FieldServer
Technologies

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8700-105
National Time & Signal FACP
(Fire Alarm Control Panel) Driver

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after May 1, 2001

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1.   National Time & Signal FACP Driver Description

Fire Alarm Control Panels (FACPs) are manufactured by the National Time and Signal Corp. The series 900 and 902 FACP's can be purchased with a 'BACnet' interface option. When suitably equipped and when this interface is enabled, the FACPs can transmit data to a FieldServer which can, in turn, make this data available to other devices including devices which are capable of communicating using the BACnet and other protocols.

This driver is a passive client driver. This means that the driver does not actively poll for data but listens passively for data to be sent by the FACP's that it is connected to. Messages sent by the panel are either ignored stored by the FieldServer based on panel status. How these messages are processed is dependent on the configuration.

No automatic panel data synchronization technique exists. The data in the FieldServer and the panel status have to be synchronized manually.

This is a serial driver. Data is transferred using RS-232 or RS-485 (with converter).

The driver provides both client and server emulation. The server side of the driver is intended to support FieldServer's Quality Assurance program and is not intended to provide complete emulation of a FACP. Thus the server side is not fully documented. However, at a customer's request the server side functionality can be documented and enhanced. If you are interested in this functionality, then please contact FieldServer's sales group.

Max Nodes Supported

FieldServer Mode	Nodes	Comments
Client	1	One such connection can be made per FieldServer port.
Server		Server emulation provided for QA purposes only. Not supported or documented except at customer request.

2. Driver Scope of Supply

1.01   Supplied by FieldServer Technologies for this driver

FieldServer Technologies PART #	Description
FS-8917-16	RJ45 pigtail cable.
FS-8700-105	Driver Manual.

3.   Hardware Connections

The FieldServer is connected to the 'BACnet' port of the FACP as shown in connection drawing.
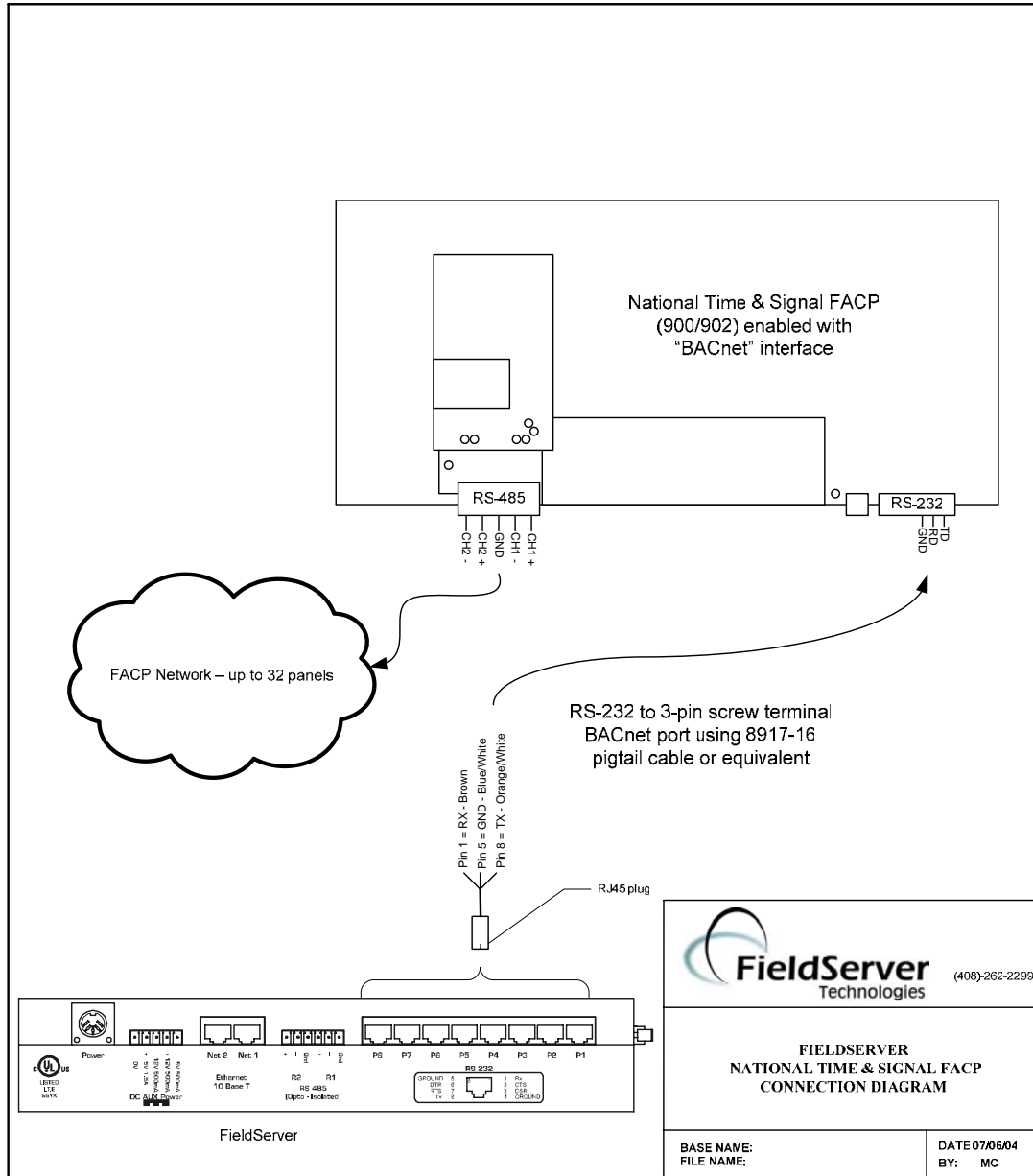
1.02   Connection Notes

