



A Sierra Monitor Company

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8700-90 (Notifier NFS-640 NFS-320 NFS2-640)

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after August 2013

Driver Version: 1.05
Document Revision: 0

TABLE OF CONTENTS

| | | |
|----------|--|-----------|
| 1 | Notifier Onyx™ NFS-640, NFS2-640, NFS-320 Description | 3 |
| 2 | Driver Scope of Supply | 3 |
| 2.1 | Supplied by FieldServer Technologies for this driver | 3 |
| 2.2 | Provided by the Supplier of 3rd Party Equipment | 3 |
| 2.2.1 | <i>Hardware</i> | <i>3</i> |
| 2.2.2 | <i>Required 3rd Party Configuration</i> | <i>3</i> |
| 3 | Hardware Connections..... | 4 |
| 3.1 | Notifier Onyx NFS-640 Panel | 4 |
| 3.2 | Connecting the Notifier Onyx NFS-640/NFS-320 Panel to a RS-232 QuickServer | 5 |
| 4 | Data Array Parameters..... | 6 |
| 5 | Configuring the FieldServer as a Notifier Onyx Client | 7 |
| 5.1 | Client Side Connection Parameters | 7 |
| 5.2 | Client Side Node Parameters | 7 |
| 5.3 | Client Side Map Descriptor Parameters..... | 8 |
| 5.3.1 | <i>FieldServer Related Map Descriptor Parameters</i> | <i>8</i> |
| 5.3.2 | <i>Driver Related Map Descriptor Parameters.....</i> | <i>8</i> |
| 5.3.3 | <i>Map Descriptor Example 1 – Storing Data.....</i> | <i>9</i> |
| | Appendix A. Useful Features..... | 10 |
| | Appendix A.1. Enabling the NFS-640/NFS2-640 CRT Port | 10 |
| | Appendix A.2. Connection to CRT Port | 10 |
| | Appendix A.3. NFS-Polling for Panel Status via CRT Port..... | 11 |
| | Appendix A.3.1. <i>FieldServer Related Map Descriptor Parameters</i> | <i>11</i> |
| | Appendix A.3.2. <i>Driver Related Map Descriptor Parameters</i> | <i>11</i> |
| | Appendix A.3.3. <i>Timing Parameters.....</i> | <i>11</i> |
| | Appendix A.3.4. <i>Map Descriptor Example 2 – Synch the Panel to the FieldServer</i> | <i>12</i> |
| | Appendix A.3.5. <i>Nfs_Clear_On_Sys_Reset - Settings Table.....</i> | <i>12</i> |
| | Appendix B. Troubleshooting..... | 13 |
| | Appendix B.1. Driver Limitations & Exclusions | 13 |
| | Appendix C. Reference..... | 14 |
| | Appendix C.1. Message to Data Array Mapping | 14 |
| | Appendix C.1.1. <i>Panel Status Data Array Mapping.....</i> | <i>14</i> |
| | Appendix C.1.2. <i>Calculating Array Offset for a Given Detector/Module/Zone etc.</i> | <i>15</i> |
| | Appendix C.2. Notifier NFS-640 Message Types Recognized | 16 |
| | Appendix C.3. System Trouble Messages | 19 |
| | Appendix C.4. Driver Error Messages | 21 |
| | Appendix C.5. FieldServer Statistics..... | 22 |

1 NOTIFIER ONYX™¹NFS-640, NFS2-640, NFS-320 DESCRIPTION

The NFS-640 Serial driver allows the FieldServer to record data from Notifier Onyx Series NFS-640, NFS2-640 and NFS-320 Fire Panels over RS-232. The FieldServer primarily acts as a Passive Client receiving unsolicited messages and updating the status of a Notifier Fire Alarm Panel.

The main purpose of this driver is to record the status of Fire Alarm System detectors and modules in a bit oriented Data Array. It is limited by the information that the Notifier Panel broadcasts in the form of text messages through its RS-232 communication port. The accuracy and timeliness of the data is therefore limited by the frequency of update messages that the Notifier Fire Panel issues.

The types of Notifier messages supported by this driver are summarized in Appendix C.1. A detailed table showing each type of panel message the FieldServer recognizes and the effect that it has on the status of points in the data array is presented in Appendix C.2. The device status to the data array mapping is also provided in Appendix C.2.

It is possible to connect through the CRT Port., however the use of this port restricts the use of Notifier Networking, thus a fire panel connected to a Noti-Fire-Net will not be supported. If the CRT port is used, the FieldServer can actively request the status of all points, devices and zones on a periodic basis. This status request is configurable from 5minutes with no upper bounds. Note that communication through this port does not equate to Port Supervision. Refer to Appendix A.1

The panel *must* output messages in English. For Notifier 640 Onyx firmware with Spanish firmware (as sold in Mexico and other Central and South American markets) please refer to the fact sheet 'FST_DFS_Notifier_NFS-640 (Onyx)(Spanish)'

| FieldServer mode | Nodes | Comments |
|------------------|-------|--|
| Client | | This driver is connection oriented - only one Notifier Panel may be connected to any single RS-232 FieldServer port. |

2 DRIVER SCOPE OF SUPPLY

2.1 Supplied by FieldServer Technologies for this driver

| FieldServer Technologies PART # | Description |
|---------------------------------|--------------------|
| FS-8917-16 | RJ45 Pigtail Cable |

2.2 Provided by the Supplier of 3rd Party Equipment

2.2.1 Hardware

| PART # | Description |
|--------|---|
| | Notifier Onyx NFS-640, NFS2-640 or NFS-320 Fire Panel |

