

LE2077

HSPA/3G Wireless Alarm Communicator
SCW 3G Communicator – North America

TL2553G

Ethernet/Internet and HSPA/3G Dual-Path Alarm Communicator
SCW 3G / Ethernet Communicator - North America



Installation Manual
v5.0

Warning: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer.

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WARNING: INSTALLER PLEASE READ CAREFULLY

Note to Installers

The Warnings on this page contain vital information. As the only individual in contact with system users, it is the installer's responsibility to bring each item in this Warning to the attention of all 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 the reasons may be:

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.

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.

Compromise of Radio Frequency (Wireless) Devices

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

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 your security system be reviewed periodically to ensure that its features remain effective and that it is updated or replaced if it is found that it does not provide the protection expected.

Failure of Replaceable Batteries

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

Inadequate Installation

A security system must be installed properly in order to provide adequate protection. Every installation should be evaluated by a security professional to ensure that all access points and areas are covered. Locks and latches on windows and doors must be secure and operate as intended.

Windows, doors, walls, ceilings and other building materials must be of sufficient strength and construction to provide the level of protection expected. A reevaluation must be done during and after any construction activity. An evaluation by the fire and/or police department is highly recommended if this service is available.

Inadequate Testing

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

Insufficient Time

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

Motion Detectors

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

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

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.

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.

Smoke Detectors

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

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

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

Telephone Lines

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

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, other appliances, or passing traffic. Audible warning devices, however loud, may not be heard by a hearing-impaired person.

MOUNTING CONSIDERATIONS

The Cellular/Ethernet Communicator is a fixed, wall-mounted unit and shall be installed in the location specified in these instructions. The equipment enclosure must be fully assembled and closed, with all the necessary screws/tabs and it must be secured to a wall before operation. Internal wiring must be routed in a manner that prevents:

- Excessive strain on wire and on terminal connections,
- Interference between power limited and non power limited wiring,
- Loosening of terminal connections, or
- Damage of conductor insulation.

Warning: Never install this equipment during a lightning storm!

The Installer must instruct the System user on each of the following items:

- This manual shall be used in conjunction with the Alarm controller manual; All the safety instructions specified within that manual shall be observed.
- Do not attempt to service this product. Opening or removing covers may expose the user to dangerous voltages or other risks.
- Any servicing shall be referred to trained service person only.
- Use authorized accessories only with this equipment.

Cellular Coverage for Alarm Communicator Operation

The HSPA/3G performance of the **LE2077** and **TL2553G** Alarm Communicators depends greatly on Cellular network coverage. The SCW (with internal Alarm Communicator) should not be mounted in the final location without first ensuring that Cellular radio reception is adequate for communication using the HSPA/3G paths. Perform the "Communicator Placement Test" on page 14.

COMMUNICATOR TECHNICAL SPECIFICATIONS

GENERAL INFORMATION

All versions of the HSPA/3G and Ethernet Alarm Communicator, operate on a HSPA/3G network and are housed inside the Self Contained Wireless (SCW) 9055/9057. The Communicators use an Internal Antenna only.

Each version of Alarm Communicators covered by this Installation Manual are described below:

LE2077: A High Speed Packet Access/Global System for Mobile (HSPA/3G) wireless Alarm Communicator that sends alarm communication to Sur-Gard System HP, II, III (SG-DRL3IP), IV (SG-DRL4IP) and System 5 (DRL5-IP) central station receivers via a HSPA/3G digital cellular network.

TL2553G: Is a dual-path Cellular/Ethernet Alarm Communicator that sends alarm communication to Sur-Gard System HP, II, III, IV and 5 central station receivers through Ethernet/Internet or a HSPA/3G digital cellular network.

The dual path Communicator can be used as either a backup or primary Communicator. The Communicator supports Internet Protocol (IP) transmission of panel and internal events over Ethernet/Internet and/or HSPA/3G.

NOTE: For North America the following model names are available: **LE2077** and **TL2553G**.

CAUTION :

- Do not stay close to the equipment during device operation and to do not touch any exposed wires and other conductive surfaces,
- Recycle the battery according to the local rules and regulations.

NOTE: Prior to installation of the **LE2077** or **TL2553G** Communicator, confirm with your local carrier that the HSPA/3G network is available and active in the area where the Communicator will be installed, and that the location provides a radio signal strength that is adequate for uninterrupted service.

FEATURES

- 128-bit Advanced Encryption Standard (AES) encryption via HSPA/3G and Ethernet/Internet.
- Activating, initializing and remote programming through C24 Communications.
- Back up or primary HSPA/3G/2G alarm communication.
- Does not require an external HSPA/3G/2G antenna.
- Ethernet LAN/WAN 10/100 BaseT (TL2553G only).
- Full event reporting to central station.
- Fully redundant Ethernet/Internet and HSPA/3G/2G Dual-path Alarm Communication (TL2553G only).
- Individual Ethernet and/or HSPA/3G periodic test transmission.
- 2-way audio (listen-in feature) provided over Cellular.
- Integrated call routing.
- Remote Firmware upgrade capability of the Communicator and Panel Firmware via Ethernet and/or HSPA/3G radio.
- Dual-Band Operation: 850 MHz, and 1900 MHz. (North America only)
- CID and SIA format reporting.
- Subscriber Identity Module (SIM) card included with Communicator. (North America only)
- Supervision heartbeats via HSPA/3G/2G and/or Ethernet/Internet.

UL/ULC INSTALLATION REQUIREMENTS

- For ULC Residential fire and burglary applications the **LE2077/TL2553G** can be used as primary communication channel via either Cellular or Ethernet (as applicable) or as a back-up in conjunction with the Digital Alarm Communicator Transmitter (DACT). Test transmission every 24hours shall be enabled on each channel.
- For UL Residential fire and burglary applications the **LE2077/TL2553G** can be used as primary communication channel via either Cellular or Ethernet (as applicable), or as a back-up in conjunction with the DACT. (30 day test transmission is required on each channel).

COMMUNICATOR FREQUENCY BANDS FOR NORTH AMERICA

Table 1: 2G Frequency Bands

Transmit Direction	Cellular 850 North America	PCS 1900 North America
Transmit Frequency	824 MHz to 849 MHz	1850 MHz to 1910 MHz
Receive Frequency	869 MHz to 894 MHz	1930 MHz to 1990 MHz

Table 2: 3G Frequency Bands

Transmit Direction	UMTS 850 North America, International	UMTS 1900 North America
Transmit Frequency	824 MHz to 849 MHz	1850 MHz to 1910 MHz
Receive Frequency	869 MHz to 894 MHz	1930 MHz to 1990 MHz

Table 3: LTE Frequency Bands (model LE2077 only)

Band	Transmit Band (Tx)	Receive Band (Rx)
LTE B2	1850 MHz to 1910 MHz	1930 MHz to 1990 MHz
LTE B4	1710 MHz to 1755 MHz	2110 MHz to 2155 MHz
LTE B5	824 MHz to 849 MHz	869 MHz to 894 MHz
LTE B12	698 MHz to 716 MHz	728 MHz to 746 MHz
LTE B13	777 MHz to 787 MHz	746 MHz to 756 MHz
UMTS B2	1850 MHz to 1910 MHz	1930 MHz to 1900 MHz
UMTS B5	824 MHz to 840 MHz	824 MHz to 894 MHz

RATINGS

Table 4: Communicator Electrical Ratings

Model	LE2077 Cellular Only	TL2553G Ethernet and Cellular
Power Supply Ratings		
Input Voltage	3.5 / 3.9 / 4.2 VDC (min / NOM / MAX) from the SCW panel	
Current Consumption	75 mA	100 mA
Standby Current (@ 3.7V)	75 mA	100 mA
Alarm (Transmitting) Current	400 mA @ 3.7V during transmission	
Antenna Specifications		
Dual band Antenna	See Table 1 and Table 2	
Environmental Specifications		
Operating Temperature	0°C - 49°C (32°F - 120°F)	
Humidity	5% ~ 85% relative humidity, non-condensing	
Mechanical Specifications		
Board Dimensions (mm)	109 x 110	
Weight (grams)	60	65

HARDWARE COMPATIBILITY

Table 5: Compatibility

Communicator	Receiver/ ControlPanel	Description
LE2077	Receiver	SG System I-IP, v1.14+ SG System II, v2.11+ SG-DRL3-IP, v2.3+ SG-DRL4-IP, v1.2+ SG-DRL5-IP, V1.0+
TL2553G	Control Panel	SCW9055/SCW9057 V1.00

Products or components of products, which perform communications functions only shall comply with the requirements applicable to communications equipment as specified in UL60950 or CAN/CSA-C22.2 No. 60950-1, Information Technology Equipment - Safety - Part 1: General Requirements. Where network interfaces are internal to the control unit or receiver, compliance to CAN/CSA-C22.2 No. 60950-1 is adequate. Such components include, but are not limited to: hubs; routers; NIDs; Third party communications service providers; DSL modems; and Cable modems.

COMMUNICATOR PRE INSTALLATION CONFIGURATION

C24 COMMUNICATIONS™¹ ACCOUNT AND SIM CARD ACTIVATION

(Before Installation)

Installation of the Communicator requires activation with Connect24 before operation. Dealer application forms and additional information on the Connect24 Voice Response Unit (VRU) and graphical user interface (GUI) can be found at <http://www.Connect24.com> or by telephone at: USA 1-888-251-7458 or CANADA 1-888-955-5583.

IMPORTANT: Prior to installing a **LE2077** or **TL2553G** Communicator, contact your monitoring station to determine if it is a master re-seller or visit <http://www.Connect24.com> to become an authorized dealer. In either instance, you will require a Profile Number, Installer ID Number, and an Installer Password. Perform the following pre installation:

1. Retrieve the installer account and password from the master reseller, or from Connect24 directly.
2. Connect your browser to the Connect 24 website at: <http://www.Connect24.com> or use the mobile website m.connect24.com.
3. Log in to the Connect24 website using your installer account and password.
4. Perform the following steps in a Connect24 session to activate the SIM card and initialize programming:
 - a. Navigate to the **Initialize an account** section.
 - b. Select **Profile** (This information will be provided by the master reseller or by Connect24).
 - c. Select **Product** Module.
 - d. Enter the SIM card number.
 - e. Click **Next** then enter in all relevant information as required.
 - f. Confirm all information is entered correctly before submitting.
5. Repeat Step 4 to program another SIM card (i.e. another Subscriber), or log out from Connect24.
6. When you are at the physical installation site, the Communicator will automatically connect and download its programming from Connect24 once the unit is initialized.

NOTE: Following initial installation, you can log in to the Connect24 website at any time to re-configure the Communicator remotely, using the account created for this installation. For more information, refer to the Connect24 website.