   A FACP network consists of up to 32 panels. One of those panels acts as the network interface by means of its 'BACnet' interface port. This interface serves data to the FieldServer by means of a serial connection. Each one of these connections requires exclusive use of a FieldServer port. Thus, only one network of FACP's can be connected to one FieldServer serial port.

4.   Configuring the FieldServer as a National Time & Signal FACP Client

For a detailed discussion on FieldServer configuration, please 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 FS).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a National Time & Signal FACP Server.

1.03   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 National Time & Signal FACP driver 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 that in the tables, * indicates an optional parameter, with the bold legal value being the default.

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.	Float, Bit, UInt16, SInt16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
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.	1-10,000

Example

// Data Arrays		
Data_Arrays		
Data_Array_Name,	Data_Format,	Data_Array_Length,
DA_AI_01,	UInt16,	200
DA_AO_01,	UInt16,	200
DA_DI_01,	Bit,	200
DA_DO_01,	Bit,	200

1.04   Client Side Connection Descriptions

Section Title	
Connections	

Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer	P1-P8[1]
Protocol	Specify protocol used	National_Time_FACP, National_Time_Fire, natsco_facp
Baud*	Specify baud rate	9600 Baud (Vendor limitation)
Parity*	Specify parity	None (Vendor limitation)
Data_Bits*	Specify data bits	8 (Vendor limitation)
Stop_Bits*	Specify stop bits	1 (Vendor limitation)
Handshaking*	Specify hardware handshaking	**None**
NATSfacp_Timeout*	Specify a time in seconds. The driver reports the connection as being offline when a new valid message has not been received on the connection during this interval. Each time one is received the interval is restarted. If this parameter is omitted then the driver assumes a period of 180 seconds.	**0-600 seconds. Default = 180Secs.**
NATSfacp_Status_DA*	Use this parameter to specify a Data Array. The Data Array need only contain one element as only the 1st element is used for the connection status. If the connection is 'online' then the 1st element is set to 1. If the connection is offline then the 1st element is set to zero. We recommend that the Length of the DA be set to 33. One element for the connection status and the other 32 elements for Node / Panel Status. Further information is provided in Appendix A.7	Up to 15 alphanumeric characters

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[1] 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 Connections


Connections
Port,   Protocol,                 Baud,   Parity,   NATSfacp_Timeout,   NATSfacp_Status_DA
P8,     National_Time_Fire,  9600,   None,    120s,                    DA_NATS_STATUS1
```

1.05   Client Side Node Descriptors

Create one node for each panel connected to the National Time & Signal Network. You can have multiple nodes on the same port.

Section Title		
Nodes		
Column Title	**Function**	**Legal Values**
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	This parameter is used to specify the PANEL number.	1-32
Protocol	Specify protocol used	National_Time_FACP, National_Time_Fire, natsco_facp
Connection	Specify which port the device is connected to the FieldServer	P1-P8[2]

Example