2.2.2 Required 3rd Party Configuration

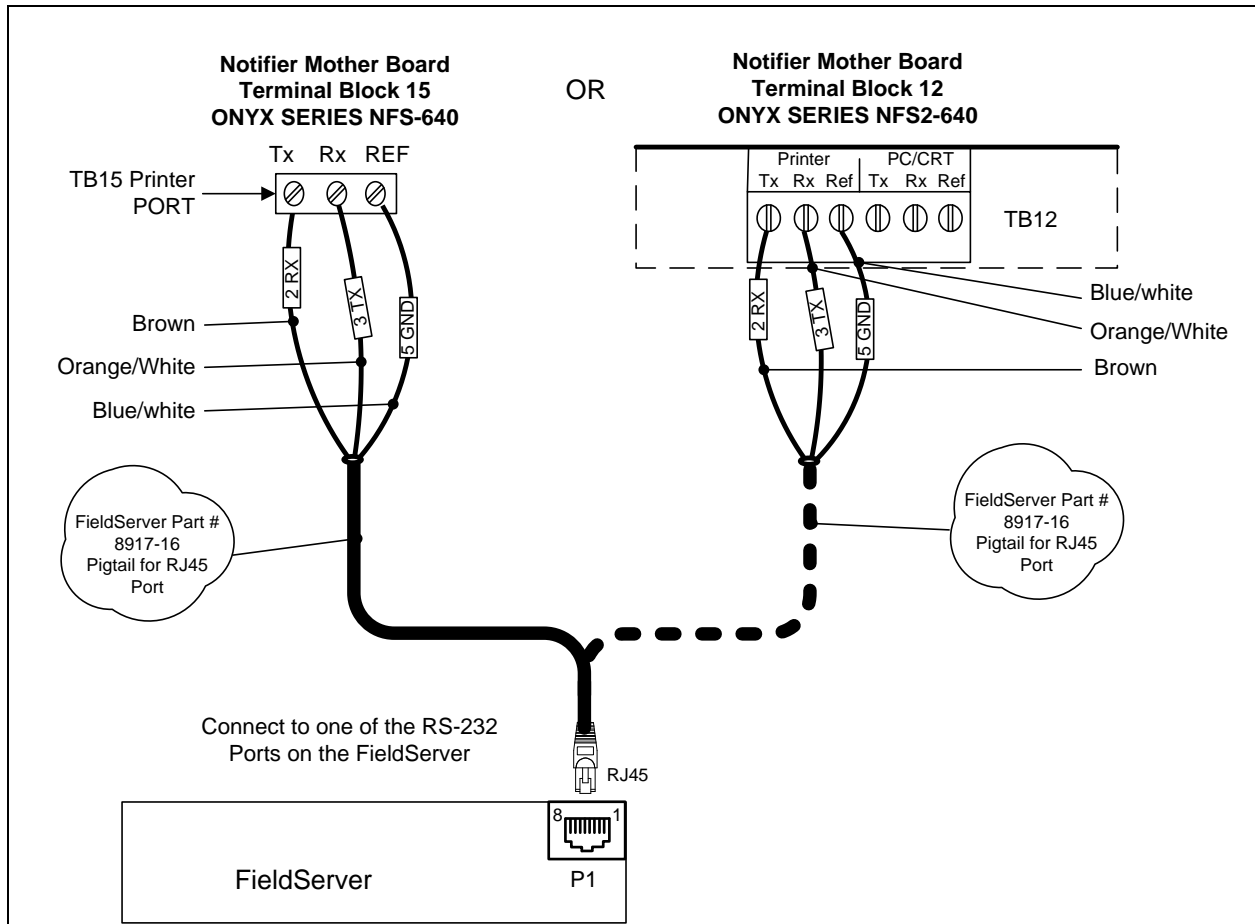
If connection through the CRT port is required then the port needs to be enabled. Refer to Appendix A.1

¹ Onyx is a trademark of Notifier.

