FieldServer
Technologies

FieldServer Driver
FS8700-105
National Time & Signal FACP Serial Protocol

Description

The National Time and Signal Corp manufactures Fire Alarm Control Panels (FACP). The series 900 and 902 FACP's can be purchased with a 'BACnet' interface option. When suitably equipped with the interface 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 which 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 or stored by the FieldServer based on panel status. The configuration determines how these messages are processed.

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

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.

Formal Driver Type

Serial
Passive Client

Compatibility Matrix

FieldServer Model	Compatible with this driver
FS-x2010	Yes
FS-x2011	Yes
FS-x40	Yes

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Connection Information

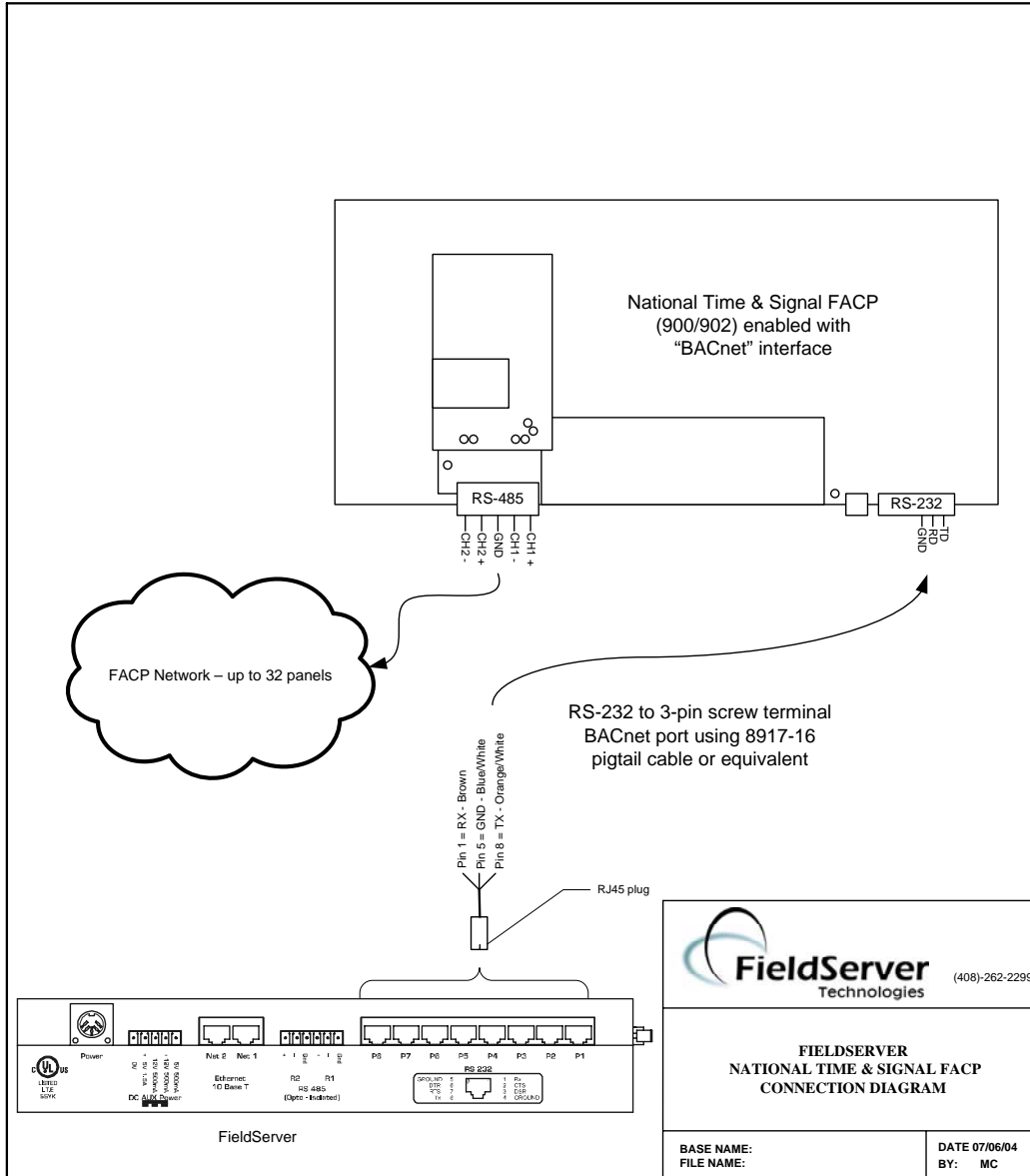|	
Connection type:	EIA232
	Vendor equipment connects at 9600 Baud
Baud Rates:	Driver supports: 110; 300; 600; 1200; 2400; 4800; **9600**; 19200; 28800; 38400; 57600; 115200 Baud
Data Bits:	Vendor equipment : 8
	Driver supports : 7,**8**
Stop Bits:	Vendor equipment : 1
	Driver supports: **1**,2
Parity:	Vendor equipment : None
	Driver supports: Odd, **Even**, None
Hardware interface:	Vendor equipment does not support hardware handshaking
Multidrop Capability	No

Devices tested

Device	Tested (FACTORY, SITE)
FACP	Factory
FACP-2	Factory

Connection configurations

National Time & Signal FACP
(900/902) enabled with
"BACnet" interface

RS-485

CH2 - CH2 + GND CH1 - CH1 +

RS-232

TD RD GND

FACP Network – up to 32 panels

RS-232 to 3-pin screw terminal
BACnet port using 8917-16
pigtail cable or equivalent

Pin 1 = RX - Brown
Pin 5 = GND - Blue/White
Pin 8 = TX - Orange/White

RJ45 plug

FieldServer

(408)-262-2299

**FIELDSERVER
NATIONAL TIME & SIGNAL FACP
CONNECTION DIAGRAM**

BASE NAME:	DATE 07/06/04
FILE NAME:	BY: MC

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.

