



POWER SERIES NEO TECHNICAL TRAINING MANUAL

COMMUNICATIONS:

OVERVIEW:

The Power Series Neo panels have the ability to transmit alarms, troubles, tests and arming/disarming signals to the monitoring station. The main paths of communication are: phone line (PSTN), Internet (T-link) and Cellular (GSM).

TRANSMISSION SEQUENCES FOR PHONE LINE (PSTN):

The following events take place during a successful transmission to the central stations:

- An event is generated that requires to be communicated to the central station
- (i.e. alarm, trouble, test...etc.)
- The control panel will pick up the telephone line and check for dial tone
- The control panel will dial the central station telephone number
- The central station receiver will answer and provide the handshake tone (acknowledgement)
- After the control panel has detected the correct 'handshake', the control panel will send the necessary alarm information including an account number to identify the customer
- The central station receiver will provide a 'kiss off' to acknowledge to the control panel that the information was received correctly (Account Number and Reporting Code)
- The control panel will hang up

KEY TERMS IN DSC COMMUNICATION:

DIAL TONE

When the control panel first picks up the telephone line it will search for dial tone before dialing. If dial tone is not present before the control panel attempts to dial the central station number, the number will not be dialed correctly. The presence of dial tone is an indication that the central office (telephone service) is ready for the control panel to dial.

HANDSHAKE

The handshake is a frequency tone generated by the central station receiver to identify itself to the control panel and to let the control panel know when to start transmitting the alarm information.

When a control panel is configured to communicate, a specific communication is selected. Each communications format has its own unique handshake.

When the central station answers an incoming call from a control panel, it will start providing its handshake tones. The control panel will now wait and listen until the receiver provides the handshake as per its programmed communications format. The first handshake will be provided, if the control panel does not respond (by sending its reporting information), the receiver will then provide its next pre-configured handshake.

When the correct handshake is provided, the control panel will automatically start its reporting transmission (Account Number and Reporting Code).

KISS OFF

The kiss off frequency tone is provided by the central station receiver only after the control panel has transmitted the reporting signal correctly. Each communications format requires a specific amount of data (Account Number and Reporting Code).

No data, noisy/incorrect data received will result in the central station not providing the kiss off. If this occurs, the control panel will hang up and attempt to transmit the same information to the central station (default of 5 attempts). If all attempts fail, the alarm panel will log a communication trouble.

ACCOUNT NUMBER

Each control panel is programmed with a unique 4 or 6 (SIA FSK format only) digit account number that will specifically identify which customer's control panel is communicating to the central station. Further identification digits are added by the central station receiver based on which Receiver and Line card number the Panel is programmed to call or Caller ID (DNIS) information on the newer Receivers.

REPORTING CODE

Reporting codes provide details of the event communicated to the central station. Reporting codes transmitted by the control panel varies depending on the communications format programmed in the control panel

ALTERNATE COMMUNICATOR

An integrated module that can report alarm signals over cellular (GSM), internet (IP) or both.

COMMUNICATION PROGRAMMING:

TELEPHONE NUMBERS:

Although the programming manual indicates that the following 4 programming sections refer to telephone numbers, they are also associated with communication paths (such as phone line, Internet and Cellular).

4 programming sections exist to provide flexibility in communications if the panel has more than one path for communications such as:

Phone line (PSTN), Cellular (GSM) and Internet (IP) in any order in any combination (as long as the panel has an integrated alternate communicator)

