

### Cautions and Warnings

**READ AND SAVE THESE INSTRUCTIONS.** Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.



**DO NOT INSTALL ANY SIMPLEX PRODUCT THAT APPEARS DAMAGED.** Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify your Simplex product supplier.



**ELECTRICAL HAZARD** - Disconnect electrical power when making any internal adjustments or repairs. Servicing should be performed by qualified technical representatives.



**STATIC HAZARD** - Static electricity can damage components. Therefore, handle as follows:

- Ground yourself before opening or installing components.



**RADIO FREQUENCY ENERGY** - This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

**SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES** - To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

### Overview

Simplex TrueAlert Text Messaging Appliances are **Textual Visible Signals** providing visible textual notification controlled by IDNet™ addressable communications from either a Simplex Model 4100U or Model 4010 fire alarm control panel. During alarm conditions, the displayed message provides visual information to assist building occupants in the event of an emergency condition and is particularly useful in noisy environments where audible notification may be difficult to hear.

During non-alarm conditions, messages can be displayed using a separate LAN connection. Messages can be either single or double text line and the message board contains up to 32 programmed FIRE and other EMERGENCY related messages. The desired alarm message is selected via IDNet command from 4100U or 4010 fire panel, with control emulating that used in the 4009A IDNet NAC Extender. During an alarm, the programmed messages override the LAN input.

Mounting can be either wall or ceiling. Battery protected power is supplied by the 4100U power supplies, 4010 Aux Power or a 24vdc Power Supply Listed for Fire-Protective Signaling Systems.

# TrueAlert® Text Messaging Appliance Install Guide

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## **Installation Requirements**

The Simplex TrueAlert Text Messaging Appliance has the following installation requirements:

1. The TrueAlert Text Messaging Appliance is for use with the 4100U & 4010 fire alarm control panels.
2. Determine if you need a wall mount or ceiling mount type of installation. If necessary an optional 4907-9006 back box is available that attaches directly to the display panel. The back box provides protection for panel wiring and IDNet address switches.
3. When wiring a Text Messaging Appliance, twisted wire (or wire in conformance with local code) is required. IDNet wiring should be 18 AWG. Power wiring should be 18 minimum -- 12 AWG maximum.

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## Wiring Precautions

The following wiring precautions should be followed when wiring the Text Messaging Appliance:

- All wiring must be copper conductors.
  - All equipment must be installed in accordance with the manufacturer's recommendations and the specifications and standards of the authority having jurisdiction (AHJ). The installation of all wiring, cable and equipment must be in accordance with NFPA 70, National Electrical Code and specifically with article 760 and fire alarm systems article 770.
  - If shield is used, the following must be observed:
    - Metallic shield continuity must be maintained and insulated throughout the length of the cable.
    - The entire cable length must have a resistance greater than 1 meg-ohm to earth.
  - Underground wiring must be free of all water.
  - Wiring must not be run in elevator shafts.
  - Any wiring in ducts, plenums or other air handling spaces must be installed in accordance with NFPA 70.
  - Splicing is permitted in accordance with NFPA 70. All junctions must be insulated as soundly as the original jacket. Shield continuity must be maintained.
  - Only fire system wiring can be run in the same conduit.
  - Do not loop wire through terminals. Break wires to maintain proper supervision.
- 

## Power Requirements

- Voltage: 24 VDC Nominal
- Operating Voltage Range: 16-33 VDC
- SPECIAL APPLICATION

### Current:

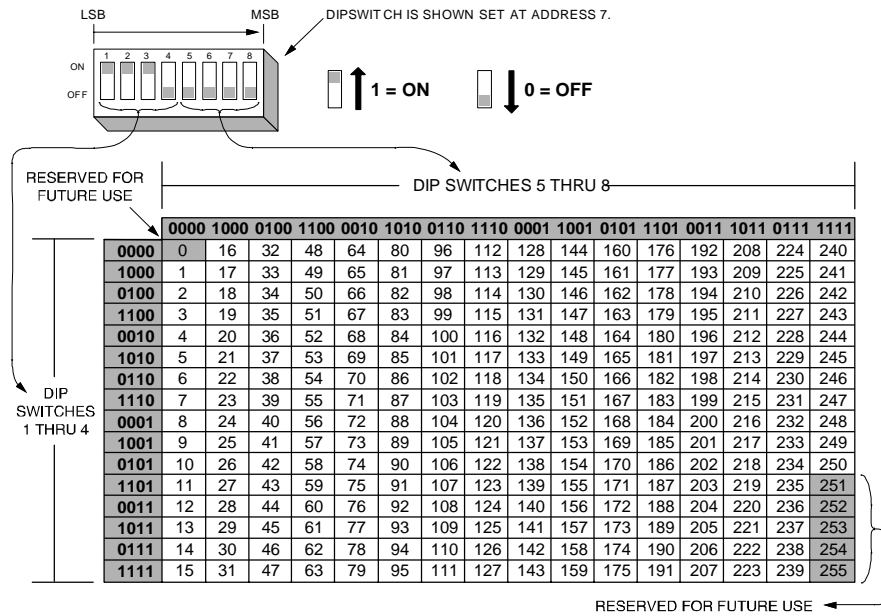
- “Bomb Threat” default message @ 33 VDC = 222 mA
  - “Bomb Threat” default message @ 24 VDC = 318 mA
  - “Bomb Threat” default message @ 16VDC = 480 mA
  - Idle with all LEDs off @ 24 VDC = 170 mA
  - Idle with all LEDs off @ 16 VDC = 256 mA
  - Idle with all LED's off @ 33 VDC = 118 mA
  - Two lines with all # characters @ 33 VDC = 244 mA
  - Two lines with all # characters @ 24 VDC = 476 mA
  - Two lines with all # characters @ 16 VDC = 720 mA
- 

## Environmental Limitations

- Operating Temperature Range: 0°C to 49°C (32°F to 120°F)
  - Relative Humidity: 93% at 90°F (32°C)
-

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**IDNET Addressing** The IDNet device communications address for the display panel is defined by an 8 position DIP switch located on the rear of the panel. Select an unused IDNet address and set the address switch appropriately. A maximum of five 4009 type devices are permitted on one IDNet channel. The address settings are defined in the chart below:



**Figure 1. IDNet Address Switch Settings**

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## Fire System Wiring

A pluggable terminal block is supplied with the Text Messaging Appliance for connections with IDNet field wiring and DC power. The terminal block is rated for #18 AWG to #12 AWG wire. Select the appropriate DC power wire size based upon the distance requirements (refer to Table 1). The terminal block connections are not marked on the Text Messaging Appliance; refer to connection reference information below.

- TB-A = 24C Power OUT connection to the next messaging appliance
- TB-B = 24C Power IN connection from the previous power source
- TB-C = +24V Power OUT connection to the next messaging appliance
- TB-D = +24V Power IN connection from previous power source
- TB-E = Shield OUT pass through connection to maintain cable shield
- TB-F = Shield IN pass through connection to maintain cable shield
- TB-G = IDNet - OUT signal to next IDNet device
- TB-H = IDNet - IN signal from previous IDNet device
- TB-I = IDNet + OUT signal to the next IDNet device
- TB-J = IDNet + IN signal from the previous IDNet device



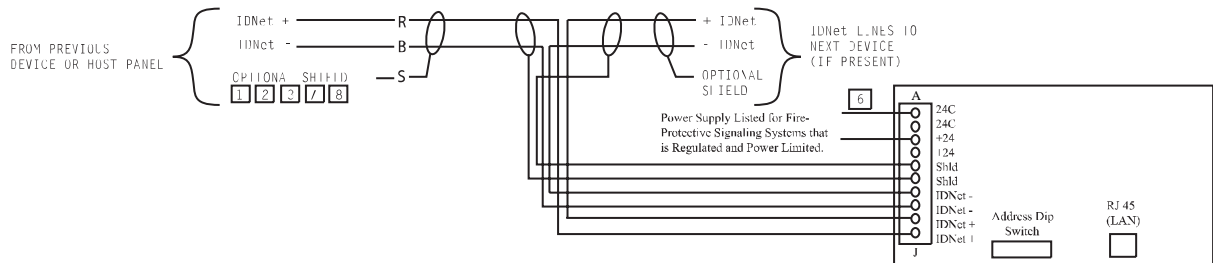
Figure 2. IDNet / Power Connector

**Note:** Source Formula: Feet =  $2.7V / (2 \times \text{current} \times R / 1000)$  Where R = 7.14 for #18, 4.5 for #16, 2.82 for #14, 1.77 for #12 wire.

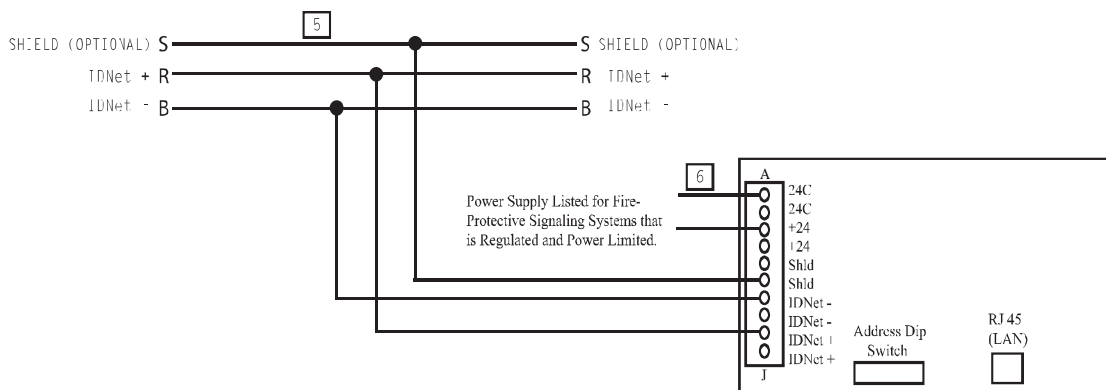
Amps	# 18	# 16	# 14	# 12	Amps	# 18	# 16	# 14	# 12
0.1	1900	3000	4780	7620	1.1	173	273	435	642
0.2	951	1500	2394	3810	1.2	158	250	399	589
0.3	634	1000	1596	2350	1.3	146	231	368	543
0.4	475	750	1197	1766	1.4	136	214	342	504
0.5	380	600	957	1412	1.5	127	200	319	471
0.6	317	500	798	1177	1.6	119	188	299	441
0.7	272	429	684	1009	1.7	112	176	282	415
0.8	238	375	598	883	1.8	106	167	266	392
0.9	211	333	532	785	1.9	100	158	252	372
1.0	190	300	479	706	2.0	95	150	239	353

Table 1. Power Wiring Distance Chart

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**Figure 3. IDNet Addressable Slave Interface, Style 6 (Class A)**



**Figure 4. IDNet Addressable Slave Alternate Interface, Style 4 (Class B)**

**Notes:**

1. IDNet lines are to be 18 AWG. Consult your local branch office if shield is not desired.
2. Maximum allowable run from host panel to farthest device not to exceed 2,500 ft.
3. Maximum total wire including all T taps of circuit not to exceed 10,000 feet or 0.58uf.
4. Total quantity of Text Messaging and 4009 type devices per channel not to exceed 5.
5. Total of all devices per IDNet channel not to exceed 250.
6. For alternate method shield if present does not need to be connected to terminal block.
7. Power wiring to be 18 AWG minimum.
8. Wiring is supervised and power limited.
9. Refer to IDNet field wiring diagram (842-073) for circuit ratings.