Before leaving the installation site, the Communicator TL2553G shall be connected via an APPROVED (acceptable to the local authorities) Network Interface Device (NID) (e.g., for UL Installations, U60950 listed NID). All wiring shall be performed according to the local electrical codes.

ENCRYPTION

The Communicator uses 128 Bit AES Encryption. Encryption can only be enabled from the monitoring station receiver. Each receiver can independently have encryption enabled or disabled. When encryption is enabled, the central station will configure the device to encrypt communications the next time the Communicator module performs a communication to that receiver.

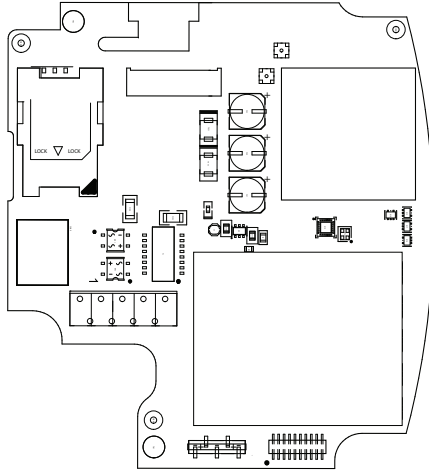
NOTE: Packets will start being encrypted only after the next event is sent to that receiver, or if the unit is restarted.

1. **Connect24**, **DSC**, and **DLS IV** are Registered Trademarks of Tyco International Ltd. and its respective Companies. All Rights Reserved.

COMMUNICATOR CONFIGURATION WITH SCW

NOTE: The Alarm Communicator is installed in the SCW prior to shipment by Digital Security Controls (DSC). The Factory Installation includes insertion of the SIM card. The SCW should not be mounted in its final location without performing a Communicator Test to ensure adequate HSPA/3G coverage for the **LE2077** and **TL2553G** Alarm Communicators

Figure 1: Communication Board Connection Points



INSTALLATION LOCATION

The Communicator shall be installed in an indoor location only.

This HSPA/3G/Ethernet Communicator shall be installed by Service Persons only. (Service Person is defined as 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 Communicator shall be installed and used within an environment that provides the pollution degree max 2, over voltages category II, in non-hazardous, indoor locations only. This manual shall be used with the Installation Manual of the alarm control panel which is connected to the HSPA/3G/Ethernet Communicator. All instructions specified within the control panel manual must be observed.

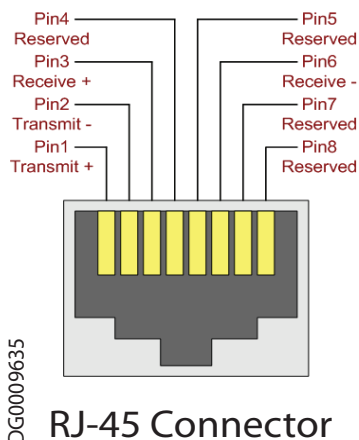
All the local rules imposed by local electrical codes shall be observed and respected during installation.

INSTALLING CAT 5 CABLE (TL2553G ONLY)

A Category 5 (CAT 5) Ethernet cable must be run from a source with Ethernet/Internet connectivity to the Communicator module, inside the Self Contained Wireless Control Panel cabinet. The Communicator end of the cable must have an RJ-45 plug, which connects to the Communicator's RJ-45 jack. All requirements for installation of CAT5 Ethernet cable must be observed for correct operation of the Communicator, including, but not limited to, the following:

- Do NOT strip off cable sheathing more than required for proper termination.
- Do NOT kink/knot cable.
- Do NOT crush cable with cable ties.
- Do NOT untwist CAT5 pairs more than 1.2cm (1/2").
- Do NOT splice cable.
- Do NOT bend cable at right angles or make any other sharp bends.

Figure 2: RJ-45 Pinout



NOTE: CAT5 specification requires that any cable bend must have a minimum 5 cm (2 in.) bend radius. Maximum length of CAT 5 cable is 100m (328 ft.).

NOTE: The Ethernet cable shall not be visible when the installation is complete unless the install is a surface mount installation.

INSERTING/REMOVING THE SIM CARD

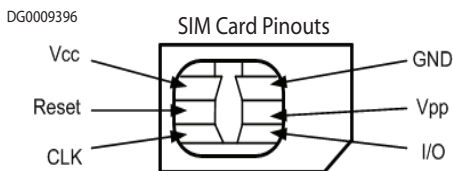
1. Remove the front cover of the SCW Control Panel to access SIM card holder.
2. Remove power from the SCW and disconnect the backup battery connections.
3. On the SIM card holder push gently to slide the cover towards OPEN as indicated by the arrow on SIM holder. This will unlatch the SIM card holder on the side furthest from edge of the Communicator. See Figure 1.
4. Lift up the SIM card holder from the side that is not hinged.

NOTE: The SIM card can be damaged by bending or scratching contacts. Use caution when handling the SIM card.

5. Insert or remove the SIM card, noting the orientation of the notches on the SIM card and the SIM card holder.
6. When inserting a SIM card, insert the card in the proper orientation and gently push the SIM card holder down and slide the holder as indicated by the arrow on SIM holder, to LOCK.
7. Apply AC power to panel, and replace the panel cover.

NOTE: If two way audio is enabled you will NOT be able to swap the SIM card with another card.

Figure 3: SIM Card Pinouts



COMMUNICATOR RESET

The Communicator can be reset by cycling the power on the SCW.

ESTABLISHING A COMMUNICATION CHANNEL WITH THE SCW PANEL.

The Communicator interfaces to the SCW through a keyed 16 pin Ribbon cable. See Table 6 . The key prevents incorrect connection of the ribbon cable connector to the SCW and Communicator. The pinout for the Ribbon cable is provided in the Table below:

Table 6: Communicator Ribbon cable to SCW

Pin #	Signal	Pin #	Signal
1	PC-Link TX	2	PC-Link RX
3	GND	4	Vref
5	Vref	6	GND
7	AUD-OUT_N	8	AUD-OUT_P
9	AUD-IN_P	10	AUD-IN_N
11	GND	12	SI
13	GND	14	SO
15	GND	16	Wall Tamper

Establishing a communication channel between the Communicator and the SCW is critical to ensuring the desired operation of the two units. The following steps must be completed during the on-site installation. Program the following to ensure that the Communicator and the panel will work together as intended.

Initial Programming of Communicator and SCW

1. Enter [*][8][Installer Code][Section Number] for panel programming. Record any values that are modified from their default, in the appropriate Programming Worksheets.

NOTE: When programming Toggle Options, the toggle is ON when the number is displayed and OFF when the number is not displayed. (e.g., [1 --- 5 ---], Toggle Options 1 and 5 are ON, all others are OFF).

2. Panel Section **[167]** Cellular/Ethernet Interface Communications 'Wait for ACK': Default value is: **060** seconds.
3. When the communicator is installed with the SCW panel, 4 telephone numbers are available to backup one another. You can set up these 4 telephone numbers to perform in one of two ways: Backup dialling or Alternate dialling.
 - a. **Backup dialling:** each of the 4 telephone numbers will make 5 dialling attempts in turn, before an FTC trouble is displayed on the keypad.
 - b. **Alternate dialling:** each telephone number makes 1 dialling attempt before moving on to the next number, cycling through each of the 4 numbers for a total of 5 times each. If all 4 numbers fail the 5 attempts, an FTC trouble is displayed on the keypad.
4. Panel Sections **[301]**, **[302]**, **[303]**, and **[305]** can be configured as Primary communication paths.
 - a. Panel Sections **[302]**, **[303]**, and **[305]** may also be configured for backup or redundant communications by using Panel Section(s) **[383]** or **[351] - [376]**. Refer to the SCW panel Installation Manual for more information.

If a valid telephone number is programmed, communications will use Public Switched Telephone Network (PSTN). Entering a 4 digit hexadecimal value for a telephone number will change the call routing to the Communicator, as determined by the number programmed:

DCAAF:Internal (All Receivers). Signals will be routed depending on Section [85 1][006] programming.

DCBBF:Ethernet Receiver 1 (Primary). (Not available for LE2077).

DCCCF:Ethernet Receiver 2 (Backup). (Not available for LE2077).

DCDDF:Cellular Receiver 1 (Primary).

DCEEF:Cellular Receiver 2 (Backup).

NOTE: Add a single 'F' as a suffix to the 4 digit hex number to populate the unused remainder of the 32 character field.

5. Panel Section **[350]**: If any of the phone numbers have been programmed as DCAA, DCBB, DCCC, DCDD, or DCEE, panel Section [350] must be set to [04] if SIA format or [03] if Contact ID (CID) format is used by control panel.
6. Panel Section **[382]**: Toggle Option **[5]**, 'GS/IP Module Enabled', must be set to **ON**.
7. Panel Section **[401]**: Toggle Option **[1]** must be set to **ON** in order to perform panel DLS session through Cellular or Ethernet data channel.
8. Panel section **[310]**, account code, auto syncs with the communicator account code in section **[021]**. The panel account code ([*][8][installer code] **[310]**), will overwrite the communicator account code section ([*][8][installer code] **[850] [021]**) if programmed differently.

NOTE: Keep a record of the SIM card telephone number, it is required by users for SMS Command and Control functions. (The number can be recorded in the Programming Worksheets Section of this document, under Option [996]). Due to the nature of the SIM card activation process with Cellular network carriers, it can take up to 24 hours for SIM card activation to be complete.

SMS COMMAND AND CONTROL FUNCTIONS

SMS Command and Control is available on SCW9055/57 panels. Users can send SMS text messages from their mobile phone to the GSM phone number assigned to their system. Commands are only accepted from telephone numbers that have been programmed in Sections [311]-[318]. The system will reject messages sent from telephone numbers that are not on the programmed list.

When the received SMS text matches a valid Section message, the function is performed on the control panel. Text messages are not case sensitive and extra spaces are ignored. A User Access Code may be required for some SMS messages.

The SMS Message format is in 3 parts: Command, Partition Label (or only the partition number), and Access Code.

If an Access Code is included in the message, it is sent to the control panel for validation, along with the requested function.

If the panel is configured to require an Access Code and the code is not sent (or invalid) the panel will fail the function (unsuccessful).

If the panel fails the function, an SMS response message is sent to the user. The SMS response will echo the command sent, followed by the label "unsuccessful". (e.g., "night arm partition 2 1234 unsuccessful").

The partition label or partition number may be excluded from the SMS request in a single partition system (e.g., disarm 9123).

NOTE: The GSM phone number can be viewed in Section [851][996], and/or [851][229] or by entering "6, then scrolling down to "SMS Programming" and scrolling down to "Cellular phone No".

LABEL PROGRAMMING for SMS MESSAGE

Programmable Labels can not be modified in Connect24, use DLS IV for label programming only, if labels need to be modified. Before initiating remote programming, record your network's Public IP Address and port for incoming DLS IV connections.