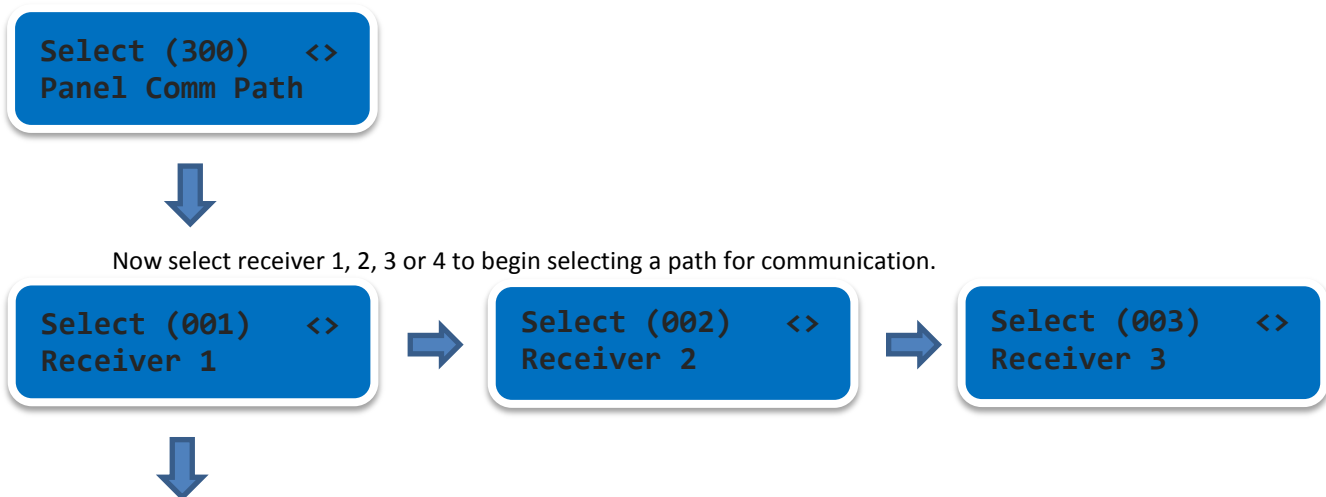
PANEL/RECEIVER COMMUNICATION PATHS – SECTION [300]

This section is used to select the type of communication for each of the available 4 receivers.

OPERATION

Enter Installer's programming mode: [*][8][Installer's Code]

Enter programming location [300] to program the communication paths



PHONE NUMBERS – SECTION [301]

Here we can enter up to 4 telephone numbers, provided that we selected phone line in section [300] for any of the receivers.

PHONE NUMBER 1 – SECTION [001]

When using the phone line path, this is the control panel's primary telephone number, program the central station's telephone number

PHONE NUMBER 2 – SECTION [002]

When using the phone line path, this is the control second telephone number. It can be used as an independent number or to be used when phone number 1 fails to communicate.

PHONE NUMBER 3 – SECTION [003]

When using the phone line path, this is the control third telephone number. It can be used as an independent number or to be used when phone number 2 fails to communicate.

PHONE NUMBER 4 – SECTION [004]

When using the phone line path, this is the control fourth telephone number. It can be used as an independent number or to be used when phone number 3 fails to communicate.

PROGRAMMING INFORMATION:

The telephone number programming section allow for additional HEX digits. The following HEX digits may be entered:

B = Touch tone * (enter [*][2][*])

C = Touch tone # (enter [*][3][*])

D = Dial tone detect (enter [*][4][*])

E = 2 second pause (enter [*][5][*])

F = End of telephone number (enter [*][6][*])

ZONE REPORTING – SECTION [307]

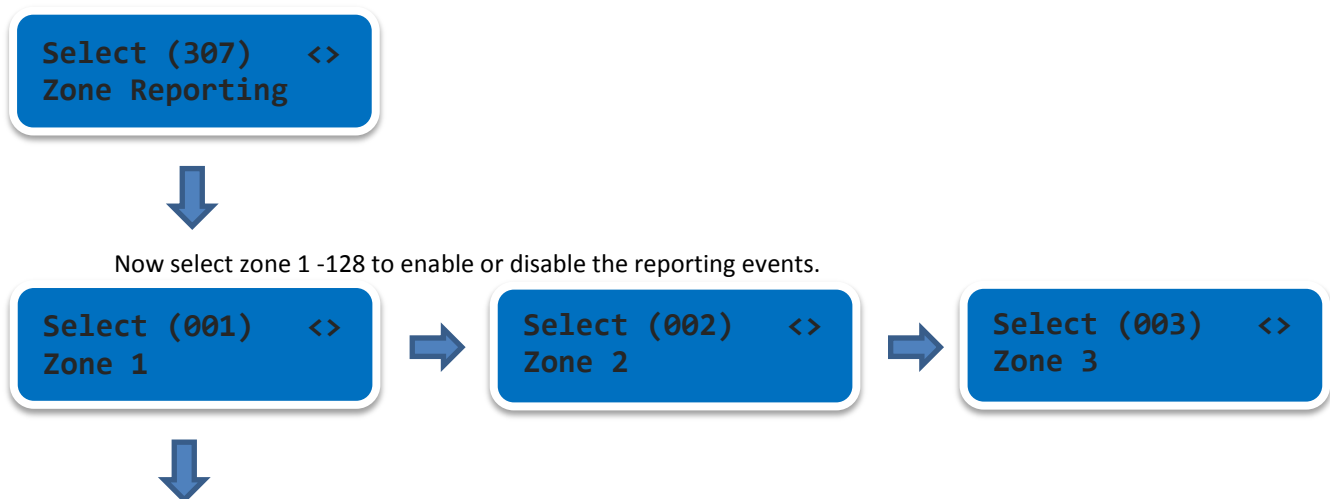
The zone reporting section allows the installer to toggle on or off communication for each zone. The installer can select yes or no to reporting: alarms, restores, tampers, tamper restores, faults and fault restores.