```
//   Client Side Nodes


Nodes
Node_Name,          Node_ID,          Protocol,            Connection
Panel1,             1,                National_Time_FACP,  P1
Panel2,             2,                National_Time_FACP,  P1
```

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[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.

1.06   Client Side Map Descriptors

4.1.1.   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 to maximum specified in "Data Array" section above
Function	Function of Client Map Descriptor	RDBC, WRBC, WRBX

4.1.2.   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
Data_Type	You must specify one of the 4 choices. If the 'Any' type is used then all messages will be stored using the MD irrespective of the Data Type. Do not create two MD's with all parameters the same except that one has a specific Data Type and the other has 'Any'. The driver can only store data in one MD.	Alarm Trouble Supervisory Other Any
Board	The Board Number. One set of Map Descriptors required for each board.	1, 2, 3 etc...
Loop	The Loop number on the Board. One set of Map Descriptors required for each loop.	1,2,3 etc
Port-Type	Use one of the 4 permitted values shown on the right. You can abbreviate the port-types to use the 1st character.	Input; Output; Fault; P(Other)
Address	The address and length are used to specify a range of Port Numbers. Think of the Address as a synonym for port. Starting address of read block	1,2, 3 … etc

Length	Length of Map Descriptor. Specifies the number of ports processed by the MD. Thus if address is 1 and length is 10 the Map Descriptor processes ports 1... 9 inclusive.	1, 2, 3 etc. Ensure that the length added to the offset is no greater than the Data Array length.
Sub-Port-Type	Set this parameter to 'None' to store data for a range of ports which do not have sub-ports. To store data for a specific port, set the sub-port type appropriately. If the sub-port-type is 'Other', it must be specified in the configuration file as 'S(Other)' or 'S'. Only the first character is used, therefore the configuration may omit the rest of the term (e.g. it is sufficient to specify 'I' for 'Input')	Input; Output; Fault; S(other); None
Sub-Port	May be omitted if sub-port-type=None.	1,2,3 etc

4.1.3. Timing Parameters

Scan_Interval	This commonly used parameter has no meaning for this driver as the driver is a passive client driver and does not poll for data.

4.1.4.   Map Descriptor Example 1 – Port has no Sub-Ports.

This Map Descriptor is used to store messages from 'Panel2' if they meet the following criteria

Panel Number	= Node 'Panel2''s Node_ID
Board	= 1
Loop	= 2
Port-Type	= Inputs
Port	= 1 to 100 (Address and length parameters)
Data_Type	= Alarms

Typically you will create one MD for each of the 4 data types for each Panel/Board/Loop/Port-Type/Port combination. Only messages which report trouble allocated to the 'Alarm' category will update the DA below. Appendix A.4 provides more information on which messages are allocated to each data type.

If any of the Port's has a sub-port then additional MD's must be created because the Sub-Port_Type = None.

Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Offset,	Function,	Node_Name	Board	Loop	Data_Type	Port_Type	Address	Length	Sub-Port_Type
P2B3L4_ia,	P2B3L4_iA ,	0,	Passive_Client ,	Panel2 ,	1	2	Alarms	Input	0,	100	None

Driver cannot poll. Always use this keyword.

Address is a synonym for 'Port'. Use the length to tell the driver the Port range

4.1.5.   **Map Descriptor Example 2 – Port has Sub-Ports.**

This Map Descriptor is used to store messages from 'Panel2' if they meet the following criteria

Panel Number	= Node 'Panel2's Node_ID
Board	= 1
Loop	= 2
Port-Type	= Inputs
Port	= 20
Data_Type	= Alarms
Sub-Port-Type	= Output
Sub-Port-Number	= 1

Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Offset,	Function,	Node_Name,	Board,	Loop,	Data_Type,	Port-Type,	Address,	Length,	Sub-Port-Type	Sub-Port
P2B3L4_ia,	P2B3L4_iA ,	0,	Passive_Client ,	Panel2 ,	1,	2,	Alarms,	Input,	0,	1,	Output	1

5. **Configuring the FieldServer as a National Time & Signal FACP Server**

Server side emulation has been developed and is functional. (FST use this functionality to complete the QA requirements and to ensure that the driver is compatible with firmware changes not directly related to this driver.)This has, however, not been documented and is not supported. If you require the server side of this driver for one of your projects then contact the sales group at FST.

Appendix A. Advanced Topics

Appendix A.1.   *Modifying the Trouble String Table*

The trouble string table can be modified/extended using the configuration file.

In the example below, the keyword 'Broken' is added and allocated an index value of 1 and a trouble type of 1. When this message is received it will not be used to clear the Data Arrays

The following are permitted Trouble_Types
1 – Alarms