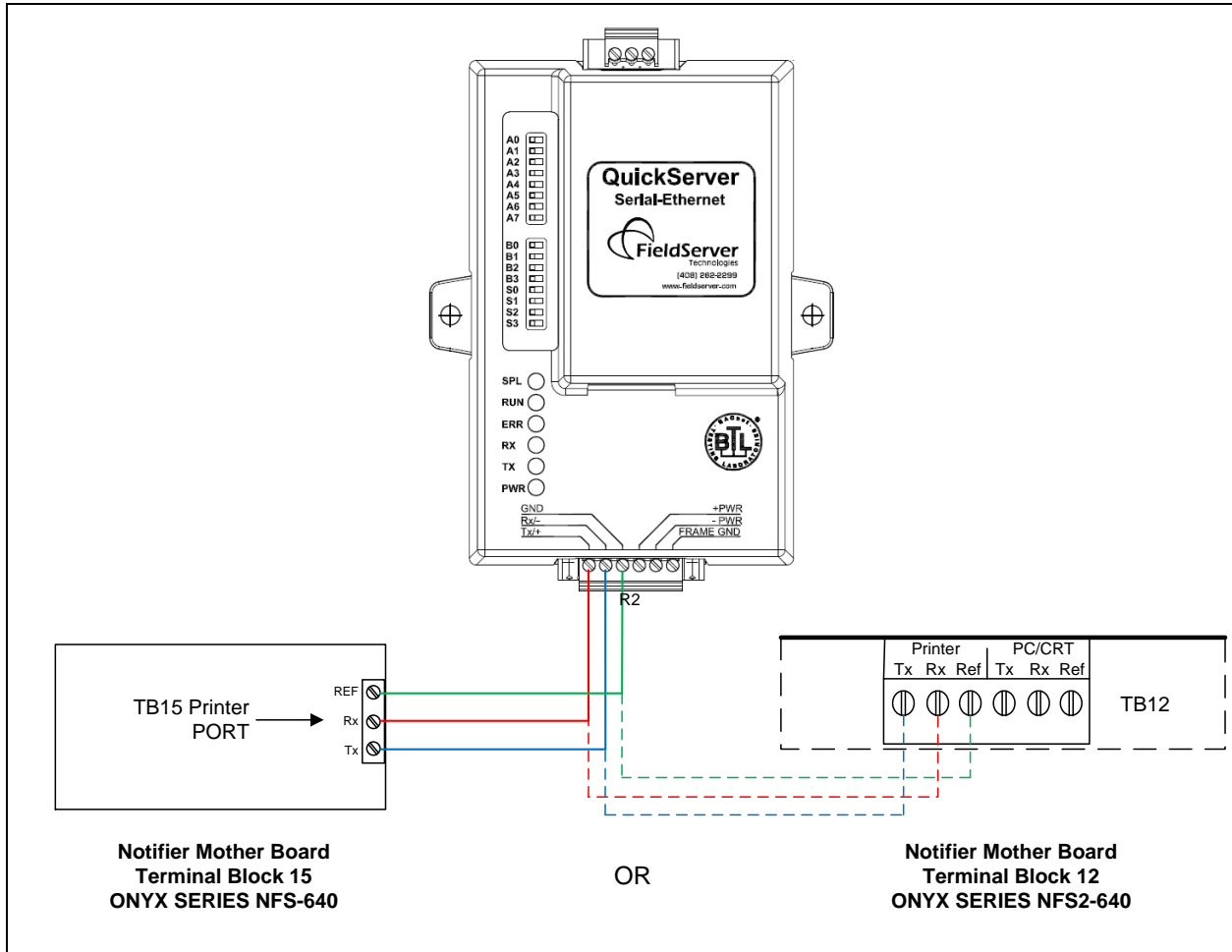
3 HARDWARE CONNECTIONS

3.1 Notifier Onyx NFS-640 Panel

The FieldServer is connected to the Notifier Onyx NFS-640 Panel as shown below. Configure the Notifier Onyx NFS-640 Panel or the NFS2-640 Panel according to manufacturer’s instructions. Note that the recommended connection through the printer port is depicted in the diagram. If preferred, connection can be made through the CRT port. Refer to Appendix A.2 for more information.



3.2 Connecting the Notifier Onyx NFS-640/NFS-320 Panel to a RS-232 QuickServer



4 DATA ARRAY PARAMETERS

Data Arrays are “protocol neutral” data buffers for storage of data to be passed between protocols. It is necessary to declare the data format of each of the Data Arrays to facilitate correct storage of the relevant data.

| Section Title | | |
|-------------------|--|----------------------------------|
| Data_Arrays | | |
| Column Title | Function | Legal Values |
| Data_Array_Name | Provide name for Data Array | Up to 15 alphanumeric characters |
| Data_Array_Format | Provide data format. Each Data Array can only take on one format. | Bit |
| 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. | 4800 |

Example

```
// Data Arrays
Data_Arrays
Data_Array_Name , Data_Array_Format , Data_Array_Length
DA_AI_01 , Bit , 4800
```

5 CONFIGURING THE FIELDSEVER AS A NOTIFIER ONYX CLIENT

For a detailed discussion on FieldServer configuration, please refer to the FieldServer instruction 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 NFS-640, NFS-320 or NFS2-640 Server.

It is possible to connect the Notifier panel to any RS-232 port on the FieldServer. These ports need to be configured for Protocol="nfs" in the configuration files.

5.1 Client Side Connection Parameters

| Section Title | | |
|---------------|---|---------------------------------|
| Connections | | |
| Column Title | Function | Legal Values |
| Port | Specify which port the device is connected to the FieldServer | P1-P8 ² |
| Protocol | Specify protocol used | Nfs, onyx, nfs-320, nfs2-640 |
| 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) |

Example

| | | | |
|------|-------------------------|--------|----------|
| // | Client Side Connections | | |
| Port | , Protocol | , Baud | , Parity |
| P1 | , Nfs | , 9600 | , None |

5.2 Client Side Node Parameters

| Section Title | | |
|---------------|---|----------------------------------|
| Nodes | | |
| Column Title | Function | Legal Values |
| Node_Name | Provide name for Node | Up to 32 alphanumeric characters |
| Node_ID | Unique station address of physical Server Node | 1-255 |
| Protocol | Specify Protocol used | Nfs, onyx, nfs-320, nfs2-640 |
| Connection | Specify through which port the device is connected to the FieldServer | P1-P8 ² |

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.

Example

```
// Client Side Nodes

Nodes
Node_Name , Node_ID , Protocol , Connection
PLC 1 , 1 , Nfs , P8
```

5.3 Client Side Map Descriptor Parameters**5.3.1 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 specified in Section 4 |
| Data_Array_Offset | Starting location in Data Array | 0 |
| Function | Function of Client Map Descriptor | Passive |

5.3.2 Driver Related Map Descriptor Parameters

| Column Title | Function | Legal Values |
|--------------|---|---|
| Node_Name | Name of Node to store data to | One of the Node names specified in Section 5.2 |
| Length* | Length of Map Descriptor. | Large enough to store the required data, 1 |
| Address | Selects Client Map Descriptor functions | 7777 |

5.3.3 Map Descriptor Example 1 – Storing Data.

This is a typical example of a Passive Client Map Descriptor, which only reads incoming messages. All messages will be recorded in the Data Array designated to this port. The Data Array must be of the size designated in Data Arrays above. The offset and length are not used by the driver, but must be set to reasonable values to pass driver validation.

| Map_Descriptor_Name | Data_Array_Name | Data_Array_Offset | Function | Node_Name | Address | Length |
|---------------------|-----------------|-------------------|----------|-----------|---------|--------|
| MD1_Panel1_Data | DA_Panel1 | 0 | Passive | Panel1 | 7777 | 4800 |

The Data Array name where status bits for all messages received on a port will be stored.

The offset is ignored - the driver always uses an offset of zero.

Designates that this Map Descriptor waits for incoming messages and does not poll

There can only be one Node per port. This field indirectly links the FieldServer port to a data storage array. Refer to Section 5.2.

An address of 7777 indicates that this is a passive Map Descriptor used to store data only

Appendix A. Useful Features

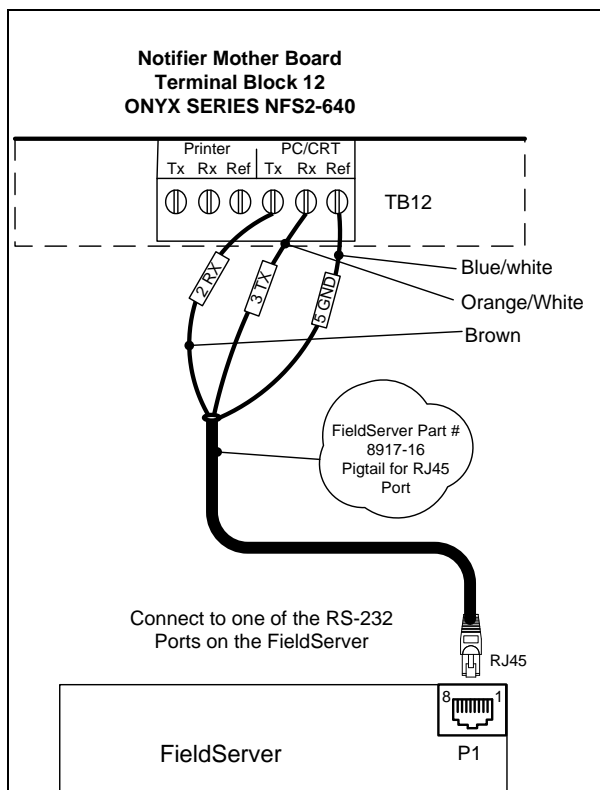
Appendix A.1. Enabling the NFS-640/NFS2-640 CRT Port