**General Messaging Wiring**

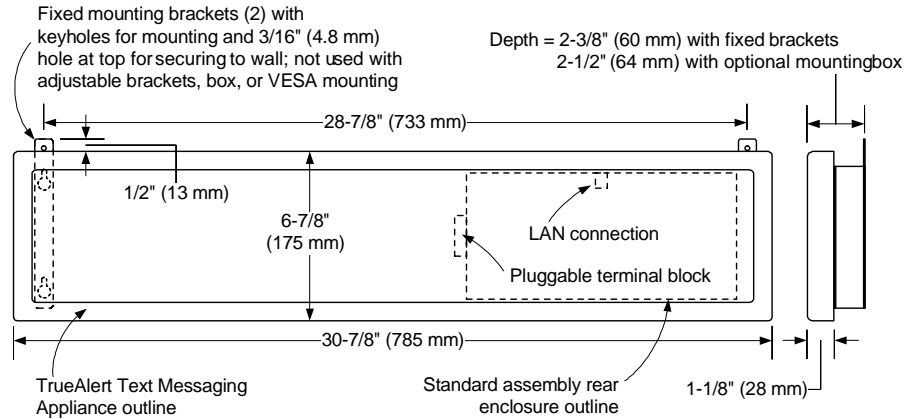
The Text Messaging Appliance includes an eight position modular jack on the top of the enclosure for interconnection to the customer's 10/100BaseT Ethernet LAN for driving non-alarm related general messages. The Ethernet cable must be terminated with a RJ45 modular plug.

Before connecting to the local LAN circuit contact the customer's IT department. The customer's IT department will determine how the IP address will be assigned. The MAC address of each sign can be found in two ways: When the message board is powered-up, it cycles through the defaults. The first three numbers of default MAC address are 00:30:D1:XX:XX:XX, the remaining three sets are displayed. The second way is via the IP Address

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## Panel Mounting **Wall Mount With Fixed Bracket**

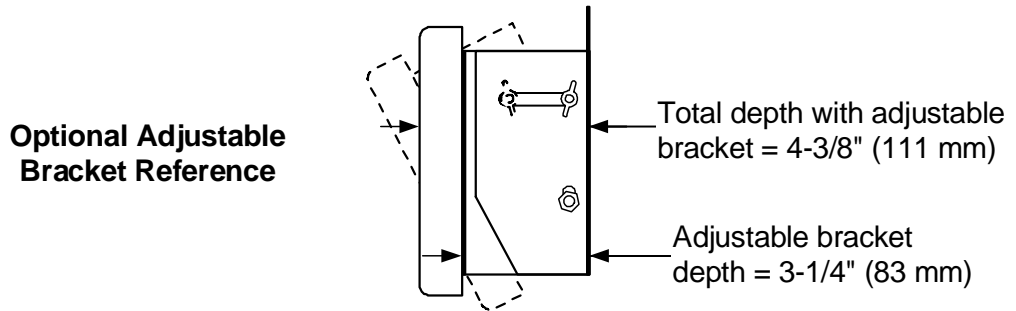
The Text Messaging Appliance is supplied with a pair of low profile fixed position wall mount brackets. These brackets can either attach directly to the rear of the panel or to the rear of the optional back box. These brackets each have two keyhole slots to suspend the appliance plus a fixed mounting hole to prevent the mounting screws from being dislodged from the brackets keyhole slots. Installation personnel are responsible for selecting the appropriate # 8 size fasteners to securely mount the appliance. The appliance weighs approximately 8 pounds or less including the optional back box.



**Figure 5. Fixed Bracket**

## Wall Mount With Adjustable Bracket

An optional adjustable wall mount bracket 4907-9002 is available to permit downward adjustment of the viewing angle. Wing nuts are used to lock the viewing angle setting. The bracket is supplied with the hardware to attach the bracket to either the rear of the panel or the optional back box. The installation personnel are responsible for selecting the appropriate # 8 size fasteners to securely mount the appliance. The appliance weighs approximately 8 pounds or less including the optional back box.



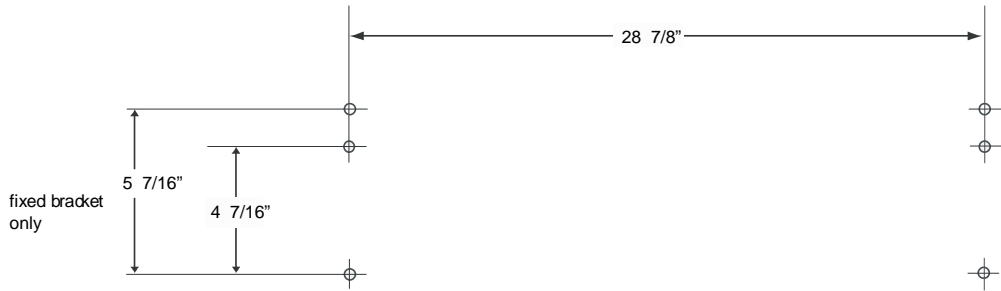
**Figure 6. Adjustable Bracket**

## Wall Mount Hole Pattern

The wall mount pattern depicts the fastener hole locations. The hole size required depends on the specific fastener selected by the installation personnel. Utilize the diagram below to fabricate a full size pattern for locating and drilling the mounting holes. Make sure that the mounting holes are level at the desired height.

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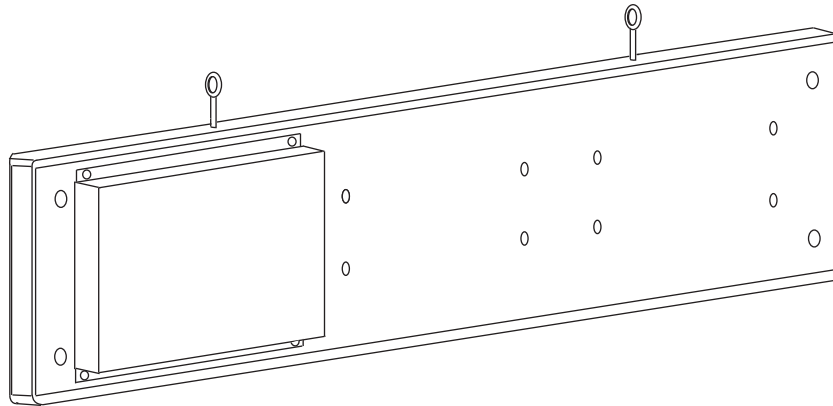
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**Figure 7. Wall Mount Hole Pattern**

## Ceiling Chain Mount

The unit can be suspended by eyehooks and chains from the true ceiling. Do not suspend from a drop ceiling. The unit is supplied with a pair of eyehooks and lock nuts. The eyehook holes are centrally located on the top edge of the unit and are approximately 16 inches apart. Screw the eyehooks into the enclosure and secure with lock nuts. The installation personnel are responsible for selecting the appropriate chain and ceiling fasteners to suspend the unit. The appliance weighs approximately 8 pounds or less including the optional back box.



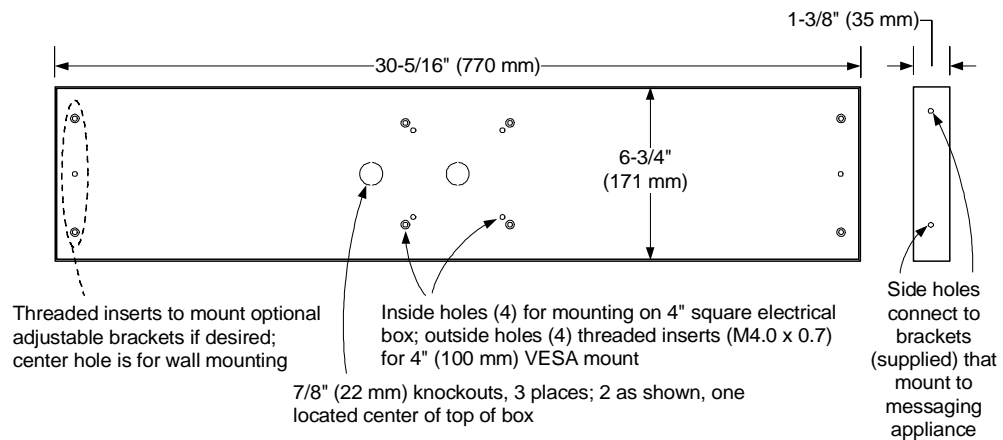
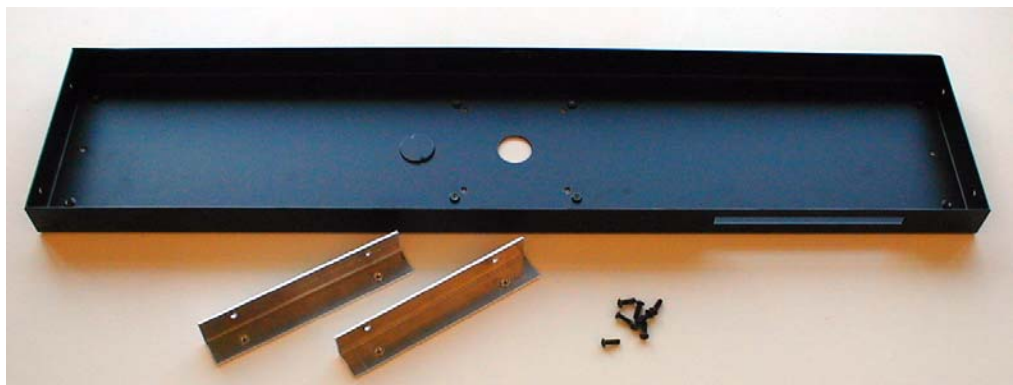
**Figure 8. Ceiling Chain Mount**



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**Optional Back Box** An optional back box 4907-9006 with conduit knockouts is available should protection for wiring and IDNet address switches be required. The back box can either be mounted to a mounting bracket or directly to a 4" square electrical outlet box. The appliance weighs approximately 8 pounds or less including the back box.

Attach the two back box right angle mounting brackets to the rear of the display enclosure with the bracket sides facing outwards. Press out the appropriate conduit knockout and install the required conduit fitting. Feed the communications wiring into the back box through the conduit fitting and secure the IDNet communications and power wires to the designated terminal block connections (see Wiring section). The back box is mounted with the slot facing downwards to expose the display panels status indicator LEDs.



**Figure 9. Optional Back Box Kit**

## Vesa Mount

Both the Text Messaging Appliance enclosure and optional back box include centrally located holes in a 100 mm square pattern on the rear to accept UL Listed Industry Standard Vesa mount hardware for mounting display appliances. Vesa mounts are available in ceiling and wall mount configurations. An example of a Vesa mount would be the Peerless ceiling mount LCC18-C product. The Vesa compatible equipment typically includes M4 screws to secure the Vesa plate to the appliance. Refer to the manufacturer's installation instructions.

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## **Display Programming**

Imbedded Text Messaging Appliance fire system and emergency related messages can be commanded on and off by the fire panel. In addition it is possible for the customer to display general messages during non-alarm periods.