2 – Troubles
3 – Supervisories
4 – Others

Use the same system to modify existing entries in the table. If the Trouble string exists then the driver updates the other values. If the string doesn't exist then a new entry is added. The table has space for 100 strings.

Driver_Table				
Trouble_String,	Index_Value,	Trouble_Type,	Is_Reset,	Protocol
Broken,	1,	1,	No,	National_Time_Fire
Fixed,	0,	1,	No,	National_Time_Fire
DigiFail,	99,	2,	No,	National_Time_Fire

Appendix A.2.   *Controlling which arrays get cleared when a Reset is received.*

When a reset message is received on a port then all Data Arrays being used by the Map Descriptors on that port will have their values set to zero. Specifically: each Map Descriptor is associated with a section of a Data Array based on the 'Data Array Offset' parameter and the 'Length' parameter specified on the Map Descriptor. It is these sections that get reset when a reset message is received. It is possible to modify this behavior by poking the value 1 into offset 5 in the stats Data Array. You can do this on a temporary basis using the Ruinet utility or on a permanent basis by including the following in your configuration. Only the Data Arrays associated with Map Descriptors with panel numbers matching the panel number of the incoming message are reset.[3]

Data_Arrays		
Data_Array_Name,	Data_Format,	Data_Array_length
natsfacp-stats,	natsfacp-stats,	1000

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[3] If you cut and past the above text into your configuration file ensure that you do not duplicate the line which says "natsfacp-stats, natsfacp-stats, 1000," Duplication will cause an error.

Preloads		
Data_Array_Name,	Preload_Data_Value,	Preload_Data_Index
natsfacp-stats,	1,	**5**

Appendix A.3.   *Controlling case sensitivity in Trouble String Matching*

When a message is processed the driver extracts the 8 character trouble string from the message and compares it against the contents of the table provided in Appendix A.4. The comparison is case sensitive by default. It is possible to modify this behavior by poking the value 1 into offset 1 in the stats Data Array.

You can do this on a temporary basis by using the Ruinet utility or on a permanent basis by including the following in your configuration.

Data_Arrays,		
Data_Array_Name,	Data_Format,	Data_Array_length
natsfacp-stats,	UINT32,	1000
Preloads,		
Data_Array_Name,	Preload_Data_Value,	Preload_Data_Index
natsfacp-stats,	1,	1

Appendix A.4.   *Trouble Strings*

The table below outlines the various messages which are reported by a National Time & Signal FACP. Each message is allocated to a data type. The data type can be changed – refer to Appendix A.1.for more information.

If a message is processed with a trouble string corresponding to a row in the table indicating that the string is used for a reset then the Data Arrays used for that connection will be cleared.

Trouble String	Index value	Data_Type	Used to Reset Data Arrays
Alarm	1	Alarms	0
Suprv	2	Supervisories	0
OutpShrt	3	Troubles	0
OutpOpen	4	Troubles	0
OutpOcur	5	Troubles	0
InpOpen	6	Troubles	0
I/PwrFail	7	Troubles	0
Wdt Fail	8	Troubles	0
Low Batt	9	Troubles	0
AC Fail	10	Troubles	0

Trouble String	Index value	Data_Type	Used to Reset Data Arrays
GndFault	11	Troubles	0
CommFail	12	Troubles	0
WalkTest	13	Troubles	0
InpDsbl	14	Troubles	0
OutpDsbl	15	Troubles	0
CommDsbl	16	Troubles	0
Sys Fail	17	Troubles	0
24V Fail	18	Troubles	0
LoopTbl	19	Troubles	0
InputTbl	20	Troubles	0
AudioLink	21	Troubles	0
DVR Fail	22	Troubles	0
DirtySnsr	23	Troubles	0
MicTimer	24	Troubles	0
DeviceErr	25	Troubles	0
Addr Err	26	Troubles	0
ExtraDev	27	Troubles	0
ShortTbl	28	Troubles	0
Open Tbl	29	Troubles	0
OverHeat	30	Troubles	0
DigiFail	31	Troubles	0
Switch	32	Others	0
RemoteAct	33	Others	0
Monitor	34	Others	0
AlrmSilG	35	Troubles	0
PnlSil L	36	Troubles	0
Reset G	37	Troubles	IS_RESET
Brd Dsbl	38	Troubles	0
PortDsbl	39	Troubles	0
ActnDsbl	40	Troubles	0
Drill G	41	Alarms	0
Drill L	42	Alarms	0
AlrmSil L	43	Troubles	0
PnlSil S	44	Troubles	0
Reset L	45	Troubles	0
Burglar	46	Others	0
DuplAddr	47	Troubles	0
TechMode	48	Troubles	0
ConfigErr	49	Troubles	0
DigiClasA	50	Troubles	0
City Dis	51	Troubles	0
Dev Stat	52	Others	0

Trouble String	Index value	Data_Type	Used to Reset Data Arrays
Call In	53	Troubles	0
MicSwitch	54	Troubles	0
PnlSil G	55	Troubles	0
Unknown	56	Troubles	0

Appendix A.5.   *Panel / Driver Synchronization*

There is no automatic system of synchronizing the Fire Alarm Panels and the data in the FieldServer. This is because the FieldServer cannot poll for status information from the panel but has to rely on the panel sending messages with changes in status.