Before communication can be achieved through the CRT port, this port needs to be enabled. To enable this port the following steps must be followed:

1. Program the NFS-640/NFS2-640 to communicate through the CRT Port
 - Press "Enter" on the keypad
 - Press "I"
 - Type "CRT96"
 - Press "Enter"
 - Press "Esc" Twice
2. Disable communication through the CRT Port
 - Press "Enter" on the keypad
 - Press "I"
 - Type "NOCRT"
 - Press "Enter"
 - Press "Esc" Twice

Appendix A.2. Connection to CRT Port

The FieldServer is connected to the Notifier NFS2-640 CRT port as shown below.



Appendix A.3. NFS-Polling for Panel Status via CRT Port

When connected to the CRT port of the NFS-640 or NFS2-640 panel, the client can poll the Notifier panel for status, and interpret and record the data from a critical subset of all the messages that the panel generates. The device status is mapped to a bit array in the FieldServer as described below.

Appendix A.3.1. 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 Data Array | 0 |
| Function | Function of Client Map Descriptor | Passive, Rdbc |

Appendix A.3.2. Driver Related Map Descriptor Parameters

| Column Title | Function | Legal Values |
|-------------------------|--|---|
| Node_Name | Name of Node to store data to | One of the Node names specified in "Client Node Descriptor" above |
| Length | Length of Map Descriptor. The length of the active Map Descriptor may be set to 1 as the response data is always stored using the passive Map Descriptor. The length of the passive Map Descriptor must be set to 4800 or greater. | at least 1 (default) |
| Address | Selects Client Map Descriptor functions | 7777 for passive Map Descriptor; 8888 for polling Map Descriptor |
| Nfs_Clear_On_Sys_Reset* | Selects memory area to be cleared on "SYSTEM RESET" | 0 or sum of any combination of 1,2,4,8,16,32,64,128 and 512 Or 32768. Refer to Appendix A.3.5 for more information. |

Appendix A.3.3. Timing Parameters

| Column Title | Function | Legal Values |
|----------------|-------------------------------------|----------------------------|
| Scan_Interval* | Minimum time interval between scans | 0.001s-65535s, 600s |

Appendix A.3.4. Map Descriptor Example 2 – Synch the Panel to the FieldServer.

This Read Status Map Descriptor periodically sends a poll to request point information from the Notifier NFS-640/NFS2-640. The offset and length are not used by the driver but must be set to reasonable values to pass driver validation. Nfs_Clear_On_Sys_Reset is set to 7, and thus Detector, Module and Zone Alarm memory bits will reset on receipt of a “System Reset” message that is generated when the “System Reset” button on the panel is pressed. Note that connection must be via the CRT port.

| | | | | | | |
|---------------------|------------|-------------|-----------|----------|-----------------|--------------------------|
| Map_Descriptor_Name | , Function | , Node_Name | , Address | , Length | , Scan_Interval | , Nfs_Clear_On_Sys_Reset |
| Read_Status | , Rdbc | , Panel1 | , 8888 | , 1 | , 6000s | , 7 |

Designates that the Map Descriptor is a Read Status Poll.

There can only be one Node per port. This field indirectly links the FieldServer port to a data storage array. Refer to Section 5.2..

An address of 8888 indicates that this Map Descriptor is a Read Status Poll.

The data contained in the response to this poll is stored in the passive Map Descriptor described in 5.3.3, therefore the length of this Map Descriptor need only be 1.

Scan Interval defines the time between polls.

Appendix A.3.5. Nfs_Clear_On_Sys_Reset - Settings Table

| Setting | Zone Reset |
|---------|--------------------------------------|
| 0 | All Zones |
| 1 | Detector Alarm (0-399) |
| 2 | Module Alarm (400-799) |
| 4 | Zone Alarms (800-919) |
| 8 | Detector Trouble (1000-1399) |
| 16 | Module Trouble (1400-1799) |
| 32 | Panel Circuit Trouble (1800-1889) |
| 64 | Bell Circuit Trouble (1890-1899) |
| 128 | Detector Pre-Alarm (2300-2699) |
| 256 | System Trouble (4300-4499) |
| 512 | Trouble status Zone (4500-4619) |
| 32678 | Nothing will reset on “SYSTEM RESET” |

If set to the sum of any of the combinations above, all the selected areas will be reset, e.g. if set to 7 = 4+2+1 then Zone alarm(4) , module Alarm(2) and Detector Alarm (1) all will reset.If this keyword is not defined or set to 0 all the above will be reset.

Appendix B. Troubleshooting

- The Notifier CRT Serial port is disabled by default. If the port is not enabled, the FieldServer receives short (8-9 byte) garbage messages and prints `lc_Timeout` errors for each of these messages. Refer to Appendix A.1 for information on enabling this port.
- If some events are not captured by FieldServer or on “SYSTEM RESET” or “SYSTEM NORMAL” some memory bits are not getting reset at the FieldServer. Check the length of the `Data_Arrays` and `Server Map_Descriptors` – they should be set to a minimum of 4800.
- If the FieldServer reboots when connected to the Panel Serial port, then it is likely that an Optical Isolator is required to balance ground potential differences. Such differences have been known to damage the FieldServer serial port, and therefore it is recommended that this action is taken as soon as the symptom is observed.

Appendix B.1. Driver Limitations & Exclusions

This driver depends on the stability of Notifier's CRT and Printer Port messages. Should Notifier modify their message protocol, problems may be experienced with this driver.

