IF600

SMARTNET

FIRE ALARM SYSTEM NETWORK

Installation & Operation Manual

The Gamewell Company
60 Pleasant Street
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PROPRIETARY MATERIAL

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GENERAL INFORMATION

The Gamewell Company thanks you for choosing the SmartNet system to serve your monitor and control signaling needs. As with all our products we have taken great care to insure that we have provided a quality Fire Alarm Control Panel. To receive maximum benefit and many years of reliable service we would like to make the following recommendations:

1. **Read this manual carefully** and in it's entirety before proceeding with the installation of the SmartNet system.

2. **Never** make any connections **with the power connected.**

3. Gamewell spends many hours testing devices that are supplied by Gamewell to be used with it's control panels to verify compatibility. **To maximize system performance, and minimize risk of damage to the equipment, we suggest using all Gamewell Components.**

4. **There is no substitute for proper maintenance and testing** of this or any life safety product. Gamewell recommends testing and maintenance of your SmartNet system in accordance with the guidelines set forth by the National Fire Protection Association, to be done on a regular basis, as a minimum.

5. **This manual should be stored with the SmartNet System** for future reference, and should not be removed, providing reference to the operation and programming of the installed SmartNet System.

Thank you again for choosing Gamewell. If you have any comments regarding your SmartNet Network system or other Gamewell products, please feel free to write us at:

The Gamewell Company
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Table of Contents

OVERVIEW: **1**
SmartNet System 1

INSTALLATION AND WIRING **1**
MSTR-422 Module 1
MSTR-FIB Module 1
SIM-422 Module 1
SIM-422/FIB Module 1
SIM-FIB Module 2
Printer Interface 2
Environmental Considerations 2
AC Connection 2
Wire Connections 2
Fiber Connections 2

SYSTEM OPERATION : **3**
Start Up 3
Title Block 4
Nodes Window 4
Network Data Window 4
Node Data Window 4
Status Windows 4
Password window 5

CONTROLS **5**
General 5
Control Buttons 5
Acknowledging 5
Signal Silence 5
Resetting 6
Multiple Alarms and/or Troubles 6
Confirming 6
Deleting 6
Scroll control 6
Trouble 6
Alarm 6

PROGRAMMING **7**
Starting The Smartnet Program 7
Exiting The Smartnet Program 7
Updating Smartnet Software 7
New System Load 7
Service Programming 7
Programming Passwords 7
Privileges 8
Configuring the Communication 8
Control By Event 9
Tokenset.txt 9
Programming Nodes 10
Upload/Download Node 10
Download Node 10
Upload Node 10
WatchDog Timer 10

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FLEX 600 SYSTEM PROGRAMMING **11**
System Firmware 11
Assigning Node Names 11
Node Name 11
Access Level Three 11
Sensitivity Download 11

APPENDIX A **12**
Communication Settings 12

APPENDIX B **13**
SmartNet Data stream information 13

APPENDIX C **24**
Wiring Diagrams 24

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GAMEWELL SMARTNET SYSTEM

OVERVIEW:

SmartNet System

The Gamewell SmartNet system is a Personal Computer based proprietary fire alarm control system. It is designed to monitor and control up to 250 Flex 600 panels. The SmartNet system consists of either a SN600-PC15, SN600-PC19 or a SN600-PC19R Computer with a network interface module installed. The central controller features point and click operation with all programming and control functions performed from one location. Network status windows indicate the status of all connected panels. Each panels history is recorded and saved in its own individual file.

INSTALLATION AND WIRING

MSTR-422 Module

The network interface module, part number MSTR-422 is a module that plugs into the SN600-PCxx bus expansion slot. This card provides an RS-422 communication medium for the Gamewell Smartnet network. The network card is factory installed into the second expansion slot. It provides two plug in terminal block connectors at the rear of the computer console. The right terminal block (JP2) is factory set to COM 4, Addr 02E8, IRQ7 and the left block (JP1) is set to COM 3, Addr 03E8, IRQ5 (see appendix A for settings). The SmartNet network wiring terminates to the connector JP1 (out) which is the Primary Bus and JP2 (return) which is the Secondary Bus. Refer to installation drawing A-M1095 in appendix B. Four LED's are provided to indicate the status of the communications (See A-M1095 in appendix B for details).

MSTR-FIB Module

The MSTR-FIB modules provides the same features as the MSTR-422 with the exception of the connections to the network. The MSTR-FIB module connects to the network nodes via two fiber optic cables. The fiber optic connection will allow a node to be located up to 1.2 miles (2Km) apart Transit/`receive left side is the primary connection and the transmit/ receive right is the secondary bus.

▲ ***Note:*** *Do not connect or disconnect the ribbon cable when power is applied to the panel.*

▲ ***Note:*** *Refer to drawing D-W1164*

SIM-422 Module

The SIM-422 module mounts on the bus driver card of the IF600 system (node), providing a hard wired connection to the network. It is connected to the CPU 's ISBX0 connector with a 34 pin ribbon cable that supplies power and data. An eight position DIP switch is used to set node addresses. Set the appropriate binary switches to the open position to select an address for the node. Two LED's are provided to indicate communication. LED1 indicates Network communication and LED2 indicates Node communication.

SIM-422/FIB Module

The SIM-422/FIB Module provides the same features as the SIM-422 module with exception to the hard wired connection to the to the JP2 port. JP2 is removed and replaced with a fiber optic connection R1 and T1. These designate transmit and receive connections for the fiber optic cables.

