remove Caps lock.

FIGURE 5-1: Shift Key

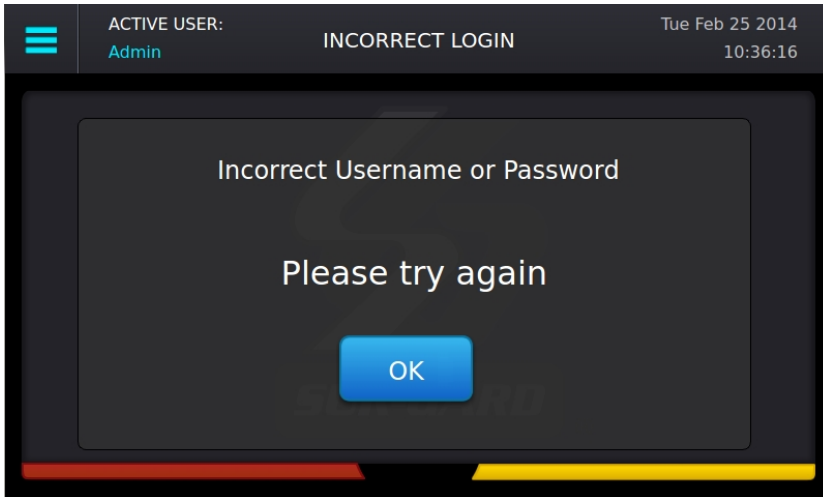


5.4.4.6 Valid Username and Password

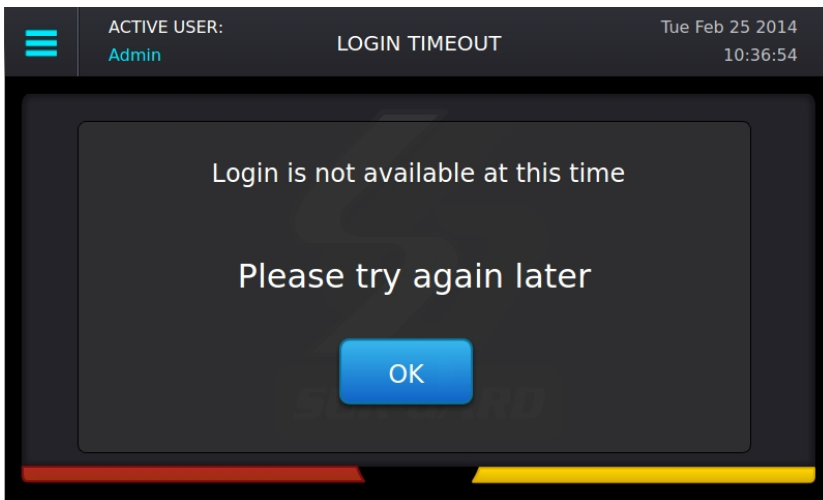
When a valid user name and password are used, pressing the Submit button displays the Main Menu.

5.4.4.7 Invalid Username and Password

If the Username and the Password are invalid, pressing the Submit button displays an error message.



If an invalid username and password combination is entered 6 times, the system returns to the Home screen. The Login screen is locked out for 1 minute.

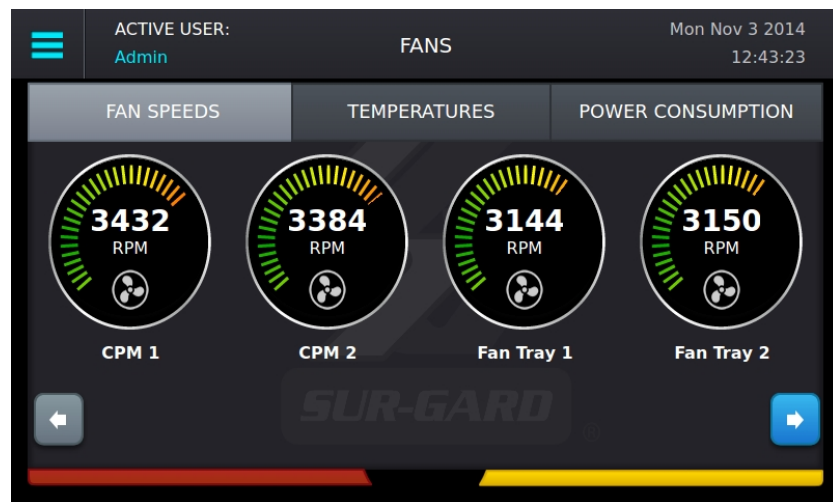


5.4.5 Hardware Diagnostics

The Hardware Diagnostics screen enables the user to view the current fan speeds, temperatures and power consumption of the receiver.

5.4.5.1 Fan Speed Tab

The Fan Speed screen displays the current fan speed of the receiver. The color of each of the up to 6 gauges changes from green to yellow to red as fan speed increases. The readings are shown in RPM. The gauges for CPM 1(Primary) and CPM 2 (Secondary), and Fan Tray 1 and 2 are displayed by default. To view the other fan trays, scroll using the arrow button.

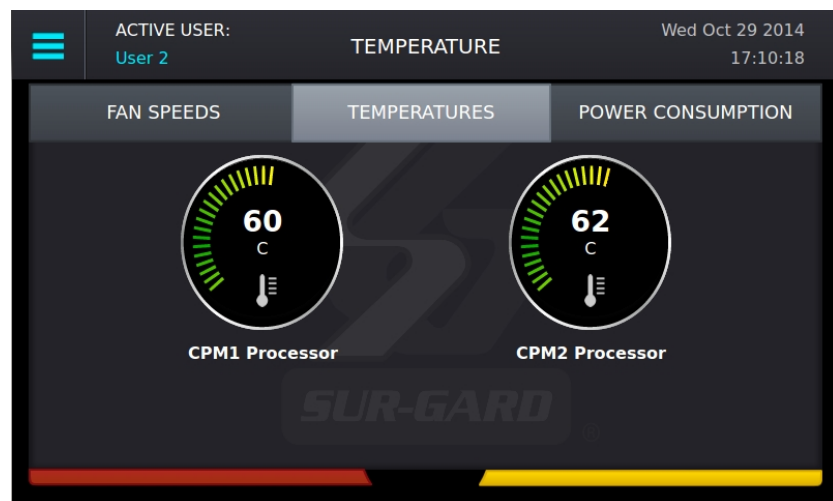


5.4.5.2 Temperatures Tab

The Temperature screen displays the current temperature of each SG-CPM5. Each gauge changes color from green to yellow to red as the temperature increases. The readings can be displayed in either Celsius or Fahrenheit, and are received approximately every 5 seconds. Both positive and negative readings are shown.

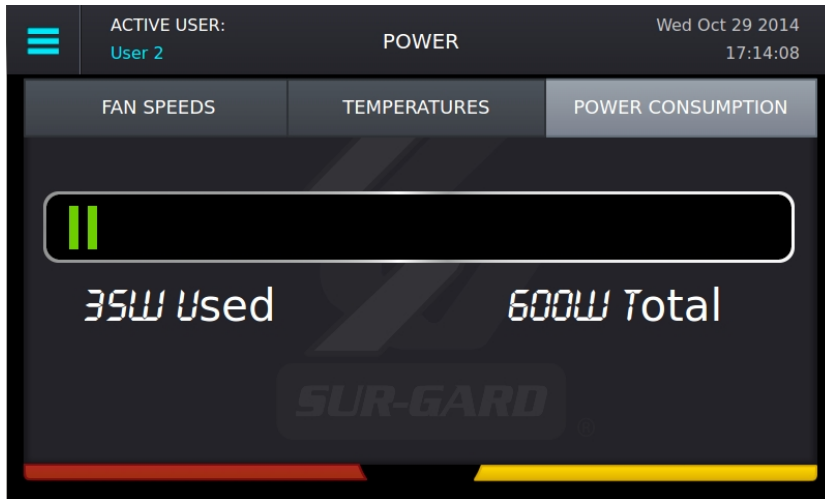
Temperature Alert Thresholds:

- 65°C/149°F - Normal state to Warning (generates temperature warning on printer/automation):
- 95°C/203°F - Warning to Alarm (generates temperature alarm on printer/automation):
- 55°C/131°F - Warning to normal (generates temperature restore on printer/automation):
- 85°C/185°F - Alarm to Warning (generates temperature warning on printer/automation):



5.4.5.3 Power Consumption Screen

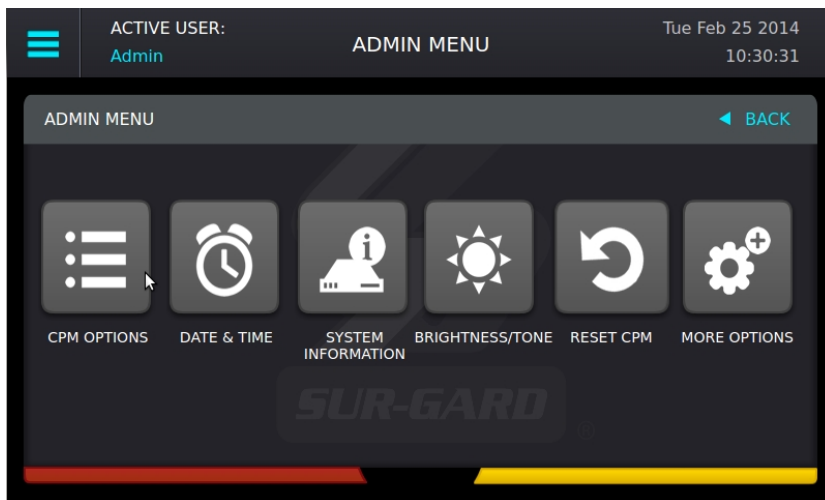
The Power Consumption screen displays the power used by the system in real time as well as the maximum total allowed. The usage bar provides a graphical indication of power consumption and changes color from green to yellow to red as the maximum is reached. At that point, a PSU5 trouble is output to printer/automation.



5.4.6 Admin Menu Screen

This screen can only be accessed if the user logs in as User 1 (Admin).

The Admin menu provides access to SG-CPM5 options, Date & Time, System Information, Brightness/Tone, Reset SG-CPM5 and More Options.

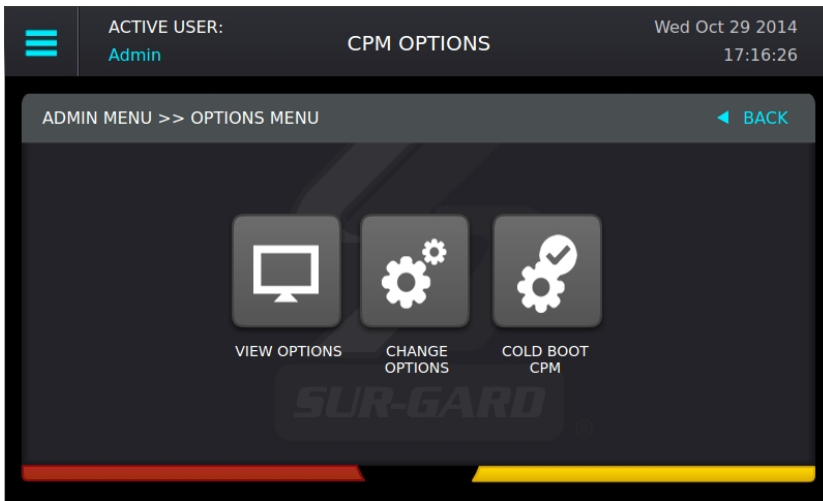


5.4.7 Admin access vs. User access

User 1 is the Admin and users 2-16 are users. The Admin has access to all the menus in the Admin Menu screen while users only have access to the View Options, Date & Time and System Information.

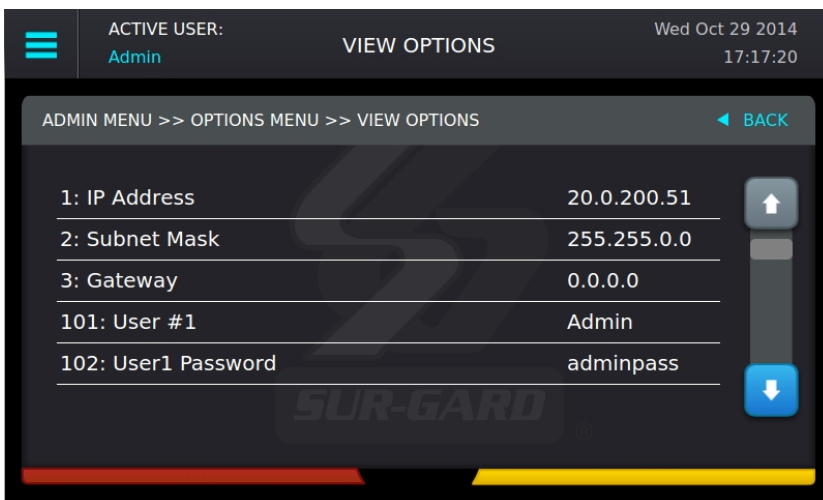
5.4.7.1 CPM options

This section provides access to View Options, Change Options, and Cold Boot CPM.



5.4.7.2 View Options

The View Options screen displays a list of system information. Use the scroll bar on the right to view all options.



5.4.7.3 Change SG-CPM5 Options

This screen is used to change SG-CPM5 options. Use the scroll bar on the right to access all SG-CPM5 options.

Option	Value
1: IP Address	20.0.200.51
2: Subnet Mask	255.255.0.0
3: Gateway	0.0.0.0
101: User #1	Admin
102: User1 Password	adminpass

Click on an option to change it. The current value and the appropriate keyboard is displayed.

To save a change, press the Save button. To cancel the changes, press the Cancel button.

If a change requires a reset, a pop-up is displayed when the user exits the Main Menu or goes back to the Home screen. If reboot later is selected, a red reset icon appears beside the time indicating that the user must reboot for the changes to take effect.

5.4.7.4 Full Keyboard Options

A full keyboard is provided for options requiring alphanumeric entry. To save changes, press the Save button. The Save button turns Red if the entry is invalid. To save a change, press the Save button. If entry is invalid, the Save button will turn Red. Press the Shift key to capitalize the next character typed. Press and hold the Shift key to enable or disable caps lock. When caps lock is enabled, all letters are entered in uppercase.

5.4.7.5 Numeric Keyboard Options

A reduced keyboard is provided for options that require only numbers and/or hex characters. This will allow the user to enter a value from 0-9, and A-F. To save changes, press the Save button. To cancel and go back to the Change options screen, click either Back or Cancel.

ACTIVE USER: Admin IP Address Tue Feb 25 2014 10:31:07

10.0.7.200 SAVE BACK

1 2 3 4 5 6 7 8 9 0
A B C D E F . ← CANCEL

SUR-GARD

5.4.7.6 Selectable Options

Options with limited input choices are provided with the appropriate options to select from. To save changes, press the Save button. To cancel and go back to the Change options screen, click either Back or Cancel.

ACTIVE USER: Admin Automation Mode Mon Nov 3 2014 12:45:28

Auto IP Fall Back SAVE BACK

Fall Back
All
IP Fall Back
Auto IP Fall Back

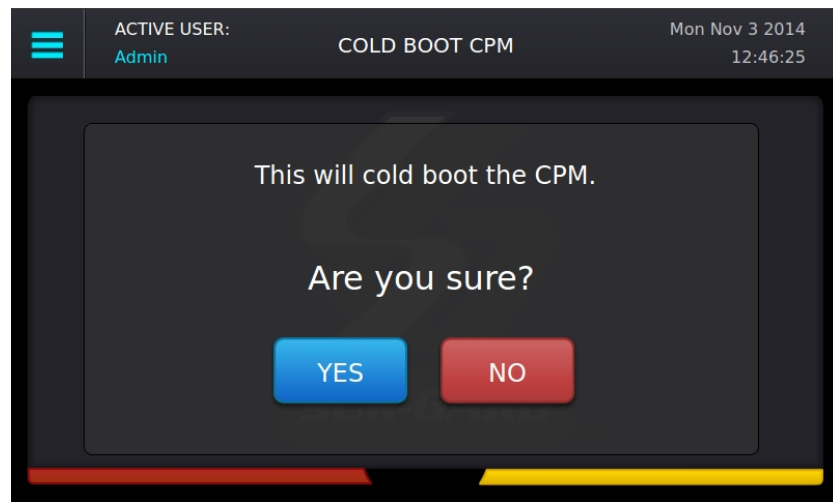
SUR-GARD

5.4.7.7 Cold Boot SG-CPM5

This will change the options back to default. This will require a reset.

