Sur-Gard System II
Single Line Network Receiver

WARNING: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. The entire manual should be carefully read.
GENERAL DESCRIPTION of the EQUIPMENT and CLASSIFICATION.

SYSTEM II - SAFETY INSTRUCTIONS

The SYSTEM II equipment is a CLASS 1, DESK-TOP (MOVABLE) or RACK-MOUNTED (FIXED - STATIONARY), EQUIPMENT, PLUGGABLE TYPE A using a DETACHABLE POWER SUPPLY CORD; it is designed to be INSTALLED, OPERATED and MAINTAINED by SERVICE PERSONS ONLY. [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 SYSTEM II shall be installed in RESTRICTED ACCESS LOCATIONS within an environment that provides the Pollution Degree max 2, and overvoltages category II – non-hazardous locations, indoor only.

The POWER SUPPLY CORD serves as a means of disconnection from the MAINS. The OUTLET used to power the equipment shall be installed near the equipment, and shall be easily accessible. The equipment must be connected to a socket-outlet with a protective earthing connection!

WHEN RACK-MOUNTED, IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE FINAL ASSEMBLY that includes SYSTEM II EQUIPMENT IS COMPLIANT with the applicable requirements from the point of view of STABILITY; the rack-mounted equipment must be secured to the building structure before operation; all wiring and installation shall be in accordance with electrical codes acceptable to the authorities that have jurisdiction where the equipment is installed, serviced and operated; not more than 3 (three) system II units mounted within the same rack shall be powered from the same branch circuit; use a different branch circuit for any group larger than 3 (three) units.

Interconnecting cables shall be routed in a manner that prevents: excessive strain on wire and on terminal connections; loosening of terminal connections; damage of conductor insulation.

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

CONNECTION TO THE MAINS:

1. Connect first the DETACHABLE POWER SUPPLY CORD to the IEC 320 connector located on SYSTEM II equipment.

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 for ULC Installations CAN/CSA C22.2 No. 60950-1 Listed NID).

NO REPAIRS IN THE FIELD ARE ALLOWED. THE EQUIPMENT SYSTEM II MUST BE RETURNED TO THE MANUFACTURER FOR REPAIRS.

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.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
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testing and maintenance. The complete system should be tested weekly and immediately after a
- Inadequate Testing

Although every effort has been made to make this system as reliable as possible, the system may fail
- Component Failure

ings.
- Insufficient Time

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods
- Telephone Lines

conditioners or other appliances, or passing traffic. Audible warning devices, however loud, may not
the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible
sleeping if there is an intervening wall or door. If warning devices are located on a different level of
Warning devices such as sirens, bells, horns, or strobes may not warn people or waken someone

- Warning Devices

sources could be heaters, radiators, stoves, barbecues, fireplaces, sunlight, steam vents, lighting and
- Passive infrared motion detectors operate by sensing changes in temperature. However their effec-

will impair its proper operation.
- Tampering

Spraying of any material on the lenses, mirrors, windows or any other part of the detection system
- Motion Detectors

Every fire is different in the amount of smoke produced and the rate of burning. Smoke detectors can-
- Smoke Detectors

- Motion Detectors

- Technical Support

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 cus-
toms fees, taxes, or VAT that may be due.

Warranty Procedure

In order to make a claim under this warranty, the Customer must return the products to Digital
Security Controls, Inc., as follows:

- Payment

a. Damage incurred in shipping or handling;

b. Damage caused by disaster such as fire, flood, wind, earthquake or lightning;

c. Damage due to causes beyond the control of Digital Security Controls such as excessive voltage,
mechanical shock or water damage;

d. Damage caused by unauthorized attachment, alterations, modifications or foreign objects;

- Comprise of Radio Frequency (Wireless) Devices

Signals may not reach the receiver under all circumstances which could include metal objects placed
- Motion Detectors

- Smoking

- Power Failure

- Insufficient Testing

- Access by Intruders

Intruders may enter through undetected access points, circumvent a sensing device, evade detect-
- Motion Detectors

- Compromise of Radio Frequency (Wireless) Devices

- Motion Detectors

- Technical Support

This warranty applies only to defects in parts and workmanship relating to normal use. It does not
- System Users

A user may not be able to operate a panic or emergency switch possibly due to permanent or tempo-
- System Users

- System Users

- System Users

- Access by Intruders

It is possible for persons with criminal intent to develop techniques which reduce the effectiveness of
- System Users

a. Damage caused by failure of replaceable batteries;

b. Damage caused by failure of hardwired power interconnects

- System Failure

- Inadequate Testing

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Section 1 - Introduction

1.1 Features

The SG-System II is a single line network receiver intended for remote monitoring of commercial fire and burglary systems. The system can be configured for "desktop stand-alone" operation (vertical stacking of up to 4 systems) or rack mounting. The SG-System II can monitor up to 1536 accounts including 512 supervised accounts. An additional 1536 IP accounts may be purchased separately with the use of a License key.

**NOTE: System must be rack mounted for UL and ULC Listed Installations.**

The SG-System II real time clock and calendar stamps all received alarm data which is then transmitted to a central station computer via TCP/IP, serial port; transmitted directly to a printer using the parallel printer port, serial printer port, USB port to Systems Console Software, TCP port using Systems Console Software, and viewed on the LCD of the front panel. System configuration can be programmed using a PC with SG-System Console Software via TCP or USB connections or locally using the scroll buttons and LCD.

The SG-System II receives alarm information from panels over a LAN/WAN or internet network.

SG-System II features include the following:

- Provides higher line security than conventional dial up panels with the polling feature.
- Provides fast transmission since dialing or handshaking is not required.
- The control panel is the originator of the signals and as such will be the one requesting the ACK from the central station.
- Network trouble detection is displayed on LCD/Printer and automation software.
- Disconnect trouble detection.
- Static IP for programming of the network protocols.
- Data network polling environment for replacement of an existing DVACS network.
- SIA event descriptors are used to transmit information to the central station from the control panel through the PC-Link connection.
- 4 and 10 digit Contact ID.
- A security function communicates to the central station when a module is removed and replaced.
- USB 1.1 connection for Console
- Two IP account tables. The second table adds another 1536 accounts of which 512 can be supervised.

**NOTE: For UL/ULC Listed applications maximum 512 supervised accounts can be used.**

1.2 Software Compatibility

The following examples of Central Station automation software are compatible with the SG-System II interface.

Refer to the DSC website “http://www.dsc.com/index.php?n=MonitoringStations” for a comprehensive list of compatible Automation Software Manufacturers:

- MAS
- IBS
- DICE
- MicroKey
- SIMS II
- ABM
- GENESYS
- Bold
- S.I.S.

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

**NOTE: Software version 2.0 of SG-system II must be used with the SG-Systems Console software version 1.1**

1.3 Approvals

1.3.1 Industry Approvals

The System II meets the requirements of the following standards:

- 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
- AS/NZS 60950:2000 Information Technology Equipment - Safety
- CISPR22 Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurements
- EN50130-4 Immunity requirements for components of fire, intruder and social alarm systems.
This equipment shall be installed in accordance with the requirements of NFPA72, NFPA70, and the authority having jurisdiction. The Equipment is ULC listed for active communication channel security level A4 when used in conjunction with compatible communicators, ULC listed for the same level of line security (DSC Models T-Link TL250, T-Link TL300, TL265GS, GS2065, TL260GS, GS2060).

Compatible Communicators:
- MAS
- TL150
- TL300 *
- TL26X *
- MicroKey
- TL250 *
- GS3055 *
- GS206X *
- GENESYS
- BFSM-100M
- GS3060 *
- KNet

* ULC Listed

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.

**UL864 Programming Requirements**

<table>
<thead>
<tr>
<th>Option number and name</th>
<th>Page</th>
<th>Permitted in UL 864? (Y/N)</th>
<th>Possible settings</th>
<th>Settings permitted (UL 864)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option [013]: Buzzer Tone</td>
<td>13</td>
<td>N</td>
<td>Default, Buzzer Off, 1490 Hz, 1990 Hz, 2103 Hz, 2650 Hz, 3149 Hz, 3965 Hz, 4270 Hz, 4530 Hz</td>
<td>ON</td>
</tr>
<tr>
<td>Option [020]: Mask UPS AC</td>
<td>13</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [021]: Mask UPS BAT</td>
<td>13</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [024]: Mask SG TCP/IP</td>
<td>13</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [025]: Mask SG Serial</td>
<td>14</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [028]: Mask TCP Printer</td>
<td>14</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [029]: Mask Parallel Printer</td>
<td>14</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [02A]: Mask Serial Printer</td>
<td>14</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [039]: Mask USB Printer</td>
<td>16</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [042]: Busy Out</td>
<td>17</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [113]: Transmitter Failure Debounce Time</td>
<td>20</td>
<td>N</td>
<td>001E-FFFF (30-65535 sec)</td>
<td>05A (90 sec)</td>
</tr>
<tr>
<td>Option [115]: Transmitter Restoral Debounce Time</td>
<td>20</td>
<td>N</td>
<td>001E-FFFF (30-65535 sec)</td>
<td>3C (60 sec)</td>
</tr>
<tr>
<td>Option [119]: Mask Transmitter Restoral</td>
<td>20</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [11A]: Mask Transmitter Failure</td>
<td>20</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [11B]: Mask Transmitter Swap</td>
<td>20</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [11C]: Mask Transmitter Unencrypted</td>
<td>20</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [11D]: Mask Invalid Report</td>
<td>20</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [11E]: Mask Unknown Account</td>
<td>20</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Option [11F]: Mask Supervised Acc Exceeded</td>
<td>21</td>
<td>N</td>
<td>ON/OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Parallel Printers:**
For UL and ULC Listed applications the following UL Listed printers can be used with the SG-System II:
- Seiko DPU-414