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SIM-FIB Module

The SIM-FIB Module provides the same features as the SIM-422 module with exception to the hard wired connections. Both hardwired connections are replaced with fiber optic connections. R1 and T1 replace the JP1 connector. R2 and T2 replace the JP2 connector

Printer Interface

A parallel printer interface is provided for use with the SN600-PTR printer. This must be connected and on-line to prevent a printer trouble from being displayed.

Environmental Considerations

The SmartNet control panel should be located in a clean and cool environment (Consult the PC owners manual for details).

AC Connection

Remove the cover of the handy box on the rear of the SN600-PCxx and connect per drawing A-M1094-1 in appendix B. Connect the A.C. power to a surge protection device or U.P.S. (un-interuptable power supply).

▲ ***Note****: Consult PC manual for power requirements.*

Wire Connections

The network interconnecting cable should consist of a shielded 4 conductor twisted pair cable. Each pair may be individually shielded, or the two pairs may be enclosed in a single shield. To assure reliable performance the following should apply:

Nominal Impedance	60 Ohms
Max. Capacitance - between pairs	15.5 pf/foot
Max. Capacitance - conductor to shield	28 pf/foot
Max. Wire Resistance	80 ohms/Km
Max. Shield Resistance	15 ohms/Km
Max. Wire Length	4000 feet

Fiber Connections

Provisions for using fiber optic cable are also available for the node connections.

Max. Fiber Length	1.2 Miles (2 Km)
Max. Fiber dB loss	7 dB (incl.. connectors)

▲ ***Note****: Feed and return wiring must be run in separate conduits..*

▲ ***Note****: All wiring entering and leaving buildings must be wired through surge protection devices.*

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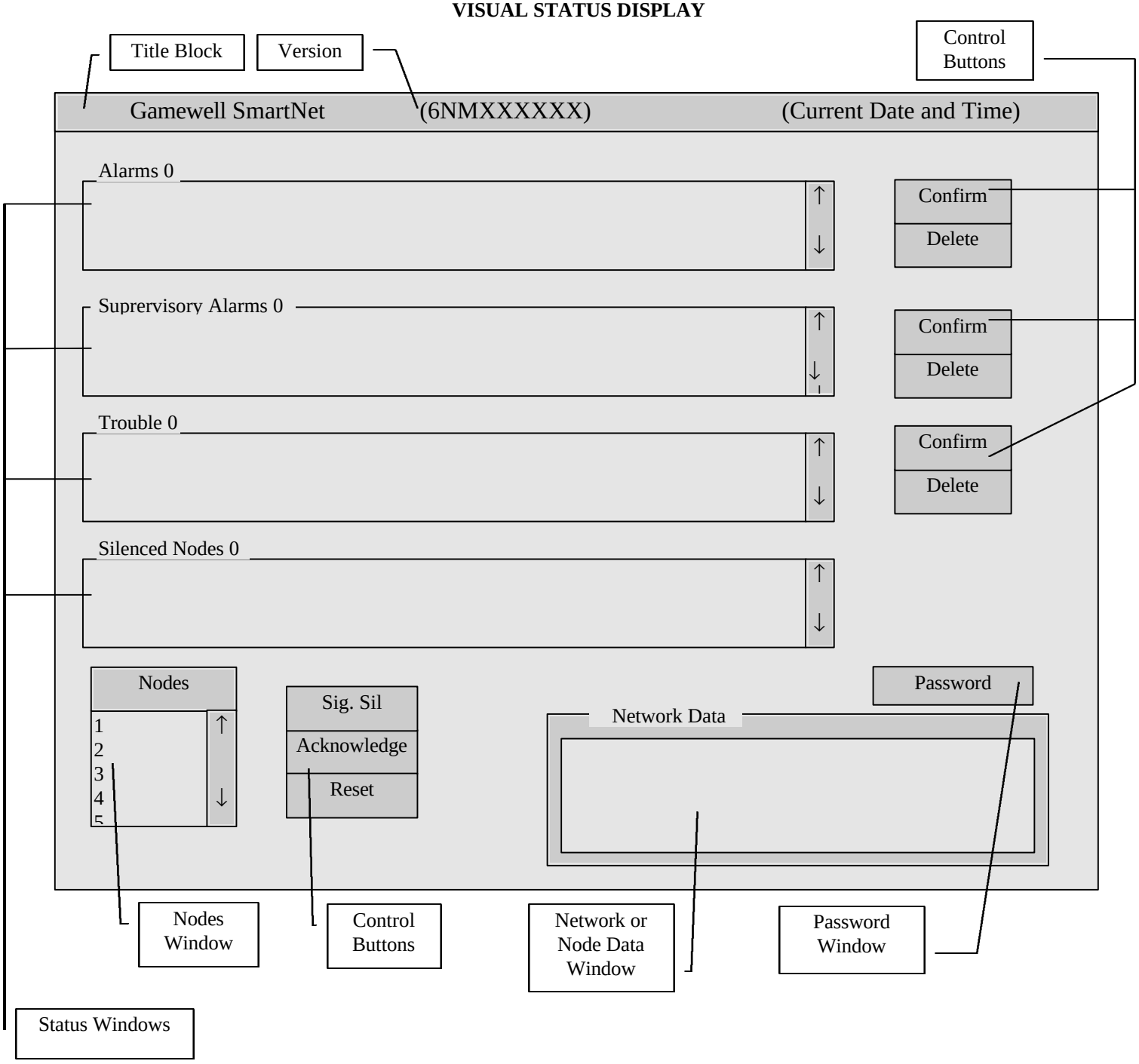
SYSTEM OPERATION :

Start Up

The SmartNet system is setup and programmed at the factory. When the SmartNet computer is turned on, the program will run a series of self diagnostics tests and then polls the network, communicating to the nodes assigned in the NODES program. After the initial startup adding or deleting nodes will be done through a separate maintenance program.

