

Driver Manual

FS-8700-98 Notifier NCA

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after March 2021.



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fieldserver

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Contents

1	Description	4
2	Driver Scope of Supply	4
	2.1 Supplied by MSA Safety.....	4
3	Hardware Connections	5
	3.1 FieldServer	5
	3.2 Interconnection of Notifier Devices.....	6
	3.3 Hardware Connection Tips / Hints.....	6
4	Configuring the FieldServer as a Notifier NCA Client	7
	4.1 Panel Status – Data Array Mapping	7
	4.2 Examples: Calculating Array Offset for a Panel	8
	4.3 Data Arrays/Descriptors	8
	4.4 Client Side Connection Descriptions	10
	4.5 Client Side Node Descriptors	10
	4.6 Client Side Map Descriptors	11
	4.6.1 FieldServer Related Map Descriptor Parameters	11
	4.6.2 Driver Related Map Descriptor Parameters	11
	4.7 Map Descriptor Examples	12
	4.7.1 Standard Setup	12
	4.7.2 Declaring Map Descriptors.....	13
	4.7.3 Recording Message Statistics in a Data Array.....	13
5	Advanced Topics	14
	5.1 Message to Data Array Mapping.....	14
	5.2 Notifier NCA Message Types Recognized.....	14
	5.3 System Trouble Messages.....	15
	5.4 Node Status.....	15
	5.5 Driver Limitations and Exclusions	16
6	Troubleshooting	17
	6.1 Connection Tips & Hints	17
	6.2 Networking Tips.....	17
7	Error Messages	18
	7.1 FieldServer Statistics.....	22

1 Description

The NCA (Network Control Annunciator) Serial driver allows the FieldServer to record data from Notifier NCA over RS-232. The FieldServer acts as a Passive Client receiving messages and recording the status of a Notifier NCA Panel. There is no active polling by this driver; the communications are one-way through the panel's printer port; however, the driver can generate some system commands like Ack, Reset, Silence and Drill if the FieldServer is connected to the NCA through its CRT port. The panel **MUST** output messages in English.

This driver is not capable of emulating a Notifier NCA panel and the very limited Server functionality has only been implemented to facilitate FieldServer's Quality Assurance program.

The NCA controls all the devices (for example, NFS-3030 and NFS-640 panels) connected in NOTI*FIRE*NET¹ architecture. Each Fire Alarm Panel connected in NOTI*FIRE*NET¹ architecture is considered as a Node. 240 Nodes can exist on one network. The main purpose of this driver is to record the status of Fire Alarm System detectors and Modules at every Node in Data Arrays – one Data Array per loop per Node.

NCA interacts with other Fire Alarm Panels, records the status of all panels and sends the events to printer and CRT ports. FieldServer captures these events in text form, parses and stores them in Data Arrays. These Data Arrays can be controlled by third party tools. Since the FieldServer does not actively poll for data, the accuracy and timeliness of the data is limited to the frequency of update messages that the Notifier Fire Panel issues.

The NCA can connect to additional NOTIFIER Fire Panels (with the proper network software), namely AFP-200, AFP-400, AFP-1010, AM2020, NFS-640, and NFS-3030. Note that when AFP200's and possibly AFP400's are networked they do not send the 'CLEARED' message for latched points via the NCA so it is not possible to detect cleared points unless a system reset is done.

NOTE: An NCA panel is theoretically capable of configuration with up to 321 180 points. Although the FieldServer can address and access each of these addresses, the point limits prevent the FieldServer from accessing the entire database in any one application. Therefore, ensure that only the point addresses of interest are configured, and that the FieldServer is purchased with the correct point count in mind.

The types of Notifier messages supported by this driver are summarized in **Section 5.1**. A detailed table showing each type of NCA message the FieldServer recognizes and the effect that it has on the status of the points in the Data Array is presented in **Section 5.2**.

Max Nodes Supported

FieldServer Mode	Nodes	Comments
Client	1	Each FieldServer Port can connect to only 1 NCA Panel
Server	0	The NCA driver cannot be used as a Server