**Serial Printers:**
For UL and ULC Listed applications the following UL Listed printer can be used with the SG-System II:
- Seiko DPU-414

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

**Electrical**
- Input Voltage ............................................................................................................................ 100-240VAC, 50-60Hz.
- Input Current ............................................................................................................................ 0.7A (Max)
- Backup Power Supply ................................................................................................................ External UPS (not supplied)

**Environmental**
- Temperature ............................................................................................................................... 32 - 122°F (0-50°C)
- Humidity ..................................................................................................................................... 93%RH, Non Condensing

**Dimensions**
- Width .......................................................................................................................................... 12in. (305mm)
- Length ........................................................................................................................................ 12.25in. (311mm)
- Height ......................................................................................................................................... 1.75in. (45mm)
- Weight ........................................................................................................................................ 7.92lbs (3.58 Kg)

**Ethernet Interfaces**
- Automation Port .......................................................................................................................... 1025
- Printer Port ................................................................................................................................. 1027
- Command Port (Console Interface) ............................................................................................ 1024
- Audit Port .................................................................................................................................... 1030
- TFTP Port ..................................................................................................................................... 69
- Account Port (Default) ................................................................................................................. 3064

**Accounts**
- Number of Accounts .................................................................................................................. 1536 per account table Max.
- Number of Supervised Accounts ................................................................................................ 512 per account table Max.

*NOTE: Second account table may be added with the purchase of software license.*

1.5 Out of Box

Verify that you have received the following:

**SG-System II**
- [:] SG-System II Receiver ........................................................................................................ Qty 1
- [:] SG-Systems Console ............................................................................................................. Qty 1
- [:] SG-System II Quick Install Guide ........................................................................................ Qty 1
- [:] Rubber Feet ............................................................................................................................ Qty 4
- [:] screw in adjustable feet ......................................................................................................... Qty 2

**SG-System II Rack Mount Kit (Optional)**
- [:] Brackets ............................................................................................................................... Qty 2
- [:] Rails (Mounting) ..................................................................................................................... Qty 4
- [:] Screws .................................................................................................................................... Qty 8
- [:] Quick Install Sheet ................................................................................................................ Qty 1

**Additional Equipment Required (Not Supplied)**
- [:] IEC Power Line Cord ............................................................................................................ Qty 1
- [:] CAT-5 Ethernet Cable for WAN Interface Support ................................................................. Qty 1
- [:] CAT-5 Ethernet Cable for LAN Interface Port or USB cable for Console Communication ...... Qty 1
- [:] DB9 terminated RS232 Serial Cable ....................................................................................... Qty 1
- [:] DB25 terminated Parallel printer Cable .................................................................................... Qty 1
**Section 2 - Installation**

2.1 Controls and Indicators

*Figure 2: Controls and Indicators*

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Indicator/Control/Connector</th>
<th>State/Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NETWORK Green LED</td>
<td>ON</td>
<td>Network Absent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF</td>
<td>Network Present</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Follows the network interface that receives T-Link signals.</td>
</tr>
<tr>
<td>2</td>
<td>TROUBLE Orange LED</td>
<td>ON</td>
<td>Indicates any System Trouble not related to network or alarm (Note that the LCD backlight will override the programmed colour and change to Yellow).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF</td>
<td>No System Trouble</td>
</tr>
<tr>
<td>3</td>
<td>STATUS Yellow LED</td>
<td>FLASHING</td>
<td>Two flashes to indicate system busy out has occurred - caused by one of the following conditions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>· On power up, the SG-System II clock is not set</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>· SG-System II firmware update (downloading)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>· Either the printer or the computer buffer was full</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>· Checksum failed for any one of the flash ROM files</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>· Channel buffer corruption</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>· System In manual mode and option 042 is set to 4.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF</td>
<td>Normal Operation</td>
</tr>
<tr>
<td>4</td>
<td>WATCHDOG Blue LED</td>
<td>FLASHING</td>
<td>Normal Operation (Software watchdog toggles every 200msec).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEADY</td>
<td>SG-System II Line Card Fault</td>
</tr>
<tr>
<td>5</td>
<td>LCD Display</td>
<td></td>
<td>40x2 character LCD display. Top line displays current Operating Mode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bottom line displays Trouble or received messages in Manual mode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alarm: If an alarm is present while the system is in Manual mode, the LCD backlight will change to Red - overriding the programmed colour - and the ACK button will flash. In addition, a buzzer will sound with each flash of the ACK button.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alarms received but not yet displayed are identified by a solid arrow symbol on the far right edge of the LCD.</td>
</tr>
<tr>
<td>6</td>
<td>DOWN Interface Button</td>
<td></td>
<td>Scrolls down through menu options</td>
</tr>
</tbody>
</table>
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.

**NOTE:** The LED indicators and the LCD can be tested for integrity by accessing the following in the main programming menu: item 3 - System Functions > item 5 - Visual Indicators Test.

---

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Indicator/ Control/ Connector</th>
<th>State/Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>ACK Interface Button/LED</td>
<td>FLASHING OFF</td>
<td>Indicates unit is in Manual Mode and waiting for acknowledgement. There are no alarm events requiring acknowledgement. The ACK button is used to acknowledge an alarm event in Manual Mode. It cannot acknowledge all alarms with one press, but must be pressed for each individual alarm. The ACK button also acts as ENTER in Programming Mode.</td>
</tr>
<tr>
<td>8</td>
<td>UP Interface Button</td>
<td></td>
<td>Scrolls up through menu options</td>
</tr>
<tr>
<td>9</td>
<td>ENTER Interface Button</td>
<td></td>
<td>Selects a menu option</td>
</tr>
</tbody>
</table>
| 10       | AUTOMATION Port (COM1)        | DB9       | Sends automation messages to central station computer (e.g., Heartbeat if no activity)  
**NOTE:** Maximum Cable length is 1.8m (6ft). Longer cables may impair performance. Use at own risk. |
| 11       | PARALLEL PRINTER Port         | DB25 (Female) | Sends events to local printer (DB25 Female)  
**NOTE:** Maximum Cable length is 1.8m (6ft). Longer cables may impair performance. Use at own risk. |
| 12       | SERIAL PRINTER Port (COM2)    | DB9       | RS232 Serial Printer Port. Sends events to local printer.  
**NOTE:** Maximum Cable length is 1.8m (6ft). Longer cables may impair performance. Use at own risk. |
| 13       | USB Port                      | USB Type B | USB Type B  
**NOTE:** Maximum Cable length is 1.8m (6ft). Longer cables may impair performance. Use at own risk. |
| 14       | WAN Interface Port            | CAT-5     | Alarm port when system configured in dual NIC mode; Ethernet Cable (1.8m/6ft)  
**NOTE:** Longer cables may impair performance. Use at own risk |
| 15       | LAN Interface Port            | CAT-5     | This interface is used for Console, Automation and Local (same subnet) T-Link connections. Connects to LAN via CAT5 Ethernet Cable (1.8m/6ft)  
**NOTE:** Longer cables may impair performance. Use at own risk |
| 16       | DEBUG RJ-45                   | RJ-45     | **NOTE:** Maximum Cable length is 1.8m (6ft). Longer cables may impair performance. Use at own risk. |
| 17       | I/O Port (Use AWG 18-22 wire) | 1 Input  | UPS AC Failure (toggles from ground to open on failure) |
|          |                               | 2 COM     | Common (ground) |
|          |                               | 3 Input   | UPS DC Failure (toggles from ground to open on failure) |
|          |                               | 4 Input   | Remote ACK button - identical functionality to ACK button on LCD |
|          |                               | 5 COM     | Common (ground) |
|          |                               | 6 Input   | Future Use |
|          |                               | 7 Output  | Output 1 Follow Buzzer; Toggle to ground following the Buzzer |
|          |                               | 8 COM     | ~ COMMON (ground) |
|          |                               | 9 Output  | Output 2 Toggle to ground following the CPM trouble LE |
|          |                               | 10 Output | Output 3 Future Use |
|          |                               | 11 COM    | ~ COMMON (ground) |
|          |                               | 12 Output | Output 4 Future Use |
|          |                               | 13 Earth  | ~ EARTH GROUND  
**NOTE:** Maximum Cable length is 1.8m (6ft). Longer cables may impair performance. Use at own risk. |
| 18       | Mains Supply Connector        | 120/240VAC /0.7A/ 50-60Hz | Connection to Interruptible Power Supply (UPS recommended) with minimum 24 Hr standby capability required. Refer to Section 2.2. Setup & Testing |

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.