To synchronize the panel to the FieldServer you should push the reset button on the Fire Alarm Panel. When this is done the driver clears all the Data Arrays associated with the connections. In this case 'associated' means those DA's used by the Map Descriptors logically connected to the serial port on which the message was received. This is the default behavior of the driver – however it is possible to limit the Data Arrays which get cleared so that only those DA's associated with the panel which sent the message get cleared. Further information is provided in Appendix A.2

Appendix A.6.   *Connection Status*

This is a passive client driver connected to a Fire Alarm Panel. Normally there are no alarms and thus there would be no way for the FieldServer to know if it was still connected to the FACP network. The National Time & Signal panel, however, sends a message at a regular interval of approximately one minute. This driver uses this message to monitor and report the status of the connection.

A connection timeout may be specified. Read about the *NATSfacp_Timeout* and *NATSfacp_Status_DA* connection parameters in section 1.04.
If the driver doesn't receive a 'valid' message within this timeout period then the driver considers the connection as lost. It reports this providing a connection status bit which can be monitored by the upstream node. The bit is set to 1 when the connection is good and set to zero when the connection is lost.

A 'valid' message is one that does not fail parsing.

Appendix A.7.   *Node Status*

If the FACP sends a message that one of its networked panels has a communications failure by sending a message with the Trouble String = "CommFail" then the driver reports that panel/Node as offline. If the event is restored to normal then the driver reports the node as being online. Furthermore, if a valid message is received from a panel in an offline state then the driver sets the node status to online.

Thus: A Comms Fail message puts the node offline and the node is put online when either a valid message is received from the panel or the Comms Fail event is restored.

The driver reports the node status by updating the Data Array specified by the *NATSfacp_Status_DA* parameter specified on the connection. If this parameter is not specified then the node status cannot be reported. Ensure the Data Array is at least 33 items long. The 1st element is used for the connection status. The remaining 32 elements are used for node status. One element for each node and the offset corresponds to the Node_ID/Panel number.

This is the only way that an upstream node can monitor if the node is online/offline.   The data obtained by this driver will always be made available to other drivers even if the node associated with the driver is offline.

Appendix B. Troubleshooting tips

Appendix B.1.   Connection Tips & Hints

The Panel must be configured to send 'Extended' Messages. This is not the default state. The following procedure is used to achieve this setting.

1) Hit Menu/Exit
2) Use arrow keys to go to Tech Menu
3) Press up arrow twice to enter password of 2000
4) Hit Enter (at this point the panel makes a beeping noise)
5) Hit Panel Silence
6) Use arrow keys to move to Factory
7) Hit Enter
8) Use arrow keys to move to RS232CNFG
9) Hit Enter
10) Use arrow keys to move to Settings
11) Hit Enter
12) Use arrow keys to move to Expanded
13) Hit Enter
14) Hit Exit
15) Hit Exit
16) Use arrow keys to move to Tech Exit
17) Hit Enter

Appendix B.2.   Exposing Driver operating Statistics

The driver makes some of its operating statistics available in a Data Array where they can be read by an upstream device. The lines from the example below can be cut and pasted into a configuration file.

Data_Arrays		
Data_Array_Name,	Data_Format,	Data_Array_length
natsfacp-stats,	UINT32,	1000

The driver maintains one set of stats for each communication port.
To determine the base offset use the following formula:

Base Offset = Port Number * 100   where Port Number is the port number printed in the error log by message #22.

Relative Offset[4]	Description

---

[4] Add this number to the Base Offset

Relative Offset[4]	Description
6	Increments each time a port 'Alive' message is received
7	Increments each time a message is received and is sent to the parsing routine
8	Increments by message length each time a message is received and is sent to the parsing routine
9	Increments each time a message is received and is sent to the parsing routine
10	Increments each time a message is received and is sent to the store routine
11	Increments each time a message is received and is sent to the store routine and results in a store
12	Increments each time a message is received and is sent to the reset routine
13	Increments each time a message is received and is sent to the reset routine and at least one DA was reset
14	Panel Number: Most recent message (after parse, prior to store)
15	Board Number: Most recent message (after parse, prior to store)
16	Loop Number: Most recent message (after parse, prior to store)
17	Port Type: Most recent message (after parse, prior to store). ASCII value shown. ASCII value shown.