1. Run the DLS IV software on your computer. DLS IV will connect to the unit, using the Public IP address, and make an Ethernet connection. If the Ethernet connection fails, DLS IV will report an error and prompt you to connect using Cellular.

NOTE: If required, download the DLS IV software from DSC: <http://www.dsc.com>. If you select Cellular connection, DLS will request Connect24 to send an outgoing SMS message to the unit.

2. Connect24 will confirm that the account has DLS service and will provide the Public IP address and port number of the DLS server in an SMS message.
3. SMS message will establish a connection to your computer's DLS IV software (to change programming labels only).
4. Create an account for the panel/Communicator, select the Communicator type (e.g., SMS - TL2553G) and enter all relevant information in **SMS** section.

NOTE: The Cellular telephone number will also be required by the user, to send SMS Command and Control messages to their system.

5. Program the account information, then click **Global Download** and choose **SMS** as the **Connection Type**. Click **OK**.
6. The download path configured in Programming Section **[005] Toggle Option[4]** determines the Cellular or Ethernet path to be used.

COMMUNICATOR PLACEMENT TEST

(LE2077/TL2553G only)

1. Using the keypad enter the installer mode: **[*][8] [installer code] [850]**.
2. View and record the number of bars showing on the SCW LCD.
3. Compare with the number of bars indicated in the "CSQ Levels" column shown in Table 7 .
4. If 3 or more bars are shown, the location is GOOD and no further action is required.
5. If the location is BAD, move the SCW to various suitable locations until 3 or more bars are obtained.

Table 7: Communicator CSQ Levels

Signal Strength	CSQ Level	Signal Level dBm	Installer Action
No Signal	0	-108.8	Check if Cellular coverage is active in your area.
1 Bar	1 to 4	-108d to -103	Location is BAD. Not suitable for Cellular operation.
2 Bars	5 to 6	-102 to -99	
3 Bars	7 to 10	-98d to -91	Location is GOOD.
4 Bars	11 to 13	-90 to -85	
5 Bars	14 and higher	-84 and higher	

NOTE: The communicator is capable of indicating signal strength even without an active SIM, but signal indication may take up to 1-2 minutes.

GENERAL INFORMATION

i Domain Name Service (DNS) programming is not permitted in UL/ULC listed systems.

KEYPAD DATA DISPLAY

- **Section-Toggle Options:** The number is displayed when Toggle is ON. The number is not displayed when Toggle is OFF. (e.g., Toggle Options displays: "[–3–6–]"). Options **3** and **6** are **ON**, all others are **OFF**. Pressing keys 1 through 8 will alternately turn the Toggle ON and OFF.
- **HEX/Decimal Data:** Values that are provided with two defaults, separated by a / character, use the format: hexadecimal followed by decimal equivalent (e.g., Default [0BF5/3061]). Hexadecimal numbers are shown, with all leading zeroes, to the full field length defined for the number.

ENTERING DATA FROM KEYPAD

To enter data at the keypad, press the number key, from the table below, to select the character that you want. Pressing the number key repeatedly will scroll through the characters available

for that key. Press the [*] key and use [<] [>] keys to scroll to one of the following selections: (Press [*] to select the Option.)

- **ASCII Entry.** Use this mode to enter ASCII characters from the keypad.
- **Clear to End.** This selection will clear the remainder of the display.
- **Clear Display.** This selection will completely erase all entries on the display.
- **Change Case.** Toggles between upper/lower case depending on current selection.

NOTE: The “0” on the keypad is used to **delete** characters.

Table 8: Data Entry at Keypad

Key	Value	Key	Value	Key	Value
1	1-A-B-C	4	4-J-K-L	7	7-S-T-U
2	2-D-E-F	5	5-M-N-O	8	8-V-W-X
3	3-G-H-I	6	6-P-Q-R	9	9-Y-Z-0

ENTERING ASCII CHARACTERS

To enter American Standard Code for Information Interchange (ASCII) characters at the keypad, perform the following:

1. Press [*] and use [<] [>] keys to scroll to “ASCII Entry”.
2. Press [*] to select ASCII entry mode.
3. Use the [<] [>] keys to scroll to display the ASCII character you want to use and press [*] to accept.
4. Press [*] to exit ASCII character entry mode and return to normal entry.

NOTE: Authorized access to Connect24 (LE2077/TL2553G) is required to modify any Ethernet/Cellular Programming Section. Specific panel sections must be configured for proper operation of the Communicator with the panel.

ETHERNET/CELLULAR PROGRAMMING OPTIONS

The Programming Sections described in this document can be viewed at the SCW LCD. To start programming enter: [*][8][installer code] [851][# # #], Where # # # is the 3 digit Section number referenced in this section. The Programming Worksheets at the end of this document can be used to record the new values when programming changes have been made from the default values.

Programming Sections are accessed through Connect24. Installers may **review/record** programming Options at the panel.

NOTE: Ethernet/Cellular Programming Sections accessed through the panel are for **display purposes only**. Configuration changes must be done using Connect24.

SYSTEM OPTIONS

[001] Ethernet IP Address

Default (000.000.000.000)

Enter the IP address of the Communicator. Ensure that the IP address is unique to your Communicator on the local network. Format is 4 fields, each field is a 3 digit decimal number. Valid range: 000-255. If an IP address is programmed in this Section, the unit will operate with Static IP (DHCP disabled). Sections [002] and [003] must also be programmed when using Static IP addresses.

NOTE: Default for this Section is Dynamic Host Configuration Protocol (DHCP) enabled. When enabled, the DHCP Server will set values for: IP Address [001], Subnet Mask [002], and Gateway [003]. Programming an IP address in this Section will disable DHCP (Static IP).

[002] Ethernet IP Subnet Mask

Default (255.255.255.000)

Enter the Ethernet IP Subnet Mask of the Communicator. Format is 4 fields, each field is 3 digits. Valid range: 000-255.

NOTE: If DHCP is enabled, the DHCP Server will assign the subnet mask for this Section and the programmed value will be ignored.

[003] Ethernet Gateway IP Address

Default (000.000.000.000)

Enter the Ethernet Gateway IP address of the Communicator. The gateway IP address is required when a router is used on the local network to reach the destination IP address specified in Section [001]. Format is 4 fields, each field is a 3 digit decimal number. Valid range: 000-255.

NOTE: If DHCP is enabled, the DHCP Server will assign the Gateway IP address for this Section and the programmed value will be ignored.

[004] Receiver Supervision Interval

Default (0087/135)

When receiver supervision is enabled (ON) in Section [005] Toggle Option [3], the unit sends heartbeats to Ethernet Receiver 1 or Cellular Receiver 1 to test the communications path. Use this Section to set the interval time (in seconds) when heartbeats will be sent to the receivers. Valid range 000A-FFFF seconds. If the programmed value is less than (000A/10) seconds, supervision is disabled.

- **Receiver Window:** This is the supervision timeout that must be configured at the central station receiver.
- **Recommended Values:** This is the recommended heartbeat interval that should be programmed into the Communicator.
- For ULC installations, the Daily test transmission must be enabled over each available communication channel Sections [125] and [225]. When programming with Connect24, the recommended intervals will be programmed automatically when the required window is selected.

[005] System Toggle Options

[1] Ethernet Receiver 1 Supervised

Default (OFF)

(**TL2553G** only).

ON: Ethernet Receiver 1 will be supervised and heartbeats will be sent to Ethernet Receiver 1 based on the supervision interval programmed in Section [004].

OFF: Ethernet Receiver 1 will not be supervised. When disabled, heartbeat 1 is sent to the Ethernet receiver once every hour, regardless of supervision type (heartbeat 1 or 2). The heartbeat is resent every 5 seconds until ACK. If no event or heartbeat ACK is received after (Receiver Supervision Interval + 75 seconds), Supervisory trouble is indicated.

NOTE: Ethernet Receiver 2 can not be supervised.

[2] Cellular Receiver 1 Supervised

Default (OFF)

ON: Cellular Receiver 1 will be supervised and heartbeats will be sent to Cellular Receiver 1 based on the supervision interval programmed in Section [004]. If ACK to heartbeat is not received, it is retransmitted every 5 seconds. Failure to ACK 2 consecutive heartbeats will reset the radio.

OFF: Cellular Receiver 1 will not be supervised. When disabled, heartbeat is not sent to the receiver. Supervisory trouble is indicated.

NOTE: Cellular Receiver 2 can not be supervised.

[3] Supervision Type

Default (OFF)

ON: Heartbeat 1 (Commercial Supervision). This supervision type is suitable for applications where swap detection is required on the supervisory packet.

OFF: Heartbeat 2 (Residential Supervision). This supervision type is suitable for applications where supervision of the communication path to the receiver is required. (no swap detection).

NOTE: Commercial supervision is more data intensive than residential supervision and should only be used when required to meet the approval for the installation.

[4] Primary Path

Default (OFF - **TL2553G**) (ON - **LE2077**)

ON: Cellular channel is the primary path. Ethernet channel is the secondary path, if it exists.

OFF: Ethernet channel is the primary path in a dual Communicator. Cellular channel is the secondary path.

[5] Redundant Communications

Default (OFF) (**TL2553G** only)

ON: Events will be communicated to Ethernet Receiver 1 and Cellular Receiver 1 at the same time. Events will be communicated to Ethernet Receiver 2 and Cellular Receiver 2 at the same time. As long as the event is successfully communicated to 1 of the 2 paths (Ethernet or Cellular) the Communicator will move on to the next event.

NOTE: Do not configure Ethernet Receiver 1 and Cellular Receiver 1 to communicate using a common receiver configuration (i.e., identical Receiver IP address and Receiver Remote Port).

OFF: Events will be communicated to the receivers individually. Toggle should be OFF when guaranteed message delivery to both receivers is required.

[6] Remote Firmware Upgrade

Default (ON)

ON: The Communicator module firmware can be remotely upgraded using the Ethernet/ Cellular paths.

OFF: The Communicator module firmware can not be remotely upgraded. Local firmware upgrade is still possible.

[7] Alternate Test Transmissions

Default (OFF).

ON: When the periodic test transmission interval occurs, the test transmission will alternate between being sent to the primary and secondary receivers with each test transmission interval.

OFF: When the periodic test transmission interval occurs, the test transmission will be sent to the programmed receivers, based on the settings of the periodic test transmission reporting codes.

[8] Cellular Low Signal Trouble.

Default (OFF)

This option masks the Low Signal trouble from the Cellular trouble event.

ON: A Cellular Trouble event is transmitted to receiver when the radio signal level falls below threshold level (average CSQ level is 4 or less).

OFF: A Cellular Trouble event is **not** transmitted to receiver when the radio signal level falls below threshold level (average CSQ level is 4 or less).