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Data Types Supported

A list of Trouble Strings vs. Data Types will be maintained by the driver. Each trouble string can be allocated to one of 4 categories – Alarm, Trouble, Supervisory and Other. The list can be amended and/or extended using the configuration file. The default list is tabulated in the driver manual.

FieldServer Data Type	Description (or Device Data Type)
Alarms	When a panel message reports an alarm then FieldServer data associated with the 'Alarm' Data Type will be updated.
Troubles	When a panel message reports a trouble then FieldServer data associated with the 'Trouble' Data Type will be updated.
Supervisory	When a panel message reports a supervisory state then FieldServer data associated with the 'Supervisory' Data Type will be updated.
Other	When a panel message reports a trouble string that has been allocated to the 'Other' Data Type then the FieldServer data associated with the 'Other Data Type will be updated.

How the FieldServer stores panel data:

Each message from the FACP is processed as follows
1. The Panel Number must match a Node configured in the FieldServer. Multiple Nodes can be configured.
2. The Board Number must match a 'Board' configured in the FieldServer. Multiple Boards can be configured for each Panel.
3. The Loop Number must match a 'Loop' configured in the FieldServer. Multiple Loops can be configured for each Board.
4. The port type must match a 'Port-Type' configured in the FieldServer. Multiple Port Types can be configured for each loop.
5. The 'Port Number' must be covered by an 'Address' and "Length" configured in the FieldServer. Multiple Address Ranges can be configured for each loop.
6. If a device has sub-ports then the sub-port number range and sub-port type must be configured for that device.
7. A list of Trouble Strings vs. Index values is maintained by the driver. The list can be amended and/or extended by the configuration. When a status message is received, the driver will store an index value corresponding to the Trouble String index. For example, if the Trouble String "OutpShrt " has been allocated an index value of 3 and a message reports an "OutpShrt " then the driver will store the value 3 in the appropriate position in the Data Array. If the configuration uses 'Bit' Data Arrays then the specific value will be lost but if the configuration uses 'Integer' Data Arrays then the value is stored.

Ignored Messages

The driver will ignore messages that report status for points that are not part of the configuration. Corrupted or other messages that do not meet the message specification are ignored too.

If a message is ignored a message will be printed in the error log and an operating statistic which counts the number of ignored messages will be incremented.

Unsupported Attributes and Data Types

The following attributes reported in messages sent by the FACP are not considered when the messages are processed and data is stored.

Attribute	Reason
Date and Time information	This data contained in each message is discarded. The FS does not do queuing and / or buffering.

Panel and FieldServer Status Synchronization

As a passive client driver, the FieldServer cannot poll for data and can thus only reflect the status of the panel based on the messages it has received from the panel. Thus when a connection between the panel and the FieldServer is made, the FieldServer's data will not reflect the Panel's status unless at that point in time the panel's points are in their normal ('restored') state.

Thus to ensure synchronization, human intervention is required. An operator must check that the panel has no active points and at that time they must reset the FieldServer. This is best done by performing a panel reset, which generates a "Reset G" message which will be used by the FieldServer to reset all the points associated with the panel.

Node Status

The FACP communication interface (termed the BACnet interface) is connected to the FieldServer. This interface sends a message at regular intervals that reports that the connection is live. The driver will use this message to report the status of the connection. The FieldServer can be configured with a timeout value. If the 'keep-alive' message is not received within this timeout the system will be reported as offline.

The interface reports communication status from the panels it is networked to. If it loses communication with a another panel then the "CommFail" trouble string is transmitted in a message. The FieldServer will use this information to report the on/offline status of the panels.

Firmware Sensitivity

The driver configuration allows user's to add/change the list of trouble strings and their associated index values. This will help the driver avoid sensitivity to FACP firmware versions where new strings may be added.

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Revision History

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
6/7/04	PMC		0.00	0	Initial draft for customer review.
6/9/04	PMC		0.00	1	Based on revised customer specification the following changes have been made. • Keep Alive. Driver processes keep alive message to provide remote device status • .Updated connection notes and diagrams. • Port and Sub-Port types are now required as part of the configuration. Previously these were ignored. • Data Types notes updated. • Notes on how data is stored updated.
6/21/04	PMC		1.00	1	Added part number. Minor type corrections based on customer feedback.
7/6/04	Meg	Meg	1.00	2	Updated formatting. Added new connection diagram. Removed watermark. General tidyup.
10/15/04	Meg	Meg	1.00	3	Changed company to corp. Reviewed connection diagram. Added devices tested. Refer to DUR0471.
10/28/04	JD		1.00	4	Releasing