The accuracy in recording the Notifier panel status is dependent on synchronization with the FieldServer.

- **For NFS-640:** Upon startup, the FieldServer polls the panel for the status of all points and is then fully synchronized. Event messages sent from the Notifier CRT port will also update the recorded status. Some status changes, e.g. zone information do not result in an explicit message to the CRT port, therefore, the FieldServer's record may not be accurate until the next full read status request.
- **For NFS2-640:** The system reset button on the panel can be pressed to force all existing events to be sent to the FieldServer.

If this driver is connected via the CRT port it cannot support a fire panel connected to a Noti-Fire-Net, as the Network port (NUP port) cannot be used in conjunction with the CRT port.

This driver does not support multi-dropped or networked Notifier panels.

Active event messages such as ALARM: include primary zone information; however, a point device such as a detector or module can be associated with a listing of zones, of which only the first is identified in the message. The status of the zone will be recorded by the driver. For NFS-640/NFS2-640 the status of other zones cannot be updated unless a read point status poll is sent to the panel. Note that this is only possible if connected through the CRT port.

Communication through the CRT port was not designed as a supervised port. Should Notifier wish to make this a supervised port, then this feature can be added to the FieldServer's driver at a later date.

Logic and Evaluating equation status is not recorded by the driver.

A percentage of detector alarms (smoke detectors for instance) is provided in detector status messages but was not implemented in this driver

Appendix C. Reference

Appendix C.1. Message to Data Array Mapping

The primary purpose of this driver is to record the status of devices connected to the Notifier system by interpreting the text messages sent to the RS-232 port. Only messages that directly pertain to device status are recognized. The following table presents the event and read status messages recognized:

| Active Events: | Read Point Status: |
|-----------------------------------|--------------------|
| SYSTEM NORMAL | ON/OFF |
| ALARM: | NORMAL |
| TROUBL/CLR TB | ALARM |
| ACTIVE/CLR ACT | TEST |
| PREALM/CLR PAL | TBL |
| DISABL/ENABLE | |
| TROUBL IN SYSTEM/CLR TB IN SYSTEM | |
| TEST | |
| SYSTEM RESET | |

- Zone status information will be recorded if incorporated with point status messages.
- TEST read point status messages will change the status of a device in the TROUBL Data Array.
- A detailed mapping of message interaction is tabulated below as well as a current listing of System Trouble messages provided by Notifier at the time this driver was written. Any changes or additions by Notifier will not be reflected in this driver unless specifically revised.

Appendix C.1.1. Panel Status Data Array Mapping

| Parameter | Bits | Parameter | Bits |
|---|-------------------------------|--|------------------------|
| Detector Alarm (loop 1) (loop 2) eg 2D001 -> 201 | 0-199 200-399 | Module Alarm (loop1) (loop2) | 400-599 600-799 |
| Zone Alarms (software) (special) (releasing) eg Z01 -> 801 F07 -> 907 R00 -> 910 | 800-899 900-909 910-919 | Panel Circuit Trouble eg P1.1 -> 1811 P8.8 -> 1888 | 1800-1889 |
| Detector Trouble (loop 1) (loop 2) | 1000-1199 1200-1399 | Module Trouble (loop 1) (loop 2) | 1400-1599 1600-1799 |
| Bell Circuit Trouble eg B01 -> 1891 B04 -> 1894 | 1890-1899 | Active Monitor Modules (loop1) (loop2) | 1900-2099 2100-2299 |
| Detector Pre-Alarm (loop 1) (loop 2) | 2300-2499 2500-2699 | Detector Disable (loop 1) (loop 2) | 2700-2899 2900-3099 |

| Parameter | Bits | Parameter | Bits |
|--|-------------------------------------|--|------------------------|
| Module Disable (loop 1) (loop 2) | 3100-3299 3300-3499 | On/Off status Module (loop 1) (loop 2) | 3600-3799 3800-3999 |
| Panel Circuit Disable | 3500-3589 | Bell Circuit Disable | 3590-3599 |
| On/Off status Panel Circuit | 4000-4089 | On/Off status Bell Circuit | 4090-4099 |
| On/Off status Zone (software) (special) (releasing) | 4100-4199 4200-4209 4210-4219 | SystemTrouble 4499 = unknown system trouble 4300+ = listed system troubles | 4300-4499 |
| Trouble status Zone (software) (special) (releasing) | 4500-4599 4600-4609 4610-4619 | Disable Zone (software) | 4700-4799 |

Appendix C.1.2. Calculating Array Offset for a Given Detector/Module/Zone etc.

Example 1: Detector 1 on loop 1 reports as being in alarm.

Detector alarms are stored in 0-399.

Loop 1 detectors are stored in 0-199.

Detector 1 is stored at offset 1. (2nd element in the array).

Example 2: Detector 2 on loop 1 reports as being in alarm.

Detector alarms are stored in 0-399.

Loop 1 detectors are stored in 0-199.

Detector 2 is stored at offset 2. (3rd element in the array.)

Example 3: Detector 2 on loop 2 reports as being in pre-alarm.

Detector pre-alarms are stored in 2300-23699.

Loop 2 detectors are stored in 2500-2699.

Detector 2 is stored at offset 2502. (2503rd element in the array)

Example 4: Special Zone #3 reports as being in alarm.

Zone alarms are stored in 800-919.

Special zones are stored in 900-909.

Special zone #3 alarm status is stored at offset 903. (904th element in the array.)

Example 5: The panel reports that the panel door is open.

Using the table in Appendix C.3 to look up the offset for this message. The relative offset is 12.

Using Appendix C.1.1 : System alarms are stored at offsets 4300-4499.

Thus the door open status is stored at offset 4312 (the 4313rd element in the array).