Figure 1
VISUAL STATUS DISPLAY



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Title Block
(Top of Screen)

Displays the current time, date, and software version.

Nodes Window

Displays the node unit numbers connected to the SmartNet network. A highlighted bar across the number means that that node unit is selected for direct access.

Network Data Window
(without a Node Selected)

Displays network data as it occurs in all nodes connected to the SmartNet network. The window will have a gray background and display all the events from all the connected nodes.

Node Data Window
(with Node selected)

Displays specific data from the node selected. The window will have a blue background and display only the events from one node. The operator must be in this mode to perform system functions such as acknowledge, reset, and signal silence. This mode is also used to program nodes and review history from a single panel. Data will appear exactly as it would on the units LCD display and contain a node name (if programmed) on the line directly above the user text.

Status Windows

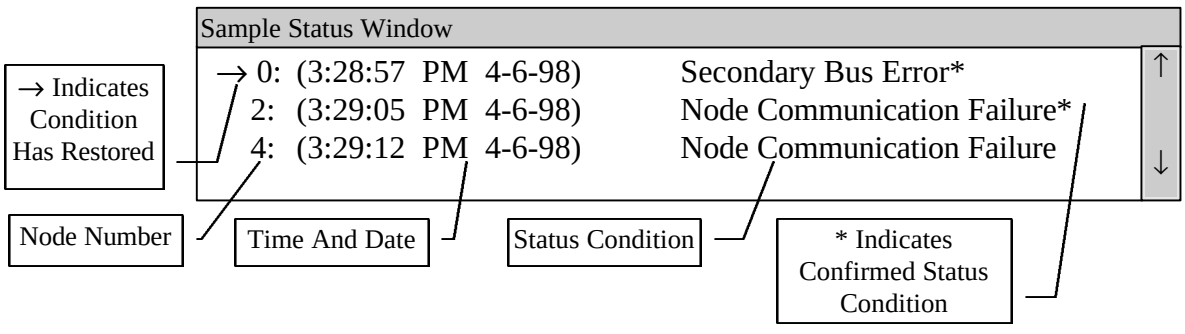
There are four status windows that display various conditions of the network. They show alarms, supervisory alarms, troubles and silenced circuits. The title block for each window will display the number of conditions that exist for that category and the node numbers that need to be acknowledged The window will display the node number of the device or circuit in abnormal condition, the time and date the event occurred and the status of the condition.

When an abnormal condition (alarm, supervisory or trouble) occurs, the operator is prompted to confirm and acknowledge the condition. To confirm the condition, highlight the abnormal condition within the window by moving the cursor to the desired message and pressing the left mouse button. The Confirm or Delete buttons will become active. When either is selected, the operator is the prompted to enter a password. When the proper password is entered the system will confirm the receipt of the abnormal condition and an asterisk will appear at the right of the message (see figure 2). Each message must be confirmed. When an abnormal condition restores, an arrow is displayed to the left of the message. When this is displayed the operator must delete the message. Highlight the message, click on the delete button and enter the proper password.

The password access level is available for use during the 15 seconds following entry or use of the password. This allows the operator to acknowledge, signal silence, reset, confirm and delete messages within this time frame. If no activity is sensed within 15 seconds, the operator must re-enter the password to access these functions.

Each window will display the associated event along with the node, time and date and status from top to bottom in the order received.

Figure 2
Sample Status Window



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Password window

The password window will appear when the user is trying to perform a control function. The password characters will appear as asterisks in the password window when entered. The passwords are a combination of numbers and letters from three to ten characters long. A separate maintenance program under the service menu is used to program passwords.

The default passwords are as follows:

ONE
TWO
THREE
FOUR
FIVE
SIX
GAMEWELL

CONTROLS

General

To perform any functions on a network node, click the mouse on that unit's number in the node window. If the node is in the normal condition clicking the mouse on the node number will allow direct communication to the node selected to perform monitoring, programming, and history recall functions. When a unit is selected the network data window will have a blue background. The title block for the network display window will change from "network data" to "node # data". The number for the selected unit will have a black bar through it. The data window will show the last message received from that node. Click on another unit's number to redirect communication , or the current unit's number to go back to the network data mode.

Control Buttons

Control buttons are only present when the unit is selected and the associated action can be taken.

Acknowledge: Acknowledges alarms and troubles and silences the panel audible.
Reset: Resets alarm and trouble conditions.
Signal Silence: Turns on and off the local indicating circuits (toggle function).
Delete: Deletes messages from the status window one at a time
Confirm: Confirms that a message was received.

Acknowledging

When an alarm or trouble condition is received, the user will be prompted with an acknowledge button. When the user clicks the mouse on the acknowledge button the password window will appear above the data window (See Figure 1). The user must then enter the correct password, which shows up as asterisks, and hit the enter key on the keypad. The console will emit a short steady-tone audible indicating the correct password and the condition will be acknowledged. The user will then be prompted with a reset button. (Certain troubles such as class A need to be reset.) For an alarm condition a signal silence button will be available with an additional password needed. If the user enters the incorrect password, the user will have to click the button again to activate the password window.

Signal Silence

The Signal silence button is used to toggle the active indicating circuits, programmed to silence when this function is used. Use of this button requires password access. The circuits that have been silenced will be displayed in the "Silenced Nodes" status window.