28	Port Number: Most recent message (after parse, prior to store)
19	Sub Port Type: Most recent message (after parse, prior to store). ASCII value shown.
20	Sub Port: Most recent message (after parse, prior to store)
21	Trouble String Index: Most recent message (after parse, prior to store)
22	Trouble Level: Most recent message (after parse, prior to store). Ascii value shown.

Data_Arrays,		
Data_Array_Name,	Data_Format,	Data_Array_length,
natsfacp-stats,	UINT32,	1000,

Appendix B.3.   *Driver Error Messages*

Message	Interpretation and Corrective Action
NATS:#01a FYI Validation ignored for simulation. MD=%s	This message is normally only printed when the driver is being tested for QA purposes. If it is printed during normal operation, take a log and call Technical support. There are a number of variants of this message. Be sure to quote the correct one when reporting the error.
NATS:#02a Err. Bad Port-Type=0x%x. Expected I/O/F/P.	A Map Descriptor is being validated and has been rejected because the 'Port-Type' has not been correctly specified*

Message	Interpretation and Corrective Action
NATS:#02b Err. Bad Port-Type=%c. Expected I/O/F/P.	
NATS:#05 Err. Bad Sub-Port=%d.	The sub-port type has not been specified for the Map Descriptor.[*]
NATS:#06a Err. Bad Sub-Port-Type=0x%x. Expected I/O/F/S/N.	A Map Descriptor is being validated and has been rejected because the 'Sub-Port-Type' has not been correctly specified.
NATS:#06b Err. Bad Sub-Port-Type=%c. Expetced I/O/F/S/N.	
NATS:#07 Err. Loop Not specified	The Loop has not been specified for the Map Descriptor.[*]
NATS:#08 Err. Board Not specified	The Board has not been specified for the Map Descriptor.[*]
NATS:#09 Err. Parse: Found a '%c' instead of a 'L' for Loop.	A message is being processed to determine the event that is being reported. During the processing an error was found. If this error occurs occasionally then you could assume that it is an occasional corrupt message. You could determine this yourself. The driver prints a copy of the incoming messages on the 'F' screen (when using Ruinet). Note the messages and look for corruption. If there is any take steps to improve the connection.

If it occurs frequently then assume that there is a systematic error. Take a log, note the error and call Tech Support.

Valid Port Types are I/O/F/P. |
NATS:#10 Err. Undefined Loop	The parameter heading 'Loop' has been provided on the Map Descriptor in the configuration CSV file, but the parameter value has not been specified.[*]
NATS:#11a FYI Validation ignored for simulation. MD=%s	This message is normally only printed when the driver is being tested for QA purposes. If it is printed during normal operation, take a log and call Technical support. There are a number of variants of this message. Be sure to quote the correct one when reporting the error.
NATS:#12 Err. Undefined Board	The parameter heading 'Board' has been provided on the Map Descriptor in the configuration CSV file, but the parameter value has not been specified.[*]
NATS:#13 Err. Undefined Sub-Port	The parameter heading 'Sub-Port' has been provided on the Map Descriptor in the configuration CSV file, but the parameter value has not been specified.[*]
NATS:#14 Err. Undefined	The parameter heading 'Port-Type has been provided on

Message	Interpretation and Corrective Action
Port_Type	the Map Descriptor in the configuration CSV file, but the parameter value has not been specified.[*]
NATS:#15 Err. <%s> file not found. NATS:#16a Err. Diagnostic 1 NATS:#16b Err. Diagnostic 2	This message is normally only printed when the driver is being tested for QA purposes. If it is printed during normal operation, take a log and call Technical support.
NATS:#17 Err. Driver cannot poll. Cache MD Ignored.	FieldServer's provide 'write-through-read' technology but it has been defeated for this driver because this driver cannot write to the FACP panel as it is a passive client driver. When you see this message you know that some other node (or possibly a ruinet user) has poked a value into one of the Data Arrays used by the driver. When this occurs the FieldServer attempts to write the new value to the FACP. This is not permitted and the message is printed. You can review the configuration checking to see if any Data Array areas used by the different drivers overlap. Or you can check to see that the other nodes/connections in the configuration are not writing to the Data Array being used to store panel data.