When Cold Boot CPM is selected, the following prompt is displayed: “This will restore CPM options to default. Restore now?”

To restore the SG-CPM5 options to default press the “YES” button. The CPM5 reboots. To Cancel, press the “NO” button.



5.4.7.8 Set Date Time

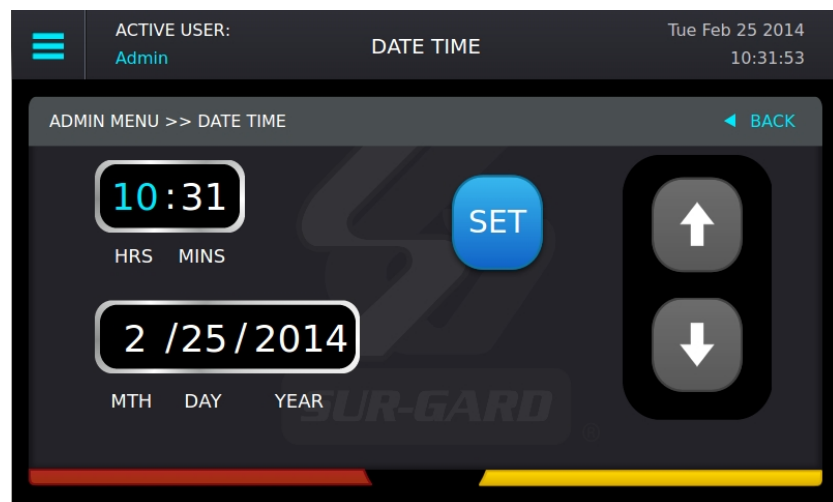
This screen is used to change the system date and time.

To change a value, click on it to change the color to blue then press the up/down arrows to select a value.

To change the value faster, hold the up/down arrow.

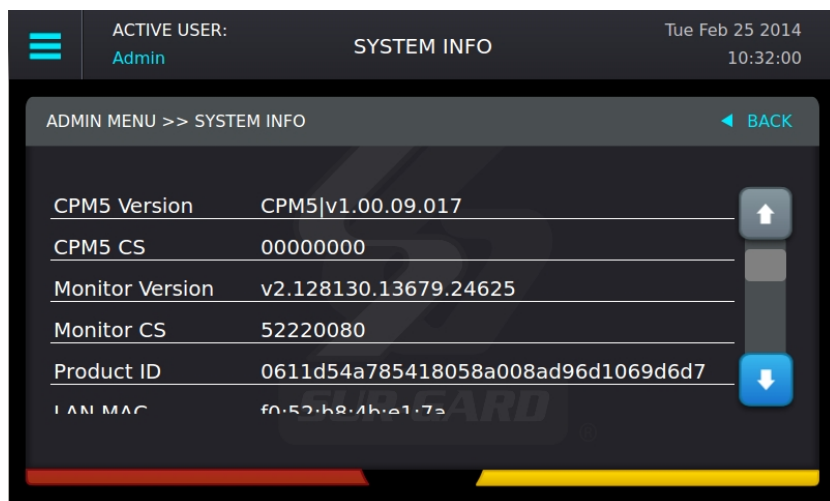
To save the date and time, press the Set button.

To cancel, press the Back link.



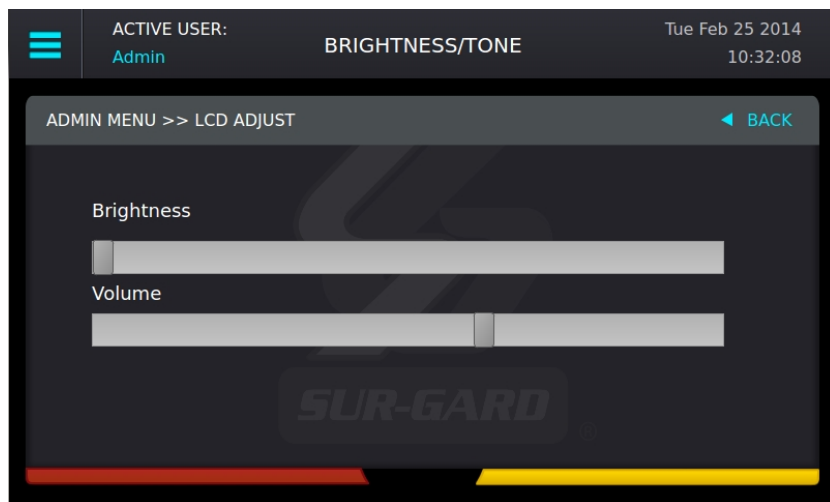
5.4.7.9 System Info

This screen displays information for the SG-CPM5. Use the scroll bar on the right to view all data. Use the Back link to go back to the previous screen.



5.4.7.10 Brightness/Tone

The Brightness/Tone screen is used to adjust the brightness of the LCD and the tone frequency of the buzzer. Changes only take effect when the slider is released. Brightness settings range from 1 (dimpest) to 100 (brightest). 9 tone settings are available ranging from 1 (1.49KHz) to 8 (4.54KHz). A setting of 0 mutes the tone.



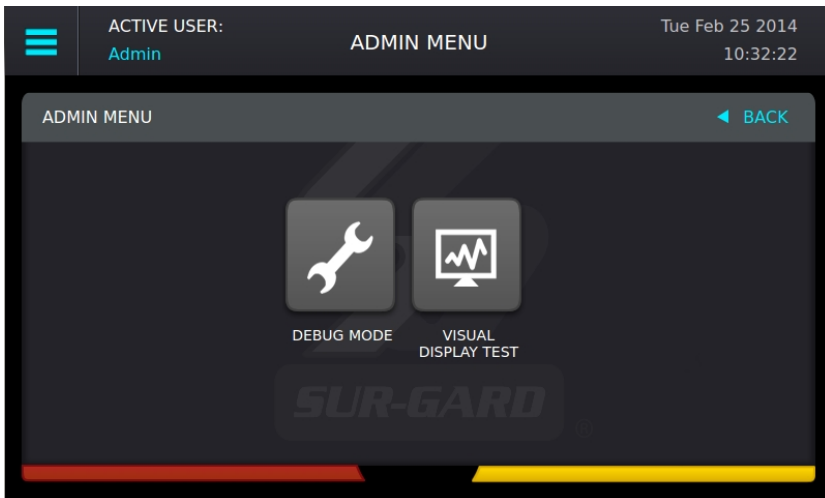
5.4.7.11 Reset SG-CPM5

This option resets the SG-CPM5. The following prompt is displayed: “This will reset the CPM. Reset now?” Select “YES” to reset the SG-CPM5 or “NO” to cancel.



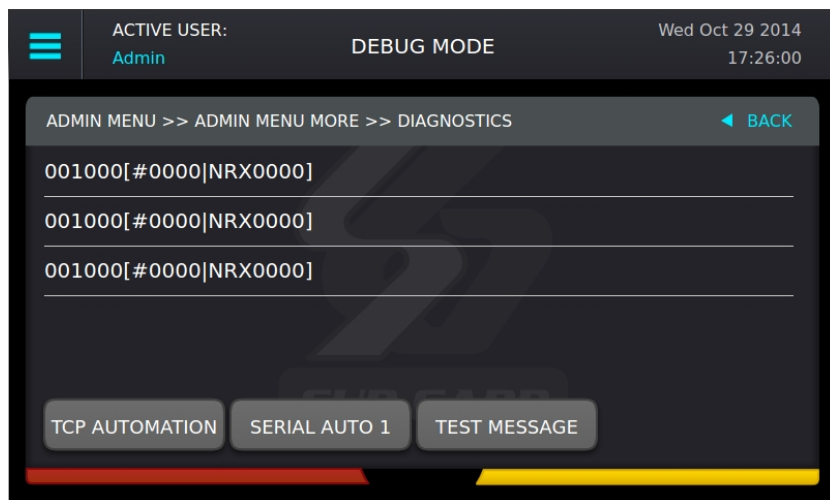
5.4.7.12 More Options

This screen is an extension of the Main Menu and displays selections for Debug Mode and Visual Display Test.



5.4.7.13 Debug Mode

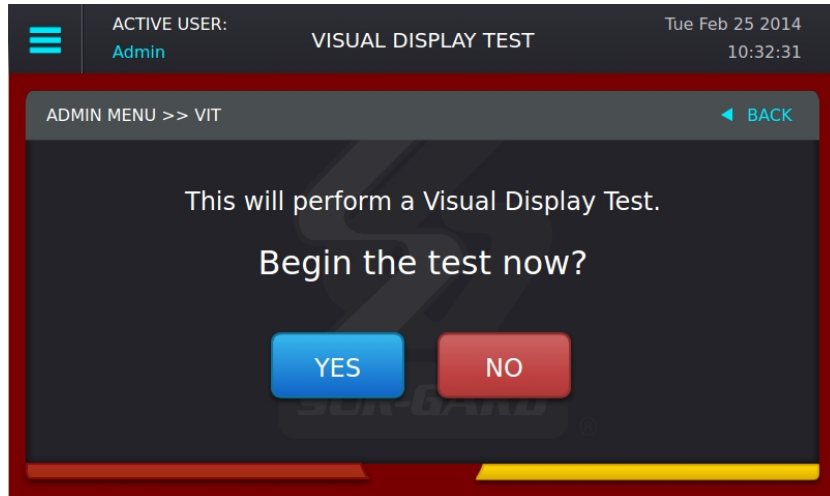
This screen displays the automation output from the receiver on either the TCP port of 1025 or the serial automation port and should only be used for troubleshooting purposes. A test message can be sent to the automation software. Only the last 500 events are displayed.



5.4.7.14 Visual Display Test

Use this screen to perform a visual display test. The following prompt is displayed: “This will perform a Visual Display Test. Begin the test now?” Press “YES” to start the test. Press the “NO” button to cancel.

When the test is performed, the screen changes to white, the LEDs of all the line cards and the SG-CPM5 turn on, and the buzzer activates. The test lasts for approximately 5 seconds. If this test is performed on the standby CPM5, the line card LEDs do not light steady as only the Active/Manual CPM is communicating to the line cards.

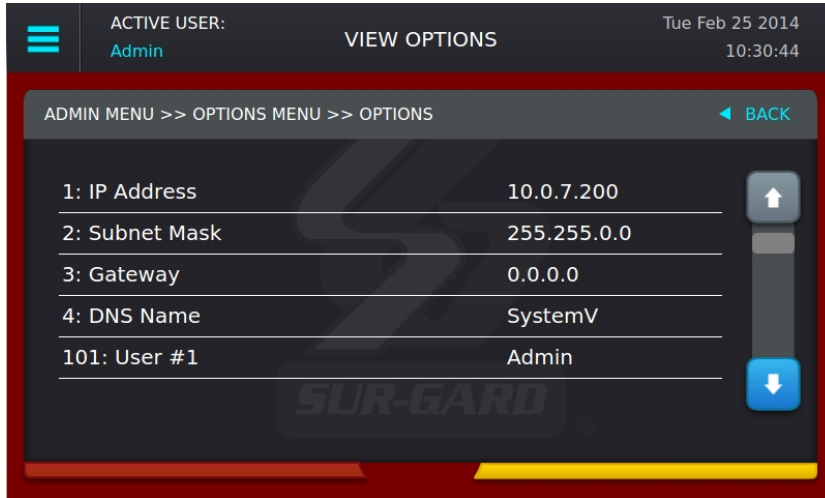


5.4.8 User Menu

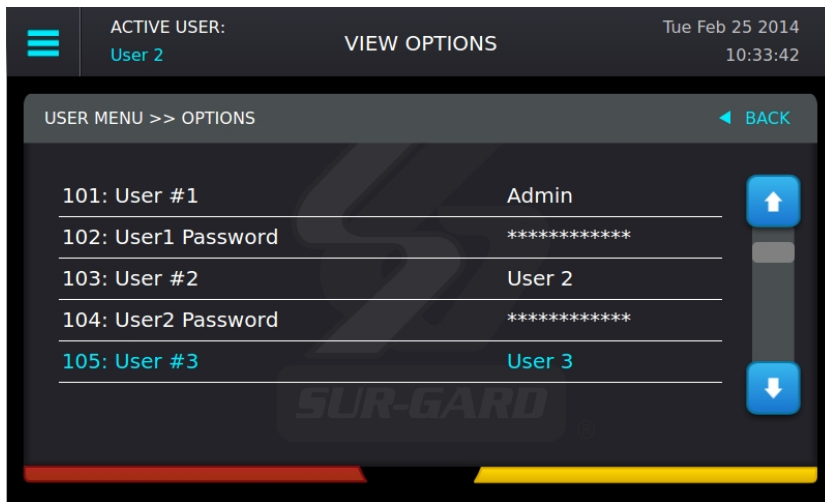
This screen can only be accessed if the User logs in as a user or User 2-16. View Options are available for date & time and system information.

5.4.8.1 View Options

This screen is used to view options. Use the scroll buttons to view all options.



In this screen the Passwords are not visible and will be seen as *****



NOTE: For details on the Date & Time or the System information, See "Set Date Time" on page 59 and See "System Info" on page 60.

6.0 Options

In This Chapter...

6.1 SG-CPM5 Options	65
6.1.1 SG-CPM5 Options: [0XX] - IP Options	65
6.1.2 SG-CPM5 Options: [1XX] - User Name/Password Options	65
6.1.3 SG-CPM5 Options: [2XX] - System Options	66
6.1.4 SG-CPM5 Options: [3XX] - LCD Options	66
6.1.5 SG-CPM5 Options: [4XX] - Automation Options	66
6.1.6 SG-CPM5 Options: [5XX] - Printer Options	74
6.1.7 SG-CPM5 Options: [6XX] and [7XX] - Troubles	75
6.2 SG-DLR5-IP Options	77
6.2.1 SG-DRL5-IP Options: [1XX] - System Hardware	77
6.2.2 SG-DRL5-IP Options: [2XX] - Signaling Options	79
6.2.3 SG-DRL5-IP Options: [3XX] - System Troubles	79
6.2.4 SG-DRL5-IP Options: [4XX] - System Options	81
6.2.5 Profile Options	88

6.1 SG-CPM5 Options

6.1.1 SG-CPM5 Options: [0XX] - IP Options

These sections contain options related to IP addresses.

Option [001]: IP Address

Default (0.0.0.0) - DHCP

This section is the IP address of the SG-CPM5. The IP Address is entered as a dotted decimal number. Example: 192.168.002.045. Each segment of the IP address has a valid range from 000 to 255. The default of 0.0.0.0 sets the IP as DHCP.

NOTE: The unit must be reset before parameter changes take effect.

Option [002]: Subnet Mask

Default (255.255.0.0)

This section is the subnet mask of the SG-CPM5. The subnet mask is entered as a dotted decimal number. Example: 255.255.000.000. Each segment of the subnet mask has a valid range from 000 to 255.

If section [001] is set to 0.0.0.0, the SG-CPM5 uses the Subnet Mask from the DHCP server.

NOTE: The unit must be reset before parameter changes take effect.