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Resetting

When an alarm or trouble condition is acknowledged, the user will be prompted with a reset button. When the user clicks the mouse on the reset button, a reset password window will appear above the data window. The user must then enter the correct password and hit the enter key on the keypad. The console will emit a short steady tone audible indicating the correct password, the condition will be reset, and the title above the associated status window will change from red to black. (Certain troubles such as class A faults also need to be reset.) If the user enters the incorrect password, the user will have to click the reset button again to activate the password window.

Multiple Alarms and/or Troubles

Every alarm, supervisory or trouble must be acknowledged and confirmed before the console silences. If an alarm condition(s) exists when a trouble condition is received, the trouble will be displayed in the status. All alarms will be displayed in the alarm status display box, all troubles will be displayed in the trouble status display box and all supervisory alarms will be displayed in the supervisory alarm status display box.

Confirming

When a condition is displayed in a status window the related audible will sound and the confirm button will be visible. Select the desired item with the mouse and click on the confirm button. A confirmed item will have an asterisk at the right side of the confirmed events. All events must be confirmed. [Password required]

Deleting

When a condition shown in a status window has been corrected or eliminated the item in the window will be marked with an arrow on the left side. and the delete button will be visible. use the mouse button to select the item in the window, then click on the delete button. [Password required]

Scroll control

Allows user to scroll through data, status data, in a specific windows. Place the mouse on the arrows to advance one line at a time in the desired direction. Place the mouse on the upper or lower half of the scroll bar to advance one message block at a time.

Trouble

If the network is in a normal condition and a trouble condition is received from a node, the SmartNet console will sound a slow intermittent audible, the network data window will go into the direct access mode for the node displaying the trouble message from the console, the trouble status window will display the trouble condition with the title in red, and the user will be prompted with an acknowledge button.

Alarm

If the network is in a normal condition and an alarm condition is received from a node, the SmartNet console will sound a three pulse coded audible, the network data window will go into the direct access mode displaying the alarm message from the node, the alarm status window will display the alarm condition and the user will be prompted with an acknowledge button.

Table 1
Audible Indications

CONDITION	AUDIBLE TONE
Alarm	Code 3, Temporal
Trouble	.5 sec on, 3.5 sec off, repeat
Supervisory	.5 sec on, .5 sec off, .5 sec on, 2.5 sec off, repeat
Delete	.5 sec on, 6.5 sec off, repeat
Watchdog	Steady

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PROGRAMMING

Programming from the SmartNet console is performed exactly the same way as from the unit itself once the SmartNet console is in the direct access mode for that unit.

Starting The Smartnet Program

Start the SmartNet program by typing SmartNet at the root directory prompt. The SmartNet Program will automatically start when the computer is booted up.

Exiting The Smartnet Program

Using the mouse, place the cursor in the top right hand corner of the screen and click the left mouse button. When the system prompts for the password, enter the level 6 password in the password.ini file. (default is Gamewell)

Updating Smartnet Software

Software updates (part number SN600-SW) will be supplied on a 3.5" floppy disk. To update the SmartNet software it is necessary to exit the SmartNet program.

1) Close down the SmartNet program and shut power off on the computer.
2) Turn power back on the computer and press the F5 key when you see **Starting MS-DOS** on the screen.
3) Put disk into floppy drive, type A: [return], type UPGRADE [return]
4) Answer Yes when the screen asks if you wish to replace existing file.
5) Reboot the computer to start the network.

New System Load

1) Make sure that there is no SmartNet directory in the computer.
2) Put disk into floppy drive, type A:[return], type INSTALL [return]
3) Follow directions on the screen.
4) Power down and power up the computer to start the network.

Service Programming

In the SmartNet directory the installer can change the system and network parameters. Passwords, Privileges assigned to functions, Communication parameters and Node assignments are configured in this area.

Programming Passwords

To change passwords, exit the SmartNet program. At the SmartNet prompt type: EDIT PASSWORD [return]. This will load the password initiation file into the DOS text editor. The file will look like this:

ONE,1,USER_ONE
TWO,2,USER_TWO
THREE,3,USER_THREE
FOUR,4,USER_FOUR
FIVE,5,USER_FIVE
SIX,6,USER_SIX
GAMEWELL,6,GAMEWELL

The type written number represents the password, the numeric number represents the password access level (1-6) and the user_number is the identification assignment for the user of the password.. All letters must be upper case and each field must be separated with a comma. These assignments allow access to the various functions of the SmartNet and display the identity of the user when accessed. Access levels can be assigned from 1 to 6 and the user_number can be changed to represent the individual accessing the function. The password and user_name must be 3 to 10 characters in length.

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Privileges

The file PRIV.INI assigns the various access levels to the SmartNet functions. There are six access levels of passwords that can be assigned. The following is the default access levels assigned to the various functions.

RESET = 3
ACK = 3
PRINTER = 2
SILENCE = 3
COMM = 2
BUS = 2
EXIT = 6
DELETE = 3
CONFIRM = 3
MAINT = 5

CommLogParm=COM2:9600,n,8,1,RS,CS0,CD0,DS0 (this line is present only when the serial data output is used.)
HEARTBEAT=YES/NO (Heartbeat refers to the supervision of the computers serial port. When YES is used the system will output NODE 0 SYSTEM NORMAL every 2 minutes). If NO is selected the heartbeat information is not transmitted.

Assigning various levels of access to these functions can be accomplished by changing the associated number.