[006] System Toggle Options 2

[1] Ethernet 1 Receiver Enabled.

Default (ON) (OFF for **LE2077**).

ON: Ethernet Receiver 1 is enabled.

OFF: Ethernet Receiver 1 is disabled.

[2] Ethernet 2 Receiver Enabled.

Default (ON) (OFF for **LE2077**).

ON: Ethernet Receiver 2 is enabled.

OFF: Ethernet Receiver 2 is disabled.

[3] Reserved. ().

[4] Cellular 1 Receiver Enabled.

Default (ON).

ON: Cellular Receiver 1 is enabled.

OFF: Cellular Receiver 1 is disabled.

[5] Cellular 2 Receiver Enabled.

Default (ON).

ON: Cellular Receiver 2 is enabled.

OFF: Cellular Receiver 2 is disabled.

[6] Reserved ().

[7] DLS Over Cellular.

Default (ON).

NOTE: Program this toggle as OFF if you want to completely disable DLS from using the Cellular path.

ON: DLS is enabled on the Cellular path.

OFF: DLS is disabled on the Cellular path.

NOTE: If this Toggle is OFF, DLS sessions will occur on the Ethernet path only, regardless of Primary Path set in Section [005] Toggle Option [4]. If it is ON then the Communicator will connect to the Primary path first for DLS and if the session fails, the Secondary path will be used.

[8] Trouble Suppression

Default (OFF)

ON: GSM, Ethernet and Receiver Supervision Trouble and Restore conditions will be delayed for the time period programmed in section [226]. After the delay expires the trouble conditions will be indicated and communicated.

OFF: GSM, Ethernet and Receiver Supervision Troubles will be immediately indicated and communicated.

[007] DNS Server IP 1

Default (000.000.000.000)

***!** Programming this Section is **not** permitted on a UL/ULC listed system.*

Enter the IP address for DNS Server 1. Format is 4 fields, each field is a 3 digit decimal. Valid range: 000-255.

NOTE: If no value is programmed and DHCP is used, the DHCP Server will configure the address. If an address is programmed and DHCP is used, the address that you program will be used instead of the DHCP address.

[008] DNS Server IP 2

i Programming this Section is **not** permitted on a UL/ULC listed system.

Default (000.000.000.000)

Enter the IP address for DNS Server 2. Format is 4 fields, each field is a 3 digit decimal. Valid range: 000-255.

NOTE: If no value is programmed and DHCP is used, the DHCP Server will assign this value. If an address is programmed and DHCP is used, the address that you program will be used instead of the DHCP address.

PROGRAMMING OPTIONS

[010] System Toggle Option

Default (Disable)

[1] This bit is used to enable/disable two way audio over 3G.

[011] Installer Code

Default (CAFE)

Program your installer code for this Communicator module. The installer code will be required when programming the Communicator module. Valid range: 0000 - FFFF.

[012] DLS Incoming Port

Default (0BF6/3062)

The DLS Incoming Local Port (listening port) is the port DLS IV will use when connecting to the Communicator. If a router or gateway is used, it must be programmed with a Transmission Control Protocol (TCP) port forward for this port to the Communicator module IP address. Valid range: 0000 - FFFF.

[013] DLS Outgoing Port

Default (0BFA/3066)

The DLS Outgoing Port is used for outgoing session to DLS IV after an SMS request has been sent to the Communicator. Use this Section to set the value of the local outgoing port. The value must be changed if the Communicator is located behind a firewall and must be assigned a particular port number, as determined by your network administrator. In most cases, changing the default value or configuring your firewall with this port is not required.

Valid range: 0000-FFFF.

NOTE: If Section [006] Toggle Option [7] is ON, DLS will use the Primary path for session. If Section [006] Toggle Option [7] is OFF DLS will use the Ethernet path, if available.

[020] Time Zone

Default (00)

Use Column 2 (Offset Hours) to find your local Time Zone. Record the two digit HEX value from Column 1 (HEX Value) on the same row. Program this HEX value for your Time Zone. Valid range is 00 - FF.

Table 9: World Wide Time Zones

HEX Value	Offset Hours	Std Abbrev	Location
01	-12	BIT	Baker Island Time
05	-11	NUT	Niue Time
		SST	Somoa Standard Time

HEX Value	Offset Hours	Std Abbrev	Location
09	-10	HAST	Hawaii-Aleutian Standard Time
		THAT	Tahiti Time
		TKT	Tokelau Time
		CKT	Cook Island Time
0B	-9,5	MIT	Marquesas Island Time
0D	-9	AKST	Alaska Standard Time
		GIT	Gambier Island Time
11	-8	PST	Pacific Standard Time
		PST	Pitcarirn Standard Time
		CIST	Clipperton Island Standard Time
15	-7	MST	Mountain Standard Time
19	-6	CST	Central Standard Time
		GALT	Galapagos Time
		PIT	Peter Island Time
		EAST	Easter Island Standard Time
1D	-5	EST	Eastern Standard Time
		COT	Columbia Time
		ECT	Ecuador Time
		PET	Peru Time
		ACT	Acre Time
1F	-4,5	VST	Venezuela Standard Time
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		
23	-3,5	NST	Newfoundland Standard Time
25	-3	CGT	Central Greenland Time
		ART	Argentina Time
		BRT	Brazilia Time
		UYT	Uruguay Standard Time
		SRT	Suriname Time
		ROTT	Rothera Time
		PMST	St. Pierre & Miquelon Standard Time
		GFT	French Guiana Time
29	-2	GST	South Georgia and the South Sandwich Islands
		BEST	Brazil Eastern Standard Time
2D	-1	EGT	Eastern Greenland Time
		CVT	Cape Verde Time
		AZOST	Azores Standard Time

HEX Value	Offset Hours	Std Abbrev	Location
31	0	WET	Western European Time
		GMT	Greenwich Mean Time (UTC)
		SLT	Sierra Leone Time
		IST	Ireland Standard Time
35	1	CET	Central European Time
		WAT	Western Africa Time
		BST	British Summer Time
39	2	EET	Eastern European Time
		CAT	Central Africa Time
		SYT	Syrian Standard Time
		SAST	South Africa Standard Time
		IST	Israel Standard Time
3D	3	MSK	Moscow Standard Time
		EAT	Eastern Africa Time
		AST	Arabic Standard Time
		AST	Arabia Standard Time
		AST	Al Manamah Standard Time
3F	3,5	IRST	Iran Standard Time
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
43	4,5	AFT	Afghanistan Time
45	5	CAST	Chinese Atlantic Standard Time
		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
		KGZ	Kyrgyzstan Time
		HMT	Heard and McDonald Island Time
		DAVT	Davis Time
47	5,5	IST	Indian Standard Time
48	5,75	NPT	Nepal Time

HEX Value	Offset Hours	Std Abbrev	Location
49	6	XJT	Xinjiang Standard Time
		EKST	East Kazakhstan Standard Time
		LKT	Sri Lanka Time
		VOST	Vostok Time
		OMSK	Omsk Standard Time
		NOVT	Novosibirsk Time
		BTT	Bhutan Time
		BIOT	British Indian Ocean Time
4B	6,5	CCT	Cococ Islands Time
		MMT	Myanmar Time
4D	7	CXT	Christmas Island Time
		KOVT	Khovd Time
		KRAT	Krasnoyarsk Time
		WIB	Waktu Indonesia Bagian Barat
		ICT	Indochina Time
		BDT	Bangladesh Standard Time
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
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
57	9,5	ACST	Australian Central Standard Time

HEX Value	Offset Hours	Std Abbrev	Location
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
		ChST	Chamorro Standard Time
5B	10,5	LHST	Lord Howe Standard Time
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
5F	11,5	NFT	Norfolk Island Time
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		
64	12,75	CHAST	Chatham Island Standard Time
65	13	PHOT	Phoenix Island Time
		TOT	Tonga Time
69	14	LINT	Line Island Time
70 - FF	N/A	Reserved	

[021] Account Code

Default (FFFFFF)

The account code is included when transmitting any events generated by the Communicator. (e.g., Panel Absent Trouble). It is recommended that the account code be the same as the control panel account number. Valid range: 000001-FFFFFF. If 4 digit account codes are needed the 2 lowest digits shall be programmed as FF. (e.g., Account 1234 is programmed as: 1234FF).

NOTE: Programming this Section with all 0 or F will cause a Module Configuration Trouble.

[022] Communications Format

Default (04)

Program 03 for Contact ID (CID). Program 04 for SIA. The module can be configured to send Events in SIA or CID format. The SIA communication format follows the level 2 specifications of the *SIA Digital Communication Standard - October 1997*. This format will send the account code along with its data transmission. The transmission will look similar to the following at the receiver. Example: **NriO ET001**

Where: **N** = New Event; **riO** = Partition/Area identifier; **ET** = Panel Absent Trouble; **001** = Zone 001.

COMMUNICATIONS REPORTING CODES

Table 10: Communications Reporting Codes

Event	SIA Identifier	SIA Reporting Code	CID Qualifier	CID Event Code	CID Reporting Code	CID User/Zone
[023] Panel Absent Trouble	ET	001	1	3	55	001
[024] Panel Absent Trouble Restore	ER	001	3	3	55	001
[025] Radio Activation Restore	RS	001	3	5	52	001
[026] Ethernet 1 Test Transmission	RP	001	1	6	A3	951
[027] Ethernet 2 Test Transmission	RP	002	1	6	A3	952
[028] Cellular 1 Test Transmission	RP	003	1	6	A3	955
[029] Cellular 2 Test Transmission	RP	004	1	6	A3	956
[030] FTC Restore	YK	001	3	3	54	001

[023] Panel Absent Trouble

Default (FF)

Program 00 to disable this event or FF to enable. This event will occur when communications with the panel have been lost for more than 60 seconds.

[024] Panel Absent Trouble Restore

Default (FF)

Program 00 to disable this event or FF to enable. This event will occur when communications with the control panel have resumed.

[025] Radio Activation Restore

Default (FF)

Program 00 to disable this event or FF to enable. This event will occur after any successful Connect24 programming session.

SYSTEM TEST OPTIONS [026 - 029]

Test Transmissions to Primary Receiver, with Backup to Secondary Receiver:

Set Ethernet Section [026] to (FF); [027] to (00). Set Cellular Section [028] to (FF); [029] to (00).

- If the test transmission fails to the primary receiver it will backup to the secondary receiver.
- If the test transmission fails to the secondary receiver an FTC trouble will be generated.

Test Transmission Unique to Primary and Secondary Receivers:

Set Ethernet Section [026] to (FF); [027] to (FF). Set Cellular Section [028] to (FF); [029] to (FF).

- The module will send periodic test transmissions to each receiver independently, with no backups.
- If the test transmission fails to any of the programmed receivers, an FTC trouble will be generated.