Once [307] is entered, select the desired zone to view the available toggle options.

OPERATION

Enter Installer's programming mode: [*][8][Installer's Code]

Enter programming location [300] to program the communication paths



Once a zone is selected, the following are the available options:

- [1] – Alarm (if enabled the panel will report the alarm event)
- [2] – Alarm Restore (if enabled the panel will report the alarm restoral when the zone secures after alarms)
- [3] – Tamper (if enabled the panel will report the zone tamper trouble)
- [4] – Tamper Restore (if enabled the panel will report the zone tamper restoral when the zone secures)
- [5] – Fault (if enabled the panel will report the zone fault trouble condition)
- [6] – Fault Restore (if enabled the panel will report the zone fault restoral when the zone secures)

EVENT REPORTING – SECTION [308]

The event reporting section contains all of the other types of events that are not related to zone reporting. Here we can select events to enable or disable reporting from the following categories:

[001] Miscellaneous Alarms 1, [002] Miscellaneous Alarms 2, [011] Priority Alarms, [021] Fire Alarms 1, [101] Tamper Events, [201] Open/Close 1, [202] Open/Close 2, [211] Miscellaneous Open/Close, [221] Bypass Events, [301] Panel Events 1, [302] Panel Events 2, [305] Panel Events 5, [311] Maintenance 1, [312] Maintenance 2, [313] Maintenance 3, [314] Maintenance 4, [321] Receiver Events, [331] Module Events 1, [332] Module Events 2, [335] Module Events 5, [351] Alternate Communications 1, [352] Alternate Communications 2, [352] Alternate Communications 2, [353] Alternate Communications 3, [354] Alternate Communications 4, [355] Alternate Communications 5, [356] Alternate Communications 6, [361] Wireless Device and [401] Test Events.

SYSTEM CALL DIRECTIONS – SECTION [309]

System call directions allow the installer to select which system related event types can or cannot report. This is an easy way to enable or disable reports for a big group of events for a particular receiver without having to individually disable each event. The following options are available to enable or disable per receiver:

[001] Maintenance and [002] Test Transmission.

ACCOUNT NUMBERS:

ACCOUNT CODES – SECTION [310]

Select this section to begin programming the account numbers for the monitoring station. When using the SIA format, only the system account number needs to be programmed. When using Contact ID, program the system account number as well as the partition account numbers (for however many partitions exist on the system).

SYSTEM ACCOUNT # - [000]

SIA format:

The system account number will be transmitted to the monitoring station for all communication attempts with the monitoring station. This identifies the home/business owner with the monitoring station to identify where they need to dispatch the authorities.

Contact ID format:

The system account number will be transmitted to the monitoring station with any system related events. These are events that do not involve partitioning such as: keypad fire, medical and panic alarms, trouble conditions, tests etc.

PARTITION ACCOUNT #'S – [001]-[008]

SIA format:

These account numbers are not used.

Contact ID format:

These account numbers will be transmitted along with any partition related events such as zone alarms, arming/disarming (closing/opening) etc.