Option [003]: Gateway Address

Default (0.0.0.0)

The gateway address is the IP address of the router used in the event that the data being sent is not on the same network as the SG-CPM5. The gateway address is entered as a dotted decimal number. Example: 192.168.002.001. Each segment of the gateway address has a valid range from 000 to 254.

If section [001] is set to 0.0.0.0, the SG-CPM5 uses the Gateway from the DHCP server.

NOTE: The unit must be reset before parameter changes take effect.

6.1.2 SG-CPM5 Options: [1XX] - User Name/Password Options

These sections are used to change user names and passwords needed to access the programming menu and console connection. Sixteen users accounts are available. User 1 is the Administrator, while users 2 through 16 are assigned to individual operators. The Administrator can access all menus. Other user accounts are limited to read-only access.

Option [101]: User#1 (Admin) User Name

Default (Admin)

This section is the user name of the Administrator. Valid user names are between 1 and 8 characters, case-sensitive and can be composed of numbers, spaces, and upper/lower-case letters. User names cannot begin with a space.

Option [102]: User#1 (Admin) Password

Default (adminpass)

This section is the password for the Administrator. Valid passwords are between 8 and 20 characters and can be composed of numbers and upper-/lower-case letters. Passwords cannot contain **any** spaces.

Options [103], [105], [107], [109], [111], [113], [115], [117], [119], [121], [123], [125], [127], [129] and [131]: User Names 2-16

Defaults (User 2) - (User 16)

These sections are the user names of individual users. Valid user names are between 1 and 8 characters, case-sensitive and can be composed of numbers, spaces, and upper/lower-case letters. User names cannot begin with a space.

Options [104], [106], [108], [110], [112], [114], [116], [118], [120], [122], [124], [126], [128], [130] and [132]: User Passwords 2-16

Defaults (AAAAAAA)

These sections are the passwords of individual users. Valid passwords are between 8 and 20 characters and can be composed of numbers and upper-/lower-case letters. Passwords cannot contain **any** spaces.

6.1.3 SG-CPM5 Options: [2XX] - System Options

Option [201]: Number of Line Cards

Default (24)

This option is used to set the number of line cards polled by the SG-CPM5. Valid entries are from 1 to 24. The number of line cards being polled must be programmed the same for each SG-CPM5. Line cards must be installed in order, starting with slot 1 and ending with slot 24.

Option [202]: Buzzer Tone

Default (6)

This option is used to set the tone of the buzzer that sounds when the system receives an alarm and is not able to forward the alarm message to automation (Serial or TCP/IP). If set to '0', the buzzer will not sound when the SG-CPM5 is in Manual mode and alarm messages are pending.

NOTE: For UL installations, setting the buzzer tone to '0' is not permitted.

Option Value	Buzzer Frequency
0	NONE/OFF
1	1.49KHz
2	1.99KHz
3	2.10KHz
4	2.65KHz
5	3.15KHz
6	3.97KHz
7	4.27KHz
8	4.54KHz

Option [204]: License Key

Default (0000 0000 0000 0000 0000 0000 0000 0000)

Certain system functions are only available after the purchase of the appropriate license. Once the license key is obtained, it must be entered into this section to activate the related function. If an invalid license key is entered, the printer only message "Invalid License Key" is generated. The default of all 0's indicates that no license key was entered.

NOTE: The SG-System 5 checks the license key on system power-up.

Option [205]: Temperature Format

Default (00)

This option controls the format of any temperature displayed on the LCD.

Celsius (00) - Temperature is displayed as Celsius.

Fahrenheit (01) - Temperature is displayed as Fahrenheit.

6.1.4 SG-CPM5 Options: [3XX] - LCD Options

Option [301]: Brightness Control

Default (50)

This option controls the brightness of the LCD touchscreen. Valid entries are from 1 to 99, where 1 is the least bright and 99 is the brightest. In order to avoid selecting a value that cannot be seen, Sur-Gard recommends using the Brightness/Tone menu.

6.1.5 SG-CPM5 Options: [4XX] - Automation Options

These sections are used to configure automation options. For Visual Verification (via the Advanced Output Protocol), the SG-Automation output follows the active SG-CPM5. This means that even if SG-Automation is in Manual mode, the SG-CPM5 continues to output signals for the Advanced Output Protocol.

Option [401]: Automation Mode*Default Auto IP Fallback(4)*

The TCP/IP connection is the primary output of automation alarms. Sockets appear and disappear as processes are terminated and initiated. After socket loss, automation output is redirected to other connections. This option controls how output is redirected if a connection fails.

NOTE: The unit must be reset before parameter changes take effect.

Loop (0)

The active SG-CPM5 uses TCP/IP at start-up. The unit automatically loops between TCP/IP and serial if failure is detected. If neither TCP/IP nor serial are present, the SG-CPM5 switches to Manual mode. In Manual mode, the standby SG-CPM5 only takes over if the active/manual SG-CPM5 fails or is rebooted.

Fallback (1)

If both outputs are present, the active SG-CPM5 uses TCP/IP until it fails then switches to serial. The SG-CPM5 does not switch back to TCP/IP mode until a reset fallback command is received from the console. If neither TCP/IP nor serial are present, the SG-CPM5 switches to manual mode. In manual mode, the standby SG-CPM5 only takes over if the active/manual SG-CPM5 fails or is rebooted.

All Mode (2)

The active SG-CPM5 always sends to all connected outputs. If at least one output replies with an ACK, the alarm is considered to be transmitted, whether the other output acknowledged it or not. This setting is NOT recommended. If neither TCP/IP nor serial are present, the SG-CPM5 switches to manual mode. In manual mode, the standby SG-CPM5 only takes over if the active/manual SG-CPM5 fails or is rebooted.

IP Fallback Mode (3)

At start-up, the primary SG-CPM5 sends through the TCP/IP output.

If the primary SG-CPM5 TCP/IP output fails, the secondary SG-CPM5 sends through the TCP/IP output.

If the secondary SG-CPM5 TCP/IP output fails, the primary SG-CPM5 sends through its serial output.

If the primary SG-CPM5 serial fails, the secondary SG-CPM5 sends through the serial output.

If neither TCP/IP nor serial are present, the SG-CPM5 switches to manual mode.

The SG-CPM5 does not switch back to TCP/IP mode until a reset fallback command is received from the console or the serial fails.

Automatic IP Fallback (4)

This mode is similar to Fallback except that when the TCP/IP connection is restored, the SG-CPM5 automatically returns to the TCP/IP output to send events. This eliminates the need for a reset fallback command from the console.

Automation Mode Diagrams

FIGURE 6-1: Flow Diagram for Loop Mode (0)

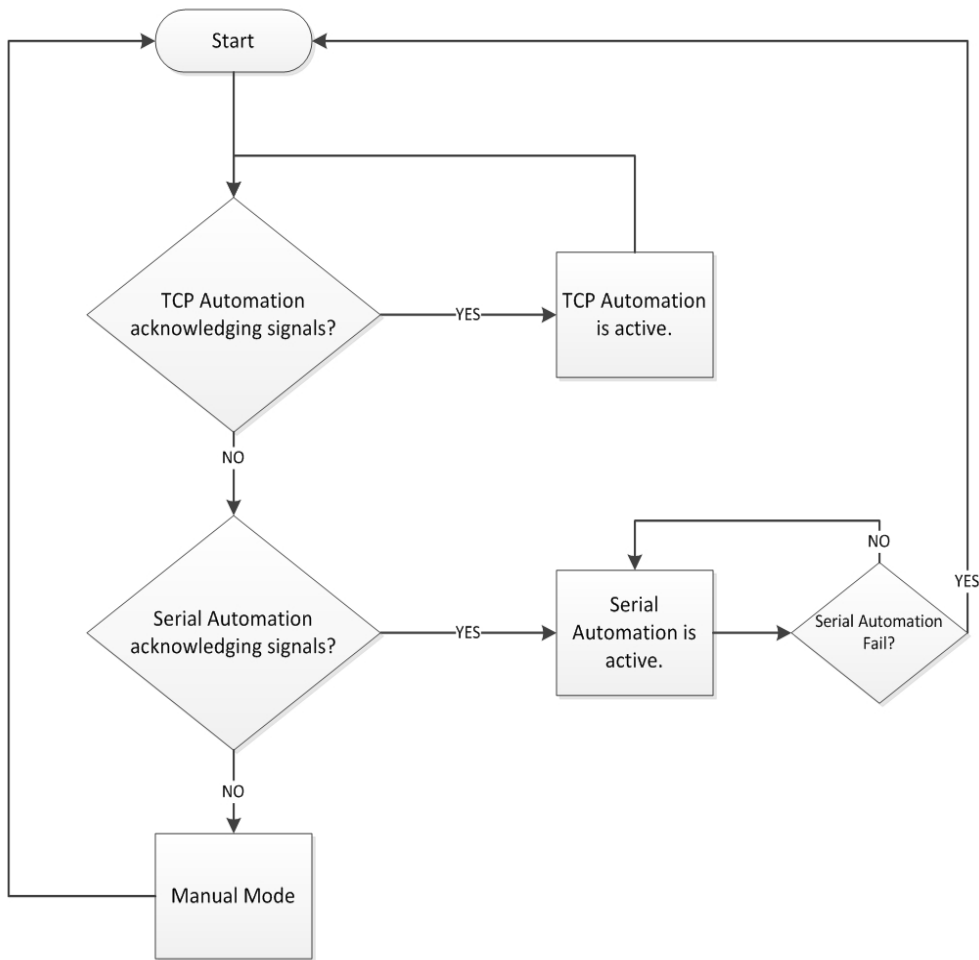


FIGURE 6-2: Flow Diagram for Fallback Mode (1)

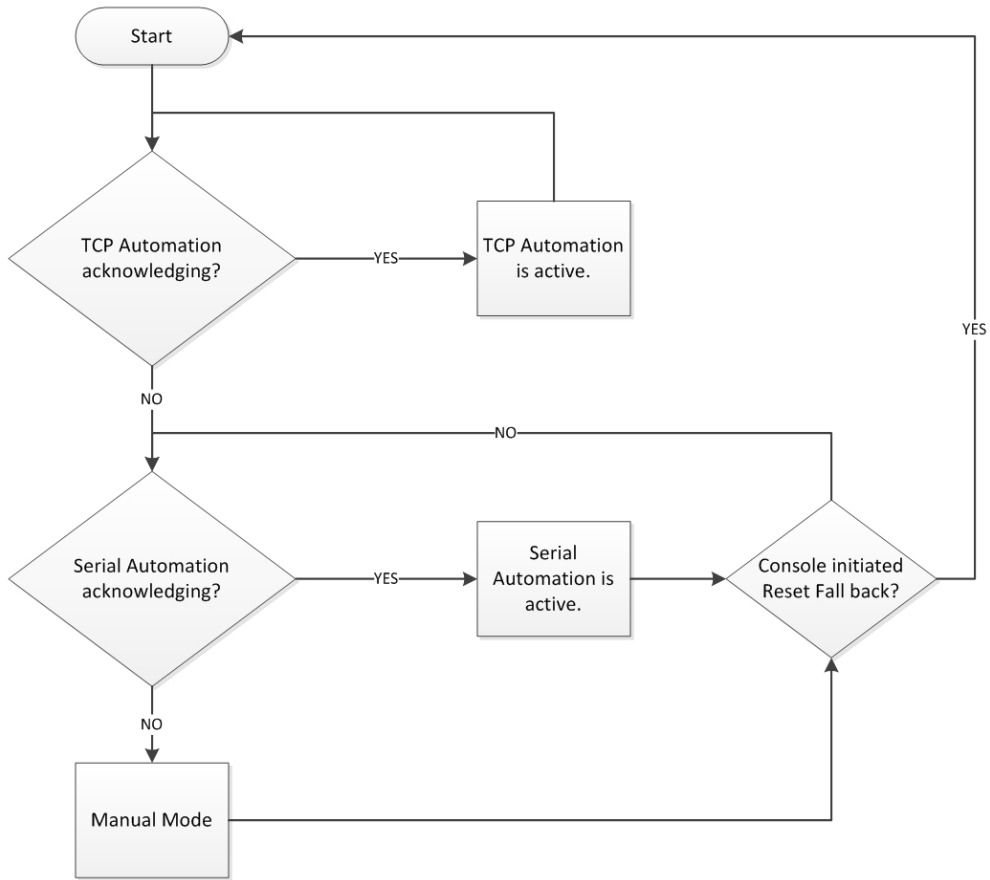


FIGURE 6-3: Flow Diagram for All Mode (2)

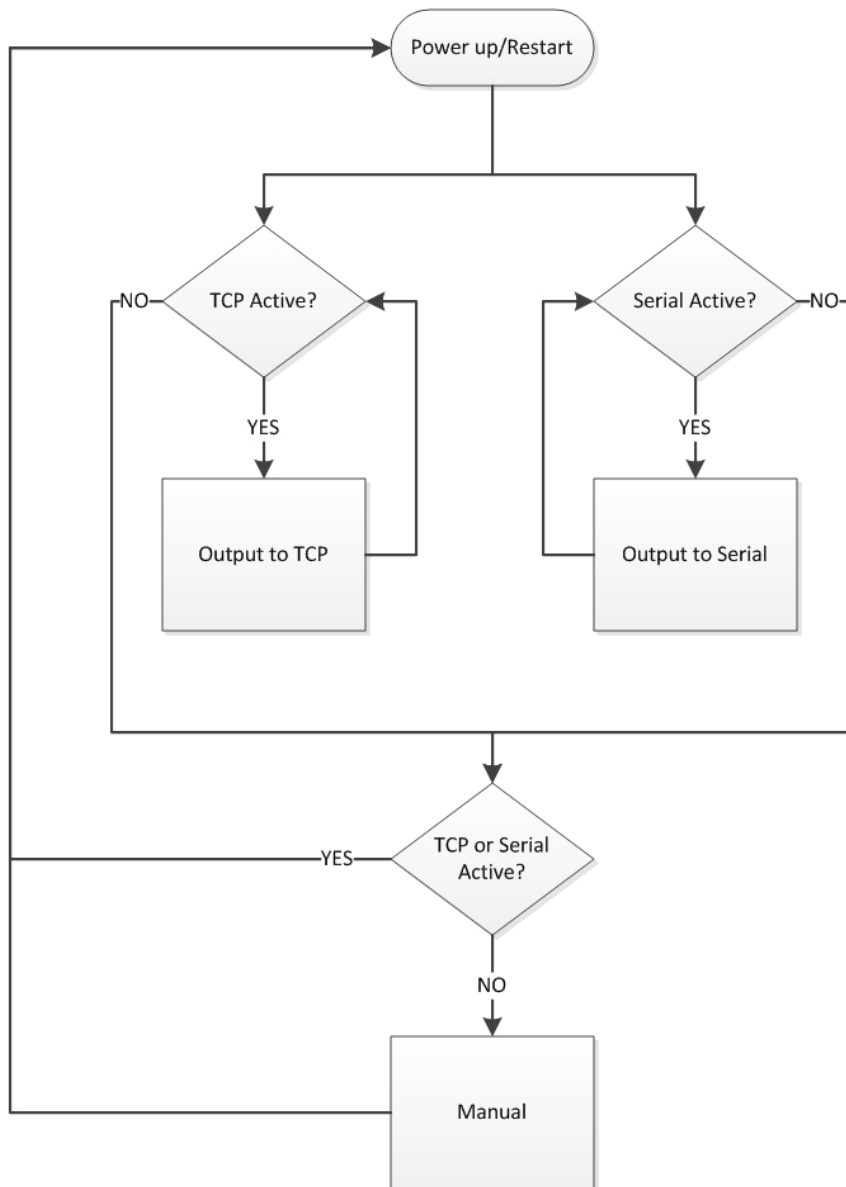


FIGURE 6-4: Flow Diagram for IP Fallback Mode (3)