Appendix C.2. Notifier NFS-640 Message Types Recognized

| | Initiating Function | Status Banner | Data Array | Indication of Clear | Notes: |
|----|--|-----------------------|--|---|---|
| 1 | Scheduled function of the NFS-640 panel, or after a reset | SYSTEM NORMAL | N/A | N/A | |
| 2 | detector or module activates | ALARM: or ALARM | D(2X159) M(2X159) Z(99) F(10) R(10) | SYSTEM NORMAL And SYSTEM RESET | Will also set zone alarm array |
| 3 | detector or module has an electrical or mechanical fault | TROUBL or TEST | D(2X159) M(2X159) Panel(9X9) Bell(4) | CLR TB And SYSTEM NORMAL And SYSTEM RESET | Clear is sent automatically by panel, then system normal is sent if criteria in 2 above is met |
| 4 | monitor module programmed with security code activates | ACTIVE | M(2X159) | SYSTEM NORMAL | Will also set zone alarm array |
| 5 | monitor module programmed with supervisory code activates | ACTIVE | same array as 5 above | SYSTEM NORMAL | |
| 6 | detector exceeds programmed pre-alarm alert or action level | PREALM | D(2X159) | SYSTEM NORMAL or CLR PAL And SYSTEM RESET | Action pre-alarms need to be reset Alert pre-alarms reset themselves and sends sys normal CLEAR not implemented |
| 7 | detector, monitor module, control/relay module or panel circuit has been disabled | DISABL | D(2X159) M(2X159) Panel(9X9) Bell(4) Z(99) | ENABLE or SYSTEM NORMAL or CLR TB | Note can also DISABL zone Note only software zones can be disabled from the panel |
| 8 | monitor modules programmed with non-alarm codes | ACTIVE | same array as 5 above | CLR ACT SYSTEM NORMAL | |
| 9 | monitor modules programmed with equipment trouble codes | TROUBL | same array as 4 above | SYSTEM NORMAL And SYSTEM RESET | when corrected panel removes trouble automatically and sends system normal |
| 10 | Trouble on output circuits for NAC's, panel circuits, or control/relay modules | TROUBL | same arrays as 4 above | SYSTEM NORMAL And SYSTEM RESET | When corrected panel removes trouble automatically and sends system normal |
| 11 | read point status of monitor module, NAC=bell, panel, software zone 'Z', special zone 'F', or releasing zone 'R' | ON | M(2X159) B(4) P(8X8) Z(99) F(10) R(10) | OFF or NORMAL or SYSTEM NORMAL | |

| | Initiating Function | Status Banner | Data Array | Indication of Clear | Notes: |
|----|---|------------------|--|---|--|
| 12 | read point status of a detector | ALARM TEST | <p>same array as 3,4 above</p> <p>ALARM will set alarm point, and zone array</p> <p>TEST will set trouble array for point only</p> <p>ALARM will set alarm array,</p> <p>TEST will set trouble array</p> | <p>NORMAL</p> <p>or</p> <p>SYSTEM NORMAL</p> | |
| 13 | system has trouble see protocol spec appendix B-3 | TROUBL IN SYSTEM | ST(200) | <p>CLR TB IN SYSTEM</p> <p>SYSTEM NORMAL</p> <p>And</p> <p>SYSTEM RESET</p> | see attached table for system trouble messages |
| 14 | from read point status | NORMAL | <p>should clear</p> <p>detector: alarm trouble disable <i>prealarm</i></p> <p>module: alarm trouble disable <i>active on</i></p> | | |
| 15 | from read point status | ON | <p>ON affects: module_on bell_on panel_on z_on f_on r_on</p> <p>ON ignores: evaluation and logic equations in read point status</p> | <p>OFF</p> <p>or</p> <p>NORMAL</p> <p>or</p> <p>SYSTEM NORMAL</p> | |

| | Initiating Function | Status Banner | Data Array | Indication of Clear | Notes: |
|----|------------------------|---------------|--|---------------------|---|
| 16 | from read point status | OFF | <p>these clear different parts of the array depending on the device or zone:</p> <p>module (control/relay): on disable alarm active</p> <p>panel: on disable</p> <p>bell: on disable</p> <p>zone: on disable(for software only!) alarm tbl</p> | | <p>TROUBL arrays except for zone TBL are not affected by OFF.</p> <p>The trouble, clr trouble messages, system normal are expected to clear the TROUBL points</p> |
| 17 | from read point status | TBL | <p>sets zone trouble array or sets control/relay module array but not monitor modules</p> | | <p>note: TROUBL sets detector, monitor module, panel, and bell TBL ignores evaluation and logic equations</p> |
| 18 | clear trouble | CLR TB | <p>resets TROUBL array for D,M,P,B and resets DISABL array for D, M, P, B</p> | | <p>When a zone is disabled, the corresponding points are also disabled When a zone is enabled, the zone message is ENABLE, but for the points is CLR TB</p> |
| 19 | | ENABLE | resets DISABL | | |

Appendix C.3. System Trouble Messages

| message | # | Panel Status Data Array Offset |
|-----------------------|----|--------------------------------|
| "GROUND FAULT" | 0 | 4300 |
| "AC FAIL" | 1 | 4301 |
| "BATTERY" | 2 | 4302 |
| "STYLE 6 POS. LOOP 1" | 3 | 4303 |
| "STYLE 6 POS. LOOP 2" | 4 | 4304 |
| "CORRUPT LOGIC EQUAT" | 5 | 4305 |
| "LCD80 SUPERVISORY" | 6 | 4306 |
| "EPROM ERROR" | 7 | 4307 |
| "INTERNAL RAM ERROR" | 8 | 4308 |
| "EXTERNAL RAM ERROR" | 9 | 4309 |
| "PROGRAM CORRUPTED" | 10 | 4310 |
| "NO DEV. INST ON L1" | 11 | 4311 |
| "PANEL DOOR OPEN" | 12 | 4312 |
| "AUXILIARY TROUBLE" | 13 | 4313 |
| "TERM. SUPERVISORY" | 14 | 4314 |
| "ANNUN. 1 TROUBLE" | 15 | 4315 |
| "ANNUN. 1 NO ANSWER" | 16 | 4316 |
| "ANNUN. 2 TROUBLE" | 17 | 4317 |
| "ANNUN. 2 NO ANSWER" | 18 | 4318 |
| "ANNUN. 3 TROUBLE" | 19 | 4319 |
| "ANNUN. 3 NO ANSWER" | 20 | 4320 |
| "ANNUN. 4 TROUBLE" | 21 | 4321 |
| "ANNUN. 4 NO ANSWER" | 22 | 4322 |
| "ANNUN. 5 TROUBLE" | 23 | 4323 |
| "ANNUN. 5 NO ANSWER" | 24 | 4324 |
| "ANNUN. 6 TROUBLE" | 25 | 4325 |
| "ANNUN. 6 NO ANSWER" | 26 | 4326 |
| "ANNUN. 7 TROUBLE" | 27 | 4327 |
| "ANNUN. 7 NO ANSWER" | 28 | 4328 |
| "ANNUN. 8 TROUBLE" | 29 | 4329 |
| "ANNUN. 8 NO ANSWER" | 30 | 4330 |
| "ANNUN. 9 TROUBLE" | 31 | 4331 |
| "ANNUN. 9 NO ANSWER" | 32 | 4332 |