PARTITION CALL DIRECTIONS – SECTION [311] – [318]

Partition call directions allow you to select which partition related event types can or cannot report. This is an easy way to enable or disable reports for a big group of events for a particular receiver without having to individually disable each event.

ALARM/RESTORE [001]

Select receiver 1, 2, 3 and 4 for Y (yes) or N (no)

TAMPER/RESTORE [002]

Select receiver 1, 2, 3 and 4 for Y (yes) or N (no)

OPENING/CLOSING [003]

Select receiver 1, 2, 3 and 4 for Y (yes) or N (no)

COMMUNICATION FORMAT – SECTION [350]

This programming section is used to select the required communications format. The available formats for communication are:

- [03] - DTMF Contact ID (with automatic reporting)
- [04] - SIA FSK (with automatic reporting)

RECEIVER 1 FORMAT – [001]

Select the format for receiver 1

RECEIVER 2 FORMAT – [002]

Select the format for receiver 2

RECEIVER 3 FORMAT – [003]

Select the format for receiver 3

RECEIVER 4 FORMAT – [004]

Select the format for receiver 4

NOTE: MANUAL REPORTING CODES ARE NOT AVAILABLE ON POWER SERIES NEO.

COMMUNICATION VARIABLES – SECTION [377]

Communication variables are timers and counters related to communicating to the monitoring station. In this section we can adjust the communication delay for zones, swinger shutdown settings, test transmission cycle and test transmission time.

COMMUNICATION OPTIONS – SECTION [380] – [383]

These options control how the communication functions. Some of the options available are: communications enabled, parallel communications (for alternate communicators and phone line at the same time), reduced dial attempts (for reducing failed dialing attempts), communication enabled during walk test, enabled alternate communicator, 4 or 6 digit account numbers etc.

COMMUNICATION BACKUP – SECTION [384]

This section controls which of the receivers are set for backup and which are independent.

Options 2-4 control if receiver 2-4 are backups of the previous phone number (receiver 1 is always independent).

MINIMUM DTMF CONTACT ID AUTOMATIC PROGRAMMING EXAMPLE:

SELECT COMMUNICATION PATH, SECTION [300]

Select if the communication path(s) are to be phone line or alternate communicator

PROGRAM TELEPHONE#1 - #4 (IF PHONE LINE IS USED), SECTIONS [301] -> [001] – [004]

Program with the required central station telephone numbers

PROGRAM ACCOUNT NUMBERS, SECTION [310]

Program with the required system account number [000] and partition account numbers [001] – [008]

COMMUNICATION FORMAT, SECTION [350]

Select format option for Contact ID Auto

MINIMUM SIA FSK AUTOMATIC PROGRAMMING EXAMPLE:

SELECT COMMUNICATION PATH, SECTION [300]

Select if the communication path(s) are to be phone line or alternate communicator

PROGRAM TELEPHONE#1 - #4 (IF PHONE LINE IS USED), SECTIONS [301] -> [001] – [004]

Program with the required central station telephone numbers

PROGRAM ACCOUNT NUMBERS, SECTION [310]

Program with the required system account number [000] (SIA does not use partition account numbers).

COMMUNICATION FORMAT, SECTION [350]

Select format option for – SIA Auto

FORMAT OVERVIEW:

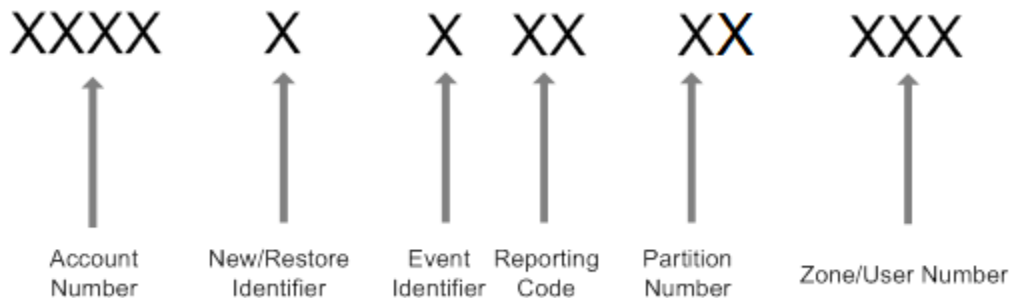
DTMF CONTACT ID:

OVERVIEW:

This format will communicate the reporting signal to the central station using a series of DTMF tones.