2 Driver Scope of Supply

2.1 Supplied by MSA Safety

Part #	Description
FS-8917-16	UTP cable (7 foot) for RS-232 use
	Driver Manual

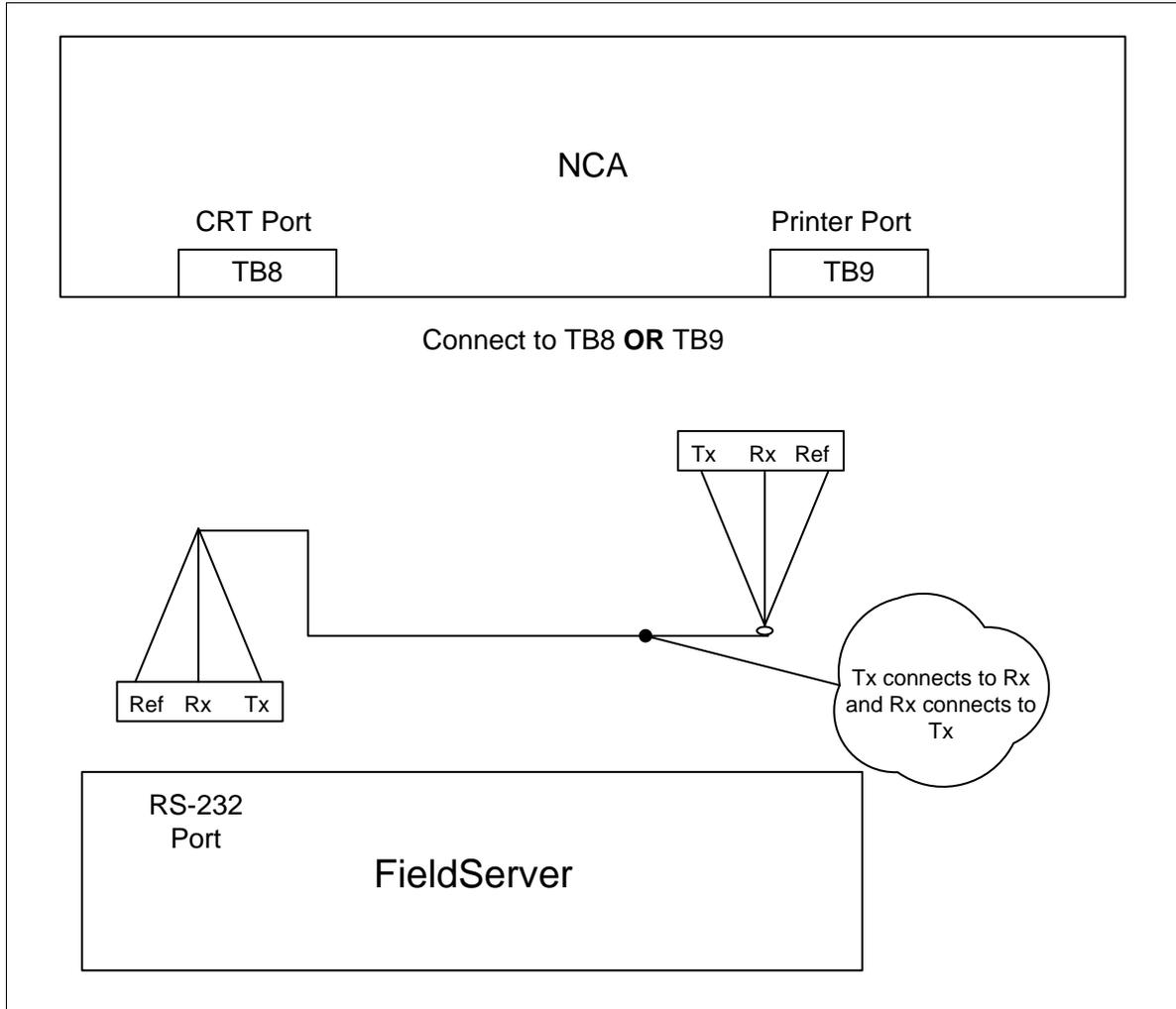
¹ For more detail about NOTI*FIRE*NET architecture contact Notifier Canada Ltd.