NATS:#18 Err. Parse: Trouble String Unknown.	The trouble string in the message is contained in character positions 28-36. The driver extracted a trouble string from an incoming message and then compared the string to a look-up table of trouble strings. There was no match. Apply one of the following: Determine if this is a legitimate trouble string. Is the rest of the message corrupt or valid? Do other messages have the same trouble string? Does the equipment vendor confirm that this is a new trouble string? If it is a legitimate trouble string and the driver does not recognize it then you need to add the string to the driver's look-up table. More information is provided in Appendix A.1 . Once you have added the new string to the configuration, reset the FieldServer for the changes to take effect. Now generate the same event again. This time there should be no message. The case sensitivity of the look-up can be controlled. More information is provided in Appendix A.3 If neither of the previous strategies work and you are sure this isn't a rare corrupt message then take a log and call tech Support.

Message	Interpretation and Corrective Action
NATS:#19 Err. Parse: Found a '%c' instead of a 'P' for Panel.	When the driver was parsing a message it found that it could not correctly extract some data. It is possible that new versions of FACP firmware support new values that this driver does not know.
NATS:#20 Err. Parse: Found a '%c' instead of a 'B' for Board.	If this error is printed on rare occasions then it could be attributed to a corrupted message. You can choose to ignore the problem, or you could resynchronize the panel to the FieldServer. Appendix A.5 in this manual provides information on how to do this.
NATS:#21 Err. Parse: Found a '%c' instead of a '%s' for PortType.	If it is printed often then assume that there is new permitted value. Confirm with the equipment vendor and then take a log and call tech support.
NATS:#22a FYI. Port(=%d) Supervision Timeout set to %d Secs	When the driver starts up it prints this message to alert you to the default 'timeout' value. You can safely ignore this message if you are satisfied with the setting. If you want to change the setting then read about the 'NATSfacp_Timeout' parameter in section 1.04
NATS:#22b FYI. Port(=%d) Supervision Timeout reset to %d Secs	
NATS:#23 Err. Parse: Found a '%c' instead of a '%s' for SubPort.	Please read and apply the same notes as with message 19.
NATS:#24 FYI. Can't store connection status. DA required.	The driver needs a Data Array to store the status of the connection. A different DA is required for each connection. Only the 1st element of the DA is used. Create the DA (See section 1.03) and then use that name when specifying the 'NATSfacp_Status_DA' parameter on the connection. More information is provided in section 1.04
NATS:#25 Err. Going offline. No msgs in last %ld Secs. (%d)	If no valid message has been received in the connection timeout period then this message is printed. The connection status is updated too, if a NATSfacp_Status_DA' parameter is specified on the connection. More information is provided in section 1.04. If the loss of the connection corresponds to your expectations then ignore the message. If not, then investigate why the panel lost its connection to the FieldServer.
NATS:#26 FYI. Going online. New msg rcvd. (%d)	When a valid message is received on a connection then this message is printed. No corrective action is required. However, if the message was unexpected then it may indicate that the connection between the Panel and FieldServer was lost for a period of time and recovered. You may wish to investigate the loss of the connection.

Message	Interpretation and Corrective Action
	The message is also printed the very 1st time that a valid message is received.
NATS:#27 Err. Parse Failed	Typically the message preceding this one provides the reason and that issue must be resolved to prevent this message being printed. The message is printed a small number of times and is suppressed for subsequent similar errors.
NATS:#28 Err. Parse: Msg too long. Ignored. Len=%d	This message will typically be printed when the terminating characters of a message are not received and a new message is received from the panel. If the message is printed rarely, you could treat the source as an occasional corrupt message. Reset the configuration error light by clearing the error log using the <R>eset key. If the message is printed frequently or can be produced systematically take a log and call Tech Support.
NATS:#29 Err. MD=%s too short. Act=%d Rqd=%d	The address/port contained in a message is used to determine the offset into a Data Array when data is stored. This message is printed when the required storage offset is larger than the range of addresses specified on the Map Descriptor being used to store the data. Edit the configuration, adjusting the Length parameter. Download the modified configuration file to the FieldServer and reset the FieldServer for your changes to have effect.