Configuring the Communication

The COMM.INI file allows the configuration of the SmartNet communications ports. The default configuration is as follows:

nbs10cards = 2
nbs10io1 = &H3E8
nbs10irq1 = 5
nbs10freq = 18.432
nbs10io2 = &H2E8
nbs10irq2 = 7
nbs10freq2 = 18.432
baudRate = 19200
maxRetries = 0
timeout1 = 150
timeout2 = 300

The “nbs10cards = “ statement defines Class A or Class B wiring. 1 = Class B, 2 = Class A. All other entries in this file should not be changed.

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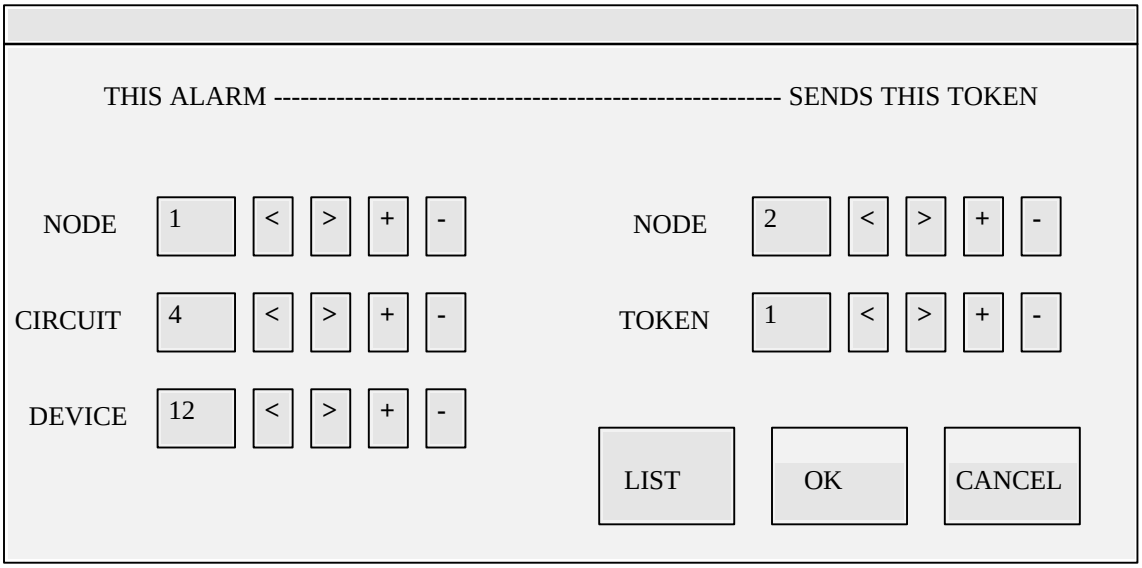
Control By Event

To program control by event functions between nodes, exit the SmartNet program and at the SmartNet prompt type: TOKENSET.EXE. This will start the program that allows the user to assign alarms from any node on the system to activate any output on any other node of the system. This file can be programmed to activate on individual alarms or any alarm from a circuit in a node. The user enters a node number, a circuit number, and device number. By typing ALL in the device category the program will respond to any alarm from that circuit. Outputs are programmed 1 to 254 These outputs correspond to input circuits 57 and 58 in the target node with 126 devices per circuit respectively (circuit 57 is 1-126, circuit 58 is 129-254).

Example: An alarm from node #1, circuit #4, device #12, that activates node #2, circuit # 57, device #1 would look like this:



Control by event will be programmed using the CBE programming in the individual nodes. In the above example the user would program node #2, circuit #57, device #1 to a specific input group that would activate and output group corresponding to the input from node #1.

Tokenset.txt

Type the numbers in the selected areas. Type ALL (capital letters) in the device area for every “Fire Alarm” device on a circuit to generate a token. Arrow keys are used to move up and down through selected areas. Plus and minus keys are used to add or delete in selected areas (confirmation window will appear if delete id selected).
LIST will print out a list of the tokenset programming.
OK will save and exit the program.
CANCEL will exit without saving.

Note: The TOKENSET.EXE file can be run on another computer and the resulting TOKENSET.TXT file can be copied to the SMARTNET directory of the network computer.

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Programming Nodes

To add or delete nodes, exit the SmartNet program and at the SmartNet prompt type: NODES [return]. This will start the maintenance program that allows the user to add or delete nodes.
(the default configuration is as follows)

1
2
3

To add or delete a node, add or delete the number of the node to the list. After adding or deleting nodes click on the save button to write the new configuration to memory.

Upload/Download Node

The SmartNet console automatically creates and retrieves the associated files for the Node. If an operator tries to upload a file that doesn't exist (hasn't been downloaded) the console will display an error message.

NOTE: The network must be free of alarm and trouble conditions before attempting to transfer files. If an alarm or trouble is received during a download the file transfer will be aborted and will have to be re-downloaded when the panel is clear. If an alarm or trouble is received during an upload, a resume upload button will be available when the panel is clear.

Download Node

Put the SmartNet console in the direct access mode for the satellite unit that you want to transfer from by clicking the mouse on the node number in the node window. Press the enter key to get the password prompt from that panel. Select the display option of the system menu. Select either dictionary or configuration then the download option. The transfer will begin automatically. When transferring a dictionary file the data window will have a green background. When retrieving a configuration file the data window will have a red background.

Upload Node

Put the SmartNet console in the direct access mode for the satellite unit that you want to transfer from by clicking the mouse on the node number in the node window. Press the enter key to get the password prompt from that panel. Select the change option of the system menu. Select either dictionary or configuration then the upload option. The transfer will begin automatically. When transferring a dictionary file the data window will have a green background. When uploading a configuration file the data window will have a red background.