Alternate Test Transmission:

Alternate Test Transmission can be enabled or disabled in Section [005] Toggle Option [7].

[026] Ethernet 1 Transmission

Default (FF)

Program 00 to disable this event transmission or FF to enable. See System Test Options (above) for details on settings.

[027] Ethernet 2 Transmission

Default (00)

Program 00 to disable this event transmission or FF to enable. See System Test Options (above) for details on settings.

[028] Cellular 1 Transmission

Default (FF)

Program 00 to disable this event transmission or FF to enable. See System Test Options (above) for details on settings.

[029] Cellular 2 Transmission

Default (00)

Program 00 to disable this event transmission or FF to enable. See System Test Options (above) for details on settings.

NOTE: The time interval (in minutes) between periodic tests is programmed in Section [125] (Ethernet) and Section [225] (Cellular).

[030] FTC Restore

Default (FF)

Program 00 to disable this event transmission or FF to enable. This event will occur when an FTC Trouble on the system restores.

[031] Priority Tamper Alarm

Program 00 to disable this event or FF to enable. This event will occur when panel tampered during the entry delay.

[032] Priority Tamper Restore

Program 00 to disable this event or FF to enable. This event will occur when panel tamper restored.

Table 1 1: Priority Tamper/Tamper Restore

Event	SIA Identifier	SIA Reporting Code	Contact ID Qualifier	Contact ID Event Code	Contact ID Reporting Code	Contact ID User/Zone
Priority Tamper	BA	000	1	1	37	000
Priority Tamper Restore	BR	000	3	1	37	000

[033] Communicator Firmware Update Begin

Default (FF);

Program 00 to disable this event transmission or FF to enable. This event will occur when the communicator firmware update begins.

[034] Communicator Firmware Update Successful

Default (FF);

Program 00 to disable this event transmission or FF to enable. This event will occur when the communicator firmware update successfully completed.

[035] Panel Firmware Update Begin

Default (FF);

Program 00 to disable this event transmission or FF to enable. This event will occur when the panel firmware update begins.

[036] Panel Firmware Update Successful

Default (FF);

Program 00 to disable this event transmission or FF to enable. This event will occur when the panel firmware is updated successfully.

[037] Panel Firmware Update Fail

Default (FF);

Program 00 to disable this event transmission or FF to enable. This event will occur when the panel firmware updated has failed.

Table 12: Firmware Upgrade Reporting Codes

Event	SIA Identifier	SIA Reporting Code	Contact ID Qualifier	Contact ID Event Code	Contact ID Reporting Code	Contact ID User/Zone
[033]Comm. FW Update Begin	LB	00	1	9	03	002
[034]Comm. FW Update Successful	LS	00	3	9	03	002
[035]Panel FW Update Begin	LB	00	1	9	03	003
[036]Panel FW Update Successful	LS	00	3	9	03	003
[037]Panel FW Update Fail	LU	00	1	9	04	003

ETHERNET RECEIVER 1 OPTIONS

[101] Ethernet Receiver 1 Account Code

Default (0000000000)

The account code is used by the central station to distinguish between transmitters. This account code is used when transmitting heartbeat signals to the central station receiver. Signals received from the Panel will use the control panel account number. Valid range: 0000000001-FFFFFFFFFE. Programming all **0** or all **F** will cause a Module Configuration Trouble.

NOTE: If Ethernet Receiver 1 and Cellular Receiver 1 are programmed as the same receiver (IP and port number are identical), Ethernet Receiver 1 account code will be used.

[102] Ethernet Receiver 1 DNIS

Default (000000)

The Dialed Number Information Service (DNIS) is used in addition to the Account Code to identify the Communicator module at the central station. Valid range: 000000 - 099999. Value is entered as a leading 0 followed by the 5 digit DNIS. Format is Binary Coded Decimal (BCD).

NOTE: Each Ethernet/Cellular receiver must be programmed with a unique DNIS.

[103] Ethernet Receiver 1 Address

Default (127.000.000.001)

The default address enables the Communicator to operate in **Unattended Mode**.

Unattended Mode is used when a receiver is not available and the unit is required to perform DLS sessions. Typically used where the customer programs the control panel daily due to access control and still wants to receive alarms without buying extra hardware (receiver) or software.

NOTE: When a valid IP address has been programmed, Ethernet Receiver 1 is enabled and will communicate events over the Ethernet channel.

Ethernet Receiver 1 and Cellular Receiver 1 may be configured to communicate to the same central station receiver. To configure the device to operate using this Common Receiver Mode functionality, program Ethernet Receiver 1 and Cellular Receiver 1, IP address and port number with identical values.

NOTE: When operating in Common Receiver Mode, Ethernet Receiver 1 account code will be used for Ethernet and Cellular.

[104] Ethernet Receiver 1 Remote Port

Default (0BF5/3061)

This Section determines the remote port of Ethernet receiver 1. Valid range: 0000 - FFFF.

[105] Ethernet Receiver 1 Local Port

Default (0BF4/3060)

Use this Section to set the value of the local outgoing port. Set the value of this port when your installation is located behind a firewall and must be assigned a particular port number as determined by your central station system administrator. Valid range: 0000 - FFFF.

[106] Ethernet Receiver 1 Domain Name

Default ()

Enter the Domain Name as 32 ASCII characters.

i Programming this Section is **not** permitted on a UL/ULC listed system.

ETHERNET RECEIVER 2 OPTIONS

[111] Ethernet Receiver 2 Account Code

Default (0000000000)

The account code is used by the central station to distinguish between transmitters. The account code is used when transmitting heartbeat signals to the central station receiver. Signals received from the control panel will use the control panel account number. Valid range: 0000000001- FFFFFFFFE. Programming all **0** or all **F** will cause a Module Configuration Trouble (yellow LED= 12 flashes).

NOTE: If both Ethernet Receiver 2 and Cellular Receiver 2 are the same receiver (IP and port number are identical), Ethernet Receiver 2 account will be used for Ethernet and Cellular.

[112] Ethernet Receiver 2 DNIS

Default (000000)

The DNIS is used in addition to the account code to identify the Communicator module at the central station. Valid range: 000000 - 099999. Value is entered as leading **0** followed by the 5-digit DNIS. Format is BCD.

NOTE: Each Ethernet/Cellular receiver must be programmed with a unique DNIS.

[113] Ethernet Receiver 2 Address

Default (000.000.000.000)

Programming the Ethernet receiver 2 IP address with 000.000.000.000 will disable Ethernet. Enter the Ethernet receiver 2 IP address. This address will be provided by your central station system administrator. Format is 4 fields, each field is a 3-digit decimal. Valid range: 000-255.

NOTE: When a valid IP address has been programmed, Ethernet Receiver 2 is enabled and will communicate events over the Ethernet channel.

Ethernet Receiver 2 and Cellular Receiver 2 may be configured to communicate to the same central station receiver.

To configure the device to operate using this common receiver mode functionality, program the Ethernet Receiver 2 and Cellular Receiver 2, IP address and port number with the same values. When operating in common receiver mode the Ethernet Receiver 2 account code will be used for communications over Ethernet and Cellular.

NOTE: Do not program Ethernet Receiver 1 and Ethernet Receiver 2 to communicate to same receiver.

[114] Ethernet Receiver 2 Remote Port

Default (0BF5/3061)

This Section is used to program the port number used by Ethernet Receiver 2. Set the value of this port when your installation is located behind a firewall, and must be assigned a particular port number as determined by your central station system administrator. Valid range: 0000 - FFFF.

NOTE: Do not program Ethernet Receiver 1 and Ethernet Receiver 2 Port with the same value.

[115] Ethernet Receiver 2 Local Port

Default (0BF9/3065)

Use this Section to program the value of the local outgoing port. You can set the value of this port when your installation is located behind a firewall and must be assigned a particular port number as determined by your network administrator. Valid range: 0000 - FFFF.

NOTE: Do not program Ethernet Receiver 1 and Ethernet Receiver 2 Port with the same value.

[116] Ethernet Receiver 2 Domain Name

Default ()

i Programming this Section is **not** permitted on a UL/ULC listed system.

Enter the Domain Name as 32 Character ASCII.

ETHERNET OPTIONS

[124] Ethernet Test Transmission Time

Default (9999)

Enter a 4 digit number (0000-2359) using the 24-hour clock format (HHMM) to set the test transmission time of day.

Valid range: 00 - 23 hours (HH) and 00 - 59 minutes (MM). Programming a value of 9999 will disable the test transmission time.

NOTE: The internal date and time will automatically be programmed when the unit communicates with the primary receiver.

[125] Ethernet Test Transmission Cycle

Default (000000)

This value represents the interval between test transmissions, in minutes. Valid range: 000000 - 999999 minutes. Once the unit has sent the initial periodic test transmission, all future test transmissions will be offset by the programmed number of minutes. See Sections [026] - [029].

Table 13: Ethernet Test Transmission Interval

Test Transmission Interval	Daily	Weekly	Monthly
Programmed Minutes	001440	010080	043200

NOTE: Minimum value is 000005 minutes. Programming an interval that is less than 5 minutes will disable test transmission.

CELLULAR RECEIVER 1 OPTIONS

[201] Cellular Receiver 1 Account Code

Default (0000000000)

The account code is used by the central station to distinguish between transmitters. This account code is used when transmitting heartbeat signals to the central station receiver. Signals received from the control panel will use the control panel account number. Valid range: 0000000001 - FFFFFFFFE. Programming all **0** or all **F** will cause a Module Configuration Trouble (yellow LED = 12 flashes).

[202] Cellular Receiver 1 DNIS

Default (000000)

The DNIS is used in addition to the account code to identify the Communicator module at the central station. Valid range: 000000 - 099999. Values are entered as leading **0** followed by the five digit DNIS. Format is BCD.

NOTE: Each Ethernet/Cellular receiver must be programmed with a unique DNIS.

[203] Cellular Receiver 1 Address

Default (000.000.000.000)

Enter the Cellular Receiver 1 IP address. This information will be provided by your central station system administrator. Each 3-digit segment of the address must be within a valid range of 000-255.

NOTE: When a valid IP address has been entered, the Cellular is enabled and will communicate events over the Cellular channel.

[204] Cellular Receiver 1 Port

Default (0BF5/3061)

This Section determines the port used by Cellular Receiver 1. Change the default value of this port when your installation is located behind a firewall, and must be assigned a particular port number as determined by your central station system administrator. Valid range: 0000 - FFFF.

NOTE: Programming this Section with 0000 will disable the receiver.

[205] Cellular Receiver 1 APN

Default ()

The Access Point Name (APN) determines the Cellular network that the Communicator will connect to. This information is available from your network carrier. Program this Section as 32 ASCII characters.