| message | # | Panel Status Data Array Offset |
|----------------------|----|--------------------------------|
| "ANNUN.10 TROUBLE" | 33 | 4333 |
| "ANNUN.10 NO ANSWER" | 34 | 4334 |
| "ANNUN.11 TROUBLE" | 35 | 4335 |
| "ANNUN.11 NO ANSWER" | 36 | 4336 |
| "ANNUN.12 TROUBLE" | 37 | 4337 |
| "ANNUN.12 NO ANSWER" | 38 | 4338 |
| "ANNUN.13 TROUBLE" | 39 | 4339 |
| "ANNUN.13 NO ANSWER" | 40 | 4340 |
| "ANNUN.14 TROUBLE" | 41 | 4341 |
| "ANNUN.14 NO ANSWER" | 42 | 4342 |
| "ANNUN.15 TROUBLE" | 43 | 4343 |
| "ANNUN.15 NO ANSWER" | 44 | 4344 |
| "ANNUN.16 TROUBLE" | 45 | 4345 |
| "ANNUN.16 NO ANSWER" | 46 | 4346 |
| "ANNUN.17 TROUBLE" | 47 | 4347 |
| "ANNUN.17 NO ANSWER" | 48 | 4348 |
| "ANNUN.18 TROUBLE" | 49 | 4349 |
| "ANNUN.18 NO ANSWER" | 50 | 4350 |
| "ANNUN.19 TROUBLE" | 51 | 4351 |
| "ANNUN.19 NO ANSWER" | 52 | 4352 |
| "ANNUN.20 TROUBLE" | 53 | 4353 |
| "ANNUN.20 NO ANSWER" | 54 | 4354 |
| "ANNUN.21 TROUBLE" | 55 | 4355 |
| "ANNUN.21 NO ANSWER" | 56 | 4356 |
| "ANNUN.22 TROUBLE" | 57 | 4357 |
| "ANNUN.22 NO ANSWER" | 58 | 4358 |
| "ANNUN.23 TROUBLE" | 59 | 4359 |
| "ANNUN.23 NO ANSWER" | 60 | 4360 |
| "ANNUN.24 TROUBLE" | 61 | 4361 |
| "ANNUN.24 NO ANSWER" | 62 | 4362 |
| "ANNUN.25 TROUBLE" | 63 | 4363 |
| "ANNUN.25 NO ANSWER" | 64 | 4364 |
| "ANNUN.26 TROUBLE" | 65 | 4365 |

| message | # | Panel Status Data Array Offset |
|------------------------|----|--------------------------------|
| "ANNUN.26 NO ANSWER" | 66 | 4366 |
| "ANNUN.27 TROUBLE" | 67 | 4367 |
| "ANNUN.27 NO ANSWER" | 68 | 4368 |
| "ANNUN.28 TROUBLE" | 69 | 4369 |
| "ANNUN.28 NO ANSWER" | 70 | 4370 |
| "ANNUN.29 TROUBLE" | 71 | 4371 |
| "ANNUN.29 NO ANSWER" | 72 | 4372 |
| "ANNUN.30 TROUBLE" | 73 | 4373 |
| "ANNUN.30 NO ANSWER" | 74 | 4374 |
| "ANNUN.31 TROUBLE" | 75 | 4375 |
| "ANNUN.31 NO ANSWER" | 76 | 4376 |
| "ANNUN.32 TROUBLE" | 77 | 4377 |
| "ANNUN.32 NO ANSWER" | 78 | 4378 |
| "NETWORK FAIL PORT A" | 79 | 4379 |
| "NETWORK FAIL PORT B" | 80 | 4380 |
| "NCM COMM FAILURE" | 81 | 4381 |
| "ADV WALK TEST" | 82 | 4382 |
| "CHARGER FAIL" | 83 | 4383 |
| "GROUND FAULT LOOP2" | 84 | 4384 |
| "STYLE 6 NEG. LOOP 1" | 85 | 4385 |
| "STYLE 6 NEG. LOOP 2" | 86 | 4386 |
| "GROUND FAULT LOOP1" | 87 | 4387 |
| "UDACT TROUBLE" | 88 | 4388 |
| "UDACT NO ANSWER" | 89 | 4389 |
| "PROG MODE ACTIVATED" | 90 | 4390 |
| "LOADING..NO SERVICE" | 91 | 4391 |
| "BASIC WALK TEST" | 92 | 4392 |
| "NFPA 24Hr. REMINDER" | 93 | 4393 |
| "BAT. BACKUP RAM" | 94 | 4394 |
| "Master Box trouble" | 95 | 4395 |
| "Detector Initialize" | 96 | 4396 |
| "Pwr.Supply Comm Fail" | 97 | 4397 |
| "Release Dev. Disable" | 98 | 4398 |