WatchDog Timer

A built in WatchDog timer monitors the transmission of data from the network master. Should data be interrupted for more than 15 seconds, the sounder on the MSTR-422 will sound steady and can't be silenced until the network resumes communication.

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FLEX 600 SYSTEM PROGRAMMING

System Firmware

The Flex Systems that are connected to a network require network firmware. This firmware has a menu selection that is not available on the standard firmware. This menu selection allows the installer to assign a node name to the system up to 20 characters long.

Assigning Node Names

From the System Programming Menu select Change, Menu2. The Selections under this menu will include a selection labeled Node. This selection will allow the installer to assign a name to the node that may consist of up to 20 characters. This assignment can be changed from the front panel of the system, the network controller or by connecting a laptop computer to the system.

```
                    Change Menu 2
              1=City 2=Sig Sil 3=Ann 4=Trbl
              5=Dialer 6=Prefix 7=Node 0=Exit
>7

        Current Node Name Is:

        Enter New Node Name:
60 Pleasant St.
Do You Want To Clear Node Name (Y/N)?
N

          New Node Name Is:
            60 Pleasant St.

     Press Any Key To Continue
```

Node Name

The Node name is transmitted to the network controller each time a change of status occurs. This name can be used to give the user an instant reference to the panels location.

Access Level Three

It is possible to access Bypass and Sensitivity Download programming from the SmartNet controller without entering the programming mode. When access level three password is entered, the user will have access to the bypass and sensitivity download menus only.

Sensitivity Download

When detector sensitivity download is selected from the level three access level the SmartNet controller will receive the file and save it on the A:> drive. If there is no disk in the A:> drive the sensitivity will become part of the NODE.TXT file.

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APPENDIX A

Communication Settings

Base Address HEX	COM Port	SW1	SW2	SW3
03F8	COM 1			
03D8	COM 1		**	
03E8 (S1 Default)	COM 3	**		
03C8	COM 3	**	**	
02F8	COM 2			**
02D8	COM 2		**	**
02E8 (S1 & 3 Default)	COM 4	**		**
02C8	COM 4	**	**	**

** Indicates switch closed

IRQ #	SW 4	SW 5	SW 6	SW 7	SW 8
2					**
3				**	
4			**		
5 (S1 Default)		**			
7 (S2 Default)	**				

** Indicates switch closed

▲ ***Note**: S1 is used to select the settings of the JP1 port and S2 is used to select the settings of the JP2 port.*

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APPENDIX B

SmartNet Data stream information

All of the messages sent from the networked FACPs (Nodes) are available for use by external equipment. The Gamewell SmartNet system information consists of straight ascii data from the comm. port of the Network Master Computer. The data stream is transmitted in the following RS-232 structure and format. The data is transmitted from the computer "in the blind", there is no handshaking between the computer and the data receiver. In order for the receiver to supervise the data connection, the computer will send a "heart beat" message every two minutes. The computer cannot detect a device connected to the comm. port. These parameters can be changed in the PRIV.INI file.

COM1	
Transmission speed	**9600 Baud**
Bits	**8**
Parity	**None**
Stop bits	**1**

The message text output will be in the following structure. (sample message)

Node 1
Status:ALARM 1st of 1 08/31/95 16:25
Fire Alarm in Ckt:26 Dev:16
Administration Building
Fire Alarm Heat Detector
1st. Floor Room Number 101

All messages are structured with up to10 basic groups. The first three lines will always be present, the last three lines will only be present when the information they provide is programmed into the FACP.

.

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

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NODE NUMBER:

The Node Number Section will show the number (address) of the FACP where the message originated. Node 0 messages originate from the Network Master computer.
When "Heartbeat" is enabled in the PRIV.INI file, a Node 0 message will be generated every two (2) minutes so the attached equipment can detect that communications with the Master are still active

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

STATUS:

The status section will display the condition of the reporting Node. The word **Status:** will be followed by either **Alarm**, **Fault**, **Normal., Bus, Comm, or Control.**

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

NUMBER OF ALARMS

The number of alarms will be a running count of alarms generated. In an example the first alarm generated will display **1st of 1** the second alarm would generate **2nd**, and the third **3rd**, and so on.

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

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DATE & TIME

The date and time of the event will be in the following format ***Month/day/year hour: minute*** The hour is transmitted in 24 hour format.

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

ACTION

The **ACTION** message determines the type of alarm, fault or control change generated within the node. The following is a list of system generated ACTION messages:

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

Action Messages, System Setup	**Description**
"Skip System I/O Assignments"	System power up
"Begin System I/O Assignments"	System programming itself
"Programming Mode Entered"	Ignore any data from this point until “Exit Program Mode” is received
"Exit Program Mode"	See Programming Mode Entered

Action Messages, Control	**Description**
"Commencing System Reset"	System reset button has been depressed
"System Idle"	System reset completed system is normal
"System Acknowledged"	System Acknowledge button depressed
"Signals Deactivated"	System Signal Silence button depressed Audibles Silencing
"Signals Activated"	System Signal Silence button depressed Audibles reactivating,
"Signals Silenced Automatically"	System automatically silenced the audible signals

Action Messages, Fire Alarm	**Description**
"Fire Alarm in"	The "Fire Alarm in" message is followed by CKT followed by the "circuit number" (I -128). If also an addressable CKT this will be followed by DEV and the "device number" (1-126) See Examples