NOTE: When a SIM card with a custom APN is used, the unit will not have access to the Internet. DLS and remote flash can still be done if Section [221] is programmed with a valid Public APN.

[206] Cellular Receiver 1 Domain Name

Default ()

i Programming this Section is **not** permitted on a UL/ULC listed system.

Enter the Domain Name as 32 ASCII characters. This information will be provided by your central station system administrator.

CELLULAR RECEIVER 2 OPTIONS

[211] Cellular Receiver 2 Account Code

Default (0000000000)

The account code is used by the central station to distinguish between different transmitters. This account code is used when transmitting signals to the central station receiver. Signals received on the panel will use the panel account number. Valid range: 0000000001 - FFFFFFFF0E.

NOTE: Programming this Section as all 0 or F will cause a Module Configuration Trouble (yellow LED = 12 flashes).

[212] Cellular Receiver 2 DNIS

Default (000000)

The DNIS is used in addition to the Account Code to identify the Communicator module at the central station. Valid range: 000000 - 099999. Values are entered as a 0 followed by the 5 digit DNIS value. Format is BCD.

NOTE: Each Ethernet/Cellular receiver must be programmed with a unique DNIS.

[213] Cellular Receiver 2 Address

Default (000.000.000.000)

Enter the Cellular Receiver 2 IP address. This IP address will be provided by your central station. Format is 4 fields, each field is 3-digit decimal. Valid range: 000 - 255.

NOTE: When a valid address has been entered, Cellular Receiver 2 is enabled and will communicate events over the Cellular path.

[214] Cellular Receiver 2 Port

Default (0BF5/3061)

This Section defines the port of Cellular Receiver 2. Change the value of this port when your installation is located behind a firewall and must be assigned a particular port number, as determined by your central station system administrator. Valid range: 0000 - FFFF.

NOTE: Do not program Cellular Receiver 1 and Cellular Receiver 2 to communicate to the same receiver.

[215] Cellular Receiver 2 APN

Default ()

The APN determines the Cellular network that the Communicator will connect to. This information is available from your network carrier. Program this Section with up to 32 ASCII characters.

NOTE: When a SIM card with a custom APN is used, the unit will not have access to the internet. DLS and remote flash can still be done if Section [221] is programmed with a valid Public APN.

[216] Cellular Receiver 2 Domain Name

Default ()

i Programming this Section is **not** permitted on a UL/ULC listed system.

Enter the Cellular Receiver 2 Domain Name with up to 32 ASCII characters.

CELLULAR OPTIONS

[221] Cellular Public Access Point Name

Default ()

When the Communicator is operating on a private APN, use this Section to select a public APN for DLS and Remote Firmware Update. This information is available from your network carrier. The APN identifies the public Cellular network that the Communicator will connect to.

[222] Cellular Login User Name

Default ()

Some network carriers require you to provide login credentials when connecting to an APN. Program your login User Name in this Section. Format is up to 32 ASCII characters.

NOTE: This Section is not accessible via SCW keypad programming.

[223] Cellular Login Password

Default ()

Some network carriers require you to provide login credentials when connecting to an APN. Program your login Password in this Section.

Format is up to 32 ASCII characters.

[224] Cellular Test Transmission Time of Day

Default (9999)

Enter a 4 digit value using the 24-hour clock format (HHMM) to set the test transmission time of day. Valid range: 00-23 for the hours (HH) and 00-59 for the minutes (MM).

NOTE: To disable the test transmission time of day enter 9999 or FFFF in this Section.

The internal date and time will be automatically programmed by the primary receiver only.

[225] Cellular Test Transmission Cycle

Default (000000)

This value represents the interval in between test transmissions in minutes. Valid range: 000000 - 999999 minutes. Once the unit has sent the initial periodic test transmission, all future test transmissions will be offset by the programmed number of minutes. See Sections [026] - [029].

Table 14: Cellular Test Transmission Interval

Test Transmission Interval	Daily	Weekly	Monthly
Programmed Minutes	001440	010080	043200

NOTE: Minimum value is 000005 minutes. Programming an interval that is less than 5 minutes will disable test transmission.

[226] Trouble Delay

Default (0F)

This option is used to program the delay, in minutes, for reporting an Ethernet Trouble, Cellular Network, Insufficient Signal Strength, or Receiver Supervision Trouble to the panel. The timer is only activated when Option 8 in [85 1][006], Trouble Suppression is enabled.

Valid entries are 00-FF.

00 = No Delay

FF = Cellular Network Trouble, Ethernet Trouble, Low Signal Strength and Receiver Supervision Trouble conditions are disabled.

01 - FE = Trouble Delay time in minutes.

[227] Voice Call Timeout

Default (00);

This option sets the Voice Call Timeout, in minutes. Programming a value of 00 will disable timeout. Valid range is 00 to FF.

[228] Voice Call Back Time

Default (0A);

This option sets the Voice call back time, in minutes. When the Communicator requests Call Back from the receiver, it will answer incoming calls during the programmed timeout period. If an incoming call is received after the timeout from requesting call back, the Communicator will answer the call and immediately hang up. Programming a value of 00 will disable timeout (accept all incoming calls). Default value is 0A/10 seconds. Valid range is 00 to FF.

[229] Voice Call Back Number

Default (SIM Telephone Number);

This option sets the Voice Call Back Telephone Number for the receiver. This number is used for Two Way calling. Current SIM telephone number can be viewed in Section [996]. Valid entry is 32 character ASCII.

COMMAND AND CONTROL OPTIONS

[301] Command and Control Toggle Options

[1] SMS Notification Default (ON).

[2] Reserved Default ().

[3] SMS Command and Control Default (ON).

[4] Reserved Default ().

[5] SMS Character Format Default.

ON: SMS Unicode, maximum message length is 70 characters.

OFF: 7 bit SMS, maximum message length is 160 characters.

[6] Long SMS Message Handling Default (OFF).

ON: If longer than maximum message length, it is split and sent as multiple SMS messages.

OFF: If longer than maximum message length, a single, truncated SMS message is sent.

[7-8] Reserved Default ().

[308] SMS Retry Attempts

(Default 19)

This section determines the number of times an SMS will be resent if the message is not delivered. Valid Entries are 00 to FF. 00 = Disabled, no SMS retry. 01 - FE = 01 to 254 attempts. FF = Use default value of 19 (25 attempts).

[309] SMS Retry Counter (Default 000F)

This section determines the delay period between repeated SMS delivery attempts, programmable in seconds. The default is 15 attempts (000F). Valid Entries are 0000-FFFF. 0000-0005 = 5 Seconds, 0006 - FFFE = 6 to 65534 seconds, FFFF = Use Default of 15 seconds (000F hex).

[311]-[318] SMS Phone Number 1 - 8

Default ():

These Sections may be programmed through DLS IV or the keypad. Up to 8 SMS telephone numbers (4 - 32 digits) can be programmed in Section [31x] Where x is an SMS telephone number from 1 to 8. Leaving programming blank for a telephone number will disable that number. The User can program their own mobile telephone numbers at the keypad using [*][6] <> "SMS Programming". The SMS Command and Control feature utilizes the SMS messaging service provided by the Cellular network and is subject to the limitations of SMS messaging. These limitations include delayed messages and lack of guaranteed delivery.

NOTE: SMS Command and Control (Sections [601]-[618]) will only process messages from the mobile telephone numbers programmed in this Section if SMS Command and Control is enabled [301][3] ON. SMS responses are listed in Sections [621]-[630]. A blank telephone number is disabled.

SMS COMMAND AND CONTROL FUNCTIONS

Users can send SMS text messages from their mobile phone to the communicator cellular phone number assigned to their system. Commands are only accepted from telephone numbers that have been programmed in Sections [311]-[318]. The system will reject messages sent from telephone numbers that are not on the programmed list.

When the received SMS text matches a valid Section message, the function is performed on the control panel. Text messages are not case sensitive and extra spaces are ignored. A User Access Code may be required for some SMS messages.

The User can send just the partition number or the complete label.(e.g., "Away arm Partition 2 1234" is treated the same as "away arm 2 1234").

The SMS Message format is in 3 parts: **Command**, **Partition Label** (or only the partition number), and **Access Code**.

- If an Access Code is included in the message, it is sent to the control panel for validation, along with the requested function.
- If the panel is configured to require an Access Code and the code is not sent (or invalid) the panel will fail the function (unsuccessful).
- If the panel fails the function, an SMS response message is sent to the user. The SMS response will echo the command sent, followed by the label "unsuccessful". (e.g., "night arm partition 2 1234 unsuccessful").
- The partition label or partition number may be excluded from the SMS request in a single partition system (e.g., disarm 9123).

NOTE: The communicator cellular phone number can be viewed in Section [851], [996] and/or [851], [229] or by user entering [*][6], then scrolling down to "SMS Programming" and scrolling down to "Cellular phone No." [<] [>] "Cellular Phone No." at the keypad. An Access Code is required for all SMS commands, except Help.

[601] Stay Arm

Default (Stay Arm);

Send this command to the system to stay arm. It may be followed by a Partition Label or partition number and Access Code.

[602] Away Arm

Default (Away Arm);

Send this command to the system to away arm. It may be followed by a Partition Label or partition number and Access Code.

[603] Night Arm

Default (Night Arm);

Send this command to the system to night arm. It may be followed by a Partition Label or partition number and Access Code.

[604] Disarm

Default (Disarm);

Send this command to the system to disarm. It may be followed by a Partition Label or partition number and Access Code.

[605] - [608] Activate Command Output 1 - 4

Default (Activate Command Output n);

Where n is a number from 1 - 4. Send this command to the system to activate a command output. It may be followed by a Partition Label or partition number and Access Code.

[609] - [612] Deactivate Command Output 1 - 4

Default (Deactivate Command Output n);

Where n is a number from 1 - 4. Send this command to the system to deactivate a command output. This command may be followed by a Partition Label or partition number and optional Access Code.

[613] Bypass

Default (Bypass);

Send this command to the system to bypass a Zone. This command should be followed by a Zone label or Zone number and Access Code.

[614] Unbypass

Default (Unbypass);

Send this command to the system to unbypass a Zone. This command should be followed by the Zone label or Zone number and Access Code.

[615] Status Request

Default (Status Request);

Send this command to request the status of the system. It may be followed by a partition label or partition number and Access Code. If partition label is omitted, status of all enabled partitions will be sent. If there is a trouble on the system, the system label is sent, followed by the trouble label, then the partition status.

NOTE: Status Request response may require more than one SMS message, depending on status of the system. There is a 10-second delay between transmission of SMS messages.

[616] Alarm Memory Request

Default (Alarm Memory Request);

Send this command to the system to request the alarm memory from the system. This command may be followed by a Partition Label or partition number, and Access Code. If partition label is omitted, alarm memory of all partitions will be sent. Alarm memory responses will include Partition label and Zone label. Up to 8 partitions may be contained in 1 message.