**NOTE:** The LED indicators and the LCD can be tested for integrity by accessing the following in the main programming menu: item 3 - System Functions > item 5 - Visual Indicators Test.
2.2 Set Up and Testing

DSC recommends testing the receiver before actual installation. Becoming familiar with the connections and setup of the unit on the workbench will make final installation simpler.

The following items are required:
- IEC Power Supply cord
- CAT5 Ethernet Cable
- One or more T-Link modules
- Hub/router or network connection

\textit{NOTE: When a Hub or Router/Gateway is used with the SG-System II, 24 Hr Standby Power is required for these devices (i.e., UL Listed UPS, Battery Backup, or engine driven generator).}

1. Unpack the SG-System II components.
\textit{NOTE: Carefully unpack the receiver and inspect for shipping damage. If there is any apparent damage, notify the carrier immediately.}

2. Install the rack-mount brackets or the rubber feet in the indents as required.

3. Connect a CAT5 Cable (not supplied).

4. Connect the main power using a standard computer IEC cable (not supplied).

\textit{Figure 3: Wiring Diagram}

**WARNING:**
To reduce the risk of electrical shock, the SG-System II is equipped with a grounding type power supply IEC receptacle.
Connect SG-System II using an appropriate IEC cable to a grounded receptacle.
Connect SG-System II to UPS dry contact connections only.
Do NOT connect to a receptacle controlled by a switch.

**NOTES:**
- Install External Devices connected to item (10)-(17) in the same room as the SG-System II.
- Maintain 1/4" (6.5mm) separation between power limited and non-power limited circuits. Use power limited, supervised circuits only.
- I/O Terminal is Open collector 20mA switched to ground. Wire with 18-22 AWG.

5. The LCD will power up and display internal troubles (printer, computer).
\textit{NOTE: Internal diagnostics may require more than one minute during the power up sequence.}

6. Send a signal from a control panel to the receiver. The signal will be displayed on the LCD. Press the ACK button to silence the buzzer and clear the signal from the LCD.
Section 3 - Operation/Operating Modes

There are two main categories of operating modes, Native and Program Modes.

3.1 Active Mode
Active Mode is the normal operating mode. The SG-System II is in Active mode when any of the Automation Ports are present and responding to signals.

3.2 Manual Mode
This mode normally occurs when automation is lost or has been programmed out (all automation ports disabled). Changing from Active mode to Manual mode is automatic.

In manual mode, the SG-System II can receive signals (unless the buffer is full) and attempts to output the first signal in the buffer if there are any and if the automation is programmed on some ports. The unit displays the message on the LCD screen, activates the buzzer and the acknowledge LED. To stop the buzzer and the acknowledge LED, the ACK button must be pressed and released for every signal not acknowledged in the buffer. The messages are only the printer message. For messages greater than 40 characters, the first 40 characters are displayed. Press the ENTER button to toggle between the rest of the message. The alarm printer and automation buffers reside in the SG-System II.

3.3 Program Category
The Program category is accessed in order to program the SG-System II or to view its condition. Sixteen users in total can have access to the unit. User '0' is the Administrator, and has full permissions with regard to using and configuring the unit. All other users - '1~F' - may view system information only, in addition to having the ability to change the time and date displayed on the LCD.

NOTE: All alarms must be acknowledged via the Ack button before entering Program mode from Manual mode.

3.3.1 Password
A password must be entered before the Program category can be accessed. Take the following steps:
1. Press the ENTER button while the unit is in either of the Operation modes (Active / Manual) to call up the password field.
2. Enter your 4-digit hexadecimal password on the bottom line (use the UP and DOWN arrow buttons to scroll through the characters). Note that the default password is ‘CAFE’.
3. Press the ENTER button to select the desired value and move along to the next digit.
4. Continue until the four spaces are filled. Pressing the ENTER button after selecting the fourth digit will automatically present the password to the system for acceptance / rejection.

Assuming that the password is correct, the SG-System II will enter Program category and generate the corresponding printer and automation signals. Should the password be incorrect, the unit will produce an error tone and return to a Base category (Active mode or Manual mode). Press the ENTER button once more to return to the Password screen.

The password can be set in the following manner:
1. Enter the Program category.
2. Scroll to View or Change Options > CPM Options > Option 006.
3. Scroll to the user whose password is to be changed. Enter the new password. Press the ENTER button. The new password is set.

3.3.2 User Interface
The SG-System II unit’s LCD and button interface give the user the ability to program the unit and scroll through the printer buffer and the trouble list. The upper line displays the device mode (in the example below, ‘Manual’). The lower line displays the system information (in the example below, ‘System Trouble’).

3.3.3 Top Level Menu

View or Change Options
In View or Change Options, use the UP and DOWN arrow buttons to locate the configurable option categories. These categories are: CPM Options / Channel-1 Options / Channel-2 Options / Channel-IP Options / Exit Menu. Please refer to Section 4 for a detailed list of the system options available within each category.
Select the Exit Menu and press the ENTER button. You will return to the View or Change Options level. Pressing the UP and DOWN buttons simultaneously - regardless of your place within View or Change Options - will take you to the Top Level menu.

**View Printer Buffer**

The bottom line of the LCD is cleared when View Printer Buffer is entered. The oldest message in the buffer, including those that have been acknowledged, will be displayed first. Use the UP button to review the older messages and the DOWN button to review the newer messages. In the case of a lengthy message, the first 39 characters will be displayed. Press the ENTER button to show the remainder of the message.

This view is available only in Manual mode to review acknowledge messages. Pressing the UP and DOWN buttons simultaneously to go to the Top Level menu.

**System Functions**

System Functions provides access to the System Functions Menu, which consists of System Information / Change Date and Time / Default SG-System II Options / Reset SG-System II / Visual Indicator Test / Exit Menu.

**Exit Programming**

Pressing the ENTER button while in Exit Programming will take the user back to the Base mode or the Manual mode.

3.3.4 System Functions Menu

**System Information**

System Information provides a wealth of detail regarding the user's setup of SG-System II. These details include:

- Version
- ID
- LAN MAC
- LAN IP
- Gateway IP
- WAN MAC
- SW Checksum
- CPLD Version
- DSP Checksum
- DSP Version
- WAN IP
- IP Accounts
- Manufacture Date
- Country of Manufacture Code
- AHS Table
- IP Accounts 2
- LAN subnet

*NOTE: The number in parentheses represents the number of times the value has been changed or the size of a particular table.*

To return to System Information while viewing any of the above, press the UP and DOWN buttons simultaneously. Pressing the UP and DOWN buttons once more will take you to the Top Level menu.

**Change Date and Time**

Having chosen to enter Change Date and Time by pressing the ENTER button, the unit's LCD appears as below:

1. Changes to the time and date begin at the far left of the screen with the hour, and proceed to the right. The UP button will increase the value of the digit; the DOWN button will decrease its value.
2. Having made a change, press the ENTER button to advance to the next digit on the right. Pressing the ENTER button without having made any changes will also move the cursor to the next digit on the right.
3. Once the Day has been entered and the ENTER button pressed, the user will be asked by the SG-System II to confirm the changes: N? for no; Y? for yes. Use the UP and DOWN buttons to navigate between yes and no.
4. Press the ENTER button to save your changes.

*NOTE: At any point before the time and date have been saved, pressing the UP and DOWN buttons simultaneously will cancel any unsaved changes and return the user to the System Functions Menu.*

**Default SG-System II Options**

When Default SG-System II Options is selected, the LCD will prompt the user to confirm that the entire system is to be reset. Selecting Y? for yes will reset the system; selecting N? for no will leave system settings as they are. Either of the UP and DOWN buttons can be used to cycle between answers.

**Visual Indicator Test**

Selecting the Visual Indicator Test turns on all of the LCD pixels and the unit's buzzer, to confirm that they are in good working order.

**Exit Menu**

When in Top Level Menu > Exit Menu, pressing the ENTER button will take the user back one level to the Base (Active mode or Manual mode) level. When in System Functions Menu > Exit Menu, pressing the ENTER button will take the user back one level to Top Level Menu > System Functions. While in System Functions, navigate to Exit Programming. Pressing the ENTER button will take the user back to the Base (Active mode or Manual mode) level.
3.3.5 Miscellaneous LED Indicators

View Trouble
To enter View Trouble, the unit must first be in Active mode or Manual mode, and have no events to be acknowledged in Manual mode. Press the UP and DOWN buttons simultaneously to enter View Trouble. Once there, the UP and DOWN buttons can be used to review the list of troubles. Should there be no troubles, the LCD will flash NO TROUBLE for a few seconds and return to the previous level of operation. A list of possible troubles can be found below.

Trouble List
The following trouble and status lists are monitored by the system. Individual troubles can be disabled in the Program category. Both the trouble list and the status list are fully enabled by default.

Trouble:
- Parallel Printer
- Serial Printer
- TCP Printer
- USB Printer
- Serial Automation
- TCP Automation
- UPS Battery
- UPS AC
- Time and Date Not Set
- Network absent

Status:
- Clock Not Set
- Printer Buffer Full
- Checksum Failed - Software
- System Absent - Channel 1

View Network / Watchdog
Please refer to Set Up and Testing on page 6 for detailed Network information.