INFORMATION COMMUNICATED:

Contact ID reports are received in a series of segments, each segment represents specific portion of information relating to the signal:



ACCOUNT NUMBER

Used to identify the control panel/home owner with the monitoring station

NEW/RESTORE IDENTIFIER

Indicates if the reporting signal is a new event or an event restore

- E = New Event (an event that requires attention like an alarm or trouble)
- R = Event Restore (an event that has now returned to a normal state)

EVENT IDENTIFIER

Indicates the type of event being reported

- 1 = Alarm
- 2 = Supervisory
- 3 = Trouble
- 4 = Open/Close (Disarming or arming the alarm panel respectively)
- 5 = Bypass
- 6 = Test Report

REPORTING CODE

Reporting codes in Contact ID are used to specify the exact event that is occurring on the alarm panel to the central stations receiver automation software to specify additional details of the signal reported. For example: a reporting code could differentiate a fire alarm from a burglary alarm, a battery trouble from an AC power trouble

PARTITION IDENTIFIER

This typically indicates if the event is zone/user related or system related

- 0 = system related (trouble on the system, tests)
- 1 - 8 = partition related (zone alarm, arming or disarming)

ZONE/USER NUMBER

This indicates the zone or user related to the signal received. If the communicated signal does not relate to a zone or user, the zone number will indicated as either '000' or '999'(varies by type of signal)

EXAMPLE CONTACT ID SIGNAL

ACCOUNT NUMBER = 1234

EVENT = PARTITION 1, ZONE#1 ALARM (DELAY 1)

1234 E 1 30 01 001

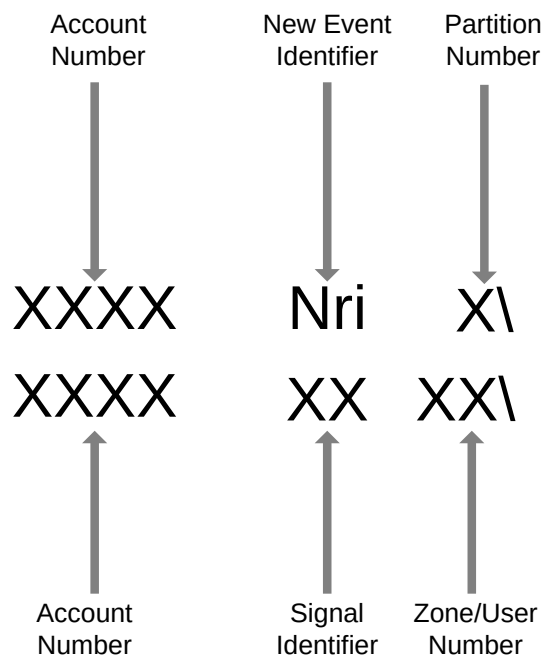
SIA FSK FORMAT

OVERVIEW:

This format will communicate the reporting signal to the central station using FSK (frequency shift keying). This makes SIA FSK format sound like a fax machine or dial up modem.

INFORMATION COMMUNICATED:

Reporting codes are received in a series of segments, each segment represents specific portion of information relating to the signal



ACCOUNT NUMBER

Used to identify the home/business owners alarm panel with the central monitoring station

NEW EVENT IDENTIFIER

This indicates that a new signal is being received and is related to the indicated partition. After the 'Nri', the partition number is will be identified, all signal lines after (Signal Identifier and Zone/User Number' are related to this partition.

PARTITION NUMBER

Indicates the partition related to the event reported. (0 indicates the event is a system event and is not related to any partition)

SIGNAL IDENTIFIER

This is a 2-letter abbreviation of the signal received; it is usually an abbreviation of what type of signal is being sent. Example: an identifier of "BA" = Burglary Alarm

ZONE/USER NUMBER

This indicates the zone or user related to the signal received. If the communicated signal does not relate to a zone or user, the zone number will indicated as either '00' or '99'(varies by control panel and/or signal)

EXAMPLE:

ACCOUNT NUMBER = 1234

EVENT = PARTITION 1, ZONE#1 ALARM (DELAY 1)

1234	Nri	1\
1234	BA	01\

WHAT HAPPENS WITH FAILED TRANSMISSIONS?