NOTE: Alarm Memory Request response may require more than one SMS message, depending on alarm memory of the unit. There is a 10-second delay between transmission of SMS messages.

[617] Help

Default (Help);

When help is sent, the SMS response is a listing of all interactive commands that can be sent to the module. Access Code is not required.

[619] Keypad Message

Default (Keypad Message);

The response format is: [Account Label] [Date and Time] [SMS Function] [Response] [Message Text]. Fields are space delimited. When Keypad Message is sent, the SMS response is the message displayed on the keypad. If the message is too long to display on the keypad, only the portion displayed is sent in the response.

SMS COMMAND AND CONTROL RESPONSE

NOTE: SMS Command and Control Response messages are up to 32 ASCII characters (Maximum 160 characters per SMS message). The message language is specified in Section [009]. SMS responses are sent to the phone that initiated the command.

[621] Function Successful

Default (Successful);

When an SMS Command and Control function is successfully performed by the panel, the successful label is included in the response sent to the user, following the command requested. (e.g., if "stay armed" command is completed by the panel, SMS response is: "stay armed successful").

[622] Function Unsuccessful

Default (Unsuccessful);

When an SMS Command and Control function is not successfully performed by the panel, the command sent to the unit will be included in the response sent to the user, followed by this label. (e.g., if "stay armed" command is not completed, SMS response is: "stay armed unsuccessful").

[623] Invalid Command

Default (Invalid Command);

This label will be included in the response message if the command was not accepted as a valid SMS command.

[624] System Stay Armed

Default (Stay Armed);

This label will be included in the response to a status request command if a partition is stay armed.

[625] System Away Armed

Default (Away Armed);

This label will be included in the response to a status request command if a partition is away armed.

[626] System Night Armed

Default (Night Armed);

This label will be included in the response to a status request command if a partition is night armed.

[627] System Disarmed Ready

Default (Disarmed Ready);

This label will be included in the response to a status request command if a partition is disarmed and is ready to arm.

[628] System Disarmed Not Ready

Default (Disarmed Not Ready);

This label will be included in the response to a status request command if a partition is disarmed and is not ready to arm.

[629] System is in Alarm

Default (is in Alarm);

This label will be included in the response to a status request command if a partition is in alarm.

[630] Trouble Label

Default (Service is Required);

This label will be included in the response to the Alarm Memory command if there are no alarms in memory.

[631] No Alarms in Memory

Default (No Alarm Memory);

This label will be included in the response to an Alarm Memory Request if there are no alarms on the system.

[634] Error Code

Default (Error Code);

When an SMS initiated function fails, the module will send an error code to the telephone number that was source of the

SMS request. Message format is: [Account Label] [Date and Time] [Error Code] [Error Type].

Fields are "space" delimited.

Table 15: Error Code Format

Class	Definition	Error	Definition
01	DLS	01	Bad SMS format
		02	Session failed due to local network issues
		03	Unable to connect to remote server
		04	Bad DLS access code
		05	DLS lockout active
02	TFTP	01	Bad SMS format
		02	Session failed due to local network issues
		03	Unable to connect to remote server
		04	File not found on TFTP server
		05	File not found on TFTP server
		06	Update was unsuccessful
		07	Update was successful

RECEIVER DIAGNOSTIC TESTING

[901] Diagnostic Test Transmission

[1] Ethernet 1 (OFF).

[2] Ethernet 2 (OFF).

[3] Cellular 1 (OFF).

[4] Cellular 2 (OFF).

[5],[6],[7],[8] Reserved(OFF).

This Section may be used by the installer to force the Communicator to send an immediate test transmission to specific receivers, to verify that the communications paths are available. Diagnostic Test Transmission failure will indicate as FTC trouble (Yellow LED = 9 flashes). If an FTC error occurs when testing all receivers, select only one receiver and repeat test to isolate the receiver that is not communicating.

SYSTEM INFORMATION (READ ONLY)

NOTE: Sections [987] - [998] are provided for information (Read Only). Values in these Sections can not be modified by the Installer.

[987] Language Version

This Section will display the current Language version of the Communicator.

[988] DNS 1 IP Address

This Section will display the IP address of DNS Server 1. This is useful when the unit is configured for DHCP and you need to see the IP address was assigned to the device by the DHCP Server. This value is programmed in Section [007] or assigned by DHCP.

[989] DNS 2 IP Address

This Section will display the IP address of DNS Server 2. This is useful when the unit is configured for DHCP and you need to see the IP address that was assigned to the device by the DHCP Server. This value is programmed in Section [008] or assigned by DHCP.

[990] Boot Loader Version

This Section will display the current Boot Loader version of the Communicator.

[991] Firmware Version

This Section will display the current firmware version of the device. Update worksheets with new version after a flash update is completed.

[992] Ethernet IP Address

This Section will display the IP address of the Ethernet connection. This value is programmed in Section [001] or assigned by DHCP.

[993] Ethernet Gateway Address

This Section will display the IP address of the Ethernet Gateway. This value is programmed in Section [003] or assigned by DHCP.

[994] Cellular IP Address

This Section will display the current dynamic IP address assigned by DHCP to the Cellular connection.

NOTE: Cellular uses DHCP (Dynamic IP) only. The Cellular IP address is always provided by the Cellular network (i.e., not programmable).

[995] SIM Number

This Section will display the Subscriber Identity Module (SIM) number of the SIM card installed in the Communicator. Format is: Major Industry Identifier (2 digits) Mobile Country Code (2 or 3 digits); Mobile Network Code (2 - 3 digits); Unique Number (10 - 12 digits); and Checksum (1 digit). Valid SIM numbers range is: 18 - 21 numbers. This number is printed on SIM and the outside of the Communicator carton.

NOTE: The Checksum digit is omitted on 19-digit SIM Card numbers.

[996] Cellular Telephone Number

NOTE: This Section will display the Cellular telephone number of the SIM. This telephone number is required by the Installer for DLS and remote firmware (flash) update. User can access this telephone number by entering [*][6]<>"Cellular Phone No." to display the phone number.

[997] IMEI Number

This Section will display the unique 15-digit International Mobile Equipment Identity (IMEI) of the radio. Format is: Reporting Body Identifier (2 digits), Allocation Number (4 digits); Final Assembly Code (2 digits); Serial Number (6 digits); and a check digit.

[998] MAC Address

This Section will display the unique 12-digit, hexadecimal number assigned as the Media Access Control (MAC) address of the device.

SYSTEM RESET DEFAULTS

[999] Software Default

Default (99);

The Software default allows the installer to refresh the unit after changes and also return the Communicator to the default state.

00: Default Module. All programming Sections in module revert to factory settings. This will erase all existing programming of the unit.

55: Reset. The Communicator is reset. This option is equivalent to power cycling the Communicator.

COMMUNICATOR TROUBLESHOOTING

[984] Communicator Status

The communicator status sections are intended to provide the installer with real-time status of the communicator's functionality, operational readiness, failures, and potential malfunctions that may affect flawless operation of the communicator and its primary function of sending signal to the central station in case the monitored event occurs.

The communicator status is displayed in the form of a 6-digit CODE (6 hexadecimal numbers) as in the following pattern: 00000F. The range of the code is from: 00000F – 2220CF. Not all numbers in this range are assigned a status code (Some numbers are skipped, i.e. not assigned the code).

Each digit represents a status or trouble indicator (or assigned function when no trouble is present) as described below:

1. Digit 1 - Signal Indicator 1, displays the presence/strength of signal 1.
2. Digit 2 - Signal Indicator 2, displays the presence/strength of signal 2.
3. Digit 3 - Network Indicator, displays the presence (operational status) of network.
4. Digit 4 & 5 – TROUBLE INDICATOR displays the type of problem/malfunction on communicator or modules associated with and connected to communicator.
5. Digit 6 – Reserved for future use.

For example, status code 11002F – when interpreted means: "Signal Indicator 1 OK, Signal indicator 2 OK, there is no network trouble, and there is trouble in the communicator, Panel supervision trouble." For details see the table below:

Table 16: Communicator Status and Trouble Coding in Hexadecimal Numbers

Digit 1		Digit 2		Digit 3		Digit 4 & 5		Digit 6
Signal indicator 1		Signal indicator 2		Network indicator		TROUBLE INDICATOR		Future use
0	Off	0	Off	0	Off	00	Off (No trouble)	F
1	On	1	On	1	On	01	Future use	F
2	Flashing	2	Flashing	2	Flashing	02	Panel supervision trouble	F
						03	Future use	F
						04	Lockout trouble	F
						05	3G/Cellular trouble	F
						06	Ethernet Trouble	F
						07	Receiver Not Available	F
						08	Receiver Supervision trouble	F
						09	FTC Trouble	F
						0A	C24 Configuration SMS Failure	F
						0B	Future use	F
						0C	Module configuration Trouble	F

The communicator status codes will indicate the signal levels with digit 1 and 2, a network status with digit 3, and the trouble status with digit 4 and 5 as indicated in table above. For example status code 11000F would display following status:

1 – On = Signal indicator 1, is ON

1 – On = Signal indicator 2, is ON

0 – OFF = Network indicator, network is working

00 – TROUBLE INDICATOR = there is no trouble on the communicator.

F – Future code not assigned yet. It is sixth hexadecimal digit. It could be also ‘ - ’ (dash) instead of letter F (11000-).

In this example both signal indicators are on indicating that communicator has excellent signal level; the network indicator is OFF showing that we do not have any network problems and trouble indicators are both OFF indicating that we don't have any trouble on the communicator.

[985] Radio Initialization Status

The radio initialization status is intended to provide the installer with real-time status of radio communication. The radio initialization status is displayed in an 8 bit toggle option. Each digit indicates one task in the radio initialization process as follows:

1. Radio power up
2. Received the SMS from C24
3. Radio reset
4. Radio attached to network
5. Receiver 1 Initialized
6. Receiver 2 Initialized
7. Receiver 3 Initialized
8. Receiver 4 Initialize

The following table shows each digit position in the status code, each digit's value and its assigned meaning in the eight-digit code:

Table 17: Radio Initialization Status - 1-8 bits completion

Bit	1	2	3	4	5	6	7	8
Not Completed	-	-	-	-	-	-	-	-
Completed	1	2	3	4	5	6	7	8

For example, the radio initialization status code 12-45— indicates that Radio has been powered up, it has received SMS signal from C24, the radio is attached to the network, and Receiver 1 has been initialized. This code could be followed with...567 if Receivers 2, 3, and 4 are initialized where applicable.

If the radio initialization status code does not indicate any problems, proceed with installation as per this manual. If troubles are reported, reset the initialization process. If this action does not fix the problem, refer to Trouble shooting section in this manual.