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## **Alarm Message Control**

The Text Messaging Appliance is capable of displaying up to thirty-one IDNet initiated alarm related text messages plus one blank power conserving message. Typically the messages are comprised of a fixed top line and a bottom line scrolling from right to left. The display panel emulates a 4009A with 8 NACs, no Class A option cards, no repeater cards, and no fiber. Therefore, when setting up the 4100U programmer always choose a 4009A8 when adding a display panel to a system. An alarm message will start playing when the corresponding NAC is set and will be turned off when set to "NAC Off". The Text Messaging Appliance maps the 32 predefined messages to the 8 NACs as depicted in Figure 10. Once a message is enabled it will play until either the message is commanded off or power is interrupted. It is possible to repeatedly display up to eight NAC messages back to back with the restriction that each NAC selection can only display one of its four related messages selected by on steady, slow-march, fast-march or temporal.

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## Programming the 4100U & 4010

All 8 NACs on the 4009A8 default to the SSIGNAL point type. This is fine for general alarm operation where all 8 circuits will activate on any alarm, but is not desirable operation for the TrueAlert Text Messaging appliance. Instead, the NACs must be programmed with the generic "SIGNAL" point type and Custom Control equations written to activate each message under the desired conditions.

### 4100U Programming Guidelines

This section is intended to give the reader the general concept for programming the panel to control signs. If messages 1 through 7 and 32 are the only messages used, then the example below can be used. If additional messages are used then refer to Appendix A for programming. Note: The appendix is also available in text form from the Technical Support Web site for modification and importing into custom control to aide in programming the panel.

In this example there are three TrueAlert Messaging Appliance Units.

1. Each unit is added to the IDNet as

```
DEVICE TYPE 4009A8  
POINT TYPE Signal
```

2. The eight NACs from each TrueAlert Messaging Appliance are added to eight separate lists

**Note:** The points must be placed in a list if any messages beyond message 8 are to be activated. The programmer only allows 4009 NACs to be coded using lists. Lists are advantageous for allowing activation of messages on multiple signs, but only required for message numbers above 8.

For example:

```
NAC1 from each Appliance is placed in a L256 (labelled Messaging Appliance NAC 1)  
NAC2 from each Appliance is placed in a L257 (labelled Messaging Appliance NAC 2)  
NAC3 from each Appliance is placed in a L258 (labelled Messaging Appliance NAC 3)  
NAC4 from each Appliance is placed in a L259 (labelled Messaging Appliance NAC 4)  
NAC5 from each Appliance is placed in a L260 (labelled Messaging Appliance NAC 5)  
NAC6 from each Appliance is placed in a L261 (labelled Messaging Appliance NAC 6)  
NAC7 from each Appliance is placed in a L262 (labelled Messaging Appliance NAC 7)  
NAC8 from each Appliance is placed in a L263 (labelled Messaging Appliance NAC 8)
```

3. The first seven NACs from each TrueAlert Messaging Appliance are added to a common LIST (labelled Messaging Appliance NAC 1-7). In this example we will use L264.
4. If the TrueAlert Messaging Appliance Message is to be turned OFF on Silence then place L264 into L74 'CONTROL POINTS OFF-ON SILENCE'. If the TrueAlert Messaging Appliance Message is to be turned OFF on Reset then place L264 into L73 'CONTROL POINTS OFF-ON SYSTEM RESET'.

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## Programming the 4100U & 4010, continued

5. To activate a message a Custom Control Equation is required. Refer to the Figure 10 to determine the correct output (ON messages 1-8, March 20 messages 9-17, March 120 messages 17-24, and Temporal messages 25-32). The example below will turn on Message 7 (EVAC) to all TrueAlert Messaging Appliance Units when L18 (General Fire Alarm Monitor Zones).

```
[INPUTS]
STATUS FIRE DETECT
L18 |LIST | MIXED| GENERAL FIRE ALARM MONITOR ZONE
[END INPUTS]
[OUTPUTS]
HOLD OFF L263 | Messaging Appliance NAC 8 (turn off Power Save
message in case active)
HOLD ON PRI=9,9
L262 | LIST | CONTROL | Messaging Appliance NAC 7
[END OUTPUTS]
```

**Note:** If the message board is not used for non-emergency messaging, then step 6 is not necessary

6. To activate the Blank Message (to conserve power) when there is an AC failure the following example is shown.

```
Display blank message
[COMMENTS]
Display the blank message during a power failure provided no
emergency messages are active
[END COMMENT]

[INPUTS]
IF ANALOG <> CONSTANT 0 CNTS
A99 | Compare Analog | COUNTER | AC POWER FAIL COUNTER
OR STATUS ON
P201 || UTILITY | AC VOLTAGE FAILURE/BROWNOUT
AND NOT STATUS ON
L264 | DPSEUDO | Messaging Appliance NAC 1-7
[OUTPUTS]
TEMPORAL PRI=9,9
L263 || CONTROL | Messaging Appliance NAC 8
[END EQUATION]
```

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## Programming the 4100U & 4010, *continued*

```
[EQUATION] | 2
Cancel blank message
[COMMENTS]
Cancel the blank message when power is restored, or when an
emergency message is activated
[END COMMENTS]

[INPUTS]
IF ANALOG = CONSTANT 0 CNTS
A99 | Compare Analog | COUNTER | AC POWER FAIL COUNTER
AND NOT STATUS ON
P201 || UTILITY | AC VOLTAGE FAILURE/BROWNOUT

OR STATUS ON
L264 || DPSEUDO | Messaging Appliance NAC 1-7
[OUTPUTS]
HOLD OFF PRI=9,9
L263 || CONTROL | Messaging Appliance NAC 8
[END EQUATION]
```

## 4010 Programming Example

In this example there are three TrueAlert Messaging Appliance Units.

1. Each unit is added to the IDNet as  
DEVICE TYPE 4009A8  
POINT TYPE Signal
2. The eight NACs from each TrueAlert Messaging Appliance are added to eight separate lists. In this example we will use lists L26 to L33.  
NAC1 from each Appliance is placed in a L26 (labelled Messaging Appliance NAC 1)  
NAC2 from each Appliance is placed in a L27 (labelled Messaging Appliance NAC 2)  
NAC3 from each Appliance is placed in a L28 (labelled Messaging Appliance NAC 3)  
NAC4 from each Appliance is placed in a L29 (labelled Messaging Appliance NAC 4)  
NAC5 from each Appliance is placed in a L30 (labelled Messaging Appliance NAC 5)  
NAC6 from each Appliance is placed in a L31 (labelled Messaging Appliance NAC 6)  
NAC7 from each Appliance is placed in a L32 (labelled Messaging Appliance NAC 7)  
NAC8 from each Appliance is placed in a L33 (labelled Messaging Appliance NAC 8)
3. The first seven NACs from each TrueAlert Messaging Appliance are added to a common LIST (labelled Messaging Appliance NAC 1-7). In this example we will use L34.
4. If the TrueAlert Messaging Appliance Message is to be turned OFF on Silence then place L34 into L6 'CONTROL POINTS OFF-ON SILENCE'. If the TrueAlert Messaging Appliance Message is to be turned OFF on Reset then place L34 into L7 'CONTROL POINTS OFF-ON SYSTEM RESET'.

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## Programming the 4100U and 4010, continued

5. To activate a message a Custom Control Equation is required. Refer to the figure 10 Text Messaging Appliance Message Map Table to determine the correct output (ON messages 1-8, SLOW MARCH TIME messages 9-16, FAST MARCH TIME messages 17-24, and TEMPORAL messages 25-32). The example below will turn on Message 7 (EVAC) to all TrueAlert Messaging Appliance Units when L1 (General Fire Alarm Monitor Zones).

```
[Input Qualifier]
  FIRE DETECT state of
    L1 General Alarm List
[Output Qualifier]
  HOLD OFF L33
  HOLD ON PRI=9,9
    L32 Messaging Appliance NAC 7
[END OUTPUTS]
```

**Note:** If the message board is not used for non-emergency messaging, then step 6 is not necessary.

6. To activate the Blank Message (to conserve power) when there is an AC failure the following example is shown.

```
[EQUATION] | 1
Display blank message
[COMMENTS]
Display the blank message during a power failure provided no
emergency messages are active.
[END COMMENTS]
[INPUTS]
IF ANALOG <> CONSTANT 0 CNTS
A99 | Compare Analog | COUNTER | AC POWER FAIL COUNTER
OR STATUS ON
P201 || UTILITY | AC VOLTAGE FAILURE/BROWNOUT
AND NOT STATUS ON
L264 || DPSEUDO | READERBOARD EMERGENCY MESSAGE PSEUDOS
[OUTPUTS]
HOLD ON PRI=9,9
P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
[END EQUATION]
[EQUATION] | 2
Cancel blank message
[COMMENTS]
Cancel the blank message when power is restored, or when an
emergency message is activated
[END COMMENTS]
[INPUTS]
IF ANALOG = CONSTANT 0 CNTS
A99 | Compare Analog | COUNTER | AC POWER FAIL COUNTER
AND NOT STATUS ON
```

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## Programming the 4100U and 4010, *continued*

```
P201 || UTILITY | AC VOLTAGE FAILURE/BROWNOUT  
AND STATUS ON  
P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE  
OR STATUS ON  
L264 || DPSEUDO | READERBOARD EMERGENCY MESSAGE PSEUDOS  
[OUTPUTS]  
HOLD OFF PRI=9,9  
P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE  
[END EQUATION]
```

### Message Settings

Message 1-8 = NAC1-NAC8 on steady  
Message 9-16 = NAC1-NAC8 slow march time (20 beats per minute - bpm)  
Message 17-24 = NAC1-NAC8 fast march time (120 bpm)  
Message 25-32 = NAC1-NAC8 temporal

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## Factory Default Alarm Messages

Messages 1-9 (on steady mode messages) are preloaded with default alarm text messages. Messages 10-31 are preloaded with text that depicts NAC number, message number and annunciation mode to identify the location within the message map. Message location 32 must always be reserved as a blank message in order to provide a means of conserving power while in a battery backup non-alarm mode. A subsequent section describes how these messages can be modified in the field to satisfy specific customer requirements. The message text, color and mode of operation is embedded within the message data. Each alarm message defines a top and bottom text line. All top lines will be yellow colored non-scrolling text. All bottom lines will be continuously scrolling red text with the exception of the NAC 6 ON (steady) message 5 with a yellow “All Clear” top line that will have an associated scrolling green bottom text line.

The first 8 factory default messages are defined below.