| message | # | Panel Status Data Array Offset |
|-------------------------|-----|--------------------------------|
| "DVC Ext Ram Error" | 99 | 4399 |
| "DVC Program Corrupt" | 100 | 4400 |
| "DVC Loading No Serv" | 101 | 4401 |
| "DVC NVRam Batt Tbl" | 102 | 4402 |
| "DVC Buzzer Off-Line" | 103 | 4403 |
| "DVC Self Test Fail" | 104 | 4404 |
| "DVC Soft. Mismatch" | 105 | 4405 |
| "DVC Aux.Trouble" | 106 | 4406 |
| "DVC FFT Trouble" | 107 | 4407 |
| "Drill activated" | 108 | 4408 |
| "Network Incompatible" | 109 | 4409 |
| "DVC Rem. Mic. Tbl." | 110 | 4410 |
| "DVC Local Mic. Tbl." | 111 | 4411 |
| "DVC Local Phone Tbl" | 112 | 4412 |
| "DVC Analog Out.1 Tbl" | 113 | 4413 |
| "DVC Analog Out.2 Tbl" | 114 | 4414 |
| "DVC Analog Out.3 Tbl" | 115 | 4415 |
| "DVC Analog Out.4 Tbl" | 116 | 4416 |
| "DVC Flash Image Err" | 117 | 4417 |
| "DVC Database Corrupt" | 118 | 4418 |
| "DVC Audio Lib.Corrupt" | 119 | 4419 |
| "DVC Dbase Incompat" | 120 | 4420 |
| "DVC Audio Lib Incomp" | 121 | 4421 |
| "DVC DAA Downloading" | 122 | 4422 |
| "HS_NCM Sniffer Activ" | 123 | 4423 |
| "Exceeded Conn. Limit" | 124 | 4424 |

Appendix C.4. Driver Error Messages

Most error messages are associated with errors in parsing an incoming message from the NFS-640. The most likely cause is a mismatch in expected message format. The driver will flag one of the following error messages and continue.

Timeout Errors are related to a lack of response by the Notifier panel to read poll status polls, or due to internal timing anomalies of the FieldServer. If a Timeout error message is displayed then the error is most likely external. Check your connections.

Checksum Errors are recorded for messages that are incomplete. Review the message that was discarded, and call support if this event occurs repeatedly, or if the message was incorrectly ignored.

The following table lists possible error messages produced by this driver.

| Error Message | Corrective Action |
|---|-------------------------------------|
| NFS640#2: Err. Illegal Map Descriptor length - defaulting to 1 | check configuration file settings |
| NFS640#3: Err. Diagnostic line ignored. | call support, developers diagnostic |
| NFS640#4: Err. Test file <%s> not found. | call support, developers diagnostic |
| NFS640#5: Err. parsing NORMAL | See Note 1. |
| NFS640#6: Err. storing NORMAL | See Note 1. |
| NFS640#7: Err. parsing ALARM: | See Note 1. |
| NFS640#8: Err. parsing ALARM: | See Note 1. |
| NFS640#9: Err. storing ALARM: | See Note 1. |
| NFS640#10: Err. parsing ACTIVE | See Note 1. |
| NFS640#11: Err. storing ACTIVE | See Note 1. |
| NFS640#12: Err. parsing CLR ACT | See Note 1. |
| NFS640#13: Err. storing CLR ACT | See Note 1. |
| NFS640#14: Err. parsing PREALM | See Note 1. |
| NFS640#15: Err. storing PREALM | See Note 1. |
| NFS640#16: Err. parsing CLR PAL | See Note 1. |
| NFS640#17: Err. storing CLR PAL | See Note 1. |
| NFS640#18: Err. parsing DISABL | See Note 1. |
| NFS640#19: Err. storing DISABL | See Note 1. |
| NFS640#20: Err. parsing ENABLE | See Note 1. |
| NFS640#21: Err. storing ENABLE | See Note 1. |
| NFS640#22: Err. parsing ON | See Note 1. |
| NFS640#23: Err. storing ON | See Note 1. |
| NFS640#24: Err. parsing OFF | See Note 1. |
| NFS640#25: Err. storing OFF | See Note 1. |
| NFS640#26: Problems parsing TROUBL IN SYSTEM, recorded as 'unknown' trouble | See Note 1. |
| NFS640#27: Err. storing TROUBL IN SYSTEM | See Note 1. |
| NFS640#28: Err. parsing CLR TB IN SYSTEM | See Note 1. |
| NFS640#29: Err. storing CLR TB IN SYSTEM | See Note 1. |

| Error Message | Corrective Action |
|--|--|
| NFS640#30: Err. parsing TROUBL or TEST | See Note 1. |
| NFS640#31: Err. storing TROUBL or TEST | See Note 1. |
| NFS640#32: Err. parsing CLR TB | See Note 1. |
| NFS640#33: Err. storing CLR TB | See Note 1. |
| NFS640:#34 Err. Incoming data is being abandoned on port %d. MapDesc's are required to define storage. | Check that the Notifier is connected to the correct serial port defined in the csv's |
| NFS640#35: Err. parsing TBL | See note 1. |
| NFS640#36: Err. storing TBL | See note 1. |
| NFS640#37: Warning. Incomplete message. | review message and call support if necessary |
| NFS640#38: Err. No response to read point status poll | Check connections to the Notifier panel, call support if message persists. Note, the Notifier panel will not respond if in programming mode, so some no response messages may occur if the FieldServer polls the Notifier panel in this mode. This functionality is only possible if connected through the CRT port. |
| NFS640#39: FYI. Defaulting MD scan_interval to 10 min | If required update config if with appropriate scan_interval |
| NFS640#40: FYI. Minimum recommended scan_interval is %ds | |

Note 1: These errors are produced when the driver is unable to parse a message correctly. This could happen if 1) the message is corrupted or 2) the message contains keywords not recognized by the driver or the message structure is different to what was expected. If the cause is the latter then you need to take a log and send the log together with your configuration CSV file when reporting this problem to tech support. If you get one of these errors on rare occasions then the source of the error is likely to be a corrupted message.

Appendix C.5. FieldServer Statistics

The following table identifies statistics generated by the Notifier Onyx NFS-640 serial driver and their meanings.

| Message | Meaning |
|-------------------|--|
| Read message sent | Total number of messages sent for reading the status of all Notifier panel points. Each time an active poll is made, expect this stat to increase by 2 as the protocol requires two messages to complete this request. |
| Bytes sent | Total number of bytes sent by all read point status polls to the Notifier panel. |
| Message received | Total number messages of all types received from the Notifier panel A message is a single line reporting status. |
| Bytes received | Total number of bytes received by all message types from the Notifier panel. |
| Ignored messages | Total number of messages ignored by the driver because an appropriate Map Descriptor could not be found or the type of message is not currently relevant. |
| IC timeout Errors | Total number of inter-character timeouts that have occurred. |
| Protocol Errors | A message could not be parsed or stored correctly. |