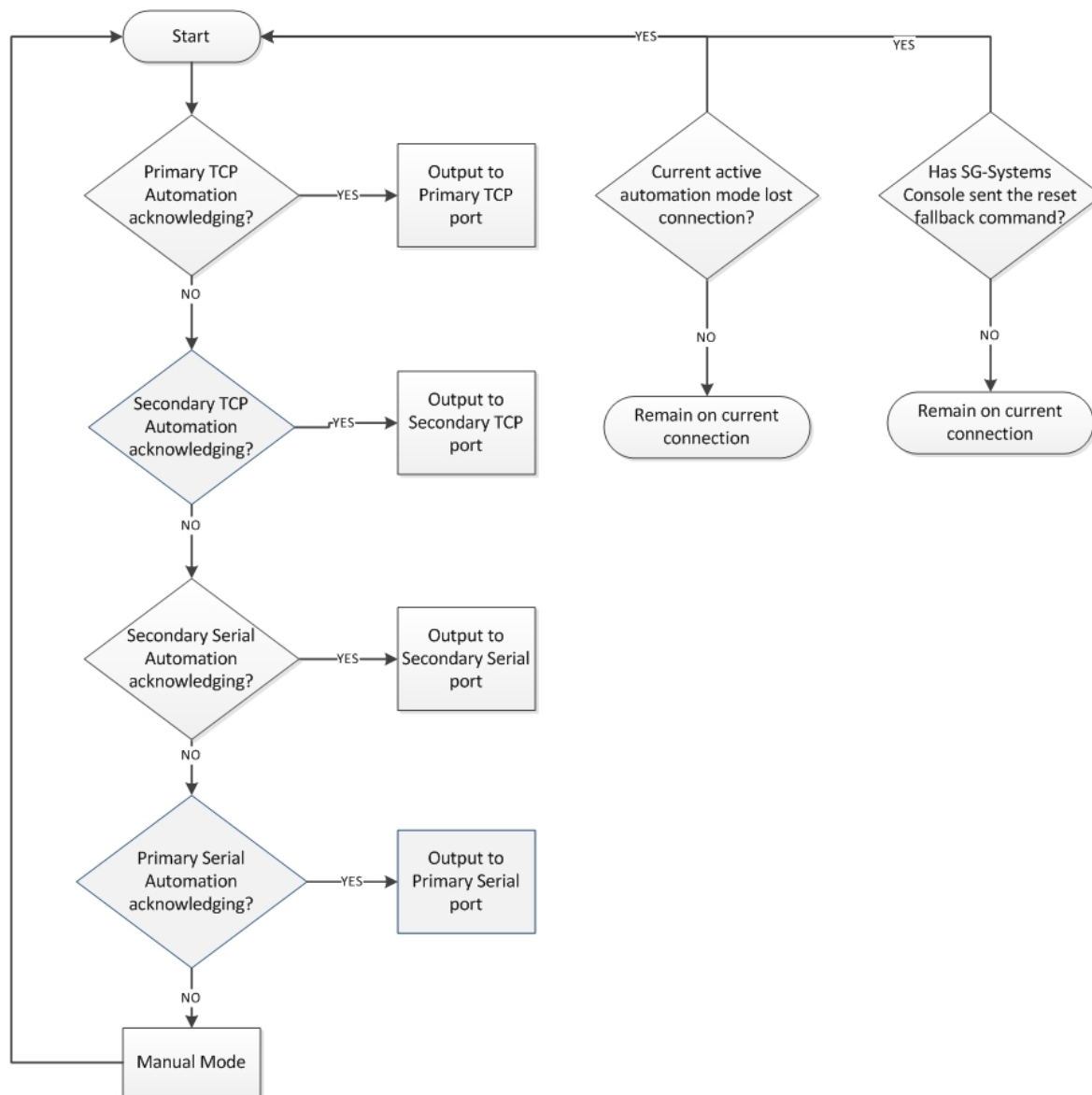
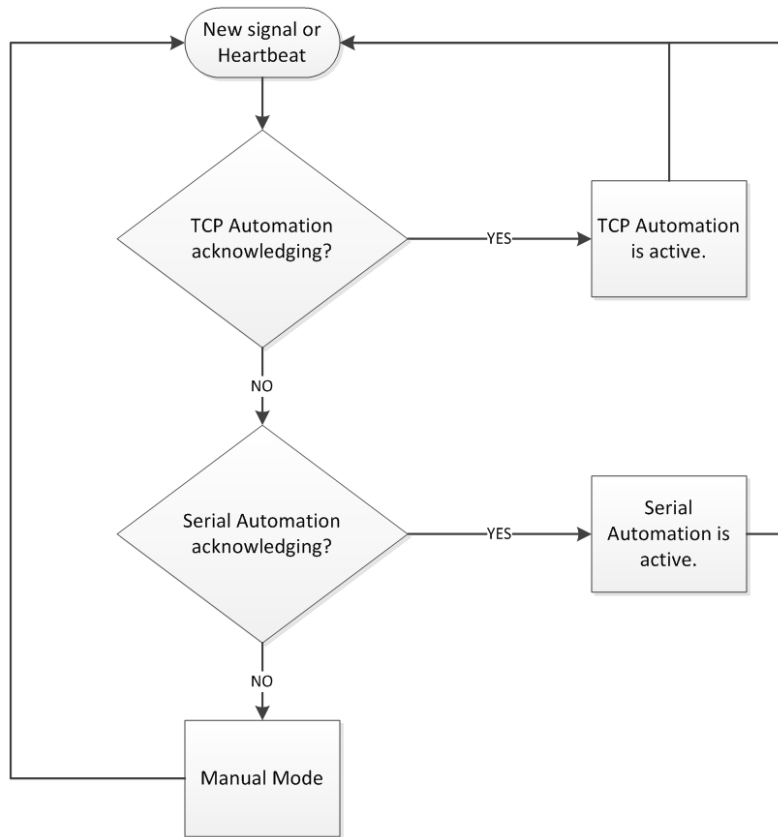


FIGURE 6-5: Flow Diagram for Auto IP Fallback(4)

**Option [402]: COM1 (Automation) Baud Rate***Default (9600)*

Determines the baud rate at which the SG-CPM5 communicates to the automation software via serial automation port. Valid selections are: 1200, 2400, 4800, 9600, 19200, 38400, or 57600.

NOTE: The unit must be reset before parameter changes take effect.

Option [403]: COM1 Data Bits*Default (8)*

Determines the number of data bits used to communicate to the automation software via serial automation port. Valid selections are: 7 or 8.

NOTE: The unit must be reset before parameter changes take effect.

Option [404]: COM1 Parity*Default (0) - None*

Determines the parity of the automation serial port.

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

NOTE: The number of stop bits cannot be changed and is always 2.

NOTE: The unit must be reset before parameter changes take effect.

Option [408]: Receiver Number*Default (01)*

This is used to identify the receiver when communicating to the TCP/IP automation, serial automation and the printer. To change the receiver number, enter a hexadecimal number from "01" to "FE." Receiver Number applies to all traffic unless overridden by other options.

Option [409]: Output RRRLL Digits*Default (5)*

Indicates the number of digits the SG-CPM5 sends in the header to the automation output. This should be left as 5 unless the automation software does not support MLR2000 or System III output protocol. This affects both internal SG-CPM5 and DRL5-IP messages. The valid range is from 03 to 09, for example:

03 is RRL

09 is RRRLLLLLL

Option [410]: Protocol ID*Default (0) - 0RRLL*

When this option is programmed as 0RRLL(0), the SG-CPM5 outputs its internal messages in the following format:

0RRLL[#AAAA|Nxyy]

When this option is programmed as SRRL(S), the SG-System 5 outputs its internal messages in the following format:

SRRL[#AAAA|Nxyy]

S,0 (zero): protocol ID

RR: Receiver number

LL: Line number

AAAA: Account code, always 0000

Nxyy: SIA event

Option [411]: Heartbeat Timer*Default (30)*

This timer determines how often a heartbeat transmission is sent to automation. The heartbeat transmission is used to ensure communications through serial and TCP/IP are functioning normally when the receiver has no traffic. Any traffic from the receiver resets the heartbeat timer. The heartbeat is only sent if no other signals are received during the timer's countdown.

Enter a value, in seconds, from 01 through 99 to set the time interval between heartbeat transmissions. Enter 00 to disable heartbeat transmission.

NOTE: When 00 is used, heartbeats are not sent to automation software - this results in the connection to the automation software being unmonitored.

NOTE: For UL listed products, 00 is not permitted.

Option [412]: ACK Wait*Default (40)*

Determines how long the SG-CPM5 waits for acknowledgment on an automation output before retransmitting. Enter a value, in tenths of a second, from 40 (4.0 seconds) to 99 (9.9 seconds).

NOTE: The unit must be reset before parameter changes take effect.

Option [413]: B32 Headers*Default (Disabled)*

Compatible with MAS B32 automation software through TCP/IP. B32 Headers apply only to TCP/IP automation messages, not serial or printer messages. When enabled, all outgoing and incoming automation messages contain four extra bytes at the start of each packet.

These four bytes are:

00 00 LL LL

Where:

LL LL = is the BCD value of the size of the entire packet.

For example, if the original length was 1B HEX bytes, the packet would be:

00 00 00 31 <original packet>

The ACK back to the receiver would be:

00 00 00 05 06

NOTE: The ACK back to the SG-CPM5 ("30 30-30 35 06" ASCII) is at the end of the packet.

NOTE: The unit must be reset before parameter changes take effect.

Option [414]: Automation Update Time & Date*Default (Disabled)*

This option allows the SG-CPM5 to receive time and date updates, from automation that supports this feature, via the TCP/IP port. If the SG-CPM5 fails to get the time and date within a 24 hour period, a status message is sent to the printer and automation, following the internal trouble protocol. The

trouble status on the SG-System 5 is not affected. The receiver console time update function must be disabled when using this feature to ensure that the SG-CPM5 remains synchronized with the automation PC.

Printer message: "Time&Date Update Fail"

Automation message: 0RRLLL[#0000]NRU0000]

Option [450]: Visual Verification Automation TCP Port

Default (2025)

This section sets the visual verification automation TCP port. The visual verification automation TCP port is the port that automation or the SG-Systems Console connects to.

6.1.6 SG-CPM5 Options: [5XX] - Printer Options

Option [501]: Printer Mode

Default (Loop)

Printer outputs can be configured in a similar manner to automation outputs except that the only acceptable values are either LOOP (00) or ALL (02). Setting the printer mode to ALL transmits the printer message to all active ports. The first acknowledgment received is used to process the next printer message. Setting the Printer Mode to LOOP operates similar to the Automation mode LOOP, whereas it outputs to TCP/IP. If TCP/IP fails, it outputs to Serial. If Serial fails, it outputs to TCP/IP, etc.

NOTE: Order of sequence is TCP then serial. Sur-Gard does NOT recommend changing the default setting unless using more than one printer.

NOTE: The unit must be reset before parameter changes take effect.

Option [502]: Serial Printer 1 Format

Default (Disabled)

This section enables the serial handshake protocol that the SG-CPM5 uses to send signals to the device (printer or terminal) connected to the serial printer port.

NOTE: The unit must be reset before parameter changes take effect.

Option [503]: Serial Printer 1 Baud Rate

Default (57600)

Determines the baud rate at which the SG-CPM5 communicates to the serial printer connected on serial printer port 1.

Valid entries are: 1200, 2400, 4800, 9600, 19200, 38400, or 57600.

NOTE: The unit must be reset before parameter changes take effect.

Option [504]: Serial Printer 1 Data Bits

Default (8)

Determines the number of data bits used to communicate to the serial printer on serial printer port 1. Choose 7 or 8 data bits.

NOTE: The unit must be reset before parameter changes take effect.

Option [505]: Serial Printer 1 Parity

Default (0)

Determines the parity of serial printer 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 cannot be fixed at 2.

NOTE: The unit must be reset before parameter changes take effect.

6.1.7 SG-CPM5 Options: [6XX] and [7XX] - Troubles

The following sections control the display of trouble conditions. For installations that do not have a full SG-System 5 configuration, selected troubles can be disabled. Disabled troubles do not display.

Option [601]: CPM5 1 Fan Trouble

Default (Enabled)

This option is used to enable or disable SG-CPM5 1 fan supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [602]: CPM5 2 Fan Trouble

Default (Enabled)

This option is used to enable or disable SG-CPM5 2 fan supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [603]: PSU5 1 Trouble

Default (Enabled)

This option is used to enable or disable SG- PSU5 1 supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [604]: PSU5 2 Trouble

Default (Enabled)

This option is used to enable or disable SG- PSU5 2 supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [605]: Fan Tray 1 Trouble

Default (Enabled)

This option is used to enable or disable fan tray 1 supervision. If this option is set to 'Disabled', the trouble condition is not reported.

Option [606]: Fan Tray 2 Trouble

Default (Enabled)

This option is used to enable or disable fan tray 2 supervision. If this option is set to 'Disabled', the trouble condition is not reported.

Option [607]: Fan Tray 3 Trouble

Default (Enabled)

This option is used to enable or disable fan tray 3 supervision. If this option is set to 'Disabled', the trouble condition is not reported.

Option [608]: Fan Tray 4 Trouble

Default (Enabled)

This option is used to enable or disable fan tray 4 supervision. If this option is set to 'Disabled', the trouble condition is not reported.

Option [609]: UPS AC 1 Trouble

Default (Disabled)

This option is used to enable or disable UPS AC 1 input supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [610]: UPS AC 2 Trouble

Default (Disabled)

This option is used to enable or disable UPS AC 2 input supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [611]: UPS Battery 1 Trouble*Default (Disabled)*

This option is used to enable or disable UPS Battery 1 input supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [612]: UPS Battery 2 Trouble*Default (Disabled)*

This option is used to enable or disable UPS Battery 2 input supervision. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [613]: SG-Serial Automation Pri - 1 Trouble*Default (Enabled)*

This option is used to enable or disable SG-Serial Automation 1 supervision for the primary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [615]: SG-Serial Automation Sec - 1 Trouble*Default (Disabled)**Secondary SG-CPM5 Default (Enabled)*

This option is used to enable or disable SG-Serial Automation 1 supervision for the secondary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

NOTE: Must be enabled for UL installations.

Option [617]: SG-Serial CPM1 Printer 1 Trouble*Default (Enabled)*

This option is used to enable or disable SG-CPM5 1 printer supervision. If this option is set to 'Disabled', the trouble condition is not reported.

Option [618]: SG-Serial CPM2 Printer 1 Trouble*Default (Enabled)*

This option is used to enable or disable SG-CPM5 2 printer supervision. If this option is set to 'Disabled', the trouble condition is not reported.

Option [621]:SG-TCP Automation Pri - 1 Trouble*Default (Enabled)*

This option is used to enable or disable SG-TCP automation port (port 1025) supervision for the primary SG-CPM5. If any of these options are set to 'Disabled', the corresponding trouble condition will not be reported.

Option [631]:SG-TCP Automation Sec - 1 Trouble*Default (Disabled)**Secondary SG-CPM5 Default (Enabled)*

This option is used to enable or disable the SG-TCP automation port (port 1025) supervision for the secondary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

Option [665]:TCP Printer Pri - 1 Trouble*Default (Enabled)*

This option is used to enable or disable TCP Printer 1 (port 1027) supervision for the primary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

Option [675]:TCP Printer Sec - 1 Trouble*Default (Enabled)*

This option is used to enable or disable TCP Printer 1 (port 1027) supervision for the secondary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

Option [709]:SG-TCP/IP CPM1 Visual Verification Trouble*Default (Enabled)*

This option is used to enable or disable visual verification port (port 2025) supervision for the primary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

Option [710]:SG-TCP/IP CPM2 Visual Verification Trouble*Default (Enabled)*

This option is used to enable or disable visual verification port (port 2025) supervision for the secondary SG-CPM5. If this option is set to 'Disabled', the trouble condition is not reported.