View Status
Please refer to Set Up and Testing on page 6 for detailed Status information.
**Section 4 - System Options**

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**Steps required to access an option and change its setting or value**

The steps required to access an option and change its setting or value are very nearly uniform from option to option. The procedure detailed below will match satisfy the majority of options. Those it does not will accept close, intuitive variations of it. Please refer to the steps below when programming system options.

**To change an option's setting or value, take the following steps:**

1. Turn on the SG-System II.
2. Use the UP and DOWN buttons to select the user. User ‘0’ has full administrative powers; all other users may only review system settings, in addition to changing the time and date.
3. Press the ENTER button. This initiates the password sequence, placing a flashing cursor underneath the first digit of the four-digit password.
4. Use the UP and DOWN buttons to select the appropriate value. Press the ENTER button. The cursor will advance to the next digit.
5. Repeat step 4 for all four digits. If the password you have entered is correct, you now have access to SG-System II. If not, re-enter your password.
6. **View or Change Options** appears on the LCD. Press the ENTER button.
7. Use the UP and DOWN buttons to locate which section of options is valid for your configuration of SG-System II: **CPM Options / Channel-IP Options / Exit Menu**.
8. Press the ENTER button. The options applicable to your system are to available for you to access.
9. Navigate to Option [XXX]. Press the ENTER button. The current value is displayed on the LCD.
10. Press the ENTER button. The value may now be changed.
11. Use the UP or DOWN button to scroll to the desired value.
12. Having made a selection, press the ENTER button.
13. The LCD will prompt you to accept (Y?) or to decline (N?) your changes.
14. Use the UP and DOWN buttons to select your response. Press the ENTER button.
15. Your changes have been saved.
4.2 System Options

Option [001]: LAN IP Address
Default (10.0.7.100)
Enter the IP address of the SG-System II. The IP address must be entered as a dotted decimal number (e.g. 255.255.001.000). Each three-digit segment of the IP address must be within a valid range of 000 to 255.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [002]: LAN Subnet Mask Address
Default (255.255.0.0)
Enter the LAN Subnet Mask address of the SG-System II. The address must be entered as a dotted decimal number (e.g. 255.255.001.000). Each three-digit segment of the address must be within a valid range of 000 to 255.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [003]: LAN Gateway
Default (0.0.0.0)
Enter the LAN Gateway address of the SG-System II. Take care to ensure that the address is unique to your system. The address must be entered as a dotted decimal number (e.g. 255.255.001.000). Each three-digit segment of the address must be within a valid range of 000 to 255. The gateway is used in the event that the data being sent is not on the same network as the SG-System II. The data will need to be sent through a router device. This is the address of that router device.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [004]: Auto Update Time and Date
Default (0)
This option enables the automation to update the SG-System II's time via the TCP/IP port. If the SG-System II fails to get the time and date within a twenty-four-hour period (started after the last update is received), it will generate a status message to the printer and automation, following the internal trouble protocol. The Trouble status on the SG-System II display will not be affected.

Printer message: "Time&Date Update Fail"
Automation message: [#0000|NRU0000]

Option [005]: Contrast
Default (45)
Use this option enables to adjust the contrast of the unit's LCD. Press the UP and ENTER buttons simultaneously to increase the level of contrast; press the DOWN and ENTER buttons simultaneously to decrease the level of contrast. Contrast can be adjusted in both Active and Manual modes.

Option [006]: Password
Default (CAFE)
Use this option to change or delete SG-System II users and their passwords. Sixteen users with 4-digit passwords are available for use on the SG-System II. User 0 is the Master user, with complete administrative control over the system. Users 1 through F may be assigned to individuals within your organization; these sixteen users are able to review system settings but not change them, with the exception of the Time and Date. To delete a user, program the password for that user to 'FFFF'.

**NOTE:** User 0 can not be deleted.

To change your password, take the following steps:
1. Navigate to Option [006].
2. Press the ENTER button. The user designation (e.g. '0', 'F') is displayed, in addition to the current password in the form of 'XXXX'.
3. Press the ENTER button to begin the process of changing the password.
4. Use the UP and DOWN buttons to make your selection and press the ENTER button. The cursor advances to the next digit.
5. On selecting the fourth digit and pressing the ENTER button, the unit LCD will will prompt you to accept (Y?) or to decline (N?) your changes.
6. Press the ENTER button again to accept or to decline your changes.

Option [007]: Automation Baud Rate
Default (9600)
This option determines the baud rate at which the SG-System II will communicate to the automation software via serial port 1. As a general rule, the faster the baud rate, the better the unit's performance. Older automation software packages can not, however, manage a fast baud rate and will require a slower baud rate in order to perform at an optimal level. Valid selections are: 1200, 2400, 4800, 9600, 19200, 38400, and 57600.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [008]: Automation Data Bits
Default (8)
This option determines the number of data bits the SG-System II will use to communicate to the automation software via serial port 1. Valid selections are seven or eight, to indicate seven data bits or eight data bits. As a general rule, the higher the number of data bits, the better the unit's performance.

**NOTE:** The SG-System II must be restarted for these changes to take effect.
Option [009]: Automation Parity
Default (0)
This option determines the parity of serial port 1.

<table>
<thead>
<tr>
<th>Value</th>
<th>Degree of Parity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No parity</td>
</tr>
<tr>
<td>1</td>
<td>Odd parity</td>
</tr>
<tr>
<td>2</td>
<td>Even parity</td>
</tr>
</tbody>
</table>

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

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [00A]: Serial Printer Format
Default (0)
This option regulates how data is formatted when sent to a serial printer and how the serial port is supervised. CTS will need to be set high and print to both HyperTerminal and physical serial printer. By setting Option [00A] to ‘02’ (note that this will be displayed as ‘DCD’ in programming mode), DCD will need to be set high. This option affects how the COM2 serial port is supervised and how the data is formatted. The default value disables the option, blocking the printing of data.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [00B]: Serial Baud Rate
Default (57600)
This option determines the baud rate at which the SG-System II will communicate to the automation software via serial port 2. As a general rule, the faster the baud rate, the better the unit's performance. Older automation software packages can not, however, manage a fast baud rate and will require a slower baud rate in order to perform at an optimal level. Valid selections are: 1200, 2400, 4800, 9600, 19200, 38400, and 57600.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [00C]: Serial Data Bits
Default (8)
This option determines the number of data bits the SG-System II will use to communicate to the automation software via serial port 2. Valid selections are seven or eight, to indicate seven data bits or eight data bits. As a general rule, the higher the number of data bits, the better the unit's performance.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [00D]: Serial Printer Parity
Default (0)
This option determines the parity of serial port 2. ‘0’ represents no parity, ‘1’ represent odd parity, and ‘2’ represent even parity.

**NOTE:** The number of stop bits can not be changed and will always be 2.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [00F]: B32 Headers
Default (00)
This option enables compatibility with MAS B32 Automation Software through TCP/IP. To enable this option, change the value to ‘01’.

**NOTE:** The SG-System II must be restarted for these changes to take effect.

Option [012]: Heartbeat Timer
Default (30)
Use this option to determine the time interval - measured in seconds - the heartbeat transmission is sent to Serial Automation and TCP/IP port 1025. The heartbeat times is used to ensure that any communication through Serial Automation and TCP/IP is functioning normally when there is no traffic from the receiver. Note that any traffic from the receiver will reset the heartbeat timer. Therefore, the heartbeat transmission will be sent only if there is no signal sent during the time specified in Option [012].
Option [013]: Buzzer Tone
Default (00)
A tone will sound when the SG-System II, having received an alarm, is unable to forward the alarm message to either the Serial or TCP/IP automation paths (while in Manual mode). You are able to manipulate this tone via Option [013]. The tone generated will continue to pulse until all unacknowledged events have been acknowledged by the user, this can be done by pressing the Ack button for each event, or the unit itself transfers from Manual mode to Active mode. If Option [013] is set to OFF, no buzzer tone will sound on receipt of an alarm. Any other value will produce a tone.

Table 9: Buzzer Tone

<table>
<thead>
<tr>
<th>IDX</th>
<th>Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>1490</td>
</tr>
<tr>
<td>25</td>
<td>1990</td>
</tr>
<tr>
<td>26</td>
<td>2103</td>
</tr>
<tr>
<td>30</td>
<td>2650</td>
</tr>
<tr>
<td>33</td>
<td>3149</td>
</tr>
<tr>
<td>37</td>
<td>3965</td>
</tr>
<tr>
<td>38</td>
<td>4270</td>
</tr>
<tr>
<td>39</td>
<td>4530</td>
</tr>
</tbody>
</table>

To set the buzzer tone, take the following steps:
1. Navigate to Option [013]. Press the ENTER button. The current value is displayed on the LCD.
2. Press the ENTER button. The value may now be changed.
3. Use the UP and DOWN buttons to scroll to the desired value.

**NOTE:** As each tone is selected the SG-System II will sound that tone for a period of 250 msec, allowing the user the opportunity to judge each tone as it is selected.
1. Having made a selection, press the ENTER button.
2. The LCD will prompt you to accept (Y?) or to decline (N?) your changes.
3. Use the UP and DOWN buttons to select your answer. Press the ENTER button.