3 Hardware Connections

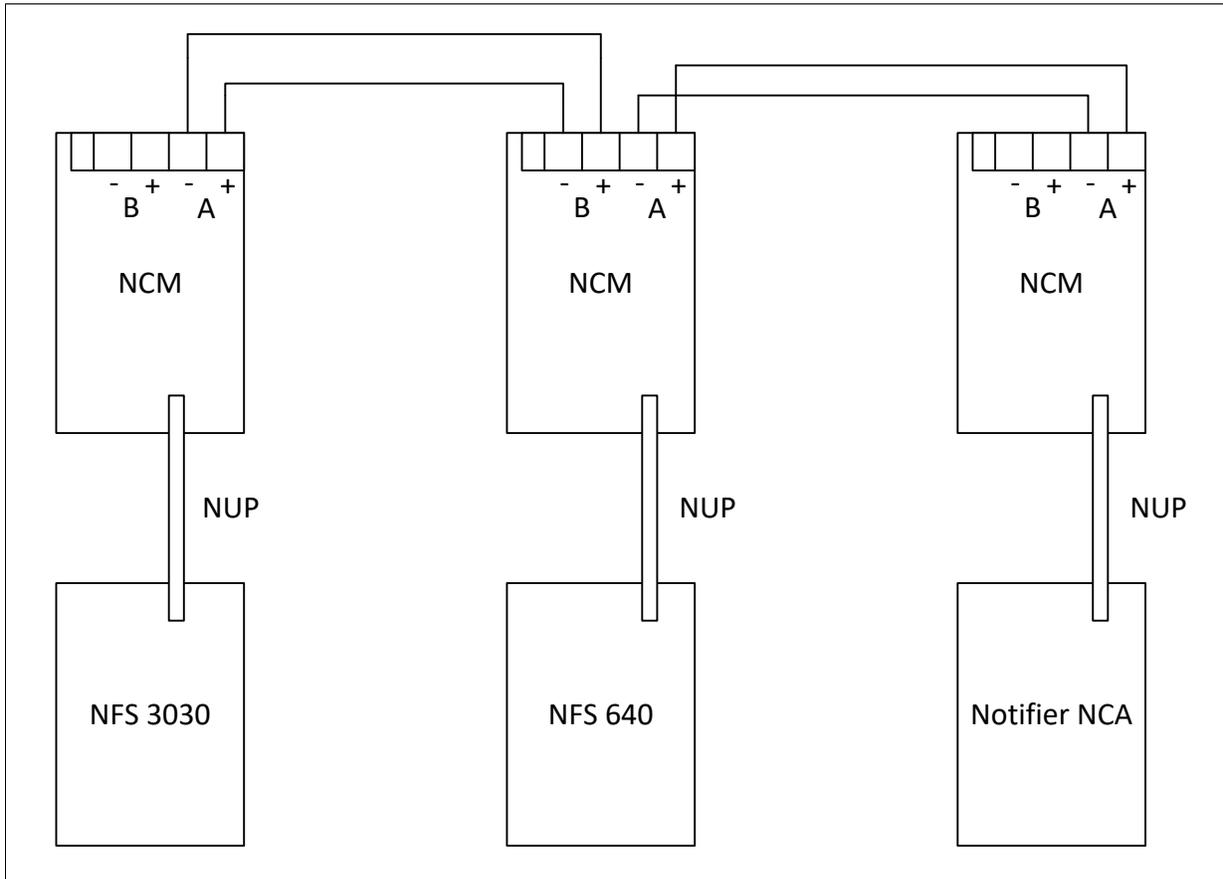
3.1 FieldServer

The FieldServer is connected to the Notifier NCA Fire Panel as shown in the following connection drawing.

Configure the Notifier NCA Fire Panel according to manufacturer's instructions.



3.2 Interconnection of Notifier Devices



3.3 Hardware Connection Tips / Hints

- The FieldServer can be connected to EITHER the TB8 (CRT port) or TB9 (Printer Port).
- If the FS is connected to TB8, the port must be enabled and set to Not Supervised.
- If it is connected to TB9, then the Printer port must be enabled and set 80 columns, Not Supervised and the following Functions will not work, ACK, Signal Silence, System Reset, and Drill.

4 Configuring the FieldServer as a Notifier NCA Client

For detailed information on FieldServer configuration, refer to the FieldServer Configuration Manual. The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer (see “.csv” sample files provided with the FieldServer).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a Notifier NCA Server.

It is possible to connect the Notifier NCA to any of the FieldServer’s RS-232 ports. These ports need to be configured for Protocol="nca" in the configuration file.

4.1 Panel Status – Data Array Mapping

NOTE: All troubles will be recorded as a counter because there may be several troubles for a single device. This counter will be incremented or decremented as additional troubles are reported or cleared.

Parameter	Registers (float)	
{per loop}		
Fire Alarm	0-199 200-399	detectors modules
Trouble - Each point will increment/decrement the number of troubles recorded, system normal will reset the counter to zero	500-799 700-899	detectors modules
PreAlarm	1000-1199 1200-1399	detectors modules
Security Alarm	1500-1799 1700-1899	detectors modules
Supervisory	2000-2199 2200-2399	detectors modules
Disabled	2500-2699 2700-2899	detectors modules
Active	3000-3199 3200-3399	detectors modules
ON/OFF	3500-3699 3700-3899	detectors modules
{system points only}		
System Troubles	0-100	
Fire Alarm	101-196 197-200	Panel Bell
Trouble - Each point will increment/decrement the number of troubles recorded, system normal will reset the counter to zero	201-296 297-300	Panel Bell
PreAlarm	301-396 397-400	Panel Bell
Security Alarm	401-496 497-500	Panel Bell
Supervisory	501-596 597-600	Panel Bell
Disabled	601-696 697-700	Panel Bell
Active	701-796 797-800	Panel Bell

4.2 Examples: Calculating Array Offset for a Panel

The Data Array arrangement is fairly self-explanatory. There is a separate Data Array for each Loop/Node and one extra Data Array per Node. There can be up to 10 loops per Node, and the status of the detectors and modules on any particular loop is recorded in the appropriate section of the Data Array according to the device address.

An extra Data Array will contain status for devices independent of Loops. Panel circuits, Bell Circuits and other troubles related to Nodes.