Failed signals are stored to the control panel's 'Communications Buffer'.

These signals are stored in the control panel until a new event requiring central station communications is generated. When this occurs, the new event will be transmitted first followed by any previously failed signals.

The Communications Buffer may also be cleared by powering down the control panel for 30 seconds.

IMPORTANT COMMUNICATOR OPTIONS

These are toggle options that effect the operation of communication with the central monitoring station. The following options are commonly used on a communicating system and should be checked when programming.

The default position (enabled or disabled) of the following toggle options will be underlined

[380] – FIRST COMMUNICATOR OPTIONS

OPTION 1:

Enabled: Communications enabled: This allows all communications to occur on any programmed path

Disabled: This completely disables communication from all paths

[382] – THIRD COMMUNICATOR OPTIONS

OPTION 5:

Enabled: Alternate communicator (GS2055, TL255GS, and TL255) is enabled

Disabled: Alternate communicator (GS2055, TL255GS, and TL255) is disabled

TWO WAY AUDIO WITH THE HSM2955 MODULE

NEO V1.1 will provide Talk/Listen capability for audio verification of Zone alarms (Configurable by zone), Tamper, Openings and Closings, [A] Key Alarms, [P] Key Alarms, Duress Alarms, Zone Expander Supervisory Alarms, Opening After Alarm.

The HSM2955 will start the 2way audio session with the central station. If the connection is over PSTN, once the audio event is transmitted to the monitoring station the panel will transfer the phone line to the HSM2955 to perform the 2-way audio session.

Audio will be connected to the central station in an analog format by either PSTN or Cellular via call back.

All programming will be available through keypads (V1.1 and higher) and via DLS 5 software

Note:

Fire alarm events will not initiate an audio session

TWO WAY AUDIO PROGRAMMING

ZONE ATTRIBUTES [002] OPTION 13

Enabled: 2-Way Audio Enabled

-If enabled, the panel shall be able to initiate a 2 way audio session.

Disabled: 2-Way Audio Enabled

-If disabled, shall initiate a Listen-in only session.

-During the session, only microphone shall be turn on. The speaker shall remain off.

SYSTEM TOGGLES: [022] OPTION 6

Enabled: New Alarms will not Disconnect 2-Way Audio

-If a new alarm is generated during the first 70 seconds of the timed two-way voice interval, the monitoring service operator has 20 seconds to begin another two-way voice interval.

-If the new alarm is generated during the last 20 seconds of the timed two-way voice interval, the monitoring service operator has the remainder of the timed interval to begin another two-way voice interval.

Disabled: New Alarms Disconnect 2-Way Audio

-The 2-way audio session shall be disconnected immediately as soon as a new alarm generated.

AUDIO MODULE TALK/LISTEN MASK [385] OPTIONS 1-4

Enabled: Talk/Listen on Receiver 1 Enabled

-The panel can initiate 2 way audio sessions over receiver path 1.

Disabled: Talk/Listen on Receiver 1 Disabled

-The panel cannot initiate 2 way audio sessions over receiver path 1, even if all other 2-way audio programming has been completed.

Note: Options 1-4 correspond to receiver path 1-4.

[802][001]-[802][128] ZONE STATION ASSIGNMENT

-Each zone on the system can be assigned to the nearest Microphone Input for Central Station Talk/Listen. Valid entries are 01-04

-If Audio Option-Listen to all zones / Listen to zones in alarm is enabled then all microphones shall be enabled.

[802][600] 2-WAY AUDIO TRIGGER OPTION 1

This section controls which non zone related system events can initiate 2-way audio with the central station.

The following events can be enabled:

Tampers, Open/Close, [A] and [P] alarm keys, Duress Alarm, Opening after Alarm, Zone Expander Supervisory Alarm.

[802][603] – [620] OTHER 2-WAY AUDIO OPTIONS

These sections control other functions like callback, number of rings to answer, double call, siren active during 2-way, user call in enable etc.