**NOTE:** Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [014]: Receiver Number
Default (01)
The receiver number is used to identify the receiver (or, unit) when communicating to the TCP/IP Automation, the Serial Automation, and any connected printer. This receiver number applies to all traffic, unless overridden by another option. In the event that such overriding takes place, it will most likely be a Fallback / Recovery Strategy option.

Option [015]: Printer Test
Default (ON)
When this option is enabled, a test signal is sent to all active printers at 0500 hrs and 1700 hrs of every day.

Option [020]: Mask UPS AC
Default (ON)
Use this option to enable the UPS AC Shelf 1 trouble mask. If enabled, trouble conditions are not reported.

OFF - Condition reported
ON - Condition not reported (masked)

**NOTE:** Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [021]: Mask UPS BAT
Default (ON)
Use this option to enable the UPS Battery Shelf 1 trouble mask. If enabled, trouble conditions are not reported.

OFF - Condition reported
ON - Condition not reported (masked)

**NOTE:** Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [024]: Mask SG TCP/IP
Default (OFF)
Use this option to enable the SG TCP/IP trouble mask. If enabled, trouble conditions are not reported.

OFF - Condition reported
ON - Condition not reported (masked)

**NOTE:** Refer to UL864 Programming Requirements on page 2 if changing the default setting.
Option [025]: Mask SG Serial
Default (OFF)
Use this option to enable the SG Serial trouble mask. If enabled, trouble conditions are not reported.

- OFF - Condition reported
- ON - Condition not reported (masked)

See UL864 Programming Requirements on page 2.

Option [028]: Mask TCP Printer
Default (OFF)
Use this option to enable the TCP Printer trouble mask. If enabled, trouble conditions are not reported.

- OFF - Condition reported
- ON - Condition not reported (masked)

See UL864 Programming Requirements on page 2.

Option [029]: Mask Parallel Printer
Default (OFF)
Use this option to enable the Parallel Printer trouble mask. If enabled, trouble conditions are not reported.

- OFF - Condition reported
- ON - Condition not reported (masked)

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [02A]: Mask Serial Printer
Default (OFF)
Use this option to enable the Serial Printer trouble mask. If enabled, trouble conditions are not reported.

- OFF - Condition reported
- ON - Condition not reported (masked)

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [02F]: Automation Mode
Default - Fallback (01)
The TCP/IP connection is the primary output of the SG-System II for automation computer alarms. It is expected that sockets may appear and disappear regularly as processes are terminated and reconstituted. After five seconds of socket loss, a socket loss is declared and automation output is shifted to the next connection level, which is the serial automation output connection. There are five levels of automation:

- **Loop (00)**
  At startup, the SG-System II will send to the TCP/IP until it fails, proceed to the RS232 until it fails, proceed back to the TCP/IP until it fails, and so on. Please refer to the Automation Mode workflow diagrams below.
  
  **NOTE: This value will not generate an automation absent message.**

- **Fallback (01)**
  If both outputs are present, the system will send to the TCP/IP connection until it fails, proceeding next to the RS232 connection. It will continue to send to the serial connection without stop, or until the reset fallback command is generated from the console, in which case it will re-try the TCP/IP connection. Please refer to the Automation Mode workflow diagrams below.

- **Automatic IP Fallback (04)**
  This mode is similar to Fallback, save that when the TCP/IP connection is restored the SG-System II will return to the TCP/IP port to send events. This eliminates the need for the Reset SG Fallback from the SG-System II Console. Please refer to the Automation Mode workflow diagrams below.

  **NOTE: The SG-System II must be restarted for these changes to take effect.**
Figure 4: Loop (00), Automatic IP Fallback (04)

Figure 5: Fallback (01)

Figure 6: All (02)
Option [030]: Printer Mode
Default (LOOP)
You can configure this option with an approach similar to the automation outputs of Option [02F] above, except that Fallback (01) and Automatic IP Fallback (04) are not available. The acceptable value is Loop (00). Note that Loop (00) transmits printer messages to each port in turn. The first port to respond will be used to process subsequent printer messages until it is no longer able to do so, at which point the next port in the loop will be employed.

NOTE: The order of sequence is: TCP, Parallel, USB, and Serial. DSC does not recommend changing the default setting unless using more than one printer.

NOTE: The SG-System II must be restarted for these changes to take effect.

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [031]: ACK Wait
Default (40)
Use this option to determine the acknowledgement wait time, measured in tenths of a second, during which the SG-System II will wait for a response to automation software outputs. If none is received during this interval, the automation software output is retransmitted and the timer reset.

To set the printer mode, take the following steps:
1. Navigate to Option [030]. Press the ENTER button. The current value is displayed on the LCD.
2. Press the ENTER button. The value may now be changed.
3. Use the UP or DOWN buttons to scroll to the desired value. Select an integer value from 40 to 99, representing 4.0 seconds to 9.9 seconds. For example, 63 would represent a value of 6.3 seconds.
4. Having made a selection, press the ENTER button.
5. The LCD will prompt you to accept (Y?) or to decline (N?) your changes.
6. Use the UP and DOWN buttons to select your response. Press the ENTER button.

NOTE: The SG-System II must be restarted for these changes to take effect.

Option [032]: Date Format
Default (DD/MM/YYYY)
Use this option to determine the format of the date for printer output. Valid entries are 0 and 1.

<table>
<thead>
<tr>
<th>Value</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>International DD / MM / YYYY</td>
</tr>
<tr>
<td>(1)</td>
<td>US MM / DD / YYYY</td>
</tr>
</tbody>
</table>

NOTE: The SG-System II must be restarted for these changes to take effect.

Options [037] and [038]: Product ID Keys #1, #2
The Product ID Key options allows the user to enter an ID key that will enable the second account table functionality on the SG-System II. When a correct license is entered the SG-System II will allow for a second account table, account port that will support and additional 1536 communicators (512 supervised). This table is independent of the first account table. See options [148] (Alarm Port 2) and option [14A] (Line Card number Port 2).

To enter the product IDs, take the following steps:
1. Navigate to Options [037]/[038]. Press the ENTER button. The current value is displayed on the LCD.
2. Press the ENTER button. The value may now be changed.
3. Use the UP or DOWN button to scroll to the desired value.
4. Having made a selection, press the ENTER button. The cursor will advance to the next digit.
5. Repeat steps 3 and 4 until the full product ID key has been entered.
6. The LCD will prompt you to accept (Y?) or to decline (N?) your changes.
7. Use the UP and DOWN buttons to select your response. Press the ENTER button.

NOTE: The SG-System II must be restarted for these changes to take effect.

Option [039]: Mask USB Printer
Default (ON)
Use this option to enable the USB Printer mask. If enabled, trouble conditions are not reported.

OFF - Condition reported
ON - Condition not reported (masked)

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [03A]: Programmable I/O
Default (00)

NOTE: SG-System II version 1.0 has the inputs and outputs hard set. Later versions will permit user access to unit inputs and outputs.

I/O interface connections are located at the back of the unit and employ a screwless, spring-type terminal. There are three outputs and four inputs on the unit. Relays are employed for the output switching of the SG-System II unit. I/O functions are described at item 14 of the "Table 3: SG-System I Front and Rear Panel Descriptions".
Option [03B]: Last Message On
Default (Off)
When enabled, this option displays the most recent printer message on the lower line of the unit LCD. It will remain there until a new printer message replaces it. The automation condition - e.g. mode (Active / Manual) or slot (all / TCP / Serial) - does not have any effect on this feature.

Option [03C]: LCD Backlight Colour
Default (Cyan)
You can use this option to select the LCD backlight colour. Available colours are: OFF / WHITE / GREEN / BLUE / MAGENTA / CYAN / ORANGE / PURPLE / AQUA / PINK / ROYAL / FADE / CYCLE.
When accessing this option, the available colours will appear on the LCD as you cycle through them, providing a preview of their effect. This is done without your needing to exit the menu.

<table>
<thead>
<tr>
<th>Colour</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Light grey.</td>
</tr>
<tr>
<td>White ~ Royal</td>
<td>As per its name.</td>
</tr>
<tr>
<td>Fade</td>
<td>A static blend of all available colours from white to royal.</td>
</tr>
<tr>
<td>Cycle</td>
<td>Rotates through all available colours from white to royal at one second intervals.</td>
</tr>
</tbody>
</table>

Table 6: LCD Backlight Colour

Option [03D]: Key Backlight Colour
Default (Cyan)
You can use this option to select the LCD backlight colour. Available colours are: OFF / WHITE / GREEN / BLUE / MAGENTA / CYAN / ORANGE / PURPLE / AQUA / PINK / ROYAL / FADE / CYCLE.
When accessing this option, the available colours will appear on the LCD as you cycle through them, providing a preview of their effect. This is done without your needing to exit the menu.

NOTE: Please refer to LCD Backlight Colour on page 17.