<b>NAC 1 Message 1</b>	Bomb Threat
	An emergency has been reported in the building. Please proceed to the nearest exit and vacate the building.
<b>NAC 2 Message 2</b>	Hostile Intruder
	An emergency has been discovered in the building. Please secure your area and wait for further instructions.
<b>NAC 3 Message 3</b>	Shelter In Place
	An emergency condition has been reported. Secure your windows and doors and remain in the building. Unsafe conditions may exist outside. You will be notified when further information is available.
<b>NAC 4 Message 4</b>	Evacuate-Alt
	An emergency condition has been discovered in the building. Proceed to your alternate exit and vacate the building.
<b>NAC 5 Message 5</b>	Weather Alert
	A severe weather warning has been issued. Proceed to the designated shelter area and wait for further instructions.
<b>NAC 6 Message 6</b>	All Clear
	Attention please, the emergency condition has been cleared. You may return to your normal activities.
<b>NAC 7 Message 7</b>	Evacuate
	A fire has been reported in the building. Proceed to the nearest exit and vacate the building. Report to your designated assembly place outside the building.
<b>NAC 8 Message 8</b>	Alert
	An emergency condition has been detected in another part of the building. Please remain in your area. You will be notified if further action is required.
<b>NAC 1 Message 9</b>	Live voice
	A live voice announcement is currently being broadcast
<b>NAC 8 Message 32</b>	(blank line for battery back-up power conservation)
	(blank line for battery back-up power conservation)



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Text Messaging Appliance Message Map				
NAC	4100U - On (Steady) 4010 – On Coding	4100U - Slow March 4010 – March 20	4100U -Fast March 4010 – March 120	Temporal 4100U/4010
NAC 1	Msg 1	Msg 9	Msg 17	Msg 25
NAC 2	Msg 2	Msg 10	Msg 18	Msg 26
NAC 3	Msg 3	Msg 11	Msg 19	Msg 27
NAC 4	Msg 4	Msg 12	Msg 20	Msg 28
NAC 5	Msg 5	Msg 13	Msg 21	Msg 29
NAC 6	Msg 6	Msg 14	Msg 22	Msg 30
NAC 7	Msg 7	Msg 15	Msg 23	Msg 31
NAC 8	Msg 8	Msg 16	Msg 24	Msg 32

Figure 10. NAC Message Map

## LED Status Indicators

The display panel has six LED status indicators located in the bottom side right hand location. The LEDs provide power and communications status for the displays IDNet ALI interface card and CPU card. The indicator functions are as follows:

- IDNet Receiver**      Blinks during IDNet data reception.
- IDNet Transmitter**      Normally on, blinks slightly during IDNet data transmission.
- ALI Board Power**      ON when display ALI (IDNet interface) card has power.
- CPU/ALI Comm**      Blinking when CPU and ALI cards are communicating.
- Ethernet Comm**      Normally ON, blinks with Ethernet comm, OFF if Ethernet is down.
- CPU Board Power**      ON when the Display CPU Board has power.

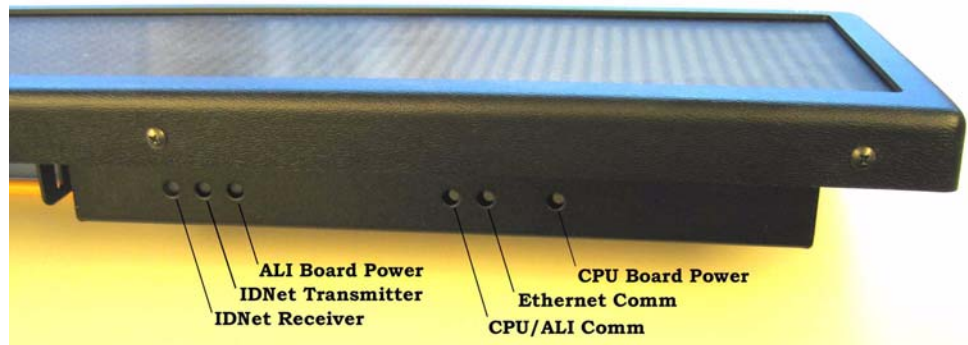


Figure 11. LED Status Indicators

# TrueAlert® Text Messaging Appliance Install Guide

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## Alarm Message Modification

Authorized service personnel can formulate new alarm messages and replace the factory loaded default messages in order to address specific customer requirements. The Simplex TrueAlert Messenger™ Simulator software is independent of the alarm message function so it cannot directly load the alarm messages. Simplex TrueAlert Messenger™ Simulator can be used to compose and test alarm message content as general messages to make sure that they look and function as intended. When creating a custom message, it is recommended that you open a factory default message in the message editor and modify it to meet your specific needs. The details as to how to compose and test messages are covered in the Simplex TrueAlert Messenger™ Simulator software manual.

Message data content defines display text, line location, text color and display mode. The replacement alarm messages must be stored to disk under file names in the lower case format messageX.llm with “message” being a text prefix followed by a message number designation X (1 - 32).

## Determining the IP Address

In order to load the replacement messages it is necessary to know the message board’s dynamic IP address that has been automatically assigned by the local area network’s Dynamic Host Configuration Protocol. The IP address can be determined by unplugging then reconnecting the display panel’s power. The primary IP address (IP Addr (P):) will be displayed in the set of initialization messages. Once the IP address has been assigned it is possible to have the customer’s IT department provide a long term lease to reserve this address. If addresses have been reserved, record the display locations and the associated IP addresses to simplify future system management. If no LAN connection has been made and no IP address assigned, the default address is 169.254.0.100. **Record this address for future reference.**

After identifying each display’s IP address the factory loaded default messages can be replaced by either of the following methods:

### **Method 1 - To load alarm message files via LAN.**

1. With an assigned account log onto the customer’s LAN.
2. Utilize a web browser such as Internet Explorer to communicate directly with the display’s built in device website by typing http:// followed by the display’s network-assigned primary IP address.
3. On the website’s Local Messaging page, select “Manage Messages”. Enter the local login of “ontrack-web”, then enter the initial “1n0v@” password (one-n-zero-v-@). If you change the password store it in a safe place.
4. Within the Message Library highlight the message to be deleted, then select “Delete”.
5. Go to the Import Message section and select “Browse”.
6. Select the location where the new messages are stored.
7. Highlight the message and select “Open”. The Import Message screen will appear with the path.
8. Select “Add to Library”.
9. Repeat steps 4 – 8 to load multiple messages.

### **Method 2 - To load messages directly from a service laptop.**

1. With power remaining connected remove the display panel’s Ethernet connector from the LAN, then connect the laptop’s Ethernet port to the display’s port. 4907-9005 cable is available for this connection.

## TrueAlert<sup>®</sup> Text Messaging Appliance Install Guide

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2. Utilize a web browser such as Internet Explorer to communicate directly with the display's built-in device website, by typing in http:// followed by the display panels assigned IP address, or the factory default 169.254.0.100 primary IP address, as determined from the 'Determining the IP Address' procedure above.
  3. The follow Method 1 steps 3 - 9.
- 

### **Possible Trouble Messages**

All 32 Alarm messages must be programmed into the Message board. If any message is missing an 'Open Circuit' trouble for that NAC will be reported. Refer to Fig 10 NAC Message Map for reference. For example if message 1,9, 17 or 25 is missing or corrupt, an 'Open Circuit' trouble for NAC1 will be reported.

### **General Messaging**

TrueAlert Messenger Software is available for customer purchase under 4907-9004 for formulating, previewing and driving general messages on the Text Messaging Appliance via the customer LAN during non-alarm periods. The general messaging capabilities and programming are defined in the Messenger Software manual. General messages are transmitted for immediate display. Alarm messages will always have priority over general messages. If an alarm message is enabled when a general message is active the general message will be immediately suppressed. This general message suppression also takes place when an alarm system blank message is being displayed to conserve power while operating on battery backup power. The general non-alarm message will automatically resume operation when the alarm messages have been disabled. That will not occur if power has been interrupted in the interim. Record the IP address of each Message Appliance for future reference.

## Appendix A

---

### Readerboard Programming Template

1. Provides 32 individual pseudo points for controlling each message, to allow for easier programming. The actual NAC circuit control itself is performed entirely by the template program.
2. Pseudo points can also be used to monitor the status of any given message, allowing for easier programming of LED status indicators, message prioritization, etc.
3. Blank message control is performed by the template program, the installer does not need to program the blank message.

#### **4100U Programming**

1. Create 32 user digital pseudo points:

P512	DIGITAL	UTILITY	READERBOARD MESSAGE #1
P513	DIGITAL	UTILITY	READERBOARD MESSAGE #2
P514	DIGITAL	UTILITY	READERBOARD MESSAGE #3
P515	DIGITAL	UTILITY	READERBOARD MESSAGE #4
P516	DIGITAL	UTILITY	READERBOARD MESSAGE #5
P517	DIGITAL	UTILITY	READERBOARD MESSAGE #6
P518	DIGITAL	UTILITY	READERBOARD MESSAGE #7
P519	DIGITAL	UTILITY	READERBOARD MESSAGE #8
P520	DIGITAL	UTILITY	READERBOARD MESSAGE #9
P521	DIGITAL	UTILITY	READERBOARD MESSAGE #10
P522	DIGITAL	UTILITY	READERBOARD MESSAGE #11
P523	DIGITAL	UTILITY	READERBOARD MESSAGE #12
P524	DIGITAL	UTILITY	READERBOARD MESSAGE #13
P525	DIGITAL	UTILITY	READERBOARD MESSAGE #14
P526	DIGITAL	UTILITY	READERBOARD MESSAGE #15
P527	DIGITAL	UTILITY	READERBOARD MESSAGE #16
P528	DIGITAL	UTILITY	READERBOARD MESSAGE #17
P529	DIGITAL	UTILITY	READERBOARD MESSAGE #18
P530	DIGITAL	UTILITY	READERBOARD MESSAGE #19
P531	DIGITAL	UTILITY	READERBOARD MESSAGE #20
P532	DIGITAL	UTILITY	READERBOARD MESSAGE #21
P533	DIGITAL	UTILITY	READERBOARD MESSAGE #22
P534	DIGITAL	UTILITY	READERBOARD MESSAGE #23
P535	DIGITAL	UTILITY	READERBOARD MESSAGE #24
P536	DIGITAL	UTILITY	READERBOARD MESSAGE #25
P537	DIGITAL	UTILITY	READERBOARD MESSAGE #26
P538	DIGITAL	UTILITY	READERBOARD MESSAGE #27
P539	DIGITAL	UTILITY	READERBOARD MESSAGE #28
P540	DIGITAL	UTILITY	READERBOARD MESSAGE #29
P541	DIGITAL	UTILITY	READERBOARD MESSAGE #30
P542	DIGITAL	UTILITY	READERBOARD MESSAGE #31
P543	DIGITAL	UTILITY	READERBOARD MESSAGE #32 - BLANK MESSAGE

**4100U  
Programming,  
continued**

2. Create 9 user lists:

L256 LIST CONTROL READERBOARD NAC #1  
 L257 LIST CONTROL READERBOARD NAC #2  
 L258 LIST CONTROL READERBOARD NAC #3  
 L259 LIST CONTROL READERBOARD NAC #4  
 L260 LIST CONTROL READERBOARD NAC #5  
 L261 LIST CONTROL READERBOARD NAC #6  
 L262 LIST CONTROL READERBOARD NAC #7  
 L263 LIST CONTROL READERBOARD NAC #8  
 L264 LIST DPSEUDO READERBOARD EMERGENCY MESSAGE PSEUDOS

Lists L256 through L263 are populated with their respective NAC's for all displays. NAC circuits should be given the point type SIGNAL.

List L264 is populated with pseudo points P512 through P542 (do not include P543 in list L264)

L264 should be added to L73 (control points off on reset) or L74 (control points off on silence) as needed

The 32 messages are divided into 8 groups. The readerboard can display a maximum of 8 messages in sequence, and is limited to one message per group. For example, if message 1 is being displayed when message 9 is activated, message 1 will stop being displayed. Be aware that when programming site-specific operations, if multiple messages must be displayed simultaneously, they must belong to different groups.