Examples:

- Prog Mode Activated is assumed be in virtual Loop 11 and this information will be stored in this extra Data Array.
- For a detector N001L01D025 in PREALARM, the address would be 1025 in the Data Array for loop 1 Node 1.
- For a Panel Circuit N002P12.7 in FIRE ALARM the address = $100 + 11 * 8 + 7 = 195$ would be set to 1. Here constant 100 is used because fire alarm address starts after 100. Refer to the table in **Section 4.1**.
- For a Bell Circuit N002B3 in FIRE ALARM the address = $100 + 96 + 3 = 199$ would be set to 1. Here constant 100 is used because fire alarm address, 96 is reserved for Panel Circuits and 3 is the Bell Circuit No.

4.3 Data Arrays/Descriptors

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the FieldServer for Notifier NCA communications, the driver independent FieldServer buffers need to be declared in the “Data Arrays” section, the destination device addresses need to be declared in the “Client Side Nodes” section, and the data required from the Servers needs to be mapped in the “Client Side Map Descriptors” section. Details on how to do this can be found below.

NOTE: In the tables below, * indicates an optional parameter, with the bold legal value as default.

Section Title		
Data_Arrays		
Column Title	Function	Legal Values
Data_Array_Name	Provide name for Data Array “Nca-stats” for Data_Array_Name is reserved for driver internally (Section 7.1).	Up to 15 alphanumeric characters
Data_Array_Format	Provide data format. Each Data Array can only take on one format.	Float, Bit, Byte, Uint16, Uint32, Sint16, Sint32
Data_Array_Length	Number of Data Objects. Must be larger than the data storage area required by the Map Descriptors for the data being placed in this array.	1-10000

Example 1

```
// Data Arrays
Data_Arrays
Data_Array_Name      , Data_Format      , Data_Array_Length
N1Loop_01           , FLOAT            , 4000
N1Loop_02           , FLOAT            , 4000
N1Loop_03           , FLOAT            , 4000
N1Loop_04           , FLOAT            , 4000
N1Loop_05           , FLOAT            , 4000
N2Loop_01           , FLOAT            , 4000
N2Loop_02           , FLOAT            , 4000
N2Loop_03           , FLOAT            , 4000
N2Loop_04           , FLOAT            , 4000
N1_SYSTEM_INFO      , FLOAT            , 1000
N2_SYSTEM_INFO      , FLOAT            , 1000
```

Example 2

An optional feature of this driver is recording message statistics such as "bytes received", "messaging stored", "Acknowledged", "Send Reset", etc. in a Data Array accessible by the user ("Nca-Stats" Data Array). These are statistics provided in addition to the standard statistics displayed on FS-GUI. To invoke this feature, add the following to the configuration file. An example is provided in Client.csv. The statistics recorded are listed in [Section 7.1](#).

```
// NCA Stats
//
Data_Arrays
Data_Array_Name      , Data_Format      , Data_Array_Length
NCA-Stats            , UINT32           , 200
```

4.4 Client Side Connection Descriptions

Section Title		
Connections		
Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer.	P1-P2 ²
Protocol	Specify protocol used.	Nca or Notifier-NCA
Baud*	Specify baud rate.	9600 (Vendor limitation)
Parity*	Specify parity.	None (Vendor limitation)
Data_Bits*	Specify data bits.	8 (Vendor limitation)
Stop_Bits*	Specify stop bits.	1 (Vendor limitation)
Poll_Delay*	Time between internal polls.	N/A

Example

```
// Client Side Connections

Connections
Port          , Protocol      , Baud      , Stop_Bits  , Parity
P1            , nca                , 9600      , 1          , None
```

4.5 Client Side Node Descriptors

Section Title		
Nodes		
Column Title	Function	Legal Values
Node_Name	Provide name for Node.	Up to 32 alphanumeric characters
Node_ID	Station address of any physical Node in NOTI*FIRE*NET network.	1-240
Protocol	Specify protocol used.	Nca; Notifier-Nca
Connection	Specify which port the device is connected to the FieldServer.	P1-P2

Example

```
// Client Side Nodes

Nodes
Node_Name      , Node_ID      , Protocol      , Connection
Panel_1        , 2            , nca           , P1
```

² Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.