Option [041]: System Number Length
Default (0A)
Use this option to determine how many digits from the line card number will be sent to the output. You can make the option display these digits in hexadecimal or decimal. In a small environment with a limited number of receivers, the default value will suffice. In a large environment with a large number of receivers, this option provides useful flexibility. Possible values are listed in the table below.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Sends a one digit hexadecimal number to the printer or computer output (a two-digit line card number will have only the first digit sent to the output).</td>
</tr>
<tr>
<td>02</td>
<td>Sends a two-digit hexadecimal line card number to the output.</td>
</tr>
<tr>
<td>03</td>
<td>Sends a three-digit hexadecimal line card number to the output (leading zeroes will be inserted as a suffix to the line card number).</td>
</tr>
<tr>
<td>OA</td>
<td>Sends a three-digit line card number as entered (no conversion).</td>
</tr>
<tr>
<td>0D</td>
<td>Sends a three-digit line card number in decimal (conversion from hexadecimal to decimal).</td>
</tr>
<tr>
<td>OE</td>
<td>Sends a one-character line number (1-9, A-Z).</td>
</tr>
</tbody>
</table>

Table 7: System Number Length

NOTE: This option should always correspond to the number of DNIS digits being received. E.g. If five digits are being received, this option should be set to three. This will force the five digits of DNIS DDDDD to overwrite the standard RRLLL.

Option [042]: Busy Out
Default (00)
Enabling this option allows the line card to seize the phone line in case of a checksum error after download or when its internal buffer is full after a loss of communication with the system.
- 00 - the line is busied if either of the conditions mentioned above occur.
- 01 - the line is not busied if either of the conditions mentioned above occur.
- 04 - the line will be busied immediately if the automation computer is absent.
- 05 - the line will be busied immediately if the automation computer is absent or there is no communication with the system, but only if the internal computer (automation) buffer is full. If there is a loss of a printer(s), any new alarms will not be buffered in the internal printer buffer. The SG-System II has two independent buffers, computer and printer.

NOTE: If this option is set to 01, the line card will not buffer any new alarms once the internal buffer is filled. Setting option [042] to this value is not recommended.

NOTE: Refer to "UL864 Programming Requirements\" 10 if changing the default setting.
Option [043]: System Protocol ID
Default (0)
Use this option to determine the format that the system will use to deliver its internal messages. Automation software delivered since the year 2000 is more likely to take the ‘S’ value and to provide detailed information on events that have been generated. Older automation software will require that you input the ‘0’ value.

Table 8: System Protocol ID

<table>
<thead>
<tr>
<th>Value</th>
<th>Message format</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (zero)</td>
<td>ORRRLLL[#AAAA][Nxxyy]</td>
</tr>
<tr>
<td>5</td>
<td>SRRLLL[#AAAA][Nxxyy]</td>
</tr>
<tr>
<td>-</td>
<td>Format Explanation</td>
</tr>
</tbody>
</table>

- S,0 - protocol number
- RR - receiver number
- LLL - line number
- AAAA - account code, always 0000
- Nxxyy - SIA event
Section 5 - IP Options

5.1 IP Option Index

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<th>Page</th>
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</thead>
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<td>20</td>
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<tr>
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<td>20</td>
</tr>
<tr>
<td>Option [11C]: Mask Transmitter Unencrypted</td>
<td>20</td>
</tr>
<tr>
<td>Option [11D]: Mask Invalid Report</td>
<td>20</td>
</tr>
<tr>
<td>Option [11E]: Mask Unknown Account</td>
<td>21</td>
</tr>
<tr>
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<td>21</td>
</tr>
<tr>
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<td>21</td>
</tr>
<tr>
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<td>21</td>
</tr>
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<td>21</td>
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<td>21</td>
</tr>
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<td>22</td>
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<td>22</td>
</tr>
<tr>
<td>Option [14A]: Line Card Number – Table 2</td>
<td>22</td>
</tr>
</tbody>
</table>

Steps required to access an option and change its setting or value

The steps required to access an option and change its setting or value are very nearly uniform from option to option. The procedure detailed below will satisfy the majority of options. Those it does not will accept close, intuitive variations of it. Please refer to the steps below when programming system options.

To change an option's setting or value, take the following steps:

1. Turn on the SG-System II.
2. Use the UP and DOWN buttons to select the user. User '0' has full administrative powers; all other users may only review system settings, in addition to changing the time and date.
3. Press the ENTER button. This initiates the password sequence, placing a flashing cursor underneath the first digit of the four-digit password.
4. Use the UP and DOWN buttons to select the appropriate value. Press the ENTER button. The cursor will advance to the next digit.
5. Repeat step 4 for all four digits. If the password you have entered is correct, you now have access to SG-System II. If not, re-enter your password.
6. View or Change Options appears on the LCD. Press the ENTER button.
7. Use the UP and DOWN buttons to locate which section of options is valid for your configuration of SG-System II: CPM Options / Channel-1 Options / Channel-2 Options / Channel-IP Options / Exit Menu.
8. Press the ENTER button. The options applicable to your system are to available for you to access.
9. Navigate to Option XXX. Press the ENTER button. The current value is displayed on the LCD.
10. Press the ENTER button. The value may now be changed.
11. Use the UP or DOWN button to scroll to the desired value.
12. Having made a selection, press the ENTER button.
13. The LCD will prompt you to accept (Y?) or to decline (N?) your changes.
14. Use the UP and DOWN buttons to select your response. Press the ENTER button.
15. Your changes have been saved.

5.2 IP Options

Option [101]: IP Address
Default – Channel 1 [0.0.0.0]
This section is the IP of the SG-System II. The IP Address will be entered as a dotted decimal number. Example: 192.168.002.045. Each segment of the IP address shall have a valid range from 000 to 255. The IP address shall be entered in one menu in the programming menu even if multiple sections (octets) are used to generate the completed IP address.

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

Option [105]: Subnet Mask
Default [255.255.0.0]
This section is the IP of the SG-System II. The Subnet Address will be entered as a dotted decimal number. Example: 255.255.000.000. Each segment of the IP address shall have a valid range from 000 to 255. The subnet address shall be entered in one menu in the programming menu even if multiple sections are used to generate the completed IP address.

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

Option [10D]: Alarm Port Number
Default (3061)
Use this option to set the Alarm Port connection number for your receiver. While the default value will suffice in environments involving just one receiver, Option [30D] can be used to differentiate receivers in a complex, multiple receiver environment. If this option is changed, IP communication modules connected to the SG-System II must be programmed with the new receiver number. Communications connected to the receiver will send their signals to this port.

**NOTE: The SG-System II must be restarted for these changes to take effect.**
Option [10F]: Receiver Number
Default: [01]
The receiver number is used for sending signals to the central station software. Refer to the manuals for any central station automation software being used to determine if there are any special requirements for this number. Also, ensure that there are no duplicate receiver numbers used.

Option [110]: Line Card Number - Table 1
Default (03)
Use this option to provide each SG-System II line card with an identification code. A range of hexadecimal numbers from 01 - FE can be programmed in this option to identify your line cards.

Option [113]: Transmitter Failure 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 range from 30 - 255 seconds.

NOTE: T-Link Absent Time should not be less than 90 seconds. For ULC Installations, Security Level A4, this option should be programmed as 90 seconds. For UL Installations, this option should be programmed as 180 seconds.

Option [115]: Transmitter Restoral Debounce Time
Default (60)
The time, in seconds, for which a transmitter must be present before it is registered in the Account Table and the transmitter restoral message is sent. Valid entries range from 30 - 255 seconds.

Option [119]: Mask Transmitter Restoral
Default (OFF)
Use this option to enable or disable the reporting of the transmitter restoral condition on the SG-System II receiver. The default value is appropriate in most situations, save those when the transmitter status is expected to fluctuate often due to, for example, system maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [11A]: Mask Transmitter Failure
Default (OFF)
Use this option to enable or disable the reporting of the transmitter failure condition on the SG-System II receiver. The default value is appropriate in most situations, save those when the transmitter status is expected to fluctuate often due to, for example, system maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [11B]: Mask Transmitter Swap
Default (OFF)
Use this option to enable or disable the reporting of the T-Link swap condition on the SG-System II receiver. The default value is appropriate in most situations, save those when the transmitter status is expected to fluctuate often due to, for example, system maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [11C]: Mask Transmitter Unencrypted
Default (OFF)
Use this option to enable or disable the reporting of the T-Link sending an unencrypted event when the SG-System II receiver is expecting an encrypted event condition on a SG-DRL3-IP receiver. The default value is appropriate in most situations, save those when a number of unencrypted events are expected to be sent due to, for example, system testing or maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [11D]: Mask Invalid Report
Default (OFF)
Use this option to enable or disable the reporting of the invalid report condition. The SG-System II determines that the signal received is invalid, a bad checksum, or an encryption key mismatch. The default value is appropriate in most situations, save those when a number of invalid reports is expected due to, for example, system maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.
Option [11E]: Mask Unknown Account
Default (OFF)
Use this option to enable or disable the reporting of an unknown account report condition when the SG-System II receiver determines that it is from an invalid account (not in the Account table). The default value is appropriate in most situations, save those when a number unknown accounts are expected to be reported due to, for example, system testing or maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [11F]: Mask Supervised Acc Exceeded
Default (OFF)
Use this option to enable or disable reporting if the account table limit is exceeded when a new account tries to connect to a SG-System II that already has a full account table. The default value is appropriate in most situations, save those when the account table limit is expected to be reached due to, for example, system testing or maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

NOTE: Refer to UL864 Programming Requirements on page 2 if changing the default setting.