6.2 SG-DLR5-IP Options

SG-Systems Console v2.3 (or higher) software is required for programming and communication with SG-DRL5-IP Receiver Modules.

6.2.1 SG-DRL5-IP Options: [1XX] - System Hardware

Option [101]: IP Address (IPv4)*Default (10.0.7.200)*

This IP address identifies the SG-DRL5-IP on the IP network. Each node on the IP network must be assigned a unique IP. The SG-DRL5-IP can only use Static IPs. DHCP is not supported.

Option [102]: Subnet Mask (IPv4)*Default (255.255.0.0)*

A mask used to determine the 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.

Option [103]: Gateway Address (IPv4)*Default (0.0.0.0)*

This is the address of the Gateway through which the SG-DRL5-IP must communicate to reach the transmitter. This address is applied to all modules connected to the SG-DRL5-IP.

Option [111]: 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 this number has any special requirements. Also, ensure that no duplicate receiver numbers are used. For example, in the messages below, the receiver numbers are in **bold**.

001**001** [#0000]NMIss00]SG -**01**-001-0000-NMIss00- Firmware Update Initiated**Option [112]: Line Card Number - Channel 1***Default (01)*

The line card number provides a virtual identification code for each SG-DRL5-IP module. Hexadecimal numbers "01" to "FE" can be programmed to identify line cards. For example, in the automation/printer messages below, the line card numbers are in **bold**.

001**001** [#0000]NMIss00]SG -01-**001**-0000-NMIss00- Firmware Update Initiated**Option [113]: Line Card Number - Channel 2***Default (02)*

The line card number provides a virtual identification code for each SG-DRL5-IP module. Hexadecimal numbers "01" to "FE" can be programmed to identify line cards. For example, in the automation/printer messages below, the line card numbers are in **bold**.

001**001** [#0000]NMIss00]SG -01-**001**-0000-NMIss00- Firmware Update Initiated

Option [114]: Line Card Number - Channel 3*Default (03)*

The line card number provides a virtual identification code for each SG-DRL5-IP module. Hexadecimal numbers “01” to “FE” can be programmed to identify line cards. For example, in the automation/prINTER messages below, the line card numbers are in **bold**.

001**001** [#0000]NMIss00]SG -01-**001**-0000-NMIss00- Firmware Update Initiated**Option [115]: Line Card Number Length***Default (0A) - 3-Digit LC num (2-Digit Receiver DEC)*

This option is used to determine how many digits from the line card number are sent to the output. This option also sets whether the number will display in Hex or decimal. Program this option with one of the following:

- | | |
|--|--|
| 1-HEX Digit LC num (hex) (01) | Sends only one Hex digit to the printer or computer output (the last digit of the line card number is used). |
| 2-HEX Digit LC num (hex) (02) | Sends 2-digit Hex line card number to the output. |
| 3-HEX Digit LC num (hex) (03) | Sends 3-digit Hex line card number to the output (a leading zero is inserted prior to the line card number). |
| 3-Digit LC num (2-Digit Receiver DEC)(0A) | Sends 3-digit line card number in decimal; sends 2-digit receiver number in decimal |

Option [116]: Protocol ID*Default (01) - 0RRLLL*

- | | |
|--|--|
| 00 - SRRLLL | = Output for all internal signals is SRRL protocol |
| 01 - 0RRLLL | = Output for all internal signals is 0RRL protocol |
| 02 - SRRLLL, Leading space (DVACS only) | = Output signals in automation protocol SRRL with leading space in the zone (DVACS only) |
| 03 - 0RRLLL, Leading space (DVACS only) | = Output signals in automation protocol 0RRL with leading space in the zone (DVACS only) |

When this option is programmed as SRRLLL(00), the SG-DRL5-IP outputs internal messages in the following format:

SRRLLL [#AAAA | Nxxyy]

If it is programmed as 0RRLLL(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 |

Option [123] Busy Out*Default (00) - Buffer Full, SG-CPM5 Absent, No Time or Firmware Corrupt*

The line card stops acknowledging transmitter events under specific trouble conditions if option [123] is programmed with the following:

- | | |
|-----------|--|
| 00 | No time is set on the SG-CPM5, firmware corruption, the buffer is full or the SG-DRL-IP has lost communication with the SG-CPM5. |
| 01 | SG-DRL-IP is never busied out |
| 04 | SG-DRL-IP is busied out, there is no automation or the SG-CPM5 is absent |
| 05 | SG-DRL-IP is busied out, buffer is full or the SG-CPM5 is absent |

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

The status LED indicates the following for busy conditions:

Number of Flashes	Reason
Solid	Internal network failed
1 flashes	CPM absent
2 flashes	Line card is busied out
3 flashes	Printer buffer full

Number of Flashes	Reason
4 flashes	Computer buffer full
5 flashes	Checksum failed

6.2.2 SG-DRL5-IP Options: [2XX] - Signaling Options

Option [201]: Alarm Port Number - Channel 1

Default (3061), UDP

Use this option to set the alarm port connection number for the receiver. While the default value will suffice in environments involving just one receiver, Option [201] can be used to differentiate receivers in a complex, multiple receiver environment. If this option is changed, transmitters communicating to the SG-DRL5-IP must be programmed with the new port number. Communicators connected to the receiver send their signals to this port.

Option [202]: Alarm Port Number - Channel 2

Default (3071), UDP

Use this option to set the alarm port connection number for the receiver. While the default value will suffice in environments involving just one receiver, Option [202] can be used to differentiate receivers in a complex, multiple receiver environment. If this option is changed, transmitters communicating to the SG-DRL5-IP must be programmed with the new port number. Communicators connected to the receiver will send their signals to this port.

Option [203]: Alarm Port Number - Channel 3

Default (3081), UDP

Use this option to set the alarm port connection number for the receiver. While the default value will suffice in environments involving just one receiver, Option [203] can be used to differentiate receivers in a complex, multiple receiver environment. If this option is changed, transmitters communicating to the SG-DRL5-IP must be programmed with the new port number. Communicators connected to the receiver will send their signals to this port.

Option [221]: Transmitter Absent Debounce Time

Default (120)

The time, in seconds, for which a transmitter configured in supervised mode must be absent before a transmitter failure condition is reported. Valid entries are 5-65535 seconds. The transmitter is considered absent when it hasn't received any alarm traffic or heartbeats for the duration of the transmitter absent debounce time.

This is a dynamic option and will follow the profile setting it is assigned to for the associated DNIS.

NOTE: The transmitter starts in the absent condition and must be restored before using this window.

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 180 seconds. For UL Commercial Burg Installations (standard/encrypted line security), this option shall be programmed as 200 seconds. For UL Commercial Fire installations (single communication technology) this option shall be programmed as 300 seconds.

Option [222]: Transmitter Restoral Time

Default (60)

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.

This is a dynamic option and will follow the profile setting it is assigned to for the associated DNIS.

NOTE: Two heartbeats must be received from the supervised IP transmitter before the register and restoral of the communicator.

For UL Listed products, the permitted setting is 90 seconds.

6.2.3 SG-DRL5-IP Options: [3XX] - System Troubles

Option [301]: Transmitter Unencrypted Trouble

Default (Enabled)

This trouble enables or disables unencrypted event reporting. When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported. This trouble is reported when the transmitter power cycles.

Enabled Condition reported

Disabled Condition not reported

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

Option [302]: Unknown Account Trouble*Default (Enabled)*

This trouble enables or disables unknown account signal reporting (not in the account table). When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported.

Enabled Condition reported

Disabled Condition not reported

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

Option [303]: Supervised Accounts Exceeded Trouble*Default (Enabled)*

This trouble enables or disables reporting when the account table limit is exceeded by a new account trying to connect to a SG-DRL5-IP with a full account table. When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported.

Enabled Condition reported

Disabled Condition not reported

NOTE: The number of accounts permitted in the account table is dependent on the table size unlocked for the IP channel.

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

Option [304]: Transmitter Restore Trouble*Default (Enabled)*

This trouble enables or disables reporting of a transmitter restoral condition on the line card. When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported..

Enabled Condition reported

Disabled Condition not reported

Option [305]: Transmitter Absent Trouble*Default (Enabled)*

This trouble enables or disables reporting of a transmitter failure/absent condition on the line card. When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported..

Enabled Condition reported

Disabled Condition not reported

NOTE: The number of accounts permitted in the account table is dependent on the table size unlocked for the IP channel.

Option [306]:TX Swap Trouble*Default (Enabled)*

This trouble enables or disables reporting of a transmitter swap condition on the line card. When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported..

Enabled Condition reported

Disabled Condition not reported

Option [307]:Invalid Report Trouble*Default (Enabled)*

This trouble enables or disables reporting of an invalid report condition. A received signal is invalid if it has a bad checksum or encryption key mismatch. When set to Enabled, the trouble is reported. When set to Disabled, the trouble is not reported..

Enabled Condition reported

Disabled Condition not reported

Option [308]:Transmitter Deleted Trouble*Default (Enabled)*

This trouble enables or disables reporting when a transmitter account is deleted from the table. Setting the trouble to enabled signifies the trouble will be reported; setting the trouble to disabled signifies the trouble will not be reported.

Enabled Condition reported

Disabled Condition not reported

6.2.4 SG-DRL5-IP Options: [4XX] - System Options

Option [401]: Connect 24 Program Confirm Disable

Default (00)

This option enables the receiver to block requests for Connect 24 and DLS program confirmation. When enabled (01), the receiver does not respond to confirmation requests from Connect 24 or DLS. When disabled (00), the receiver responds to confirmation commands. For installations using the Connect 24 programming service, leave this option disabled.

Option [402]: UTC Time Update

Default (00) - Disabled

This option defines the time zone that the SG-System 5 is operating in. From the table below, locate the appropriate time zone, then program option [402] with the value in the first column.

This is a dynamic option and will follow the profile setting it is assigned to for the associated DNIS.

Programmed (Hex)	GMT Offset	Time zone Short code	Time zone name
0	NA	NA	Disabled
1	-12	BIT	Baker Island Time
2	-11.75		
3	-11.5		
4	-11.25		
5	-11	NUT	Niue Time
		SST	Somoa Standard Time
6	-10.75		
7	-10.5		
8	-10.25		
9	-10	HAST	Hawaii-Aleutian Standard Time
		THAT	Tahiti Time
		TKT	Tokelau Time
		CKT	Cook Island Time
0A	-9.75		
0B	-9.5	MIT	Marquesas Island Time
0C	-9.25		
0D	-9	AKST	Alaska Standard Time
		GIT	Gambier Island Time
0E	-8.75		
0F	-8.5		
10	-8.25		
11	-8	PST	Pacific Standard Time
		PST	Pitcarirn Standard Time
		CIST	Clipperton Island Standard Time
12	-7.75		
13	-7.5		
14	-7.25		
15	-7	MST	Mountain Standard Time
16	-6.75		
17	-6.5		
18	-6.25		
19	-6	CST	Central Standard Time
		GALT	Galapagos Time
		PIT	Peter Island Time
		EAST	Easter Island Standard Time
1A	-5.75		
1B	-5.5		

Programmed (Hex)	GMT Offset	Time zone Short code	Time zone name
1C	-5.25		
1D	-5	EST	Eastern Standard Time
		COT	Colombia Time
		ECT	Ecuador Time
		PET	Peru Time
		ACT	Acre Time
1E	-4.75		
1F	-4.5	VST	Venezuela Standard Time
20	-4.25		
21	-4	AST	Atlantic Standard Time
		CLST	Chile Standard Time
		BWST	Brazil Western Standard Time
		SLT	San Luis Time
		PYT	Paraguay Time
		JFST	Juan Fernandez Island Standard Time
		GYT	Guyana Time
		FKST	Falkland Island Standard Time
		BOT	Bolivia Time
22	-3.75		
23	-3.5	NST	Newfoundland Standard Time
24	-3.25		
25	-3	CGT	Central Greenland Time
		ART	Argentina Time
		BRT	Braziliz Time
		UYT	Uruguay Standard Time
		SRT	Suriname Time
		ROTT	Rothera Time
		PMST	Pierre & Miquelon Standard Time
		GFT	French Guiana Time
26	-2.75		
27	-2.5		
28	-2.25		
29	-2	GST	South Georgia and the South Sandwich Islands
		BEST	Brazil Eastern Standard Time
2A	-1.75		
2B	-1.5		
2C	-1.25		
2D	-1	EGT	Eastern Greenland Time
		CVT	Cape Verde Time
		AZOST	Azores Standard Time
2E	-0.75		
2F	-0.5		
30	-0.25		
31	0	WET	Western European Time
		GMT	Greenwich Mean Time
		SLT	Sierra Leone Time
		IST	Ireland Standard Time
32	0.25		
33	0.5		
34	0.75		
35	1	CET	Central European Time
		WAT	Western Africa Time

Programmed (Hex)	GMT Offset	Time zone Short code	Time zone name
		BST	British Summer Time
36	1.25		
37	1.5		
38	1.75		
39	2	EET	Eastern European Time
		CAT	Central Africa Time
		SYT	Syrian Standard Time
		SAST	South Africa Standard Time
		IST	Israel Standard Time
3A	2.25		
3B	2.5		
3C	2.75		
3D	3	MSK	Moscow Standard Time
		EAT	Eastern Africa Time
		AST	Arabic Standard Time
		AST	Arabia Standard Time
		AST	Al Manamah Standard Time
3E	3.25		
3F	3.5	IRST	Iran Standard Time
40	3.75		
41	4	AMST	Armenia Standard Time
		SCT	Seychelles Time
		GST	Gulf Standard Time
		SAMT	Samara Time
		RET	Reunion Time
		MUT	Mauritius Time
		ICT	Iles Crozet Time
		GET	Georgia Standard Time
		AZT	Azerbaijan Time
42	4.25		
43	4.5	AFT	Afghanistan Time
44	4.75		
45	5	WKST	West Kazakhstan Standard Time
		PKT	Pakistan Time
		YEKT	Yekaterinburg Time
		UZT	Uzbekistan Time
		TMT	Turkmenistan Time
		TJT	Tajikistan Time
		TFT	French Southern and Antarctic Time
		MVT	Maldives Time
		MAWT	Mawson Time
		KGT	Kyrgyzstan Time
		HMT	Heard and McDonald Island Time
		DAVT	Davis Time
46	5.25		
47	5.5	IST	Indian Standard Time
48	5.75	NPT	Nepal Time
49	6	XJT	Xinjiang Standard Time
		EKST	East Kazakhstan Standard Time
		LKT	Sri Lanka Time
		VOST	Vostok Time
		OMSK	Omsk Standard Time