4.6 Client Side Map Descriptors

4.6.1 FieldServer Related Map Descriptor Parameters

Column Title	Function	Legal Values
Map_Descriptor_Name*	Name of this Map Descriptor.	Up to 32 alphanumeric characters
Data_Array_Name	Name of Data Array where data is to be stored in the FieldServer.	One of the Data Array names from "Data Array" section above
Data_Array_Offset	Starting location in the Data Array.	0
Function	Function of the Client Map Descriptor.	Passive_Client

4.6.2 Driver Related Map Descriptor Parameters

Column Title	Function	Legal Values
Node_Name	Name of Node to fetch data from.	One of the Node names specified in "Client Node Descriptor" above
Length	Length of the Map Descriptor.	3500 (LOOP_X) 1000 (SYSTEM_INFO)
Address	This parameter has no meaning for this driver.	
Nca_Loop (optional under certain conditions)	Loop number.	1 to 11
Nca_Func (optional under certain conditions)	Special function.	-, ACK, RESET, SILENCE, DRILL, NCA_SIMULATION

* 'IGNORED' for Map_Descriptor_Name is reserved for driver internally.

4.7 Map Descriptor Examples

4.7.1 Standard Setup

This shows the standard Map Descriptors setup for two panels with 5 loops plus a single "system_info" Map Descriptor assigned to loop 11 for each panel.

```
// Client Side Map Descriptors
Map Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_name , Length , Loop
N1Loop_01 , DA_N1Loop_01 , 0 , Passive_Client , Panel_01 , 3500 , 1
N1Loop_02 , DA_N1Loop_02 , 0 , Passive_Client , Panel_01 , 3500 , 2
N1Loop_03 , DA_N1Loop_03 , 0 , Passive_Client , Panel_01 , 3500 , 3
N1Loop_04 , DA_N1Loop_04 , 0 , Passive_Client , Panel_01 , 3500 , 4
N1Loop_05 , DA_N1Loop_05 , 0 , Passive_Client , Panel_01 , 3500 , 5
N2Loop_01 , DA_N2Loop_01 , 0 , Passive_Client , Panel_02 , 3500 , 1
N2Loop_02 , DA_N2Loop_02 , 0 , Passive_Client , Panel_02 , 3500 , 2
N2Loop_03 , DA_N2Loop_03 , 0 , Passive_Client , Panel_02 , 3500 , 3
N2Loop_04 , DA_N2Loop_04 , 0 , Passive_Client , Panel_02 , 3500 , 4
N2Loop_05 , DA_N2Loop_05 , 0 , Passive_Client , Panel_02 , 3500 , 5
N1System_Info , DA_N1System , 0 , Passive_Client , Panel_01 , 3500 , 11
N2System_Info , DA_N2System , 0 , Passive_Client , Panel_02 , 3500 , 11
```

In the above example:

- Data_Array_Name – Select the array for data storage according to the loop id. System data is stored under loop 11.
- Function – All Map Descriptors are passive waiting for a message from the NCA panel.
- Loop – Identify the loop id for which this Map Descriptor will store data.

4.7.2 Declaring Map Descriptors

These Map Descriptors should be declared for sending Acknowledged, Silence, System Reset and Drill commands to NCA Panel.

Nca_Func parameter must be exactly same as described below.

```
// Client Side Map Descriptors

Map Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_name , Length , Nca_Func
Ack , DA_Commands , 0 , WRBX , Nca_panel , 1 , ACK
Silence , DA_Commands , 1 , WRBX , Nca_panel , 1 , SILENCE
Reset , DA_Commands , 2 , WRBX , Nca_panel , 1 , RESET
Drill , DA_Commands , 3 , WRBX , Nca_panel , 1 , DRILL
```

In the above example:

- Function – These Map Descriptors should be WRBX, this means the driver will send a command to Nca only when you update the corresponding offset at DA_Commands Data Array.

4.7.3 Recording Message Statistics in a Data Array

An optional feature of this driver is to record the first valid message that is being ignored by the driver because the user didn't declare a storage location for this information. The user can see the ignored valid message in the ignored Data Array, define the storage location, run again and check for further missing storage locations.

```
Data_Arrays
Data_Array_Name , Data_Format , Data_Array_Length
Ignored , Byte , 200

Nodes
Node_name , Node_ID , Port , Protocol
Ignored , 1 , P1 , nca

Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Length , Nca_Func
IGNORED , Ignored , 0 , Passive_Client , Ignored , 200 , IGNORED
```

5 Advanced Topics

5.1 Message to Data Array Mapping

This driver was designed to be connected to the Notifier NCA printer or CRT port to detect incoming messages. The panel's default setting for the printer port is off. To utilize this driver, the printer port must be enabled to 80-columns, unsupervised.

The primary purpose of this driver is to record the status of devices connected at various panels (Nodes) in NOTI*FIRE*NET architecture by interpreting the text messages sent to the connected port. Not all messages will be interpreted, as many messages do not directly pertain to device status or are not currently supported. The following subset of event messages is recognized.

Active Events:

FIRE ALARM; TROUBLE; PREALARM; SECURITY ALARM; SUPERVISORY; DISABLED; ACTIVE; ON; OFF

A detailed mapping of messages provided by Notifier at the time this driver was written is tabulated below. Any changes or additions by Notifier will not be reflected in this driver unless specifically revised.