Group (4009A8 NAC ckt #)	Message Numbers
1	1-9-17-25
2	2-10-18-26
3	3-11-19-27
4	4-12-20-28
5	5-13-21-29
6	6-14-22-30
7	7-15-23-31
8	8-16-24-32

**4100U  
Programming,  
continued**

3. Custom control program:

```
[EQUATION] | 1
    Display blank message

[COMMENTS]

    Display the blank message during a power failure provided no
    emergency messages are active.

[END COMMENTS]

[INPUTS]
    IF ANALOG <> CONSTANT 0 CNTS
        A99 | Compare Analog | COUNTER | AC POWER FAIL COUNTER
        OR STATUS ON
        P201 || UTILITY | AC VOLTAGE FAILURE/BROWNOUT
        AND NOT STATUS ON
        L264 || DPSEUDO | READERBOARD EMERGENCY MESSAGE PSEUDOS

[OUTPUTS]
    HOLD ON PRI=9,9
        P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE

[END EQUATION]

[EQUATION] | 2
    Cancel blank message

[COMMENTS]

    Cancel the blank message when power is restored, or when an
    emergency message is activated

[END COMMENTS]

[INPUTS]
    IF ANALOG = CONSTANT 0 CNTS
        A99 | Compare Analog | COUNTER | AC POWER FAIL COUNTER
        AND NOT STATUS ON
        P201 || UTILITY | AC VOLTAGE FAILURE/BROWNOUT
        AND STATUS ON
        P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
        OR STATUS ON
        L264 || DPSEUDO | READERBOARD EMERGENCY MESSAGE PSEUDOS

[OUTPUTS]
    HOLD OFF PRI=9,9
        P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE

[END EQUATION]
```

**4100U**  
**Programming,**  
**continued**

```
[EQUATION] | 3
          NAC 1 message 1

[INPUTS]
  STATUS ON
    P512 || UTILITY | READERBOARD MESSAGE #1

[OUTPUTS]
  HOLD ON PRI=9,9
    L256 || CONTROL | READERBOARD NAC #1
  HOLD OFF PRI=9,9
    P520 || UTILITY | READERBOARD MESSAGE #9
  HOLD OFF PRI=9,9
    P528 || UTILITY | READERBOARD MESSAGE #17
  HOLD OFF PRI=9,9
    P536 || UTILITY | READERBOARD MESSAGE #25
```

[END EQUATION]

```
[EQUATION] | 4
          NAC 1 message 9

[INPUTS]
  STATUS ON
    P520 || UTILITY | READERBOARD MESSAGE #9

[OUTPUTS]
  MARCH20 PRI=9,9
    L256 || CONTROL | READERBOARD NAC #1
  HOLD OFF PRI=9,9
    P512 || UTILITY | READERBOARD MESSAGE #1
  HOLD OFF PRI=9,9
    P528 || UTILITY | READERBOARD MESSAGE #17
  HOLD OFF PRI=9,9
    P536 || UTILITY | READERBOARD MESSAGE #25
```

[END EQUATION]

```
[EQUATION] | 5
          NAC 1 message 17

[INPUTS]
  STATUS ON
    P528 || UTILITY | READERBOARD MESSAGE #17

[OUTPUTS]
  MARCH120 PRI=9,9
    L256 || CONTROL | READERBOARD NAC #1
  HOLD OFF PRI=9,9
    P512 || UTILITY | READERBOARD MESSAGE #1
  HOLD OFF PRI=9,9
    P520 || UTILITY | READERBOARD MESSAGE #9
```

**4100U**  
**Programming,**  
**continued**

HOLD OFF PRI=9,9  
P536 || UTILITY | READERBOARD MESSAGE #25

[END EQUATION]

[EQUATION] | 6

NAC 1 message 25

[INPUTS]

STATUS ON

P536 || UTILITY | READERBOARD MESSAGE #25

[OUTPUTS]

TEMPORAL PRI=9,9

L256 || CONTROL | READERBOARD NAC #1

HOLD OFF PRI=9,9

P512 || UTILITY | READERBOARD MESSAGE #1

HOLD OFF PRI=9,9

P520 || UTILITY | READERBOARD MESSAGE #9

HOLD OFF PRI=9,9

P528 || UTILITY | READERBOARD MESSAGE #17

[END EQUATION]

[EQUATION] | 7

NAC 1 off

[INPUTS]

NOT STATUS ON

P512 || UTILITY | READERBOARD MESSAGE #1

AND NOT STATUS ON

P520 || UTILITY | READERBOARD MESSAGE #9

AND NOT STATUS ON

P528 || UTILITY | READERBOARD MESSAGE #17

AND NOT STATUS ON

P536 || UTILITY | READERBOARD MESSAGE #25

[OUTPUTS]

HOLD OFF PRI=9,9

L256 || CONTROL | READERBOARD NAC #1

[END EQUATION]

[EQUATION] | 8

NAC 2 message 2

[INPUTS]

STATUS ON

P513 || UTILITY | READERBOARD MESSAGE #2

[OUTPUTS]

HOLD ON PRI=9,9



**4100U**  
**Programming,**  
**continued**

```
L257 || CONTROL | READERBOARD NAC #2  
HOLD OFF PRI=9,9  
P521 || UTILITY | READERBOARD MESSAGE #10  
HOLD OFF PRI=9,9  
P529 || UTILITY | READERBOARD MESSAGE #18  
HOLD OFF PRI=9,9  
P537 || UTILITY | READERBOARD MESSAGE #26
```

[END EQUATION]

```
[EQUATION] | 9  
NAC 2 message 10
```

[INPUTS]

```
STATUS ON  
P521 || UTILITY | READERBOARD MESSAGE #10
```

[OUTPUTS]

```
MARCH20 PRI=9,9  
L257 || CONTROL | READERBOARD NAC #2  
HOLD OFF PRI=9,9  
P513 || UTILITY | READERBOARD MESSAGE #2  
HOLD OFF PRI=9,9  
P529 || UTILITY | READERBOARD MESSAGE #18  
HOLD OFF PRI=9,9  
P537 || UTILITY | READERBOARD MESSAGE #26
```

[END EQUATION]

```
[EQUATION] | 10  
NAC 2 message 18
```

[INPUTS]

```
STATUS ON  
P529 || UTILITY | READERBOARD MESSAGE #18
```

[OUTPUTS]

```
MARCH120 PRI=9,9  
L257 || CONTROL | READERBOARD NAC #2  
HOLD OFF PRI=9,9  
P513 || UTILITY | READERBOARD MESSAGE #2  
HOLD OFF PRI=9,9  
P521 || UTILITY | READERBOARD MESSAGE #10  
HOLD OFF PRI=9,9  
P537 || UTILITY | READERBOARD MESSAGE #26
```

[END EQUATION]

**4100U**  
**Programming,**  
**continued**

```
[EQUATION] | 11
          NAC 2 message 26

[INPUTS]
  STATUS ON
    P537 || UTILITY | READERBOARD MESSAGE #26

[OUTPUTS]
  TEMPORAL PRI=9,9
    L257 || CONTROL | READERBOARD NAC #2
  HOLD OFF PRI=9,9
    P513 || UTILITY | READERBOARD MESSAGE #2
  HOLD OFF PRI=9,9
    P521 || UTILITY | READERBOARD MESSAGE #10
  HOLD OFF PRI=9,9
    P529 || UTILITY | READERBOARD MESSAGE #18

[END EQUATION]
```

```
[EQUATION] | 12
          NAC 2 off

[INPUTS]
  NOT STATUS ON
    P513 || UTILITY | READERBOARD MESSAGE #2
  AND NOT STATUS ON
    P521 || UTILITY | READERBOARD MESSAGE #10
  AND NOT STATUS ON
    P529 || UTILITY | READERBOARD MESSAGE #18
  AND NOT STATUS ON
    P537 || UTILITY | READERBOARD MESSAGE #26

[OUTPUTS]
  HOLD OFF PRI=9,9
    L257 || CONTROL | READERBOARD NAC #2

[END EQUATION]
```

```
[EQUATION] | 13
          NAC 3 message 3

[INPUTS]
  STATUS ON
    P514 || UTILITY | READERBOARD MESSAGE #3

[OUTPUTS]
  HOLD ON PRI=9,9
    L258 || CONTROL | READERBOARD NAC #3
  HOLD OFF PRI=9,9
    P522 || UTILITY | READERBOARD MESSAGE #11
  HOLD OFF PRI=9,9
    P530 || UTILITY | READERBOARD MESSAGE #19
```

**4100U**  
**Programming,**  
**continued**

HOLD OFF PRI=9,9  
P538 || UTILITY | READERBOARD MESSAGE #27

[END EQUATION]

[EQUATION] | 14  
NAC 3 message 11

[INPUTS]  
STATUS ON  
P522 || UTILITY | READERBOARD MESSAGE #11

[OUTPUTS]  
MARCH20 PRI=9,9  
L258 || CONTROL | READERBOARD NAC #3  
HOLD OFF PRI=9,9  
P514 || UTILITY | READERBOARD MESSAGE #3  
HOLD OFF PRI=9,9  
P530 || UTILITY | READERBOARD MESSAGE #19  
HOLD OFF PRI=9,9  
P538 || UTILITY | READERBOARD MESSAGE #27

[END EQUATION]

[EQUATION] | 15  
NAC 3 message 19

[INPUTS]  
STATUS ON  
P530 || UTILITY | READERBOARD MESSAGE #19

[OUTPUTS]  
MARCH120 PRI=9,9  
L258 || CONTROL | READERBOARD NAC #3  
HOLD OFF PRI=9,9  
P514 || UTILITY | READERBOARD MESSAGE #3  
HOLD OFF PRI=9,9  
P522 || UTILITY | READERBOARD MESSAGE #11  
HOLD OFF PRI=9,9  
P538 || UTILITY | READERBOARD MESSAGE #27

[END EQUATION]

[EQUATION] | 16  
NAC 3 message 27

[INPUTS]  
STATUS ON  
P538 || UTILITY | READERBOARD MESSAGE #27

[OUTPUTS]  
TEMPORAL PRI=9,9

**4100U**  
**Programming,**  
**continued**

```
L258 || CONTROL | READERBOARD NAC #3  
HOLD OFF PRI=9,9  
P514 || UTILITY | READERBOARD MESSAGE #3  
HOLD OFF PRI=9,9  
P522 || UTILITY | READERBOARD MESSAGE #11  
HOLD OFF PRI=9,9  
P530 || UTILITY | READERBOARD MESSAGE #19
```

[END EQUATION]

```
[EQUATION] | 17  
NAC 3 off
```

```
[INPUTS]  
NOT STATUS ON  
P514 || UTILITY | READERBOARD MESSAGE #3  
AND NOT STATUS ON  
P522 || UTILITY | READERBOARD MESSAGE #11  
AND NOT STATUS ON  
P530 || UTILITY | READERBOARD MESSAGE #19  
AND NOT STATUS ON  
P538 || UTILITY | READERBOARD MESSAGE #27
```

```
[OUTPUTS]  
HOLD OFF PRI=9,9  
L258 || CONTROL | READERBOARD NAC #3
```

[END EQUATION]

```
[EQUATION] | 18  
NAC 4 message 4
```

```
[INPUTS]  
STATUS ON  
P515 || UTILITY | READERBOARD MESSAGE #4
```

```
[OUTPUTS]  
HOLD ON PRI=9,9  
L259 || CONTROL | READERBOARD NAC #4  
HOLD OFF PRI=9,9  
P523 || UTILITY | READERBOARD MESSAGE #12  
HOLD OFF PRI=9,9  
P531 || UTILITY | READERBOARD MESSAGE #20  
HOLD OFF PRI=9,9  
P539 || UTILITY | READERBOARD MESSAGE #28
```