Programmed (Hex)	GMT Offset	Time zone Short code	Time zone name
		NOVT	Novosibirsk Time
		BTT	Bhutan Time
		BIOT	British Indian Ocean Time
4A	6.25		
4B	6.5	CCT	Cococ Islands Time
		MMT	Myanmar Time
4C	6.75		
4D	7	CXT	Christmas Island Time
		KOVT	Khovd Time
		KRAT	Krasnoyarsk Time
		WIB	Waktu Indonesia Bagian Barat
		ICT	Indochina Time
		BDT	Bangladesh Standard Time
4E	7.25		
4F	7.5		
50	7.75		
51	8	AWST	Australian Western Standard Time
		CST	China Standard Time
		HKST	Hong Kong Standard Time
		WITA	Waktu Indonesia Bagian Tengah
		TWT	Taiwan Time
		SST	Scarborough Shoal Time
		SIT	Spratly Island Time
		SGT	Singapore Time
		PST	Philippine Standard Time
		PIT	Pratas Islands
		PIT	Parcel Island Time
		MYT	Malaysia Time
		MNT	Mongolia Time
		MBT	Macclesfield Bank Time
		IRKT	Irkutsk Time
		BDT	Brunei Time
		ACIT	Ashmore and Cartier Island Time
52	8.25	APO	Apo Island Time
53	8.5		
54	8.75	ACWST	Australian Central Western Standard Time
55	9	YAKT	Yakutsk Time
		JST	Japan Standard Time
		KST	Korea Standard Time
		WIT	Waktu Indonesia Bagian Timur
		TPT	East Timor Time
		PWT	Palau Time
56	9.25		
57	9.5	ACST	Australian Central Standard Time
58	9.75		
59	10	AEST	Australian Eastern Standard Time
		GST	Guam Standard Time
		YAPT	Yap Time
		VLAT	Vladivostok Time
		TRUT	Truk Time
		PGT	Papua New Guinea Time
		DTAT	District de Terre Adelie Time

Programmed (Hex)	GMT Offset	Time zone Short code	Time zone name
		ChST	Chamorro Standard Time
5A	10.25		
5B	10.5	LHST	Lord Howe Standard Time
5C	10.75		
5D	11	KOST	Kosare Standard Time
		NCT	New Caledonia Time
		VUT	Vanuatu Time
		SBT	Solomon Island Time
		PONT	Phonpei Standard Time
		MAGT	Magadan Island Time
5E	11.25		
5F	11.5	NFT	Norfolk Island Time
60	11.75		
61	12	NZST	New Zealand Standard Time
		FJT	Fiji Time
		WFT	Wallis and Futuna Time
		TVT	Tuvalu Time
		PETT	Petropavlovsk Time
		NRT	Nauru Time
		MHT	Marshall Island Time
		GILT	Gilbert Island Time
		ANAT	Anadyr Time
62	12.25		
63	12.5		
64	12.75	CHAST	Chatham Island Standard Time
65	13	PHOT	Phoenix Island Time
		TOT	Tonga Time
66	13.25		
67	13.5		
68	13.75		
69	14	LINT	Line Island Time

Option [403]: Two-way Audio Message*Default (00)*

This code is sent to the automation software to indicate two-way audio has been requested by a transmitter. If this option is set to (00), the audio-initiated message is not sent to the automation output.

This is a dynamic option and will follow the profile setting it is assigned to for the associated DNIS.

Setting	Description	Automation Output
00	Two-way audio message disabled	No automation output
01	Outputs automation message with protocol ID "S" and adds the phone number for the call-back	SRRLLL [#AAAAAAAAA NLFssoo*#NNNNNNNNNNNNNNNN*] [DC4]
02	Outputs automation message with protocol ID "0" and adds the dialed phone number for the call-back	ORRLLL [#AAAAAAAAA NLFssoo*#NNNNNNNNNNNNNNNN*] [DC4]
03	Outputs automation message with protocol ID "S" and adds RRLl and the dialed phone number for the call-back	SRRLLL [#AAAAAAAAA NLFssoo*RRLl#NNNNNNNNNNNNNNNN*] [DC4]

Setting	Description	Automation Output
04	Outputs automation message with protocol ID "0" and adds RRLl and the dialed phone number for the call-back	0RRLl [#AAAAAAAA NLFssoo*RRLl#NNNNNNNNNNNNNN*] [DC4]
05	Telephone Number Protocol (4) will be used	4RRLlLaaaaaLlLlTTTTTT [DC4]

Where:

ss	Shelf Number (always 00)
oo	Slot number
a	Account code of the transmitter. The output length is determined by option [404]: Account Digit Stripping. The maximum number of digits is six. If this value is less than six digits, leading spaces (20 Hex) are added to pad the output to six characters.
A	Account code of the transmitter. The output length is determined by option [404]: Account Digit Stripping.
#	Delimiter.
N	Call back number received from the transmitter.
L/T	Call back number. If the number is less than ten digits, leading zeros (30 Hex) are added to pad the output to ten digits
[DC4]	Terminator (14 Hex)

NOTE: Any Hex digits in the phone number received are treated as a string terminator and are not output.

NOTE: For options 1-4, if no phone number or an invalid phone number is received, the printer messages "-LF-AUDIO CALLBACK INITIATED - Phone Number Not Programmed" and/or automation message [#AAAA|NLFssoo*RRLl#Phone Number Not Programmed*][DC4] are generated.

NOTES:

- If option 05 is selected and no number is sent from the transmitter, the phone number is output to the automation software as all 0 (zero). For example: 4RRLlLaaaaa0000000000 [DC4]
- For the telephone number output protocol, the communicator's 10-digit account code is used (a maximum of six digits is output) based on the setting of option 46. If more than six digits are output, the last six digits are sent for the telephone number protocols.
- If less than four account code digits are to be output, leading spaces are added. If an account code of less than four digits is received, two leading spaces are added and 0 the rest of the account code is filled with zeros. For example: if account code '1' is received is 1, the output is 'ss0001'; if the account code is '12345', the output is 's12345'.

NOTES:

- Options 03 and 04 always transmit in decimal.

Option [404]: Account Digit Max

Default (00)

This option controls the account number output (from 1 to 9 digits) for both account codes. If the option is set to "00", the transmitter account code is sent to the output as 10 digits. The panel account code is sent as received.

This is a dynamic option and will follow the profile setting it is assigned to for the associated DNIS.

For example, if option [404] is set to "07" the following occurs:

Transmitter	Output
1234567890	4567890
0000001234	0001234
0012345678	2345678

Panel	Output
567890	567890
7890	7890
00567890	00567890

If option [404] is set to "00" the following occurs:

Transmitter	Output
1234567890	1234567890
0000001234	0000001234

Panel	Output
567890	567890
7890	7890
00567890	00567890

Default (00) - RRLLL

When set to 01 (DNIS), the SG-DRLS-IP outputs the DNIS received from the transmitter instead of the RRLLL. This applies to all messages generated by the transmitter (alarm signals, test transmissions, etc.) as well as any internally generated event messages by the receiver (unknown account, transmitter restoral, encryption enabled, etc.). Any event that uses the account code of the transmitter has RRLLL replaced by the DNIS. For events generated with account 0000, RRLLL is not replaced with the DNIS.

Default (00) - Disabled

Available settings for SIM Number output:

00 (Disabled)	No SIM number output
01 (Printer & Automation)	SIM number output to printer and automation
02 (Printer Only)	SIM number output to printer only
03 (Automation Only)	SIM number output to automation only

sRRLLAAAAAAAAAASSSSSSSSSSSSSSSSSSSSSS

[illegible]

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

Default(00) - Disabled

This is a dynamic option and will follow the profile setting it is assigned to, for the associated DNIS.

6.2.5 Profile Options

6.2.5.1 Dynamic Profile Options

IP channel profiles are sets of customized options designed to improve efficiency by tailoring the programming of the receiver to a customer's unique parameters.

The following options are used with the DNIS table to provide custom options per DNIS and per profile.

Option [221]: Transmitter Absent Debounce Time

Default (120)

Option [222]: Transmitter Restoral Time

Default (60)

Option [402]: UTC Time Update

Default (00)

Option [403]: Two-way Audio Message

Default (00)

Option [404]: Account Digit Max

Default (00)

Option [407]: Encryption Enable

Default(Disabled)

Appendix A: DEC-HEX-BIN Conversion Chart

Dec	Hex	Binary
000	00	0000 0000
001	01	0000 0001
002	02	0000 0010
003	03	0000 0011
004	04	0000 0100
005	05	0000 0101
006	06	0000 0110
007	07	0000 0111
008	08	0000 1000
009	09	0000 1001
010	0A	0000 1010
011	0B	0000 1011
012	0C	0000 1100
013	0D	0000 1101
014	0E	0000 1110
015	0F	0000 1111
016	10	0001 0000
017	11	0001 0001
018	12	0001 0010
019	13	0001 0011
020	14	0001 0100
021	15	0001 0101
022	16	0001 0110
023	17	0001 0111
024	18	0001 1000
025	19	0001 1001
026	1A	0001 1010

Dec	Hex	Binary
027	1B	0001 1011
028	1C	0001 1100
029	1D	0001 1101
030	1E	0001 1110
031	1F	0001 1111
032	20	0010 0000
033	21	0010 0001
034	22	0010 0010
035	23	0010 0011
036	24	0010 0100
037	25	0010 0101
038	26	0010 0110
039	27	0010 0111
040	28	0010 1000
041	29	0010 1001
042	2A	0001 1010
043	2B	0010 1011
044	2C	0010 1100
045	2D	0010 1101
046	2E	0010 1110
047	2F	0010 1111
048	30	0011 0000
049	31	0011 0001
050	32	0011 0010
051	33	0011 0011
052	34	0011 0100
053	35	0011 0101

Appendix B: ASCII Character Chart

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

Appendix C: TCP/IP Ports

SG-CPM5 TCP/IP Ports

Port Number	Port Description
69	TFTP port
1024	SG-Systems console command port
1025	Automation port
1027	Printer port
1031	Debug port
2025	Visual verification automation port

Appendix D: Events & Messages

SG-CPM5 Messages

NOTE: The slots (ss) of the SG-CPM5 are C1 for the primary SG-CPM5 and C2 for secondary SG-CPM5.

Description/Event	Automation message	Printer Message
SG-PSU5 1 Failure -PSU is Missing, or any other PSU failure	001000[#0000 NAT0000]	SG -01-000-0000-NAT0000-SG-PSU 1 Failed
SG-PSU5 1 Restoral	001000[#0000 NAR0000]	SG -01-000-0000-NAR0000- SG-PSU 1 Restored
SG-PSU5 2 Failure -PSU is Missing, or any other PSU failure	001000[#0000 NAT0001]	SG -01-000-0000-NAT0001- SG-PSU 2 Failed
SG-PSU5 2 Restoral	001000[#0000 NAR0001]	SG -01-000-0000-NAR0001- SG-PSU 2 Restored
SG-PSU5 Compatibility Failure (the two installed power supplies are not at the same power rating)	001000[#0000 NYP00FF]	SG -01-000-0000-NYP00FF-PSU Compatibility Failed
SG-PSU5 Compatibility Restore	001000[#0000 NYQ00FF]	SG -01-000-0000-NYQ00FF-PSU Compatibility Restore
Fan Circuit 1 Failure (LINE CARD FAN 1)	001000[#0000 NYX0100]	SG -01-000-0000-NYX0100-Fan Circuit 1 Failed
Fan Circuit 1 Restoral Fan (LINE CARD FAN 1)	001000[#0000 NYZ0100]	SG -01-000-0000-NYZ0100-Fan Circuit 1 Restored
Fan Circuit 2 Failure Fan (LINE CARD FAN 2)	001000[#0000 NYX0200]	SG -01-000-0000-NYX0200-Fan Circuit 2 Failed
Fan Circuit 2 Restoral Fan(LINE CARD FAN 2)	001000[#0000 NYZ0200]	SG -01-000-0000-NYZ0200-Fan Circuit 2 Restored
Fan Circuit 3 Failure (LINE CARD FAN 3)	001000[#0000 NYX0300]	SG -01-000-0000-NYX0300-Fan Circuit 3 Failed
Fan Circuit 3 Restoral Fan(LINE CARD FAN 3)	001000[#0000 NYZ0300]	SG -01-000-0000-NYZ0300-Fan Circuit 3 Restored
Fan Circuit 4 Failure Fan(LINE CARD FAN 4)	001000[#0000 NYX0400]	SG -01-000-0000-NYX0400-Fan Circuit 4 Failed
Fan Circuit 4 Restoral Fan(LINE CARD FAN 4)	001000[#0000 NYZ0400]	SG -01-000-0000-NYZ0400-Fan Circuit 4 Restored
Fan Circuit 5 Failure (SG-CPM5 FAN 1)	001000[#0000 NYX0500]	SG -01-000-0000-NYX0500-Fan Circuit 5 Failed
Fan Circuit 5 Restoral Fan (SG-CPM5 1 FAN)	001000[#0000 NYZ0500]	SG -01-000-0000-NYZ0500-Fan Circuit 5 Restored
Fan Circuit 6 Failure Fan (SG-CPM5 2 FAN)	001000[#0000 NYX0600]	SG -01-000-0000-NYX0600-Fan Circuit 6 Failed
Fan Circuit 6 Restoral Fan (SG-CPM5 2 FAN)	001000[#0000 NYZ0600]	SG -01-000-0000-NYZ0600-Fan Circuit 6 Restored
TCP/IP SG-CPM5 1 Printer Failure	001000[#0000 NVZ0100]	SG -01-000-0000-NVZ0100-TCP/IP 1 Printer Failed
TCP/IP SG-CPM5 1 Printer Restoral	001000[#0000 NVY0100]	SG -01-000-0000-NVY0100-TCP/IP 1 Printer Restored
TCP/IP SG-CPM5 2 Printer Failure	001000[#0000 NVZ0200]	SG -01-000-0000-NVZ0200-TCP/IP 2 Printer Failed
TCP/IP SG-CPM5 2 Printer Restoral	001000[#0000 NVY0200]	SG -01-000-0000-NVY0200-TCP/IP 2 Printer Restored
Serial SG-CPM5 1 Printer 1 Failure	001000[#0000 NVZ0102]	SG -01-000-0000-NVZ0102-Serial 1 printer Failed
Serial SG-CPM5 1 Printer 1 Restoral	001000[#0000 NVY0102]	SG -01-000-0000-NVY0102-Serial 1 printer Restored
Serial SG-CPM5 2 Printer 1 Failure	001000[#0000 NVZ0202]	SG -01-000-0000-NVZ0202-Serial 2 printer Failed
Serial SG-CPM5 2 Printer 1 Restoral	001000[#0000 NVY0202]	SG -01-000-0000-NVY0202-Serial 2 printer Restored
Serial SG-CPM5 1 Printer 2 Failure	001000[#0000 NVZ0103]	SG -01-000-0000-NVZ0103-Serial 3 printer Failed
Serial SG-CPM5 1 Printer 2 Restoral	001000[#0000 NVY0103]	SG -01-000-0000-NVY0103-Serial 3 printer Restored
Serial SG-CPM5 2 Printer 2 Failure	001000[#0000 NVZ0203]	SG -01-000-0000-NVZ0203-Serial 4 printer Failed
Serial SG-CPM5 2 Printer 2 Restoral	001000[#0000 NVY0203]	SG -01-000-0000-NVY0203-Serial 4 printer Restored
SG-TCP/IP SG-CPM5 1 Failure	001000[#0000 NNT0100]	SG -01-000-0000-NNT0100-SG-TCP/IP 1 Failed
SG-TCP/IP SG-CPM5 1 Restoral	001000[#0000 NNR0100]	SG -01-000-0000-NNR0100-SG-TCP/IP 1 Restored
SG-TCP/IP SG-CPM5 2 Failure	001000[#0000 NNT0200]	SG -01-000-0000-NNT0200-SG-TCP/IP 2 Failed
SG-TCP/IP SG-CPM5 2 Restoral	001000[#0000 NNR0200]	SG -01-000-0000-NNR0200-SG-TCP/IP 2 Restored
SG-TCP/IP SG-CPM5 1 Visual automation Failure	001000[#0000 NNT0150]	SG -01-000-0000-NNT0150-SG-Visual Verification 1 Failed
SG-TCP/IP SG-CPM5 1 Visual automation Restoral	001000[#0000 NNR0150]	SG -01-000-0000-NNR0150-SG- Visual Verification 1 Restored
SG-TCP/IP SG-CPM5 2 Visual automation Failure	001000[#0000 NNT0250]	SG -01-000-0000-NNT0250-SG- Visual Verification 2 Failed
SG-TCP/IP SG-CPM5 2 Visual automation Restoral	001000[#0000 NNR0250]	SG -01-000-0000-NNR0250-SG- Visual Verification 2 Restored
SG-Serial 1 SG-CPM5 1 Failure	001000[#0000 NYC0101]	SG -01-000-0000-NYC0101-SG-SERIAL 1 Failed
SG-Serial 1 SG-CPM5 1 Restoral	001000[#0000 NYK0101]	SG -01-000-0000-NYK0101-SG-SERIAL 1 Restored
SG-Serial 1 SG-CPM5 2 Failure	001000[#0000 NYC0201]	SG -01-000-0000-NYC0201-SG-SERIAL 2 Failed
SG-Serial 1 SG-CPM5 2 Restoral	001000[#0000 NYK0201]	SG -01-000-0000-NYK0201-SG-SERIAL 2 Restored