5.2 Notifier NCA Message Types Recognized

Event Keyword	Data Arrays Affected	Clearing Event	Notes
Fire Alarm	Modules/Detectors	Cleared Fire Alarm System Normal	states: {1,0}
Trouble	Modules/Detectors System Panel Circuit Bell Circuit	Cleared Trouble System Normal	For point troubles, States:{1,0} For System troubles with only Node address, States: {counter}
Pre Alarm	Detectors	Cleared Pre Alarm System Normal	states: {1,0}
Security Alarm	Modules Panel Circuit	Cleared Security Alarm System Normal	states: {1,0}
Supervisory	Modules	Cleared Supervisory System Normal	states: {1,0}
Disabled	Zones Modules/Detectors Panel Circuit	Cleared Disabled System Normal	states: {1,0}
System Normal	All		Resets all Data Arrays for all Nodes all loops and the system to zero.
System Reset	Reporting Node		Resets all Data Arrays for the reporting Node to zero. Parameter has to be set in the configuration. Disabled by default.
Active	Modules	Cleared Active	states: {1,0}
ON/OFF	Modules/Detectors	OFF System Normal	states: {1,0}

5.3 System Trouble Messages

The following table lists the system troubles theoretically recognized by this driver – not all are tested.

System Trouble	ID #	System Trouble	ID #	System Trouble	ID #
AC FAIL	0	LOADING.NO SERVICE	16	PROGRAM CORRUPTED	32
ADV WALK TEST	1	COMM FAILURE	17	PROG MODE ACTIVATED	33
AUXILIARY TROUBLE	2	MAN EVAC INITIATED	18	SELF TEST FAILED	34
UDACT NO ANSWER	3	MAN EVAC RECEIVED	19	SOFTWARE MISMATCH	35
UDACT TROUBLE	4	MANUAL MODE ENTERED	20	STYLE 4 SHORT	36
BASIC WALK TEST	5	NCM COMM LOSS	21	STYLE 6 POS. LOOP	37
BATTERY	6	NETWORK FAIL PORT A	22	STYLE 6 NEG. LOOP	38
CHARGER FAIL	7	NETWORK FAIL PORT B	23	STYLE 6 SHORT LOOP	39
CORRUPT LOGIC EQUAT	8	NFPA 24HR REMINDER	24	TEST PROGRAM UPDATE	40
DRILL INITIATED	9	NVRAM BATT TROUBLE	25	TM4 TROUBLE	41
DRILL RECEIVED	10	NO DEV. INST ON L1	26	TM4 NO ANSWER	42
EPROM ERROR	11	NO POWER SUPPLY INST	27	TM4 DISABLED	43
EXTERNAL RAM ERROR	12	OFF NETWORK	28	TROUBLE	44
GROUND FAULT LOOP	13	PANEL DOOR OPEN	29	NO ANSWER	45
GROUND FAULT	14	PRINTER OFF LINE	30	SYSTEM RESET	46
INTERNAL RAM ERROR	15	PRINTER PAPER OUT	31		

5.4 Node Status

- Data for any particular Node is valid while that Node is online, and the system is synchronized. Integrity of data for any Node will be lost if the Node goes offline or if synchronism between the FieldServer and the NCA Panel is lost.
- Node status offline/online (1/0) is stored in the 28th offset in the Data Array defined for any Node with loop 11. It is important to read the Node status before reading any information about the Node.
- The On-network message and Off-network message may never be displayed.
- Node status data integrity itself depends upon system synchronization.

5.5 Driver Limitations and Exclusions

- Zone information will not be recorded.
- Synchronization between the NCA panel and the FieldServer can only occur if the FieldServer is reset while the panel is in SYSTEM NORMAL mode.
- Read point status data will not be recorded as this information is not available at the printer/CRT port.
- The printer port must be enabled on the unit and set to 80 columns with NO supervision.
- All data related to non-event driven reports will not be recorded by the FieldServer.
- This driver was written specifically for the following NCA firmware versions. Any changes or additions by Notifier will not be reflected in this driver unless specifically revised.
A002.002.005/B002.002.005
- This driver will not record information about zone status that is incorporated with point status messages.
- This driver is not designed for multi-dropped panels. There can only be one NCA panel connected to any given FieldServer port.
- This driver records data as presented to the printer/CRT port by the Notifier NCA and can only be as accurate as this data.
- The driver can send Ack, Reset, Silence and Drill messages to the NCA Panel if FieldServer is connected to NCA Panel at the CRT port.
- Successful “write message send” for functions such as ack, silence, reset or drill only indicate that the message has been sent. The driver does not acknowledge whether the message was received or acted upon.

6 Troubleshooting

6.1 Connection Tips & Hints

- Trouble connecting to the Notifier printer port may occur if the port has not been enabled. By default, this port is disabled. Check the Notifier Manuals on how to enable this port and ensure that it is set to 80 columns NO supervision.
- If connecting the Panel to one of the FieldServer RS-232 ports causes the FieldServer to reboot, then an Optical Isolator is required to balance ground potential problems.