Option [120]: Mask Transmitter Deleted
Default (OFF)
Use this option to enable or disable reporting if a T-Link account is deleted from a table. The default value is appropriate in most situations, save those when multiple deletions are expected to be undertaken due to, for example, system testing or maintenance.

OFF - Condition is reported.
ON - Condition is not reported (masked).

Option [13A]: Account Port
Default (3064) decimal; (0x0BF8) hexadecimal
Use this option to select a port number on which the SG-System II receiver will communicate with the T-Link Console software for administration of the T-Link Account Table. You should ensure that a unique number is used for this option.

NOTE: The SG-System II must be restarted for these changes to take effect.

Option [140]: Account Password
Default (CAFE)
Use this option set a password to restrict access to the receiver account table. In order to retrieve or modify the receiver account table, any application that connects to it must have the same password. You must ensure that these applications and Option [140] share the identical password.

Applications that connect to the receiver account table include the following:
- T-Link Console
- SG Receiver Consoles
- Table Loader
- DLS (downloading software)

Option [144]: DNIS Replacement of RRLLL
Default (00)
Use this option to instruct the SG-System II to output the RRLLL (receiver number and line number), or to replace the output of RRLLL with DNIS from a DSC GSM transmitter, depending on the type of transmitter you have installed on your site. Both values will send the output to the printer and to the automation software.

00 - SG-System II will output the RRLLL
01 - SG-System II will output the DNIS

Option [146]: Account Digit Strip
Default (00)
Use this option to control the output of the account number set (from 1 to 9 digits) for the T-Link and the panel account code. The table below lists the possible variations in output.

<table>
<thead>
<tr>
<th>Value</th>
<th>Output - T-Link</th>
<th>Output - Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>ten(10) digits</td>
<td>as received</td>
</tr>
<tr>
<td>01</td>
<td>one(1) digit</td>
<td>as received</td>
</tr>
<tr>
<td>02</td>
<td>two(2) digits</td>
<td>as received</td>
</tr>
<tr>
<td>03</td>
<td>three(3) digits</td>
<td>as received</td>
</tr>
<tr>
<td>04</td>
<td>four(4) digits</td>
<td>as received</td>
</tr>
<tr>
<td>05</td>
<td>five(5) digits</td>
<td>as received</td>
</tr>
<tr>
<td>06</td>
<td>six(6) digits</td>
<td>as received</td>
</tr>
<tr>
<td>07</td>
<td>seven(7) digits</td>
<td>as received</td>
</tr>
</tbody>
</table>
Example 1:
If Option [146] is set to 05, the T-Link account number set of ‘1234567890’ will be sent to output as 67890. The panel account code number set will be sent to output as 1234567890.

Example 2:
If Option [146] is set to 02, the T-Link account number set of ‘1234567890’ will be sent to output as 90. The panel account code number set will be sent to output as 1234567890.

Example 3:
If Option [146] is set to 08, the T-Link account number set of ‘0012345678’ will be sent to output as 12345678. The panel account code number set will be sent to output as 0012345678.

Option [147]: SIM ID Output
Default (OFF)
Option [147] is available for use with the DSC GSM transmitter.
Use this option to send the SIM card number for the GSM transmitter account to the printer and the automation software. The output will include the account number (up to 10 digits, depending on the status of Option [146]) and the SIM card number (21 digits). The automation software must support the protocol via the Sur-Gard output format for this option to work.

OFF - the option is disabled
ON - SG-System II will output the SIM card number

The automation software output will appear as follows:
sRRLLLAAAAAASSSSSSSSSSSSSSSSSSSSSS
The output is explained in the table below.

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>s</td>
<td>the protocol number</td>
</tr>
<tr>
<td>RRRLLL</td>
<td>the receiver and line numbers of the line card that received the event</td>
</tr>
<tr>
<td>A</td>
<td>the 10-digit account number</td>
</tr>
<tr>
<td>S</td>
<td>the SIM number of the transmitter that sent the event</td>
</tr>
</tbody>
</table>

Option [148]: Alarm Port 2
Default: [3071]
This option set the alarm connection port number (Alarm Port). If this option is changed, IP Communication modules connected to the receiver must be programmed with the new port number. The Communicators connected to the receiver will send their signals to this port via UDP.

Option [14A]: Line Card Number – Table 2
Default: [02]
The Line Card Number provides a virtual identification code for each SG-SYSTEM II module. Hexadecimal numbers “01” to “FE” can be programmed in this option to identify line cards. All messages generated for account table 2 will use this line card number.
## Appendix A - Events and Messages