Description/Event	Automation message	Printer Message
SG-Serial 2 SG-CPM5 1 Failure	001000[#0000 NYC0102]	SG -01-000-0000-NYC0102-SG-SERIAL 3 Failed
SG-Serial 2 SG-CPM5 1 Restoral	001000[#0000 NYK0102]	SG -01-000-0000-NYK0102-SG-SERIAL 3 Restored
SG-Serial 2 SG-CPM5 2 Failure	001000[#0000 NYC0202]	SG -01-000-0000-NYC0202-SG-SERIAL 4 Failed
SG-Serial 2 SG-CPM5 2 Restoral	001000[#0000 NYK0202]	SG -01-000-0000-NYK0202-SG-SERIAL 4 Restored
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
Taking Over Polling	001000[#0000 NSC0001]	SG -01-000-0000-NSC0001-Taking Over Polling
Switch To Standby Mode	001000[#0000 NSC0002]	SG -01-000-0000-NSC0002-Switching To Standby Mode
Line Card Absent - Where ss is the slot of the line card	001000[#0000 NYDss01]	SG -01-000-0000-NYDss01-Line Card Absent
Line Card Restored - Where ss is the slot of the line card	001000[#0000 NYEss01]	SG -01-000-0000-NYEss01-Line Card Restored
Internal Communication Error (Computer) - Where ss is the slot of the line card	001000[#0000 NYOss00]	SG -01-000-0000-NYOss00-Computer: Inter-Comm. Error (offending message)
Internal Communication Error (Printer) - Where ss is the slot of the line card	001000[#0000 NYOss00]	SG -01-000-0000-NYOss00-Printer: Inter-Comm. Error (offending message)
Internal Communication Error (Console) - Where ss is the slot of the line card	001000[#0000 NYOss00]	SG -01-000-0000-NYOss00-Console: Inter-Comm. Error (offending message)
SG-CPM5 Primary Failure	001000[#0000 NYX0001]	SG -01-000-0000-NYX0001-Primary CPM Failure
SG-CPM5 Primary Restoral	001000[#0000 NRR0001]	SG -01-000-0000-NRR0001-Primary CPM Restore
SG-CPM5 Secondary Failure	001000[#0000 NYX0002]	SG -01-000-0000-NYX0002-Secondary CPM Failure
SG-CPM5 Secondary Restoral	001000[#0000 NRR0002]	SG -01-000-0000-NRR0002-Secondary CPM Restore
SG-CPM5 1 UPS AC Fail (PGM In)	001000[#0000 NAT0102]	SG -01-000-0000-NAT0102-UPS AC 1 Failed
SG-CPM5 1 UPS AC Restored	001000[#0000 NAR0102]	SG -01-000-0000-NAR0102-UPS AC 1 Restored
SG-CPM5 1 UPS Low Battery Restore	001000[#0000 NYR0102]	SG -01-000-0000-NYR0102-UPS Battery 1 Restored
SG-CPM5 1 UPS Low Battery	001000[#0000 NYT0102]	SG -01-000-0000-NYT0102-UPS Battery 1 Low
SG-CPM5 2 UPS AC Fail (PGM In)	001000[#0000 NAT0202]	SG -01-000-0000-NAT0202-UPS AC 2 Failed
SG-CPM5 2 UPS AC Restored	001000[#0000 NAR0202]	SG -01-000-0000-NAR0202-UPS AC 2 Restored
SG-CPM5 2 UPS Low Battery Restore	001000[#0000 NYR0202]	SG -01-000-0000-NYR0202-UPS Battery 2 Restored
SG-CPM5 2 UPS Low Battery (PGM in)	001000[#0000 NYT0202]	SG -01-000-0000-NYT0202-UPS Battery 2 Low
Console Session Denied SG-CPM5 1	001000[#0000 NRD0001]	SG -01-000-0000-NRD0001-CONSOLE SESSION DENIED
Console Session Denied SG-CPM5 2	001000[#0000 NRD0002]	SG -01-000-0000-NRD0002-CONSOLE SESSION DENIED
Option Change Where ## is the option being changed Value is the option setting in data or text depending on option being set. NOTE: User passwords will be shown with ***** in place of data	001000[#0000 NLSss]	SG -01-000-0000-NLS01ss-Option Change: ## Value
Automation Time & Date Update Failed	001000[#0000 NRU0000]	SG -01-000-0000-NRU0000-Time&Date Update Fail
Reset fallback	001000[#0000 NYY0000]	SG -01-000-0000-NYY0000-Reset SG-Fallback Initiated
Primary SG-CPM5 Power Up where X.XX.XXX.XXX is the software version information.	001000[#0000 NRR0100* vX.XX.XX.XXX*]	SG -01-000-0000-NRR0100-Primary CPM Power Up vX.XX.XX.XXX
Secondary SG-CPM5 Power Up where X.XX.XXX.XXX is the software version information.	001000[#0000 NRR0200* vX.XX.XX.XXX*]	SG -01-000-0000-NRR0200-Secondary CPM Power Up vX.XX.XX.XXX
License key entered is incorrect	001000[#0000 NUXss00]	SG -01-000-0000-NUXss00-Invalid License Key
RESET BY CONSOLE	No Automation Message	SG -01-000-0000--RESET by CONSOLE
Invalid Password to Enter LCD Program Where xx is the user number, and NAME is the programmed user label string	001000[#0000 NLX00xx]	SG -01-000-0000-NLX00XX-User: NAME Local Programming Denied
Local Programming Begin via LCD Where xx is the user number, and NAME is the programmed user label string	001000[#0000 NLB00xx]	SG -01-000-0000-NLB00XX-User: NAME Local Programming Begins

Description/Event	Automation message	Printer Message
Local Programming End via LCD Where xx is the user number, and NAME is the programmed user label string	001000[#0000 NLD00xx]	SG -01-000-0000-NLD00XX-User: NAME Local Programming Ended
Manual Mode Message ACK By User NAME - Name is the programmed user label string and {printer message} is the message that was acknowledged	No Automation Message	SG -01-sss-AAAA--01/00-0000- {Printer Message} -Acknowledged by User NAME
SG-CPM5 1 Auxiliary CPU Failure	001000[#0000 NYX0003]	SG -01-000-0000-NYX0003-Primary CPM Auxiliary CPU Failure
SG-CPM5 2 Auxiliary CPU Failure	001000[#0000 NYX0004]	SG -01-000-0000-NYX0004-Secondary CPM Auxiliary CPU Failure
Temp 1 Warning	001000[#0000 NKSss01]	SG -01-000-0000-NKSss01-Primary CPM TEMP WARNING
Temp 1 Alarm	001000[#0000 NKAss01]	SG -01-000-0000-NKAss01-TEMP 1 ALARM
Temp 1 Restore	001000[#0000 NKJss01]	SG -01-000-0000-NKJss01-TEMP 1 RESTORE
Temp 2 Warning	001000[#0000 NKSss02]	SG -01-000-0000-NKSss21-Primary CPM TEMP WARNING
Temp 2 Alarm	001000[#0000 NKAss02]	SG -01-000-0000-NKAss02-TEMP 2 ALARM
Temp 2 Restore	001000[#0000 NKJss02]	SG -01-000-0000-NKJss02-TEMP 2 RESTORE
LCD 1 Absent	001000[#0000 NAT0200]	SG -01-000-0000-NAT0200-UIB 1 Cable Failed
LCD 1 Restore	001000[#0000 NAR0200]	SG -01-000-0000-NAR0200-UIB 1 Cable Restored
LCD 2 Absent	001000[#0000 NAT0300]	SG -01-000-0000-NAT0300-UIB 2 Cable Failed
LCD 2 Restore	001000[#0000 NAR0300]	SG -01-000-0000-NAR0300-UIB 2 Cable Restored
SG-PSU5 1 Fan Failure	001000[#0000 NYP0000]	SG -01-000-0000-NYP0000-PSU1 Fan Failed
SG-PSU5 1 Fan Restore	001000[#0000 NYQ0000]	SG -01-000-0000-NYQ0000-PSU1 Fan Restored
SG-PSU5 2 Fan Failure	001000[#0000 NYP0001]	SG -01-000-0000-NYP0001-PSU2 Fan Failed
SG-PSU5 2 Fan Restore	001000[#0000 NYQ0001]	SG -01-000-0000-NYQ0001-PSU2 Fan Restored
Volatile Memory Failure	001000[#0000 NIAss00]	SG -01-000-0000-NIAss00-Volatile Memory Failed
Expansion EMMC Failure	001000[#0000 NIAss01]	SG -01-000-0000-NIAss01-Non Volatile Memory Failed
SD Card Failure	001000[#0000 NIAss02]	SG -01-000-0000-NIAss02-SD Memory Failed
SD 90% Full	001000[#0000 NJLss02]	SG -01-000-0000-NJLss02-SD Memory 90% full
SD 100% Full	001000[#0000 NJOss02]	SG -01-000-0000-NJOss02-SD Memory 100% full
SD Card Formatted - From the console	001000[#0000 NRTss02]	SG -01-000-0000-NRTss02-SD Memory FORMATTED
Firmware Update Start	001001[#0000 NMIss00]	SG -01-001-0000-NMIss00- Firmware Update Initiated
Firmware Update Failed	001001[#0000 NMIss01]	SG -00-001-0000-NMIss01- Firmware Update Failed
SG-CPM5 Primary RTC Battery Trouble Restore	001000[#0000 NYR0110]	SG -01-000-0000-NYR0110-Primary CPM RTC Battery Restored
SG-CPM5 Primary RTC Battery Trouble	001000[#0000 NYT0110]	SG -01-000-0000-NYT0110- Primary CPM RTC Battery Failed
SG-CPM5 Secondary RTC Battery Trouble restore	001000[#0000 NYR0210]	SG -01-000-0000-NYR0210-Secondary CPM RTC Battery Restored
SG-CPM5 Secondary RTC Battery Trouble	001000[#0000 NYT0210]	SG -01-000-0000-NYT0210- Secondary CPM RTC Battery Failed
Printer test	Not Applicable	SG -01-000-0000-Printer Test Message
COLDBOOT was performed by User via Console	001000[#0000 NYE0100]	SG -01-000-0000-NYE0100-COLDBOOT by CONSOLE
COLDBOOT was performed by User via LCD	001000[#0000 NYE0100]	SG -01-000-0000-NYE0100-COLDBOOT by LCD
User performed manual automation test message from LCD.	001000[#0000 NRX0000]	No Printer message

SG-DRL5-IP Messages

NOTE: (ss) represents the line card slot
(cc) represents the table number (1, 2 or 3)

Description/Event	COMPUTER	PRINTER
Transmitter that has connected to the receiver is unencrypted (where IP is transmitters IP, and X is the transmitters account)	000001[#XXXXXXXXXXXX NNC* IP.IP.IP*]	SG -00-001-XXXXXXXXXXXX-NC-*TRANSMITTER UNENCRYPTED IP.IP.IP*IP*
Transmitter has successful had encryption enabled (where IP is transmitters IP, and X is the transmitters account)	000001[#XXXXXXXXXXXX NYZ0010]	SG -00-001-XXXXXXXXXXXX-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-XXXXXXXXXXXX-*ENCRYPTION NOT SUPPORTED - IP.IP.IP*IP*
Transmitter has not successful had encryption enabled (where IP is transmitters IP, and X is the transmitters account)	001001[#XXXXXXXXXXXX NYZ0011]	SG -01-003-XXXXXXXXXXXX-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[#XXXXXXXXXXXX NYZ0012]	SG -00-001-XXXXXXXXXXXX-YZ-*ENCRYPTION DISABLED - IP.IP.IP*IP*
Transmitter has been added to Account table (where X is the transmitters account)	000001[#XXXXXXXXXXXX NXA* IP.IP.IP*]	SG -00-001-XXXXXXXXXXXX-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[#XXXXXXXXXXXX NYG* IP.IP.IP*]	SG -01-001-XXXXXXXXXXXX-YG-*Transmitter Supervision Disable IP.IP.IP*IP*
Remote shutdown has been sent to the transmitter. Where: XXXXXXXXXXXX is the account code of the transmitter IP.IP.IP is the current IP address of the transmitter	000001[#XXXXXXXXXXXX NYX0001]	SG -00-001-XXXXXXXXXXXX-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[#XXXXXXXXXXXX NYX0002]	SG -01-001-XXXXXXXXXXXX-YX-* TRANSMITTER SHUTDOWN FAIL IP.IP.IP*IP*
Transmitter has been deleted from the account table VIA the console Where: XXXXXXXXXXXX is the account code of the transmitter IP.IP.IP is the current IP address of the transmitter	001003[#0000000001 NJX* IP.IP.IP *]	SG -01-003-XXXXXXXXXXXX -JX-*Transmitter Deleted IP.IP.IP*IP *
Account added to the account table VIA the console Where: # is the number of accounts added X is the transmitters account	No Automation	SG -01-000-0000--Console SET IP Account (#) XXXXXXXXXXXX
Firmware Update Start	001001[#0000 NMIss00]	SG -01-001-0000-NMIss00- Firmware Update Initiated
Firmware Update Failed	001001[#0000 NMIss01]	SG -00-OFF-0000-NMIss01- Firmware Update Failed

Description/Event	COMPUTER	PRINTER
Transmitter Absent when supervised	000001[#XXXXXXXXXX NYC*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*]	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*]	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*]	SG -00-001-XXXXXXXXXX- YN-*Invalid Report/Possible Com- promise Attempt IP.IP.IP.IP*
Maximum Account Table size has been exceeded	001001[#XXXXXXXXXX NJO01CC*IP.IP.IP*]	SG -01-001-XXXXXXXXXX- JO01CC-*Maximum Accounts Exceeded IP.IP.IP.IP*
Supervised Account Table size has been exceeded	001001[#XXXXXXXXXX NJO02CC*IP.IP.IP*]	SG -01-001-XXXXXXXXXX- JO02CC-*Maximum Supervised Accounts Exceeded IP.IP.IP.IP*
Visual Account Table size has been exceeded	001001[#XXXXXXXXXX NJO03CC*IP.IP.IP*]	SG -01-001-XXXXXXXXXX- JO03CC-*Maximum Visual Accounts Exceeded IP.IP.IP.IP*
Unsupervised Account Table size has been exceeded	001001[#XXXXXXXXXX NJO04CC*IP.IP.IP*]	SG -01-001-XXXXXXXXXX- JO04CC-*Unsupervised Visual Accounts Exceeded IP.IP.IP.IP*
Option Change Message Where ## is the option being changed Value is the option setting in data or text depending on option being set	001001[#0000 NLSSSs]	SG -01-001-0000-LS-Option Change: ## Value
Console Session Denied- Incorrect Password	001000[#0000 NRD0002]	SG -01-000-0000-NRD0002-Con- sole 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
Visual verification output Communication Failure	001000[#0000 NYOssSS]	SG -01-000-0000-NYOssSS- Visual: Inter-Comm Error
LC Reset	No Automation message	SG -00-0FF-0000--LC RESET by CONSOLE
Account table is close to Full	001001[#0000 NJL*IP.IP.IP*]	SG -01-001-0000-JL-*Account table 75% full IP.IP.IP.IP*
Network Fail	001001[#0000 NNT*IP.IP.IP*]	SG -01-001-0000-NR-Network Failure
Network Restore	001001[#0000 NNR*IP.IP.IP*]	SG -01-001-0000-NR-Network Restoral
LC Power Up where X.XX.XXX.XXX is the software version information.	001000[#0000 NRRss00* vX.XX.XXX.XXX*]	SG -01-000-0000-NRRss00- LC Power Up vX.XX.XXX.XXX
Possible Compromise Attempt(where IP is transmitters IP, and X is the transmitters account)	001001[#XXXXXXXXXX NPC*IP.IP.IP*]	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