6.2 Networking Tips

- All the Nodes connected on a network must be running the same version of NOTI*FIRE*NET™ and definitely version 4.0 or higher. Consult Notifier for more information.
- The FieldServer does not take any action on receiving a “SYSTEM RESET” message from the NCA, because when a Node initiates “SYSTEM RESET” by pressing the “RESET” button on the Panel, the NCA sends an individual “CLEAR” message for every point it clears in its memory area. The FieldServer therefore waits for the “CLEAR” message to clear a specific bit in its memory for a particular Node or for the “SYSTEM NORMAL” message to clear all bits bit in its memory for every Node. 'SYSTEM RESET' initiated by a Node will, however, cause an increment at offset 46 of the Data Array corresponding to this Node. Refer to **Section 5.3**.
- It may be advisable to configure NCA to suppress less important “Supervisory” or “Trouble” messages which otherwise could prevent NCA generating “SYSTEM NORMAL” messages. Consult Notifier for this configuration or recommendation.
- Ensure every Node is working with NCA before calling FieldServer for Support.

7 Error Messages

Most error messages are associated with errors in parsing an incoming message from the NCA generally as a result of a mismatch in expected message format. The driver will flag the error message and continue. Typically, the message currently being processed by the driver will also be printed so that any problems can be easily diagnosed.

The System Error Screen displays the error number and the Driver message screen displays the error number, description and the message received from the NCA Panel. In debug mode the System Error screen will also include Driver messages.

The following Error Messages appear upon the 'System Errors' Screen:

- %d means numeric number; %s means string
- Messages number 1, 3, 4 and 51 will be displayed once per FieldServer power cycle

Error	Description	Action
NCA:#1 Err. Incoming data is being abandoned on port %d Node %d loop %d	The FieldServer got a valid message on this particular port, from this particular Node and loop but did not find a defined Map Descriptor.	This message is also recorded on the "Driver Messages" screen and upon the 'IGNORED' Map Descriptor (if defined). Check the Data Array controlled by this Map Descriptor and press 'S' to see bytes in string format. Now define the correct Map Descriptor for storage in the configuration.
NCA: #2 Err. Not Enough Space to Store addr %d for %s	Map Descriptor (%s) is in the configuration file to store current information but address (%d) is out of bounds for the Data Array defined for this Map Descriptor.	The Data Array defined for loops 1-10 should be at least 3500 and for loop 11 at least 1000. Reset if necessary.
NCA:#3 FYI. You could define Md (IGNORED) to store ignored valid msg.	A special Map Descriptor named 'IGNORED' was not defined to store the first valid but ignored message and this message was received by the driver.	Define this Map Descriptor in the configuration file to store the valid ignored message. Based on the contents of this message, action can be taken to remedy the problem.
NCA:#4 FYI. Not Enough Space to Store ignored valid message	There is insufficient storage space on Map Descriptor named 'IGNORED' to store the contents of the valid ignored message.	Set the length of this Data Array to at least 200.

Additional Information

Error	Description	Action
NCA:#5 FYI. Attempted to decrement <0	The driver attempted to decrement the trouble counting number to a number less than 0.	This occurs due to poor synchronization between the FieldServer and the NCA panel or because a problem existed before connection. ³ Will rectify when NCA-stats is updated. "System Normal" message will be returned. Check the last few characters on the driver message to determine which device is causing a problem - NxxxLxxdxxx (Node number, loop number and detector/module number).
NCA:#11 FYI. Event not supported.	Event message received is none of Fire Alarm, PreAlarm, Security, Supervisory, Disabled, Active, System Normal, Network Reset, Network Silence or Network Evac Initiated.	Call for support.
NCA:#11a Err. Event Not handled.	Event message is one of above in err 11 but is not handled.	
NCA:#12 Err. System Trouble Label Not Supported.	Some Node trouble related to loop 11 was not known at the time of development.	
NCA:#13 Err. Node Event Not Supported.	Message is a Node event unsupported at the time of development.	
NCA:#14 Err. Unsupported Device or Address Format.	Message received from an unsupported device or the address of the device is not in the correct format or not at the correct location in the message.	
NCA:#15 Err. Node Id not found for OFF NETWORK	Message is received to indicate that some Node has either gone off or reconnected to the network, but the message may be corrupted, the driver has received no Node number from this message.	
NCA:#21 Err. Illegal Node_ID [%d] -valid range 1-240	One of the Nodes has a Node_ID outside the legal range 1-240.	

³ All Data Arrays on the FieldServer are initialized to zero on rebooting or starting up. A zero value in the Data Array assumes no problems with the devices, but if a problem existed before the startup and the device comes out of problem, the FieldServer will attempt to decrease the number of problems by 1 and this generates the error. Don't trust data from the FieldServer until the "System Normal" message has been returned.