<table>
<thead>
<tr>
<th>Description/Event</th>
<th>Automation message</th>
<th>Printer message</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP Printer Failure</td>
<td>001000[#0000</td>
<td>NVZ0100]</td>
</tr>
<tr>
<td>TCP/IP Printer Restoral</td>
<td>001000[#0000</td>
<td>NVY0100]</td>
</tr>
<tr>
<td>Parallel Printer Failure</td>
<td>001000[#0000</td>
<td>NVZ0101]</td>
</tr>
<tr>
<td>Parallel Printer Restoral</td>
<td>001000[#0000</td>
<td>NVY0101]</td>
</tr>
<tr>
<td>Serial Printer Failure</td>
<td>001000[#0000</td>
<td>NVZ0102]</td>
</tr>
<tr>
<td>Serial Printer Restoral</td>
<td>001000[#0000</td>
<td>NVY0102]</td>
</tr>
<tr>
<td>USB Printer Failure</td>
<td>001000[#0000</td>
<td>NVZ0103]</td>
</tr>
<tr>
<td>USB Printer Restoral</td>
<td>001000[#0000</td>
<td>NVY0103]</td>
</tr>
<tr>
<td>SG-TCP/IP Automation Failure</td>
<td>001000[#0000</td>
<td>NNT0100]</td>
</tr>
<tr>
<td>SG-TCP/IP Automation Restoral</td>
<td>001000[#0000</td>
<td>NNR0100]</td>
</tr>
<tr>
<td>Serial Automation Failure</td>
<td>001000[#0000</td>
<td>NYC0101]</td>
</tr>
<tr>
<td>Serial Automation Restoral</td>
<td>001000[#0000</td>
<td>NYK0101]</td>
</tr>
<tr>
<td>Switch To Active Mode (Where ## is the slot number 03 - TCP 01 - Serial)</td>
<td>001000[#0000</td>
<td>NSC00##]</td>
</tr>
<tr>
<td>Switch To Manual Mode</td>
<td>001000[#0000</td>
<td>NSC0000]</td>
</tr>
<tr>
<td>Internal communication error IP Channels</td>
<td>001001[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>Time/Date update failed from automation software</td>
<td>001001[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>Computer Internal communication error IP Channel*</td>
<td>001001[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>Printer Internal communication error IP Channel*</td>
<td>NA</td>
<td>01-001-0000-RF-Computer: Internal Comm. Error</td>
</tr>
<tr>
<td>Printer Internal communication error IP Channel*</td>
<td>001001[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>Computer Internal Communication error - IP Channels</td>
<td>001001[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>Operator Log in where ## is the operator number logging in (in hex)</td>
<td>001000[#0000</td>
<td>NLB00##]</td>
</tr>
<tr>
<td>Operator Log out where ## is the operator number logging in (in hex)</td>
<td>001000[#0000</td>
<td>NLD00##]</td>
</tr>
<tr>
<td>Operator access denied where ## is the operator number logging in (in hex)</td>
<td>001000[#0000</td>
<td>NLX00##]</td>
</tr>
<tr>
<td>SG-SYSTEM II Power Up where X.XX.XXX.XXX is the software version information.</td>
<td>001000[#0000</td>
<td>NRR0001]</td>
</tr>
<tr>
<td>UPS AC Fail (PGM In)</td>
<td>001000[#0000</td>
<td>NAT0102]</td>
</tr>
<tr>
<td>UPS AC Restored</td>
<td>001000[#0000</td>
<td>NAR0102]</td>
</tr>
<tr>
<td>UPS Low Battery Restore</td>
<td>001000[#0000</td>
<td>NYR0102]</td>
</tr>
<tr>
<td>UPS Low Battery</td>
<td>001000[#0000</td>
<td>NYT0102]</td>
</tr>
<tr>
<td>Console Session Denied</td>
<td>001000[#0000</td>
<td>NYD0001]</td>
</tr>
<tr>
<td>Automation Time &amp; Date Failure</td>
<td>001000[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>System Option Change (where XX is the option #, and YY is the new option setting)</td>
<td>001000[#0000</td>
<td>NLS0101]</td>
</tr>
<tr>
<td>Channel IP Option Change (where XX is the option #, and YY is the new option setting)</td>
<td>001000[#0000</td>
<td>NLS0101]</td>
</tr>
<tr>
<td>Option change from console where C# is the channel changed (0 = system, 1 IP channel)</td>
<td>001000[#0000</td>
<td>NLS0101]</td>
</tr>
<tr>
<td>Printer Buffer Full (IP Channel</td>
<td>001000[#0000</td>
<td>NYR0001]</td>
</tr>
<tr>
<td>Computer Buffer Full (IP Channel</td>
<td>001000[#0000</td>
<td>NYT0002]</td>
</tr>
<tr>
<td>Checksum Fail</td>
<td>001000[#0000</td>
<td>NYT0100]</td>
</tr>
<tr>
<td>COLDBOOT was performed by System</td>
<td>001000[#0000</td>
<td>NYE0100]</td>
</tr>
<tr>
<td>COLDBOOT was performed by debug menu</td>
<td>001000[#0000</td>
<td>NYE0100]</td>
</tr>
<tr>
<td>Network Present</td>
<td>001000[#0000</td>
<td>NRR0001]</td>
</tr>
<tr>
<td>Network Absent</td>
<td>001000[#0000</td>
<td>NRT0002]</td>
</tr>
<tr>
<td>Transmitter Restoral (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001000[#0000</td>
<td>NRR0001]</td>
</tr>
<tr>
<td>Transmitter Failure (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001000[#0000</td>
<td>NRR0001]</td>
</tr>
<tr>
<td>Transmitter Swap (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001000[#0000</td>
<td>NRR0001]</td>
</tr>
<tr>
<td>Transmitter Unencrypted (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001000[#0000</td>
<td>NRR0001]</td>
</tr>
<tr>
<td>Description/Event</td>
<td>Automation message</td>
<td>Printer message</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Invalid Report (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001001[#XXXXXXXXXX</td>
<td>NYN* IP</td>
</tr>
<tr>
<td>Possible Compromise Attempt (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001001[#XXXXXXXXXX</td>
<td>NPC* IP</td>
</tr>
<tr>
<td>Max Accounts Exceeded (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001001[#XXXXXXXXXX</td>
<td>NJO* IP</td>
</tr>
<tr>
<td>Transmitter Deleted (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001001[#XXXXXXXXXX</td>
<td>NJX* IP</td>
</tr>
<tr>
<td>Unknown Account (where IP is transmitters IP, and X is the transmitters account)</td>
<td>001001[#XXXXXXXXXX</td>
<td>NXA* IP</td>
</tr>
<tr>
<td>IP Channel has reached 75% capacity of table (where IP is the transmitters IP address)</td>
<td>001001[#0000</td>
<td>NJL * IP</td>
</tr>
<tr>
<td>Reset fallback</td>
<td>001000[#0000</td>
<td>NYY0000</td>
</tr>
<tr>
<td>Console Lead In IP Channel</td>
<td>001001[#0000</td>
<td>NRB* IP</td>
</tr>
<tr>
<td>Console Lead Out IP Channel</td>
<td>001001[#0000</td>
<td>NRS* IP</td>
</tr>
<tr>
<td>Reset by Console</td>
<td>NA</td>
<td>0-000-0000--Reset by Console</td>
</tr>
<tr>
<td>Reset by User</td>
<td>NA</td>
<td>0-000-0000--Reset by LCD/UI</td>
</tr>
<tr>
<td>Reset by Debug</td>
<td>NA</td>
<td>0-000-0000--Reset by DEBUG</td>
</tr>
<tr>
<td>License key entered is incorrect</td>
<td>NA</td>
<td>0-000-0000--Invalid License Key</td>
</tr>
<tr>
<td>Firmware update has been started via TCP port</td>
<td>NA</td>
<td>0-000-0000--FIRMWARE DOWNLOAD INITIATED &lt;TCP&gt;</td>
</tr>
<tr>
<td>Firmware update has been started via USB port</td>
<td>NA</td>
<td>0-000-0000--FIRMWARE DOWNLOAD INITIATED &lt;USB&gt;</td>
</tr>
<tr>
<td>Firmware update has failed</td>
<td>NA</td>
<td>0-000-0000--FIRMWARE UPDATE FAILED</td>
</tr>
<tr>
<td>IP account table has been set by the console application (Where Y is the account table)</td>
<td>NA</td>
<td>0-000-0000--Console SET IP Account Table Y</td>
</tr>
<tr>
<td>IP account table has been set by the console application (Where Y is the account table)</td>
<td>NA</td>
<td>0-000-0000--Console SET IP Account Table Y</td>
</tr>
<tr>
<td>IP account table has been requested by the console application (Where Y is the account table)</td>
<td>NA</td>
<td>0-000-0000--Console GET IP Account Table Y</td>
</tr>
<tr>
<td>IP account table has been requested by the console application (Where Y is the account table)</td>
<td>NA</td>
<td>0-000-0000--Console GET IP Account Table Y</td>
</tr>
<tr>
<td>Specific IP account has been set by the console (where XXXXXXXXXX is the account number)</td>
<td>NA</td>
<td>0-000-0000--Console SET IP Account XXXXXXXX</td>
</tr>
<tr>
<td>Transmitter has successful had encryption enabled (where IP is transmitters IP, and X is the transmitters account)</td>
<td>NA</td>
<td>0-001-0000-XXXXXXXXXX-NC-*ENCRYPTION ENABLED IP</td>
</tr>
<tr>
<td>The transmitter is not able to support encryption request (where IP is transmitters IP, and X is the transmitters account)</td>
<td>NA</td>
<td>0-001-0000-XXXXXXXXXX-YK-* ENCRYPTION NOT SUPPORTED IP</td>
</tr>
<tr>
<td>Transmitter has not successful had encryption enabled (where IP is transmitters IP, and X is the transmitters account)</td>
<td>NA</td>
<td>0-001-0000-XXXXXXXXXX-YK-* ENCRYPTION SET FAIL IP</td>
</tr>
<tr>
<td>Transmitter has successful had encryption disabled (where IP is transmitters IP, and X is the transmitters account)</td>
<td>NA</td>
<td>0-001-0000-XXXXXXXXXX-YK-* ENCRYPTION DISABLED IP</td>
</tr>
<tr>
<td>Transmitter has been deleted from second account table (where X is the transmitters account and Y is the account table)</td>
<td>NA</td>
<td>0-002-0000--Console DELETE IP Account (Y) XXXXXXXXXX</td>
</tr>
<tr>
<td>Transmitter has been added to Account table (where X is the transmitters account and Y is the account table)</td>
<td>NA</td>
<td>0-000-0000--Console SET IP Account (Y) XXXXXXXXXX</td>
</tr>
</tbody>
</table>
Appendix B - Ports

Parallel Printer Port
The parallel printer port sends events to the local printer (DB25 Female).

NOTE: Maximum cable length is 1.8m (6ft). Longer cables may impair performance.

Figure 7: Parallel Printer Port

Table 16: Parallel Printer Port Pinouts

<table>
<thead>
<tr>
<th>Pin no (DB25)</th>
<th>Signal name</th>
<th>Direction</th>
<th>Register - bit</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>nStrobe</td>
<td>Out</td>
<td>Control-0</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Data0</td>
<td>In / Out</td>
<td>Data-0</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Data1</td>
<td>In / Out</td>
<td>Data-1</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Data2</td>
<td>In / Out</td>
<td>Data-2</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>Data3</td>
<td>In / Out</td>
<td>Data-3</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>Data4</td>
<td>In / Out</td>
<td>Data-4</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>Data5</td>
<td>In / Out</td>
<td>Data-5</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>Data6</td>
<td>In / Out</td>
<td>Data-6</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Data7</td>
<td>In / Out</td>
<td>Data-7</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>nAck</td>
<td>In</td>
<td>Status-6</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>Busy</td>
<td>In</td>
<td>Status-7</td>
<td>Yes</td>
</tr>
<tr>
<td>12</td>
<td>Paper-out</td>
<td>In</td>
<td>Status-5</td>
<td>No</td>
</tr>
<tr>
<td>13</td>
<td>Select</td>
<td>In</td>
<td>Status-4</td>
<td>No</td>
</tr>
<tr>
<td>14</td>
<td>Linefeed</td>
<td>Out</td>
<td>Control-1</td>
<td>Yes</td>
</tr>
<tr>
<td>15</td>
<td>nHour</td>
<td>In</td>
<td>Status-3</td>
<td>No</td>
</tr>
<tr>
<td>16</td>
<td>nInitialize</td>
<td>Out</td>
<td>Control-2</td>
<td>No</td>
</tr>
<tr>
<td>17</td>
<td>nSelect-Printer</td>
<td>Out</td>
<td>Control-3</td>
<td>Yes</td>
</tr>
<tr>
<td>18 - 25</td>
<td>Ground</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Serial Printer Port (COM2)
The serial printer port or serial computer port can be connected to a DB9 connector to act as a printer port.

Figure 8: Printer Port
RS232 Serial Automation

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

<table>
<thead>
<tr>
<th>RJ45 Pin no</th>
<th>Description in relation to SG-System II</th>
<th>DB9 Pin no</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not connected</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>CTS</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>GRD</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>TX</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>RX</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>DCD</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>RTS</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Not connected</td>
<td>Not connected</td>
</tr>
</tbody>
</table>
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