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Action Messages, Supervisory	Description
"Supv. Alarm in"	The "Supv. Alarm in" message is followed by CKT followed by the "circuit number" (1-128). If also an addressable CICT this will be followed by DEV and the "device number" (l-126) See Examples

Action Messages, Security Alarm	Description
"Security Alarm in"	The "Security Alarm in" message is followed by CKT followed by the "circuit number" (1-128). If also an addressable CKT this will be followed by DEV and the "device number" (1-126) See Examples

Action Messages, Pre Alarm	Description
"Ver. Seq. in"	
"Post Al. Seq. in"	
"Pre-Alarm in"	

Action Messages, Fault	Description
“Node Communication Failure”	Node lost communications with the Master
“Node *X* Communication Failure”	Node 0, Master lost communications with Node *X*
“Node *X* Communication Restored”	Node 0, Master restored communications with Node *X*
“Primary Bus Error”	Break or short in the primary class A cable
“Secondry Bus Error”	Break or short in the secondary class A cable
“Printer fault”	Node 0, Master printer error
"Alarm Tested in"	Message during walk test
"AtoD Malfunction"	System Problem
"LCD Malfunction"	System Problem
"System In Walk Test"	Start partial or Full system walk test mode
"System Out Of Walk Test"	Finished system walk test mode
"System l/Os By Passed"	bypass system circuits or devices
"All By Passed I/Os Cleared"	System not bypassed
"1/0 Bypassed,"	Starts ID of Circuit or point bypassed
"Remote Annunciators Not Responding"	System Problem
"Remote Annunciators OK"	System Problem Restored
"Key Stuck in"	System Problem
"Display Missing for"	System Problem
"Bad Card @ "	System Problem
"Card Missing @	System Problem
"New Card Detected @ "	System Problem
"Out of Memory Assigning"	System Problem
"I/O Restored,"	Supervisory or trouble in circuit that automatically restore themselves will start with this message with IN CKT followed by the "circuit number" (1-128). If also an addressable CKT this will be followed by DEV and the "device number" (I -126) See Examples
"Trouble Tested in"	System Problem
"Trouble in"	System Problem

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"Output Shorted in"	System Problem
"Dup. Dev. in"	System Problem
"Dev. Missing in"	System Problem
"Type Mismatch"	System Problem
"Dev. Dirty in"	System Problem
"No Response from Analog CKT:"	System Problem
"Open/Short in CKT:"	System Problem
"I/O Not Detected @:"	System Problem
"Password Accepted"	System valid password entered
"+5V OK On"	System Problem
"+5V Bad On"	System Problem
"Aux. Supply OK For"	System Problem
"Aux. AC Bad For"	System Problem
"Aux. Batt. Bad For"	System Problem
"Aux. Bad For"	System Problem
"Unknown Event"	System Problem

CIRCUIT NUMBER

The circuit number appears where the word CKT is followed by the "circuit number" (1-131)

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

DEVICE NUMBER

The device number only appears on an addressable circuit where the CKT number is followed by DEV and the "device number" (l-126)

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

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NODE NAME

The Node Name only appears when a Node Name has been assigned to a networked FACP. When determining the source of a message, the Node Number should be used instead of the Node Name because the Node Name can be changed or eliminated**.**

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

UP TO 40 CHARACTERS OF USER DEFINABLE TEXT

The user definable text is used to describe the location of the circuit or device, and is usually job specific. Care should be taken when using this text to initiate other actions, since a dictionary change could alter these messages in a unpredictable fashion. There may be one or two lines of user defined text.

NODE NUMBER		
STATUS	**NUMBER OF ALARMS**	**DATE & TIME**
ACTION	**CIRCUIT NUMBER**	**DEVICE NUMBER**
NODE NAME		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		
UP TO 40 CHARACTERS OF USER DEFINABLE TEXT		

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Sample Messages

SAMPLES	DESCRIPTION
Status: NORMAL 08/31/95 16:19 System Idle	System normal
Status:ALARM I st of l 08/31/95 16:21 Fire Alarm in Ckt:8	First Alarm with no user text
Status:ALARM Total:2 08/31/95 16:21 Fire Alarm in Ckt:7	Second Alarm with no user text
Status:ACK; 08/31/95 16:21 System Acknowledged	System acknowledge button pressed
Status:RESET 08/31/95 16:21 Commencing System Reset	System reset button pressed
Status:FAULT 08/31/95 16:21 Ver. Seq. in Ckt: I Fire Alarm 1 st. Floor Room Number I	Fire Alarm Verification sequence started, not an actual alarm at this point.
Status:NORMAL 08/31/95 16:21 System Idle	System restored to normal mode.
Status:ALARM I st of 1 08/31/95 16:22 Fire Alarm in Ckt: I Fire Alarm 1 st. Floor Room Number I	Alarm in circuit 1
Status:ACK 08/31/95 16:22 System Acknowledged	
Status:RESET 08/31/95 16:22 Commencing System Reset	
Status:NORMAL 08/31/95 16:23 System Idle	

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Status:ALARM I st of 1 08/31/95 16:23 Alarm circuit 2
Fire Alarm in Ckt:2
Fire Alarm Heat Detector
2nd. Floor Corridor 2

Status:ACK 08/31/95 16:23
System Acknowledged

Status:RESET 08/31/95 16:23
Commencing System Reset

Status:NORMAL 08/31/95 16:23
System Idle

Status:ALARM 08/31/95 16:23 Supervisory Alarm circuit 3
Supv. Alarm in Ckt:3
Alarm Tamper Switch
1st. Floor