NATS:#30 Err. Message ignored. No suitable storage location.	A message has been received and when its Panel number, Board number, Loop Number, Port-Type, Port Number (and possibly Sub-Port-Type and Sub-Port-Number) are analyzed, the driver cannot find a Map Descriptor suitable for the storage of the event contained in the message. You need one node configured for each Panel that will be sending messages to the FieldServer using a single connection. The Node_Id must match the panel number. Then, for each node, you need one Map Descriptor (MD) for each Board in each of those panels, whose events, will be sent to the FieldServer. In fact you need one for each Board / Loop / Port-Type combination in the system. Use the parameters called Address and Length, on each MD, to specify a range of port numbers. If a port has sub ports then for each port that has a sub-port you will need a set of MD's, one for each Sub-Port-

Message	Interpretation and Corrective Action
	Type / Sub-Port-Number combination. The message which follows Message #30, in the error log will provide a suggestion as to what a suitable Map Descriptor might look like. To resolve this problem you must edit the configuration file, creating a Map Descriptor suitable for the message whose attributes are printed in the error log. Download the updated configuration file to the FieldServer and then reset the FieldServer for the changes to take effect.
NATS:#31 Err. There are No MD's for this driver.	This message is the extreme form of message #30. Resolve it the same way. First though, we suggest that you review some of the Map Descriptor examples found in section 4.1.4. Then read the notes for message #30.
NATS:#32 Err. There are No MD's for Panel/Node_id=%d	Read the notes for Message #30.
NATS:#33 FYI. Suggestion. Modify MD=%s	
NATS:#34 Err. Reset Rcvd but ignored.	This message is printed if a reset message was received but no suitable map descriptors were found and thus no data was reset. Read Appendix A.2 for more information.
NATS:#35 FYI. Use an array called <%s> to expose diagnostic info.	This message may be safely ignored. It is printed to prompt you to read Appendix B.2
NATS:#36 Err. String <%s> rejected. Max Len=8	The driver's default list of recognized Trouble Strings can be amended by means of configuration. An attempt to modify the list has failed because no Trouble String can be more than eight characters. Read Appendix A.1 then correct the configuration file. Download the modified file to the FieldServer and reset the FieldServer for your changes to have effect.
NATS:#37 FYI. String<%s> update. ndx/typ/rst=%d/%d/%d	Based on the notes in Appendix A.1 the Trouble String Table has been successfully amended. No corrective action is required.
NATS:#38 Err. No space. String <%s> rejected.	The maximum number of Trouble Strings' is 100. There is no corrective action you can take other than to review the exiting list and see if they are all necessary.
NATS:#39 FYI. String<%s> added. ndx/typ/rst=%d/%d/%d	Based on the notes in Appendix A.1 the Trouble String Table has been successfully added. No corrective action is required.
NATS:#40 Err. Cant set node	Valid Panel / Node_ID's are whole numbers in the range

Message	Interpretation and Corrective Action
status if Node_ID < 1 (%d)	1 to 32. It is possible that this message could get pointed as a consequence of a single corrupted message. If this error occurs frequently then call Tech Support after taking a log.
NATS:#414 FYI. Cant store Node status. DA required.	See Message #24
NATS:#42 Err. Node / Panel=%d offline. Comms Failed. Port=%d	This message is printed when a message is received that reports that communication to the indicated panel has failed. You must review and inspect your FACP equipment to resolve this problem.
NATS:#43 FYI. Node / Panel=%d online. Port=%d	No corrective action is required. The message is printed when a node that had been reported as having failed communications has this state restored to normal.
NATS:#44 Err. DA=%s too short. Required=%d	This message is printed when the driver tries to update the node status using the Data Array specified by the 'NATSfacp_Status_DA' parameter on the connection. The offset used is equal to the node number and the driver has found that the DA is too short to store the status as the required offset. Edit the configuration file, setting the DA length to the required length printed in the message. Typically you will set this length to 32 as there are 32 possible panels on a connection. Download the modified config file to the FieldServer and reset the FieldServer for your changes to take effect.

Appendix C. Revision History

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
6/29/04	PMC		1.00	0	Document Created
6/29/04	PMC		1.00	1	Added notes on Node Status and added some error messages.
7/6/04	Meg	Meg	1.00	2	Updated formatting. Redrew connection diagram. Some text modifications. Generally improved readability.
9/13/04	Meg	Meg	1.00	3	Example table added for Appendix B2 – DUR0436.
10/15/04	Meg	Meg	1.00	4	Updated connection diagram. Updated Max nodes supported table. Removed reference to R1&R2. Added connection notes. Changed Company to Corp. Refer DUR0471
12/29/04	JD		1.00	5	Releasing