Error	Description	Action
NCA:#22 Err. Illegal MD Function for <%s>	The User most probably defined a Map Descriptor (%s) with 'Read' function.	Check and correct to one of 'wrbc', 'wrb' or 'wrbx' as applicable.
NCA:#23 Err. Illegal MD length <%s>	You have defined Map Descriptor (%s) either having length parameter not defined, set to 0 or less than zero.	Locate this Map Descriptor in the configuration file and change the length to the length of the Data Array which is used by this Map Descriptor.
NCA:#24 Err. Illegal Nca_Func <%s>	You have defined a Map Descriptor(%s) with an illegal value for Nca_Func. This parameter is required for Map Descriptors to be used to send one of these commands to the NCA panel. Normally legal values for this parameter can be one of the following: ACK; SILENCE; RESET; DRILL NCA_SIMULATION is a valid value for the parameter used to test the driver.	Check and correct with applicable value.
NCA:#31 FYI Command not supported on MD <%s>	Value for this parameter is not in range (1-11) for this Map Descriptor(%s). This error is generated only when a Map Descriptor is considered for storages (i.e. if Nca_Func parameter is not defined, otherwise the Map Descriptor is considered to send commands only).	Check and correct to applicable value in configuration file.
NCA:#31 FYI Command not supported on MD <%s>	A Map Descriptor (%s) in the configuration file with a "wrbx" function has an illegal Nca_Func value.	Check and correct either the Nca_Func if intended to use for sending commands (ACK, SILENCE, RESET, DRILL) or delete the Nca_Func parameter if the Map Descriptor is supposed to do storage for device status.
NCA:#32 Err. Test file <%s> not found.	In simulation mode the Map Descriptor name is considered as file name. This was not found.	Check to see that the file actually exists and that it is not already opened in another application.
NCA:#33 Err. Test file <%s> is not %d lines long	In simulation mode this Map Descriptor is intended to send particular lines (message) from this file. The file is not the correct length.	Either add the required number of lines with the correct contents or delete this Map Descriptor if not required.
NCA:#34 Err. Diagnostic line ignored.	The message contained in the Map Descriptor is not going to be sent to the Server.	

Additional Information

Error	Description	Action
NCA:#35 FYI do diagnostic 1	In simulation mode this tests the Driver's ability to handle partial messages – second half missing.	Check that script is passed.
NCA:#36 FYI do diagnostic 2	In simulation mode this tests the Driver's ability to handle partial messages – first half is missing.	
NCA:#37 FYI do diagnostic 3	In simulation mode this tests the Driver's handling capacity for messages with incorrect checksum.	The Driver has no checksum.
Nca:#51 FYI. You could use an Array called <%s> to expose diagnostic info.	A Data Array named "NCA-Stats" was not defined, which is very useful for statistics purposes.	Define this Data Array if required. This message will not be repeated.

7.1 FieldServer Statistics

The following table identifies statistics generated by the Notifier NCA serial driver and their meanings.

Message	Meaning
Messages received	Total number of messages received from the Notifier NCA A message is two lines reporting status.
Bytes received	Total number of bytes received for messages types from the Notifier NCA.
Bytes Sent	Number of Bytes sent to NCA panel.
Protocol Errors	A message could not be parsed or stored correctly.

Additional statistics are available if the NCA-Stats Data Array is declared in the configuration file. (See Data Array examples above). Data Arrays can be viewed by reading the FieldServer's data with another device.

To calculate the address, the following formula should be used:

$$\text{address} = \{\text{statistic Id}\} + \{\text{port \#}\} * \{100 \text{ stats per port}\}$$

The following table lists the additional statistics recorded by this driver. These statistics may be useful in tracing problems and upgrading the capabilities of the driver. Some ID's are not being used currently which may cause discontinuity between ID's but may be useful in future.

Statistic	ID #
Number of bytes sent to NCA	19
Not used	20
Number of messages sent	21
Number of bytes being processed by drivers	25
Number of messages received	26
Total number of bytes received	27
Number of times message with unsupported event received.	28
Number of times messages with invalid address received	29
Number of times message with unsupported trouble label for system info received	30
Number of times known event received but not handled	31
Number of times valid message ignored due to insufficient or lack of storage	32
Number of times driver stored information	33
Number of times 'System Normal' message received	34
Number of times 'Acknowledged' message received	35
Number of times 'Block Acknowledged' message received	36
Number of times 'Network Reset Initiated' message received	37
Number of times 'Network Silence initiated' message received	38
Number of times 'Network Evac initiated' message received	39
Number of times 'Ack' message sent	40
Number of times 'Reset' message sent	41
Number of times 'Silence' message sent	42
Number of times 'Drill' message sent	43