Status:ACK 08/31/95 16:23
System Acknowledged

Status : RESET 08/31/95 16:24
Commencing System Reset

Status : NORMAL 08/31/95 16:24
System Idle

Status:ALARM 08/31/95 16:24 Supervisory Alarm Circuit 3
Supv. Alarm in Ckt:3
Alarm Tamper Switch
1st. Floor

Status :NORMAL 08/31/95 16:24 Supervisory Alarm automatically restored
I/O Restored, Ckt :3

Status : NORMAL 08/31/95 16:24
System Idle

Status:FAULT 08/31/95 16:24 Verification sequence Circuit 26 device 16 not actual alarm
Ver. Seq. in Ckt:26 Dev: 16
Fire Alarm Heat Detector
I st. Floor Room Number I

Status:ALARM 08/31/95 16:24 Supervisory alarm Circuit 26 device 14
Supv. Alarm in Ckt:26 Dev:14
Sprinkler Tamper Switch
1st. Floor Room Number 1

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Status:NORMAL I/O Restored, Ckt :26 Dev: 14	08/31/95 16:25	Supervisory device automatically restored circuit 26 device 14
Status :NORMAL System Idle	08/31/95 16:25	
Status:ALARM I st of 1 Fire Alarm in Ckt:26 Dev: 16 Fire Alarm Heat Detector I st. Floor Room Number I	08/31/95 16:25	Fire alarm circuit 26 device 16
Status:ACK System Acknowledged	08/31/95 16:25	
Status:SIG SIL Signals Deactivated	08/31/95 16:25	Signals silenced
Status:SIG SIL Signals Activated	08/31/95 16:25	Signals reactivated
Status: RESET Commencing System Reset	08/31/95 16:26	
Status:ALARM Supv. Alarm in Ckt:26 Dev:14 Sprinkler Tamper Switch I st. Floor Room Number I	08/31/95 16:26	Supervisory Alarm circuit 26 device 14
Status:ACK System Acknowledged	08/31/95 16:26	
Status:RESET Commencing System Reset	08/31/95 16:26	
Status:NORMAL System Idle	08/31/95 16:26	
Status:FAULT Aux. AC Bad For Ckt: 11	08/31/95 16:27	Trouble report
Status:FAULT Aux. AC Bad For Ckt: 10	08/31/95 16:27	Trouble report
Status: FAULT Aux. AC Bad For Ckt:9	08/31/95 16:27	Trouble report
Status : FAULT AC input Bad, Value:0	08/31/95 16:27	Trouble report

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Status:NORMAL 08/31/95 16:27 Trouble report restore
AC input OK, Value: 185

Status:NORMAL 08/31/95 16:27 Trouble report restore
I/O Restored, Ckt: 12

Status:NORMAL 08/31/95 16:27 Trouble report restore
I/O Restored, Ckt: 11

Status:NORMAL 08/31/95 16:27 Trouble report restore
I/O Restored, Ckt: 10

Status:NORMAL 08/31/95 16:27 Trouble report restore
I/O Restored, Ckt:9

Status:FAULT 08/31/95 16:27 Trouble report
Batt. Charging, Value: 188

Status :NORMAL 08/31/95 16:28 Trouble report restore
Batt. Charging OK

Status: NORMAL 08/31/95 16:28
System Idle

NODE 0 Printer error at the Master
Status:FAULT 07-09-1998 10:28:04
0: (10:28:04 AM 7-9-98) Printer Fault

NODE 0 Printer fault at the Master was confirmed by the operator, USER_SIX, [Note *****]
Status:CONFIRMED 07-09-1998 10:28:25
0: (10:28:04 AM 7-9-98) Printer Fault*****
USER_SIX

NODE 0 Printer fault notice at the Master was deleted by the operator, USER_SIX (Problem was cleared [Note **-->**])
Status:DELETED 07-09-1998 10:29:15
-->0: (10:28:04 AM 7-9-98) Printer Fault*
USER_SIX

NODE:0 Network master program was halted by operator USER_SIX
Status:CONTROL 07-09-1998 10:31:06
User Terminated Program
USER_SIX

NODE:0 Network master program started
Status:CONTROL 07-09-1998 10:31:17
Network Started

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NODE 1 Status:COMM 7-9-98 10:31:24 AM Node 1: Communications Failure	Communications lost with Node 1
NODE 0 Status:BUS 7-9-98 10:29: AM Primary Bus Error	Break or short in the primary cable was detected at the Master
NODE 0 Status:BUS 7-9-98 10:29: AM Secondary Bus Error	Break or short in the Seconday cable was detected at the Master
Node 2 Status:BUS 7-9-98 10:31:27 AM Primary Bus Error	Break or short in primary cable between Node 1 and Node 2
Node 1 Status:BUS 7-9-98 10:31:27 AM Secondary Bus Error	Break or short in secondary cable between Node 1 and Node 2
Node 0 Status:NORMAL 07-09-`998 14:49:34 System Idle	“Heartbeat” message

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APPENDIX C

Wiring Diagrams

D-W1164	Network System w/MSTR-422 & SIM-422
D-W1164-1	Network System w/MSTR-422 & SIM-422/FIB
D-W1164-2	Network System w/MSTR-FIB & SIM-422/FIB
D-W1164-3	Network System w/MSTR-FIB & SIM-FIB
D-W1164-4	Network System using CP-864SN Line Protectors
A-W538	Cable Connection for MSTR-422
A-M1094-1	AC Connections for SN600-PCxx
A-M1090	Mounting of Network Module in System
A-M1095	Installation of MSTR Card in SN600-PCxx

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