[END EQUATION]

```
[EQUATION] | 19  
NAC 4 message 12
```

```
[INPUTS]
```

**4100U**  
**Programming,**  
**continued**

```
STATUS ON
P523 || UTILITY | READERBOARD MESSAGE #12

[OUTPUTS]
MARCH20 PRI=9,9
L259 || CONTROL | READERBOARD NAC #4
HOLD OFF PRI=9,9
P515 || UTILITY | READERBOARD MESSAGE #4
HOLD OFF PRI=9,9
P531 || UTILITY | READERBOARD MESSAGE #20
HOLD OFF PRI=9,9
P539 || UTILITY | READERBOARD MESSAGE #28

[END EQUATION]

[EQUATION] | 20
NAC 4 message 20

[INPUTS]
STATUS ON
P531 || UTILITY | READERBOARD MESSAGE #20

[OUTPUTS]
MARCH120 PRI=9,9
L259 || CONTROL | READERBOARD NAC #4
HOLD OFF PRI=9,9
P515 || UTILITY | READERBOARD MESSAGE #4
HOLD OFF PRI=9,9
P523 || UTILITY | READERBOARD MESSAGE #12
HOLD OFF PRI=9,9
P539 || UTILITY | READERBOARD MESSAGE #28

[END EQUATION]

[EQUATION] | 21
NAC 4 message 28

[INPUTS]
STATUS ON
P539 || UTILITY | READERBOARD MESSAGE #28

[OUTPUTS]
TEMPORAL PRI=9,9
L259 || CONTROL | READERBOARD NAC #4
HOLD OFF PRI=9,9
P515 || UTILITY | READERBOARD MESSAGE #4
HOLD OFF PRI=9,9
P523 || UTILITY | READERBOARD MESSAGE #12
HOLD OFF PRI=9,9
P531 || UTILITY | READERBOARD MESSAGE #20

[END EQUATION]
```

**4100U**  
**Programming,**  
**continued**

[EQUATION] | 22  
NAC 4 off

[INPUTS]

NOT STATUS ON

P515 || UTILITY | READERBOARD MESSAGE #4

AND NOT STATUS ON

P523 || UTILITY | READERBOARD MESSAGE #12

AND NOT STATUS ON

P531 || UTILITY | READERBOARD MESSAGE #20

AND NOT STATUS ON

P539 || UTILITY | READERBOARD MESSAGE #28

[OUTPUTS]

HOLD OFF PRI=9,9

L259 || CONTROL | READERBOARD NAC #4

[END EQUATION]

[EQUATION] | 23  
NAC 5 message 5

[INPUTS]

STATUS ON

P516 || UTILITY | READERBOARD MESSAGE #5

[OUTPUTS]

HOLD ON PRI=9,9

L260 || CONTROL | READERBOARD NAC #5

HOLD OFF PRI=9,9

P524 || UTILITY | READERBOARD MESSAGE #13

HOLD OFF PRI=9,9

P532 || UTILITY | READERBOARD MESSAGE #21

HOLD OFF PRI=9,9

P540 || UTILITY | READERBOARD MESSAGE #29

[END EQUATION]

[EQUATION] | 24  
NAC 5 message 13

[INPUTS]

STATUS ON

P524 || UTILITY | READERBOARD MESSAGE #13

[OUTPUTS]

MARCH20 PRI=9,9

L260 || CONTROL | READERBOARD NAC #5

HOLD OFF PRI=9,9

P516 || UTILITY | READERBOARD MESSAGE #5

HOLD OFF PRI=9,9

P532 || UTILITY | READERBOARD MESSAGE #21

**4100U**  
**Programming,**  
**continued**

```
                HOLD OFF PRI=9,9
                P540 || UTILITY | READERBOARD MESSAGE #29

[END EQUATION]

[EQUATION] | 25
    NAC 5 message 21

    [INPUTS]
        STATUS ON
            P532 || UTILITY | READERBOARD MESSAGE #21

    [OUTPUTS]
        MARCH120 PRI=9,9
            L260 || CONTROL | READERBOARD NAC #5
        HOLD OFF PRI=9,9
            P516 || UTILITY | READERBOARD MESSAGE #5
        HOLD OFF PRI=9,9
            P524 || UTILITY | READERBOARD MESSAGE #13
        HOLD OFF PRI=9,9
            P540 || UTILITY | READERBOARD MESSAGE #29

[END EQUATION]

[EQUATION] | 26
    NAC 5 message 29

    [INPUTS]
        STATUS ON
            P540 || UTILITY | READERBOARD MESSAGE #29

    [OUTPUTS]
        TEMPORAL PRI=9,9
            L260 || CONTROL | READERBOARD NAC #5
        HOLD OFF PRI=9,9
            P516 || UTILITY | READERBOARD MESSAGE #5
        HOLD OFF PRI=9,9
            P524 || UTILITY | READERBOARD MESSAGE #13
        HOLD OFF PRI=9,9
            P532 || UTILITY | READERBOARD MESSAGE #21

[END EQUATION]

[EQUATION] | 27
    NAC 5 off
]

    [INPUTS]
        NOT STATUS ON
            P516 || UTILITY | READERBOARD MESSAGE #5
        AND NOT STATUS ON
            P524 || UTILITY | READERBOARD MESSAGE #13
```

**4100U**  
**Programming,**  
**continued**

```
AND NOT STATUS ON
  P532 || UTILITY | READERBOARD MESSAGE #21
AND NOT STATUS ON
  P540 || UTILITY | READERBOARD MESSAGE #29

[OUTPUTS]
  HOLD OFF PRI=9,9
    L260 || CONTROL | READERBOARD NAC #5

[END EQUATION]

[EQUATION] | 28
  NAC 6 message 6

[INPUTS]
  STATUS ON
    P517 || UTILITY | READERBOARD MESSAGE #6

[OUTPUTS]
  HOLD ON PRI=9,9
    L261 || CONTROL | READERBOARD NAC #6
  HOLD OFF PRI=9,9
    P525 || UTILITY | READERBOARD MESSAGE #14
  HOLD OFF PRI=9,9
    P533 || UTILITY | READERBOARD MESSAGE #22
  HOLD OFF PRI=9,9
    P541 || UTILITY | READERBOARD MESSAGE #30

[END EQUATION]

[EQUATION] | 29
  NAC 6 message 14

[INPUTS]
  STATUS ON
    P525 || UTILITY | READERBOARD MESSAGE #14

[OUTPUTS]
  MARCH20 PRI=9,9
    L261 || CONTROL | READERBOARD NAC #6
  HOLD OFF PRI=9,9
    P517 || UTILITY | READERBOARD MESSAGE #6
  HOLD OFF PRI=9,9
    P533 || UTILITY | READERBOARD MESSAGE #22
  HOLD OFF PRI=9,9
    P541 || UTILITY | READERBOARD MESSAGE #30

[END EQUATION]

[EQUATION] | 30
  NAC 6 message 22
```



**4100U**  
**Programming,**  
**continued**

```
[INPUTS]
  STATUS ON
    P533 || UTILITY | READERBOARD MESSAGE #22
```

```
[OUTPUTS]
  MARCH120 PRI=9,9
    L261 || CONTROL | READERBOARD NAC #6
  HOLD OFF PRI=9,9
    P517 || UTILITY | READERBOARD MESSAGE #6
  HOLD OFF PRI=9,9
    P525 || UTILITY | READERBOARD MESSAGE #14
  HOLD OFF PRI=9,9
    P541 || UTILITY | READERBOARD MESSAGE #30
```

[END EQUATION]

```
[EQUATION] | 31
  NAC 6 message 30
```

```
[INPUTS]
  STATUS ON
    P541 || UTILITY | READERBOARD MESSAGE #30
```

```
[OUTPUTS]
  TEMPORAL PRI=9,9
    L261 || CONTROL | READERBOARD NAC #6
  HOLD OFF PRI=9,9
    P517 || UTILITY | READERBOARD MESSAGE #6
  HOLD OFF PRI=9,9
    P525 || UTILITY | READERBOARD MESSAGE #14
  HOLD OFF PRI=9,9
    P533 || UTILITY | READERBOARD MESSAGE #22
```

[END EQUATION]

```
[EQUATION] | 32
  NAC 6 off
```

```
[INPUTS]
  NOT STATUS ON
    P525 || UTILITY | READERBOARD MESSAGE #14
    P517 || UTILITY | READERBOARD MESSAGE #6
  AND NOT STATUS ON
    P525 || UTILITY | READERBOARD MESSAGE #14
  AND NOT STATUS ON
    P533 || UTILITY | READERBOARD MESSAGE #22
  AND NOT STATUS ON
    P541 || UTILITY | READERBOARD MESSAGE #30
```

```
[OUTPUTS]
  HOLD OFF PRI=9,9
    L261 || CONTROL | READERBOARD NAC #6
```

**4100U**  
**Programming,**  
**continued**

```
[END EQUATION]

[EQUATION] | 33
    NAC 7 message 7

    [INPUTS]
        STATUS ON
            P518 || UTILITY | READERBOARD MESSAGE #7

    [OUTPUTS]
        HOLD ON PRI=9,9
            L262 || CONTROL | READERBOARD NAC #7
        HOLD OFF PRI=9,9
            P526 || UTILITY | READERBOARD MESSAGE #15
        HOLD OFF PRI=9,9
            P534 || UTILITY | READERBOARD MESSAGE #23
        HOLD OFF PRI=9,9
            P542 || UTILITY | READERBOARD MESSAGE #31

[END EQUATION]

[EQUATION] | 34
    NAC 7 message 15

    [INPUTS]
        STATUS ON
            P526 || UTILITY | READERBOARD MESSAGE #15

    [OUTPUTS]
        MARCH20 PRI=9,9
            L262 || CONTROL | READERBOARD NAC #7
        HOLD OFF PRI=9,9
            P518 || UTILITY | READERBOARD MESSAGE #7
        HOLD OFF PRI=9,9
            P534 || UTILITY | READERBOARD MESSAGE #23
        HOLD OFF PRI=9,9
            P542 || UTILITY | READERBOARD MESSAGE #31

[END EQUATION]

[EQUATION] | 35
    NAC 7 message 23

    [INPUTS]
        STATUS ON
            P534 || UTILITY | READERBOARD MESSAGE #23

    [OUTPUTS]
        MARCH120 PRI=9,9
            L262 || CONTROL | READERBOARD NAC #7
        HOLD OFF PRI=9,9
            P518 || UTILITY | READERBOARD MESSAGE #7
```

**4100U**  
**Programming,**  
**continued**

```
HOLD OFF PRI=9,9
  P526 || UTILITY | READERBOARD MESSAGE #15
HOLD OFF PRI=9,9
  P542 || UTILITY | READERBOARD MESSAGE #31
```

[END EQUATION]

```
[EQUATION] | 36
  NAC 7 message 31
```

```
[INPUTS]
  STATUS ON
    P542 || UTILITY | READERBOARD MESSAGE #31
```

```
[OUTPUTS]
  TEMPORAL PRI=9,9
    L262 || CONTROL | READERBOARD NAC #7
  HOLD OFF PRI=9,9
    P518 || UTILITY | READERBOARD MESSAGE #7
  HOLD OFF PRI=9,9
    P526 || UTILITY | READERBOARD MESSAGE #15
  HOLD OFF PRI=9,9
    P534 || UTILITY | READERBOARD MESSAGE #23
```