Table 18: Trouble Code Indications

Trouble Indicator Digit	Possible Causes	Possible Solutions
00	No Trouble	N/A
02	Panel Supervision Trouble	Check Section [382]Toggle Option[5] is ON (3G/Ethernet Module Enabled). Ensure the PC-LINK cable between the Panel and Communicator is connected properly (not reversed) and is securely in place.
04	Lockout Trouble	The SIM card has incorrect PIN programmed or has a PIN that the module does not recognize. Replace the SIM card.

Trouble Indicator Digit	Possible Causes	Possible Solutions
05	3G/Cellular Trouble	<p>Confirm that 3G service is available and active in your area. Check all antenna connections. Ensure average radio signal strength is CSQ 6 or higher. (See Table 7). Ensure the SIM card is properly inserted into the SIM card holder. Ensure the SIM card has been activated. (Could take up to 24 hrs after install). If this trouble persists, relocate the Panel (and Communicator) or install an external antenna extension kit.</p>
06	Ethernet Trouble	<p>Check with your ISP to confirm Internet service is active in your area. Ensure your Ethernet cable is securely inserted into the RJ45 jack of the Communicator and the Hub/Router/ Switch. Check that the link light on the Hub/Router/ Switch is ON. If link light is OFF, try restarting the Hub/Router/ Switch. If DHCP is used, ensure that the unit has an assigned IP address from the server. In Section [85 1] [992] verify a valid IP address is programmed. If not, contact the Network administrator. If problem persists, replace the Ethernet cable and RJ45 connector.</p>
07	Receiver Not Available	<p>Ensure that the Ethernet path has internet connectivity. If you are using a static IP address make sure the gateway and subnet mask are entered correctly. If the network has a firewall, ensure the network has the programmed outgoing ports open (Default UDP Port 3060 and Port 3065). Ensure that all the receivers are programmed for DHCP or have the proper IP address and port number. Ensure the 3G Receiver APNs have been programmed with the Access Point Name provided by your 3G provider.</p>
08	Receiver Supervision Trouble	<p>This trouble is indicated when supervision is enabled and the unit is not able to successfully communicate with the receiver. If this trouble persists, contact your central station.</p>
09	FTC Trouble	<p>The unit has exhausted all communications attempts to all programmed receivers for events generated by the Communicator. Restart the system. If trouble persists, contact your dealer.</p>
0A	Connect24 Configuration Failure	<p>The SIM is active but there is no programming for the Communicator. Ensure a profile has been programmed in Connect-24 for the SIM. You can confirm your programming by calling the Connect-24 VRU, or by logging into the Connect24 VRU web site.</p>
0C	Module Configuration Trouble	<p>This indication appears when Section [02 1] System Account Code, Section [10 1], [11 1], [20 1], and [2 1 1] Receiver Account Code have not been programmed. Ensure that a valid account code has been entered in these Sections.</p>

Communicator Troubleshooting

The status code for the radio signal strength, its typical troubles, possible causes and troubleshooting instructions is displayed in the table below.

Table 19: Radio Signal Strength

Signal Strength	CSQ Level	Signal Indicator 1	Signal Indicator 2	Signal Level [dBm]	Signal Level Status	Action Required
No Signal	0	0	0	-108.8	bad	Check all antenna connections. Confirm 3G service is active in area. Relocate Panel.
1 Bar	1 - 4	0	2	-108 ~ -103	weak	Relocate Panel if signal strength shows less than 3 bars.
2 Bars	5 - 6	0	1	-102 ~ -99	weak	
3 Bars	7 - 10	2	1	-98 ~ -91	strong	Location is OK. 3G Signal Strength is greater than CSQ 7.
4 Bars	11 - 13	2	1	-90 ~ -85	strong	
5 Bars	14 +	1	1	-84 and higher	excellent	

The table below displays the Network indicator codes and meaning of each code.

Table 20: Network indicator - Digit 3

Network indicator Value	Means
OFF	No Network Trouble
ON	Ethernet Cable disconnected Ethernet DHCP failed Radio connection has been rest Radio IP failed
Flashing	Incoming transmission Connect 24 programming Outgoing transmission Incoming transmission

[309] SMS Retry Counter

Default 000F Hex

0000 - 0005 = 5 seconds

0006-FFFE = 6 to 65534 Seconds

FFFF = Use Default of 15 seconds (000F Hex)

[311]-[318] SMS Phone Number 1 - 8

This section may be programmed through DLS IV or the keypad.

[321]-[328] SMS Phone Number 1 - 8 Toggle Options

____ | [1] SMS Notification Alarm/Restore Default (OFF)

____ | [2] SMS Notification Tamper/Restore Default (OFF)

____ | [3] SMS Notification Opening/Closing Default (OFF)

____ | [4] SMS Notification System Maintenance Default (OFF)

____ | [5] SMS Notification System Test Default (OFF)

____ | [6] SMS Notification Internal Events Default (OFF)

____ | [7] SMS Notification Enabled Default (OFF)

____ | [8] SMS Command and Control Enabled Default (ON)

[601] Stay Arm

Default (Stay Arm);

Send this command to the system to stay arm.

[602] Away Arm

Default (Away Arm);

Send this command to the system to away arm.

[603] Night Arm

Default (Night Arm);

Send this command to the system to night arm.

[604] Disarm

Default (Disarm);

Send this command to the system to night disarm.

[605]-[608] Activate Command Output 1 - 4

Default (Activate Command Output n);

Send this command to the system to activate a command output.

[609]-[612] Deactivate Command Output 1 - 4

Default (Deactivate Command Output n);

Send this command to the system to deactivate a command output.

[613] Bypass

Default (Bypass);

Send this command to the system to bypass a Zone.

[614] Unbypass

Default (Unbypass);

Send this command to the system to unbypass a Zone.

[615] Status Request

Default (Status Request);

Send this command to request the status of the system.

[616] Alarm Memory Request

Default (Alarm Memory Request);

Send this command to request the alarm memory from the system.

[617] Help

Default (Help);

Access Code is not required.

[619] Keypad Message

Default (Keypad Message);

[Account Label] _____

[Date and Time] _____

[SMS Function] _____

[Response] _____

[Message Text] _____

[621] Function Successful

Default (Successful);

Example: "stay armed successful."

[622] Function Unsuccessful

Default (Unsuccessful);

Example: "stay armed unsuccessful."

[623] Invalid Command

Default (Invalid Command);

Unprogrammable, enter correct command.

[624] System Stay Armed

Default (Stay Arm);

Included in the response message if the command was not accepted as a valid SMS command.

[625] System Away Armed

Default (Away Arm);

Included in the response to a status request command if a partition is away armed.

[626] System Night Armed

Default (Night Arm);

Included in the response to a status request command if a partition is night armed.

[627] System Disarmed Ready

Default (Disarmed Ready);

Included in the response to a status request command if a partition is disarmed and is ready to arm.

[628] System Disarmed Not Ready

Default (Disarmed Not Ready);

Included in the response to a status request command if a partition is disarmed and is not ready to arm.

[629] System is in Alarm

Default (Stay Arm);

This label will be included in the response to an Alarm Memory Request if there are no alarms on the system

[630] Trouble Label

Default (Service is Required);

Included in the response to the Alarm Memory command if there are no alarms in memory.

[631] No Alarms in Memory

Default (No Alarm Memory);

Included in the response to the Alarm Memory command if there are no alarms on the system.

[634] Error Code

Default (Error Code);

Included in the response to an Alarm Memory Request if there are no alarms on the system

[901] Diagnostic Test Transmission

___| [1] Ethernet 1 Default (OFF).

___| [2] Ethernet 2 Default (OFF).

___| [3] Cellular 1 Default (OFF).

___| [4] Cellular 2 Default (OFF).

System Information (Read Only)

[988] DNS 1 IP Address

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

[989] DNS 2 IP Address

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

[991] Firmware Version

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

[992] Ethernet IP Address

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

[993] Ethernet Gateway Address

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

[994] Cellular IP Address

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

[995] SIM Number

[996] Cellular Telephone Number

This number is required for DLS, and Firmware upgrades.

[997] IMEI Number

[998] MAC Address

___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|___|

System Reset Defaults

[999] Software Default

Default (99); Valid entries are 00 or 55

___|___|

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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.

Limited Warranty

Digital Security Controls (DSC) warrants the original purchaser that for a period of twelve (12) 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; or
- 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:

- freight cost to the repair centre;
- products which are not identified with DSC's product label and lot number or serial number; or
- 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' 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.

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This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) and of all other obligations or liabilities on the part of Digital Security Controls. Digital Security Controls neither assumes responsibility for nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

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

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.

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.

Regulatory Information

MODIFICATION STATEMENT

Digital Security Controls has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

Digital Security Controls n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peut annuler le droit d'utilisation de l'appareil par l'utilisateur.

INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radio électrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WIRELESS NOTICE

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la IC pour un environnement non contrôlé. L'antenne doit être installée de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps.

Antenna gain must be below/Gain de l'antenne doit être ci-dessous:

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

FCC CLASS B DIGITAL DEVICE NOTICE

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:

- Reorient or relocate 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/TV technician for help.

Frequency Band/Bande de fréquence	TL255GR-E, TL2553G-E, 3G2055R-E, 3G2055-E	LE2077
GSM850 / FDD V	6.69dBi	2.10 dBi
PCS 1900 / FDD II	9.31dBi	1.90 dBi
LTEB2	—	1.90 dBi
LTEB4	—	1.60 dBi
LTEB5/B12/ B13	—	2.1/-1.8/0 dBi

CAN ICES-3 (B)/ NMB-3 (B)

Models TL2553G(R)-E/ 3G2055(R)-E

FCC ID: F5315TL2553GRE

IC: 160A-TL2553GRE

Model LE2077

FCC ID: F5318LE2077

IC: 160A-LE2077

FCC/IC Label

This modular transmitter is labeled with its own FCC ID and IC number. When the module is installed inside the host device and the FCC ID/IC of the module is not visible, the host device shall display the provided label referring to the FCC ID and IC of the enclosed module. This label is shipped together with the module and it is the responsibility of the integrator to apply it to the exterior of the enclosure as displayed in the following figure.



Le modulaire émetteur 3G7090 ou LT7090 est étiqueté avec son propre ID FCC et le numéro IC. Lorsque le module est installé à l'intérieur du dispositif hôte WS900-19 ou WS900-29 et la FCC ID / IC du module ne soit pas visible, le dispositif d'accueil affiche l'étiquette fournie se référant à l'ID FCC et IC du module ci-joint. Ce label est livré avec le module et il est de la responsabilité de l'intégrateur de l'appliquer à l'extérieur de l'enceinte, comme indiqué dans la figure suivante.

Model LE2077

Contains FCC ID: F5318LE2077

Contains IC: 160A-LE2077

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