Description/Event	COMPUTER	PRINTER
COLDBOOT was performed by User via Console	No Automation message	SG -01-001-0000--LC COLDBOOT by CONSOLE
2-Way Audio Initiated Option 403 set to 01	SRRLLL[#AAAAAAAAAAAA NLFs-soo*#NNNNNNNNNNNNNNNN*]	SG -01-001-XXXXXXXXXX-LF-AUDIO CALLBACK INITIATED - XXXXXXXXXXXXXXXXXXXX
2-Way Audio Initiated Option 403 set to 02	0RRLLL[#AAAAAAAAAAAA NLFs-soo*#NNNNNNNNNNNNNNNN*]	SG -01-001-XXXXXXXXXX-LF-AUDIO CALLBACK INITIATED - XXXXXXXXXXXXXXXXXXXX
2-Way Audio Initiated Option 403 set to 03	SRRLLL[#AAAAAAAAAAAA NLFs-soo*RRL#NNNNNNNNNNNNNNNN*]	SG -01-001-XXXXXXXXXX-LF-AUDIO CALLBACK INITIATED - XXXXXXXXXXXXXXXXXXXX
2-Way Audio Initiated Option 403 set to 04	0RRLLL[#AAAAAAAAAAAA NLFs-soo*RRL#NNNNNNNNNNNNNNNN*]	SG -01-001-XXXXXXXXXX-LF-AUDIO CALLBACK INITIATED - XXXXXXXXXXXXXXXXXXXX
2-Way Audio Initiated Option 403 set to 05	4RRLLLaaaaaLLTTTTTTT[DC4]	SG -01-001-XXXXXXXXXX-LF-AUDIO CALLBACK INITIATED - XXXXXXXXXXXXXXXXXXXX
Visual Verification received	001001[#XXXXXXXXXX Idu255]	SG -01-001-XXXX-Idu255 - IMAGE VERIFICATION INITIATED
Visual Verification cancelled	001001[#XXXXXXXXXX Itm]	SG -01-001-XXXX-Itm-IMAGE VERIFICATION ABORTED
Line Card Decommissioned	001000[#0000 NSCss00]	SG -01-000-0000-NSCss00-LC Decommissioned
Invalid license key	001000[#0000 NUXss00]	SG -01-000-0000-NUXss00-Invalid License Key
Volatile Memory Failure	001000[#0000 NIAss00]	SG -01-000-0000-NIAss00-Volatile Memory Failed
Expansion EMMC Failure	001000[#0000 NIAss01]	SG -01-000-0000-NIAss01-Non volatile Memory Failed
SD Card Failure	001000[#0000 NIAss02]	SG -01-000-0000-NIAss02-SD Memory Failed
SD 90% Full	001000[#0000 NJLss02]	SG -01-000-0000-NJLss02-SD Memory 90% full
SD 100% Full	001000[#0000 NJOss02]	SG -01-000-0000-NJOss02-SD Memory 100% full
SD Card Formatted	001000[#0000 NRTss02]	SG -01-000-0000-NRTss02-SD Memory FORMATTED
Temp 1 Warning	001000[#0000 NKSss01]	SG -01-000-0000-NKSss01-TEMP 1 WARNING
Temp 1 Alarm	001000[#0000 NKAss01]	SG -01-000-0000-NKAss01-TEMP 1 ALARM
Temp 1 Restore	001000[#0000 NKJss01]	SG -01-000-0000-NKJss01-TEMP 1 RESTORE
USB 1 Active	001001[#0000 NRCss01]	SG -00-001-0000-RCss01- USB port 1 Active
USB 1 Inactive	001001[#0000 NROss01]	SG -00-001-0000-ROss01- USB port 1 Inactive
USB 2 Active	001001[#0000 NRCss02]	SG -00-001-0000-RCss02- USB port 2 Active

Description/Event	COMPUTER	PRINTER
USB 2 Inactive	001001[#0000]NROss02]	SG -00-001-0000-ROss02- USB port 2 Inactive
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
Visual verification output Communication Failure	001000[#0000]NYOss00]	SG -01-000-0000-NYOssSS- Visual: Inter-Comm Error: DDDDD AAAAAAAAAA - Unique ID
IP account table has been set by the console application Where: ss is the shelf number cc is the channel number	001001[#0000]NRBsscc]	SG -01-001-0000-RBsscc-Console Account Port Lead In
IP account table has been requested by the console application Where: ss is the shelf number cc is the channel number	001001[#0000]NRSsscc]	SG -01-001-0000-RSsscc-Console Account Port Lead Out
SD Card File Mismatch was detected by the line card	No Automation message	SG -01-000-0000-SD ID MISMATCH TROUBLE
SD Card File Mismatch was Restored by the line card	No Automation message	SG -01-000-0000-SD ID MISMATCH RESTORE

LCD & Console Trouble List

Trouble Condition	Description
CPM 1 Serial Printer 1 Fail	Displayed when the serial printer is off-line - Primary SG-CPM5
CPM 2 Serial Printer 1 Fail	Displayed when the serial printer is off-line - Secondary SG-CPM5
CPM 1 SG-Serial Fail	Displayed when the serial automation is not connected/not responding to heartbeats - Primary SG-CPM5
CPM 2 SG-Serial Fail	Displayed when the serial automation is not connected/not responding to heartbeats - Secondary SG-CPM5
CPM 1 SG-TCP Visual Verification Fail	Displayed when the Visual verification port is off-line - Primary SG-CPM5
CPM 2 SG-TCP Visual Verification Fail	Displayed when the Visual verification port is off-line - Secondary SG-CPM5
CPM 1 TCP Printer 1 Fail	Displayed when the TCP printer is off-line - Primary SG-CPM5
CPM 2 TCP Printer 1 Fail	Displayed when the TCP printer is off-line - Secondary SG-CPM5
CPM 1 SG-TCP Fail	Displayed when the TCP automation is not connected/not responding to heartbeats - Primary SG-CPM5
CPM 2 SG-TCP Fail	Displayed when the TCP automation is not connected/not responding to heartbeats - Secondary SG-CPM5
CPM 1 UPS Battery Fail	Displayed when the input of the receiver for UPS Battery is activated. This input is triggered by the UPS to indicate an internal battery trouble - Primary SG-CPM5
CPM 2 UPS Battery Fail	Displayed when the input of the receiver for UPS Battery is activated. This input is triggered by the UPS to indicate an internal battery trouble - Secondary SG-CPM5
CPM 1 UPS AC Fail	Displayed when the input of the receiver for UPS AC is activated. This input is triggered by the UPS to indicate a loss of AC power - Primary SG-CPM5
CPM 2 UPS AC Fail	Displayed when the input of the receiver for UPS AC is activated. This input is triggered by the UPS to indicate a loss of AC power - Secondary SG-CPM5
PSU 1 Fail	SG-PSU5 1 - provides power to all modules of the system. This trouble will be displayed if the power supply fails or is removed from the system or the total current draw exceeds rating for the power supply installed in the primary slot.
PSU 2 Fail	SG-PSU5 2 - provides power to all modules of the system. This trouble will be displayed if the power supply fails or is removed from the system or the total current draw exceeds rating for the power supply installed in the secondary slot.
Fan Tray 1 Trouble	This trouble condition occurs when fan Tray 1 fails or slows down to an undesirable speed

Trouble Condition	Description
Fan Tray 2 Trouble	This trouble condition occurs when fan Tray 2 fails or slows down to an undesirable speed
Fan Tray 3 Trouble	This trouble condition occurs when fan Tray 3 fails or slows down to an undesirable speed
Fan Tray 4 Trouble	This trouble condition occurs when fan Tray 4 fails or slows down to an undesirable speed
CPM 1 Fan Trouble	This trouble condition occurs when the Primary SG-CPM5 fan tray fails or slows down to an undesirable speed
CPM 2 Fan Trouble	This trouble condition occurs when the Secondary SG-CPM5 fan tray fails or slows down to an undesirable speed
CPM 1 Temperature Warning	This trouble occurs when the internal board temperature of the Primary SG-CPM5 reached 65 degrees Celsius
CPM 2 Temperature Warning	This trouble occurs when the internal board temperature of the Secondary SG-CPM5 reached 65 degrees Celsius
PSU Compatibility Fail	The two power supplies installed are not at the same power rating
CPM 1 RTC Battery Fail	The backup battery for the RTC chip has reached a low voltage condition - The battery check is performed every day at midnight (00:00:00)
CPM 2 RTC Battery Fail	The backup battery for the RTC chip has reached a low voltage condition - The battery check performed every day at midnight (00:00:00)
CPM1 Absent	Message is displayed if the secondary SG-CPM5 cannot communicate with the primary SG-CPM5
CPM2 Absent	Message is displayed if the primary SG-CPM5 cannot communicate with the secondary SG-CPM5
CPM 1 Auxiliary CPU Fail	This message is displayed when the Auxiliary CPU fails on the primary SG-CPM5
CPM 2 Auxiliary CPU Fail	This message is displayed when the Auxiliary CPU fails on the secondary SG-CPM5
UIB 1 Cable Fail	This message is displayed when the primary User Interface Board communication is lost Possible Causes - Hardware ID cannot be read, Power disconnected to the display, display cable disconnected
UIB 2 Cable Fail	This message is displayed when the secondary User Interface Board communication is lost Possible Causes - Hardware ID cannot be read, Power disconnected to the display, display cable disconnected

Appendix E: Glossary

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)

(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 SG-CPM5. The SG-CPM5 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

American 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.

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.

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.

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.

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.

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-CPM5.

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 5, the console connects to the SG-CPM5 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.

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.

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. 100BaseT and 1000BaseT are the most prevalent.

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-CPM5. Alternatively, the heartbeat refers to the signal sent between SG-CPM5's 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.

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-CPM5 to enable the web interface to function.

IEEE 802.3

See Ethernet.

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 one telephone line.

Line Card

A removable, hot-swappable card which contains a POTS line interface which controls 1 or more POTS lines.

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. manufacturing.

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 5, both the SG-DRL5 and the SG-CPM5 contain sets of options. Static options 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.

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-CPM5.

RS-232

An asynchronous, point-to-point serial communications protocol. Used to communicate between the SG-CPM5 and the automation computer.

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-CPM5 acts as a server to both the console and the web interface.

SG-CPM5

Central Processing Module. The SG-CPM5 controls the overall operation of the SG-System 5 receiver, which includes multiplexing alarm signals from the line cards and sending them to the appropriate outputs.

SG-DRL5-IP PAD

Paddle card - Each paddle card connects to a line card and provides a connection for an Ethernet cable.

SG-MLRF5

Sub-rack metal work.

SG-MP5

Mid plane - this is not sold separately but part of the SG-MLRF5.

SG-MRLF5-RM

Rack mounts rails.

SG-PSU5-250

250W Power Supply Unit.

SG-PSU5-600

600W Power Supply Unit.

SG-SVCFANTR

CPM fan tray (Fan and Metalwork).

SG-SVLFANTR

DRL5-IP line card fan tray (Fan and Metalwork).

SG-SVMEM16

16 GB Memory expansion for the DRL5-IP and CPM5.

SG-SVMEM4

4 GB Memory expansion for the DRL5-IP and CPM5.

SG-SVMEM8

8 GB Memory expansion for the DRL5-IP and CPM5.

SG-SVSERCAB

SG-System 5 serial “Y” cables.

SG-System 5

Name given to a single entire receiver configuration, including rack, SG-CPM5(s), line card(s), power supply, etc.

SG-UIB5

User interface PCB as well as the final assembly with LCD.

SG-UIB5-BP

User interface blank plate.

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 5, TCP/IP is used to communicate between the console and the SG-CPM5. It is also used to connect the SG-CPM5 to a TCP printer (resident on the console) and TCP automation software (runs independent of the console).

The SG-DRL5-IP receives alarm traffic from transmitters.

DRL5-IP receiver line card.

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.

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:

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.

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.

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.

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.

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

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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 5 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 persons only** - [a person having appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task and of measures to minimize the risks to that person or other persons].

The equipment SG-SYSTEM 5 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 **main**s. 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 5

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 5 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.

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 5 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 5 equipment.
2. Connect all the telecommunications cord-sets to the appropriate connectors.
3. Ensure that the enclosure of the equipment SG-SYSTEM 5 is fully installed (covers, doors, etc.) in a such a way that **hazardous voltages** will not be **accessible** when the equipment is connected to the **main**s and/or **telecommunication network**.

WARNING: 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 5 equipment.

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 5 equipment must be returned to the manufacturer for repairs.

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WARNING: DSC 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 SOFTWARE PRODUCT to fail to perform as expected.

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.

Industry Canada

SG-System 5 IC: CAN ICES-3 (B)/NMB-3(B)

R&TTE Declaration of Conformity

Hereby, DSC, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The complete R&TTE Declaration of Conformity can be found at http://www.dsc.com/listings_index.aspx

(CZE) DSC jako výrobce prohlašuje, že tento výrobek je v souladu se všemi relevantními požadavky směrnice 1999/5/EC.

(DAN) DSC erklærer herved at denne komponenten overholder alle vigtige krav samt andre bestemmelser gitt i direktiv 1999/5/EC.

(DUT) Hierbij verklaart DSC dat dit toestel in overeenstemming is met de eisen en bepalingen van richtlijn 1999/5/EC.

(FIN) DSC vakuuttaa laitteen täyttävän direktiivin 1999/5/EC olennaiset vaatimukset.

(FRE) Par la présente, DSC déclare que ce dispositif est conforme aux exigences essentielles et autres stipulations pertinentes de la Directive 1999/5/EC.

(GER) Hierdurch erklärt DSC, daß dieses Gerät den erforderlichen Bedingungen und Voraussetzungen der Richtlinie 1999/5/EC entspricht.

(GRE) Δια του παρόντος, η DSC, δηλώνει ότι αυτή η συσκευή είναι σύμφωνη με τις ουσιώδεις απαιτήσεις και με όλες τις άλλες σχετικές αναφορές της Οδηγίας 1999/5/EC.

(ITA) Con la presente la Digital Security Controls dichiara che questo prodotto è conforme ai requisiti essenziali ed altre disposizioni rilevanti relative alla Direttiva 1999/05/CE.

(NOR) DSC erklærer at denne enheten er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

(POL) DSC oświadcza, że urządzenie jest w zgodności z zasadniczymi wymaganiami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/WE.

(POR) Por este meio, a DSC, declara que este equipamento está em conformidade com os requisitos essenciais e outras determinações relevantes da Directiva 1999/5/EC.

(SPA) Por la presente, DSC, declara que este equipo está en conformidad con los requisitos esenciales y otros requisitos relevantes de la Directiva 1999/5/EC.

(SWE) DSC bekräftar härmed att denna apparat uppfyller de väsentliga kraven och andra relevanta bestämmelser i Direktivet 1999/5/EC.

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