[END EQUATION]

```
[EQUATION] | 37
  NAC 7 off
```

```
[INPUTS]
  NOT STATUS ON
    P518 || UTILITY | READERBOARD MESSAGE #7
  AND NOT STATUS ON
    P526 || UTILITY | READERBOARD MESSAGE #15
  AND NOT STATUS ON
    P534 || UTILITY | READERBOARD MESSAGE #23
  AND NOT STATUS ON
    P542 || UTILITY | READERBOARD MESSAGE #31
```

```
[OUTPUTS]
  HOLD OFF PRI=9,9
    L262 || CONTROL | READERBOARD NAC #7
```

[END EQUATION]

```
[EQUATION] | 38
  NAC 8 message 8
```

```
[INPUTS]
  STATUS ON
    P519 || UTILITY | READERBOARD MESSAGE #8
```

**4100U**  
**Programming,**  
**continued**

```
[OUTPUTS]
  HOLD ON PRI=9,9
    L263 || CONTROL | READERBOARD NAC #8
  HOLD OFF PRI=9,9
    P527 || UTILITY | READERBOARD MESSAGE #16
  HOLD OFF PRI=9,9
    P535 || UTILITY | READERBOARD MESSAGE #24
  HOLD OFF PRI=9,9
    P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
```

[END EQUATION]

```
[EQUATION] | 39
  NAC 8 message 16
```

```
[INPUTS]
  STATUS ON
    P527 || UTILITY | READERBOARD MESSAGE #16
```

```
[OUTPUTS]
  MARCH20 PRI=9,9
    L263 || CONTROL | READERBOARD NAC #8
  HOLD OFF PRI=9,9
    P519 || UTILITY | READERBOARD MESSAGE #8
  HOLD OFF PRI=9,9
    P535 || UTILITY | READERBOARD MESSAGE #24
  HOLD OFF PRI=9,9
    P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
```

[END EQUATION]

```
[EQUATION] | 40
  NAC 8 message 24
```

```
[INPUTS]
  STATUS ON
    P535 || UTILITY | READERBOARD MESSAGE #24
```

```
[OUTPUTS]
  MARCH120 PRI=9,9
    L263 || CONTROL | READERBOARD NAC #8
  HOLD OFF PRI=9,9
    P519 || UTILITY | READERBOARD MESSAGE #8
  HOLD OFF PRI=9,9
    P527 || UTILITY | READERBOARD MESSAGE #16
  HOLD OFF PRI=9,9
    P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
```

[END EQUATION]

```
[EQUATION] | 41
  NAC 8 message 32
```

**4100U**  
**Programming,**  
**continued**

```
[INPUTS]
  STATUS ON
    P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
```

```
[OUTPUTS]
  TEMPORAL PRI=9,9
    L263 || CONTROL | READERBOARD NAC #8
  HOLD OFF PRI=9,9
    P519 || UTILITY | READERBOARD MESSAGE #8
  HOLD OFF PRI=9,9
    P527 || UTILITY | READERBOARD MESSAGE #16
  HOLD OFF PRI=9,9
    P535 || UTILITY | READERBOARD MESSAGE #24
```

[END EQUATION]

```
[EQUATION] | 42
  NAC 8 off
```

```
[INPUTS]
  NOT STATUS ON
    P519 || UTILITY | READERBOARD MESSAGE #8
  AND NOT STATUS ON
    P527 || UTILITY | READERBOARD MESSAGE #16
  AND NOT STATUS ON
    P535 || UTILITY | READERBOARD MESSAGE #24
  AND NOT STATUS ON
    P543 || UTILITY | READERBOARD MESSAGE #32 - BLANK MESSAGE
```

```
[OUTPUTS]
  HOLD OFF PRI=9,9
    L263 || CONTROL | READERBOARD NAC #8
```

[END EQUATION]

[END PROGRAM]

## 4010 Programming Template

**Note:** A maximum of 60 custom control equations are allowed in a 4010 system. This may limit the number of emergency messages that can be displayed. In the following template program, equations which play messages that will not be used may be deleted.

### 4010 Programming

```
User : This is user cc
Equation 1 : NAC 1 Message 1
    IN:
    Or The ON / CODING state of:
        P101 : CUSTOM MESSAGE 1
    OUT:
    Hold ON at Priority 9,9
        L26 : SIGNAL CIRCUIT 1
    Hold OFF at Priority 9,9
        P109 : CUSTOM MESSAGE 9
        P117 : CUSTOM MESSAGE 17
        P125 : CUSTOM MESSAGE 25
END:

Equation 2 : NAC 1 Message 9
    IN:
    Or The ON / CODING state of:
        P109 : CUSTOM MESSAGE 9
    OUT:
    Hold SLOW MARCH TIME at Priority 9,9
        L26 : SIGNAL CIRCUIT 1
    Hold OFF at Priority 9,9
        P101 : CUSTOM MESSAGE 1
        P117 : CUSTOM MESSAGE 17
        P125 : CUSTOM MESSAGE 25
END:

Equation 3 : NAC 1 Message 17
    IN:
    Or The ON / CODING state of:
        P117 : CUSTOM MESSAGE 17
    OUT:
    Hold FAST MARCH TIME at Priority 9,9
        L26 : SIGNAL CIRCUIT 1
    Hold OFF at Priority 9,9
        P101 : CUSTOM MESSAGE 1
        P109 : CUSTOM MESSAGE 9
        P125 : CUSTOM MESSAGE 25
END:
```

---

*Continued on next page*

**4010  
Programming,  
continued**

Equation 4 : NAC 1 Message 25  
IN:  
Or The ON / CODING state of:  
P125 : CUSTOM MESSAGE 25  
OUT:  
Hold TEMPORAL at Priority 9,9  
L26 : SIGNAL CIRCUIT 1  
Hold OFF at Priority 9,9  
P101 : CUSTOM MESSAGE 1  
P109 : CUSTOM MESSAGE 9  
P117 : CUSTOM MESSAGE 17  
END:

Equation 5 : NAC 1 Reset  
IN:  
And The OFF state of: P101 : CUSTOM MESSAGE 1  
And The OFF state of: P109 : CUSTOM MESSAGE 9  
And The OFF state of: P117 : CUSTOM MESSAGE 17  
And The OFF state of: P125 : CUSTOM MESSAGE 25  
OUT:  
Hold OFF at Priority 9,9  
L26 : SIGNAL CIRCUIT 1  
END:

Equation 6 : NAC 2 Message 2  
IN:  
Or The ON / CODING state of:  
P102 : CUSTOM MESSAGE 2  
OUT:  
Hold ON at Priority 9,9  
L27 : SIGNAL CIRCUIT 2  
Hold OFF at Priority 9,9  
P110 : CUSTOM MESSAGE 10  
P118 : CUSTOM MESSAGE 18  
P126 : CUSTOM MESSAGE 26  
END:

Equation 7 : NAC 2 Message 10  
IN:  
Or The ON / CODING state of:  
P110 : CUSTOM MESSAGE 10  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L27 : SIGNAL CIRCUIT 2  
Hold OFF at Priority 9,9  
P102 : CUSTOM MESSAGE 2  
P118 : CUSTOM MESSAGE 18  
P126 : CUSTOM MESSAGE 26  
END:

---

*Continued on next page*

**4010  
Programming,  
continued**

Equation 8 : NAC 2 Message 18  
IN:  
Or The ON / CODING state of:  
P118 : CUSTOM MESSAGE 18  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L27 : SIGNAL CIRCUIT 2  
Hold OFF at Priority 9,9  
P102 : CUSTOM MESSAGE 2  
P110 : CUSTOM MESSAGE 10  
P126 : CUSTOM MESSAGE 26

END:

Equation 9 : NAC 2 Message 26  
IN:  
Or The ON / CODING state of:  
P126 : CUSTOM MESSAGE 26  
OUT:  
Hold TEMPORAL at Priority 9,9  
L27 : SIGNAL CIRCUIT 2  
Hold OFF at Priority 9,9  
P102 : CUSTOM MESSAGE 2  
P110 : CUSTOM MESSAGE 10  
P118 : CUSTOM MESSAGE 18

END:

Equation 10 : NAC 2 Reset  
IN:  
And The OFF state of: P102 : CUSTOM MESSAGE 2  
And The OFF state of: P110 : CUSTOM MESSAGE 10  
And The OFF state of: P118 : CUSTOM MESSAGE 18  
And The OFF state of: P126 : CUSTOM MESSAGE 26  
OUT:  
Hold OFF at Priority 9,9  
L27 : SIGNAL CIRCUIT 2

END:

Equation 11 : NAC 3 Message 3  
IN:  
Or The ON / CODING state of:  
P103 : CUSTOM MESSAGE 3  
OUT:  
Hold ON at Priority 9,9  
L28 : SIGNAL CIRCUIT 3  
Hold OFF at Priority 9,9  
P111 : CUSTOM MESSAGE 11  
P119 : CUSTOM MESSAGE 19  
P127 : CUSTOM MESSAGE 27

END:

---

*Continued on next page*



**4010  
Programming,  
continued**

Equation 12 : NAC 3 Message 11  
IN:  
Or The ON / CODING state of:  
P111 : CUSTOM MESSAGE 11  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L28 : SIGNAL CIRCUIT 3  
Hold OFF at Priority 9,9  
P103 : CUSTOM MESSAGE 3  
P119 : CUSTOM MESSAGE 19  
P127 : CUSTOM MESSAGE 27

END:

Equation 13 : NAC 3 Message 19  
IN:  
Or The ON / CODING state of:  
P119 : CUSTOM MESSAGE 19  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L28 : SIGNAL CIRCUIT 3  
Hold OFF at Priority 9,9  
P103 : CUSTOM MESSAGE 3  
P111 : CUSTOM MESSAGE 11  
P127 : CUSTOM MESSAGE 27

END:

Equation 14 : NAC 3 Message 27  
IN:  
Or The ON / CODING state of:  
P127 : CUSTOM MESSAGE 27  
OUT:  
Hold TEMPORAL at Priority 9,9  
L28 : SIGNAL CIRCUIT 3  
Hold OFF at Priority 9,9  
P103 : CUSTOM MESSAGE 3  
P111 : CUSTOM MESSAGE 11  
P119 : CUSTOM MESSAGE 19

END:

Equation 15 : NAC 3 Reset  
IN:  
And The OFF state of: P103 : CUSTOM MESSAGE 3  
And The OFF state of: P111 : CUSTOM MESSAGE 11  
And The OFF state of: P119 : CUSTOM MESSAGE 19  
And The OFF state of: P127 : CUSTOM MESSAGE 27  
OUT:  
Hold OFF at Priority 9,9  
L28 : SIGNAL CIRCUIT 3

END:

---

*Continued on next page*

**4010  
Programming,  
continued**

Equation 16 : NAC 4 Message 4  
IN:  
Or The ON / CODING state of:  
P104 : CUSTOM MESSAGE 4  
OUT:  
Hold ON at Priority 9,9  
L29 : SIGNAL CIRCUIT 4  
Hold OFF at Priority 9,9  
P112 : CUSTOM MESSAGE 12  
P120 : CUSTOM MESSAGE 20  
P128 : CUSTOM MESSAGE 28

END:

Equation 17 : NAC 4 Message 12  
IN: Or The ON / CODING state of:  
P112 : CUSTOM MESSAGE 12  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L29 : SIGNAL CIRCUIT 4  
Hold OFF at Priority 9,9  
P104 : CUSTOM MESSAGE 4  
P120 : CUSTOM MESSAGE 20  
P128 : CUSTOM MESSAGE 28

END:

Equation 18 : NAC 4 Message 20  
IN:  
Or The ON / CODING state of:  
P120 : CUSTOM MESSAGE 20  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L29 : SIGNAL CIRCUIT 4  
Hold OFF at Priority 9,9  
P104 : CUSTOM MESSAGE 4  
P112 : CUSTOM MESSAGE 12  
P128 : CUSTOM MESSAGE 28

END:

Equation 19 : NAC 4 Message 28  
IN:  
Or The ON / CODING state of:  
P128 : CUSTOM MESSAGE 28  
OUT:  
Hold TEMPORAL at Priority 9,9  
L29 : SIGNAL CIRCUIT 4  
Hold OFF at Priority 9,9  
P104 : CUSTOM MESSAGE 4  
P112 : CUSTOM MESSAGE 12  
P120 : CUSTOM MESSAGE 20

END:

---

*Continued on next page*

**4010  
Programming,  
continued**

Equation 20 : NAC 4 Reset  
IN:  
And The OFF state of: P104 : CUSTOM MESSAGE 4  
And The OFF state of: P112 : CUSTOM MESSAGE 12  
And The OFF state of: P120 : CUSTOM MESSAGE 20  
And The OFF state of: P128 : CUSTOM MESSAGE 28  
OUT:  
Hold OFF at Priority 9,9  
L29 : SIGNAL CIRCUIT 4  
END:

Equation 21 : NAC 5 Message 5  
IN:  
Or The ON / CODING state of:  
P105 : CUSTOM MESSAGE 5  
OUT:  
Hold ON at Priority 9,9  
L30 : SIGNAL CIRCUIT 5  
Hold OFF at Priority 9,9  
P113 : CUSTOM MESSAGE 13  
P121 : CUSTOM MESSAGE 21  
P129 : CUSTOM MESSAGE 29  
END:

Equation 22 : NAC 5 Message 13  
ON:  
Or The ON / CODING state of:  
P113 : CUSTOM MESSAGE 13  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L30 : SIGNAL CIRCUIT 5  
Hold OFF at Priority 9,9  
P105 : CUSTOM MESSAGE 5  
P121 : CUSTOM MESSAGE 21  
P129 : CUSTOM MESSAGE 29  
END:

Equation 23 : NAC 5 Message 21  
IN:  
Or The ON / CODING state of:  
P121 : CUSTOM MESSAGE 21  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L30 : SIGNAL CIRCUIT 5  
Hold OFF at Priority 9,9  
P105 : CUSTOM MESSAGE 5  
P113 : CUSTOM MESSAGE 13  
P129 : CUSTOM MESSAGE 29  
END:

---

*Continued on next page*

**4010**  
**Programming,**  
**continued**

Equation 24 : NAC 5 Message 29  
IN:  
Or The ON / CODING state of:  
P129 : CUSTOM MESSAGE 29  
OUT:  
Hold TEMPORAL at Priority 9,9  
L30 : SIGNAL CIRCUIT 5  
Hold OFF at Priority 9,9  
P105 : CUSTOM MESSAGE 5  
P113 : CUSTOM MESSAGE 13  
P121 : CUSTOM MESSAGE 21  
END:

Equation 25 : NAC 5 Reset  
IN:  
And The OFF state of: P105 : CUSTOM MESSAGE 5  
And The OFF state of: P113 : CUSTOM MESSAGE 13  
And The OFF state of: P121 : CUSTOM MESSAGE 21  
And The OFF state of: P129 : CUSTOM MESSAGE 29  
OUT:  
Hold OFF at Priority 9,9  
L30 : SIGNAL CIRCUIT 5  
END:

Equation 26 : NAC 6 Message 6  
IN:  
Or The ON / CODING state of:  
P106 : CUSTOM MESSAGE 6  
OUT:  
Hold ON at Priority 9,9  
L31 : SIGNAL CIRCUIT 6  
Hold OFF at Priority 9,9  
P114 : CUSTOM MESSAGE 14  
P122 : CUSTOM MESSAGE 22  
P130 : CUSTOM MESSAGE 30  
END:

Equation 27 : NAC 6 Message 14  
IN:  
Or The ON / CODING state of:  
P114 : CUSTOM MESSAGE 14  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L31 : SIGNAL CIRCUIT 6  
Hold OFF at Priority 9,9  
P106 : CUSTOM MESSAGE 6  
P122 : CUSTOM MESSAGE 22  
P130 : CUSTOM MESSAGE 30  
END:

**4010  
Programming,  
continued**

Equation 28 : NAC 6 Message 22  
IN:  
Or The ON / CODING state of:  
P122 : CUSTOM MESSAGE 22  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L31 : SIGNAL CIRCUIT 6  
Hold OFF at Priority 9,9  
P106 : CUSTOM MESSAGE 6  
P114 : CUSTOM MESSAGE 14  
P130 : CUSTOM MESSAGE 30  
END:

Equation 29 : NAC 6 Message 30  
IN:  
Or The ON / CODING state of:  
P130 : CUSTOM MESSAGE 30  
OUT:  
Hold TEMPORAL at Priority 9,9  
L31 : SIGNAL CIRCUIT 6  
Hold OFF at Priority 9,9  
P106 : CUSTOM MESSAGE 6  
P114 : CUSTOM MESSAGE 14  
P122 : CUSTOM MESSAGE 22  
END:

Equation 30 : NAC 6 Reset  
IN:  
And The OFF state of: P106 : CUSTOM MESSAGE 6  
And The OFF state of: P114 : CUSTOM MESSAGE 14  
And The OFF state of: P122 : CUSTOM MESSAGE 22  
And The OFF state of: P130 : CUSTOM MESSAGE 30  
OUT: Hold OFF at Priority 9,9  
L31 : SIGNAL CIRCUIT 6  
END:

Equation 31 : NAC 7 Message 7  
IN:  
Or The ON / CODING state of:  
P107 : CUSTOM MESSAGE 7  
OUT:  
Hold ON at Priority 9,9  
L32 : SIGNAL CIRCUIT 7  
Hold OFF at Priority 9,9  
P115 : CUSTOM MESSAGE 15  
P123 : CUSTOM MESSAGE 23  
P131 : CUSTOM MESSAGE 31  
END:

---

*Continued on next page*

**4010  
Programming,  
continued**

Equation 32 : NAC 7 Message 15  
IN:  
Or The ON / CODING state of:  
P115 : CUSTOM MESSAGE 15  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L32 : SIGNAL CIRCUIT 7  
Hold OFF at Priority 9,9  
P107 : CUSTOM MESSAGE 7  
P123 : CUSTOM MESSAGE 23  
P131 : CUSTOM MESSAGE 31

END:

Equation 33 : NAC 7 Message 23  
IN:  
Or The ON / CODING state of:  
P123 : CUSTOM MESSAGE 23  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L32 : SIGNAL CIRCUIT 7  
Hold OFF at Priority 9,9  
P107 : CUSTOM MESSAGE 7  
P115 : CUSTOM MESSAGE 15  
P131 : CUSTOM MESSAGE 31

END:

Equation 34 : NAC 7 Message 31  
IN:  
Or The ON / CODING state of:  
P131 : CUSTOM MESSAGE 31  
OUT:  
Hold TEMPORAL at Priority 9,9  
L32 : SIGNAL CIRCUIT 7  
Hold OFF at Priority 9,9  
P107 : CUSTOM MESSAGE 7  
P115 : CUSTOM MESSAGE 15  
P123 : CUSTOM MESSAGE 23

END:

Equation 35 : NAC 7 Reset  
IN:  
And The OFF state of: P107 : CUSTOM MESSAGE 7  
And The OFF state of: P115 : CUSTOM MESSAGE 15  
And The OFF state of: P123 : CUSTOM MESSAGE 23  
And The OFF state of: P131 : CUSTOM MESSAGE 31  
OUT:  
Hold OFF at Priority 9,9  
L32 : SIGNAL CIRCUIT 7

END:

---

*Continued on next page*

**4010  
Programming,  
continued**

Equation 36 : NAC 8 Message 8  
IN:  
Or The ON / CODING state of:  
P108 : CUSTOM MESSAGE 8  
OUT:  
Hold ON at Priority 9,9  
L33 : SIGNAL CIRCUIT 8  
Hold OFF at Priority 9,9  
P116 : CUSTOM MESSAGE 16  
P124 : CUSTOM MESSAGE 24  
P132 : CUSTOM MESSAGE 32 BLANK

END:

Equation 37 : NAC 8 Message 16  
IN:  
Or The ON / CODING state of:  
P116 : CUSTOM MESSAGE 16  
OUT:  
Hold SLOW MARCH TIME at Priority 9,9  
L33 : SIGNAL CIRCUIT 8  
Hold OFF at Priority 9,9  
P108 : CUSTOM MESSAGE 8  
P124 : CUSTOM MESSAGE 24  
P132 : CUSTOM MESSAGE 32 BLANK

END:

Equation 38 : NAC 8 Message 24  
IN:  
Or The ON / CODING state of:  
P124 : CUSTOM MESSAGE 24  
OUT:  
Hold FAST MARCH TIME at Priority 9,9  
L33 : SIGNAL CIRCUIT 8  
Hold OFF at Priority 9,9  
P108 : CUSTOM MESSAGE 8  
P116 : CUSTOM MESSAGE 16  
P132 : CUSTOM MESSAGE 32 BLANK

END:

Equation 39 : NAC 8 Message 32  
IN:  
Or The ON / CODING state of:  
P132 : CUSTOM MESSAGE 32 BLANK  
OUT:  
Hold TEMPORAL at Priority 9,9  
L33 : SIGNAL CIRCUIT 8  
Hold OFF at Priority 9,9  
P108 : CUSTOM MESSAGE 8  
P116 : CUSTOM MESSAGE 16  
P124 : CUSTOM MESSAGE 24

END:

---

*Continued on next page*

**4010**  
**Programming,**  
**continued**

Equation 40 : NAC 8 Reset

IN:

And The OFF state of: P108 : CUSTOM MESSAGE 8

And The OFF state of: P116 : CUSTOM MESSAGE 16

And The OFF state of: P124 : CUSTOM MESSAGE 24

And The OFF state of: P132 : CUSTOM MESSAGE 32 BLANK

OUT: Hold OFF at Priority 9,9

L33 : SIGNAL CIRCUIT 8

END:

Equation 41 : AC Fail Blank Message

IN:

Or The ON / CODING state of:

2-1-0 : AC Failure

And Not The ON / CODING state of:

L34 : Messaging Appliance NAC 1-7

OUT:

Hold TEMPORAL at Priority 9,9

L33 : Signal Circuit 8

END:

Equation 42 : AC Fail Message Reset

IN:

And Not The ON / CODING state of:

2-1-0 : AC Failure

Or The ON / CODING state of:

L34 : Messaging Appliance NAC 1-7

OUT:

Hold OFF at Priority 9,9

L33 : SIGNAL CIRCUIT 8

END:





