Driver Manual

FS-8700-25 Notifier INA

APPLICABILITY & EFFECTIVITY
Effective for all systems manufactured after June 2023.

Driver Revision: 1.07
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Contents

1 Description

The Notifier INA driver allows the FieldServer to transfer data to and from the Notifier Intelligent Network Annunciator (INA) using a Notifier protocol. The FieldServer acts as a passive client.

The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer.

Use the INA driver if your FieldServer is connected to an INA device and in turn, the Notifier field panels are connected to the INA, which serves as a gateway. One INA panel can be connected to each FieldServer port.

Use the Notifier 1010/2020 driver if your FieldServer is connected to Notifier 1010/2020 Panel directly. One panel can be connected to each FieldServer port.

2 Driver Scope of Supply

2.1 Provided by the Supplier of 3rd Party Equipment
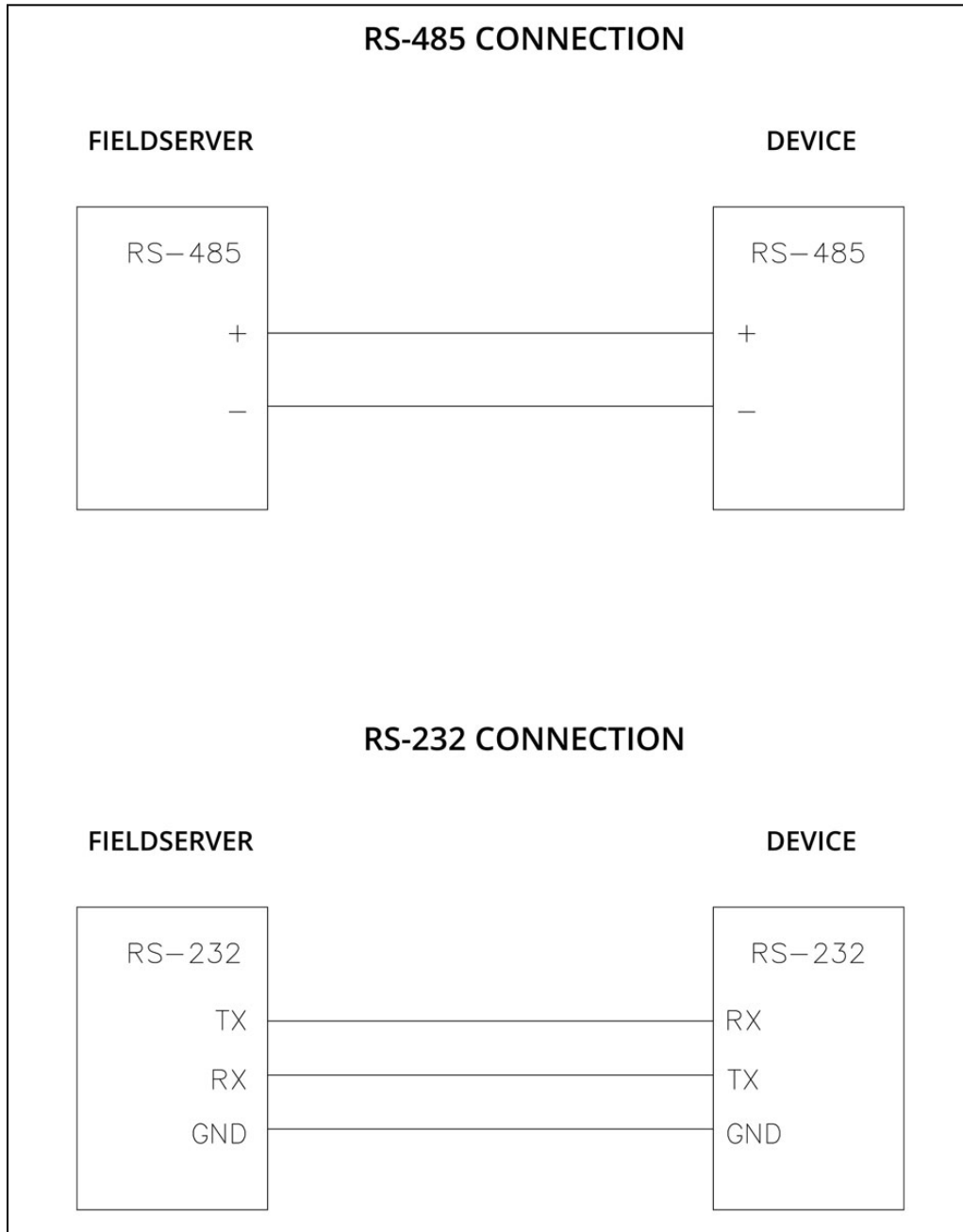
2.1.1 Required 3rd Party Hardware

Description
Notifier Intelligent Network Annunciator (INA)

3   Hardware Connections

It is possible to connect a Notifier INA device to any of the RS-232 or RS-485 port. These ports just need to be configured for Notifier INA in the configuration file.

Configure the PLC according to manufacturer's instructions.

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_Format	Provides data format.	Float, Bit, Byte, Uint16, Uint32, Sint16, Sint32
Data_Array_Length	Number of Data Objects.	9400

Example

```
//   Data Arrays
Data_Arrays

Data_Array_Name    , Data_Format    , Data_Array_Length
DA_DI_01           , Bit            , 8208
DA_DI_02           , Bit            , 8208
// Special data arrays for Notifier INA driver
DA STB P7          , Int16          , 2
DA TXT P7          , Int16          , 800
DA STB P1          , Int16          , 2
DA TXT P1          , Int16          , 800
```

5   Client Side Configuration

Due to the nature of the Notifier drivers and the adaptability of the FieldServer configuration of the Notifier side of the FieldServer is quite simple. The Notifier driver will always function as a Server driver; thus the primary purpose is for the Notifier Fire Alarm Panel to write information to the FieldServer to be passed on to another device. When the FieldServer is used with the Notifier INA additional data arrays need to be configured for each Panel connected to the INA. The operator must configure the Data Arrays with Node IDs with addresses of station 1,2, etc. Following is an example of information that is in the default Notifier driver.

Status Bits- This is the data string coming from Notifier to set or clear any one of th e8209 bits of information in the following order

Parameter	Bits
Detector Alarms	0 – 1023
Detector Alarms Unacknowledged	1024 – 2047
Module Alarms	2048 – 3071
Module Alarms Unacknowledged	3072 – 4095
Detector Trouble	4096 – 5119
Detector Trouble Unacknowledged	5120 – 6143
Module Trouble	6144 – 7167
Module Trouble Unacknowledged	7168 – 8191
Common Bits	8192 – 8207
Control Bits	8208 - 8209
TAC-Americas heartbeat	8210
Reserved for future use.	8211 - 8219
Zone Alarms∗	8220 - 8499
Zone Troubles*	8500 - 8799
Level Alarms~	8800 – 9099
Level Troubles~	9100 - 9399

Formulas to Calculate Status Bit Position			
Where:	Loop	= 1 - 1- "(If loop = 10, loop = 0)"	
	Detector	= 1 - 99	
Detector Alarm location	=	0	+ (Loop) *100 + Detector.
Detector Alarm Unacknowledged location	=	1024	+ (Loop) *100 + Detector.
Module Alarm location	=	2048	+ (Loop) *100 + Module.
Module Alarm Unacknowledged location	=	3072	+ (Loop) *100 + Module.
Detector trouble location	=	4096	+ (Loop) *100 + Detector.
Detector Trouble Unacknowledged location	=	5120	+ (Loop) *100 + Detector.
Module Trouble location	=	6144	+ (Loop) *100 + Module.
Module Trouble Unacknowledged location	=	7168	+ (Loop) *100 + Module

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[∗] Additional information available in **Section** 6.1
[~] Additional information available in **Section** 6.3

Common Bits:

Parameter	Bit
Detector Alarms	8192
Detector Alarms Unacknowledged	8193
Module Alarms	8194
Module Alarms Unacknowledged	8195
Detector Trouble	8196
Detector Trouble Unacknowledged	8197
Module Trouble	8198
Module Trouble Unacknowledged	8199
Alarms	8200
Alarms Unacknowledged	8201
Trouble	8202
Trouble Unacknowledged	8203
Supervise Sent	8204
Ignored Message	8205
All Systems Normal	8206
ESC X NUL	8207

Control Bits:

Parameter	Bit
Ack/Step	8208
System Reset	8209

TAC-Americas heartbeat bit:

Parameter	Bit
TAC-Americas Heartbeat	8210

Text_Regs – This is the text string coming from Notifier that matches the information on the display of the 1010 or 2020 and contains two sets 400 16-bit registers which is equivalent to 10 lines by 80 characters for each set.

Supervise – This is a 2-character string from Notifier providing a "supervise" signal to the Notifier Fire Alarm Panel when hot standby is alive. It also appears to the Client as a single coil if it is being sent.

When the customer receives a FieldServer with the Notifier driver installed, the Data Array is already configured and ready to use with the INA. The customer only needs to configure the Server side of the FieldServer, the interface to the non-Notifier device. As an example, if the user were connecting to a device using Modbus RTU communications protocol, they would configure the interface just like they would do if the FieldServer were another Modbus PLC. They would have to tell the Modbus device where to find the Notifier information they are seeking. Thus, they would find the alarm for node 1, loop 1, detector 5 in the Status_Bits Data Array at address number 105.

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

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-P2, R1-R2[1]
Baud*	Specify baud rate.	2400
Parity*	Specify parity.	Even
Data_Bits*	Specify data bits.	7

Example

```
//   Client Side Connections

Connections
Port                      , Baud    , Parity   , Data_Bits   , Stop_Bits   , Protocol
P1                        , 2400    , Even     , 7           , 1           , Notifier
P2                        , 2400    , Even     , 7           , 1           , Notifier
```

5.2   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	Modbus station address of physical server node.	1 – 255; Must be 1, 2, 3, etc. to identify different alarm panels connected to INA
Protocol	Specify protocol used.	Notifier.

Example

```
//   Client Side Nodes

Nodes
Node_Name      , Node_ID      , Protocol      , Port
INA_01         , 1           , Notifier,      , P1
INA_02         , 2           , Notifier       , P2
```

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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.

5.3   Client Side 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 Map Descriptor.	Passive
Node_Name	Name of Node to fetch data from.	One of the node names from the Server Node section above
Data_Type	Type of Data in Notifier.	Coil
Address	Starting address of read block.	0
Length	Length of data string.	9400

Example

```
//   Client Side Map Descriptors

Map_Descriptors
Map_Descriptor_ Name   , Data_Array_Name   , Data_Array_Offset   , Function   , Node_Name   , Type   , Address   , Length
SMD_DI_01              , DA_DI_01           , 0                   , Passive    , INA_01      , Coil   , 0         , 9400
SMD_DI_02              , DA_DI_02           , 0                   , Passive    , INA_02      , Coil   , 0         , 9400
```

6   Driver Notes

6.1   Zone Alarms and Troubles

Zone bit positions in the Status Bit Data Array	
Parameter	**Data Array Location**
Zone Alarms 1 bit per zone. Bit 0 is for zone zero, Bit 1 is for zone 1. Bit Number = Zone Number + 8220	8220 - 8499
Zone Troubles 1 bit per zone. Bit 0 is for zone zero, Bit 1 is for zone 1. Bit Number = Zone Number + 8500	8500 - 8699

The zone status is determined by inspection of column 40 of the message lines. If the column begins with a 'Z' then if the following character is a digit then the three characters which follow the 'Z' are interpreted as the zone number. Alternatively, if the word 'zone' is found in column 40 or 42 then the bytes which follow are interpreted as the zone number.

If the zone number is mal formed in the message Eg. 'Z00c' or 'Z1e4' or 'Zone two' then the driver will interpret and store the status information as if the zone was zone zero.

A maximum of 270 zones may be parsed and stored. If the zone number is invalid or greater than 270 then the message is ignored. The driver produces a message in the error log but does not generate a panic, as it assumes a single corrupt message has been processed. The driver may produce one of the following messages under these circumstances.

NFA/INA:#1 Err. Zone status ignored. Zone=%d > 270. Subsequent similar msgs suppressed!

NFA/INA:#2 Err. Array(%s) too short. Zone=%d. Index=%d. Subsequent similar msgs suppressed!

No common bit is provided to indicate if any zone is in alarm or trouble.

The bits will remain set until a network system reset message is received in which case, they will all be cleared.

6.2   TAC-Americas Heartbeat

A bit (8210) is set when the driver receives a heartbeat message from any panel. The bit is latched. It is only cleared when a System Reset message is received.

An upstream device can monitor this bit (and clear it) or the FieldServer can be configured to send a message to an upstream device when the state of the bit changes. Either of these options can be achieved my modifying the FieldServer configuration CSV.

A sample of the heartbeat message is provided below. The driver looks for the bold/underlined text when checking for the heartbeat. If the transmitting panel sends any variation of this message it will not be recognized. Only 'ACTIVE' messages are considered in setting this bit.

*"ACTIVE   N001 FORC **FACP ONLINE TO BCMS SYSTEM ONLINE**   10:00P 07/24/02 047"*

A separate bit it not provided for each node. The bit is set irrespective of which panel transmits the message.

Note that in addition to setting the heartbeat bit the message above will also set an alarm and unacknowledged alarm bit based on (in this example) the address of 47.

6.3 Level Status

Levels are determined by inspection of column 21 of the message.

If column 21 begins with a 'SB' then the level is considered a basement

Basements are considered as level 271-280 in calculating which bit to set in the table.

If column 21 begins with a 'G' then the level is considered a garage

Garages are considered as levels 283-299 in calculating which bit to set in the table.

If column 21 begins with a 'S' and column 23 contains a 'M' then the level is considered a mezzanine.

Mezzanine's are considered as levels 281-282 in calculating which bit to set in the table.

If column 21 begins with a 'S' and column 22 contains a digit then the level is considered a normal level.

It is very important that you understand that the system cannot tell the difference between , for example, level 271 and a basement because the level number and the basement location result in the same bit being set.

Level bit positions in the Status Bit Data Array	
Parameter	**Data Array Location**
Level Alarms Only messages beginning 'ALARM' will cause an alarm status to be updated. This is different from all other alarm status indication for this driver, where alarms are generated by 'ACTIVE' messages too. 1 bit per Level. Bit 0 is for level zero, Bit 1 is for level 1. Bit Number = Level Number + 8800	8800 – 9099 LEVELS 0-270 8800-9070 BASEMENTS 9071-9080 MEZZANINES 9081-9082 GARAGES 9083-9099
Level Troubles 1 bit per Level. Bit 0 is for level zero, Bit 1 is for level 1. Bit Number = Level Number + 9100	9100- 9399

A maximum of 300 levels may be parsed and stored. If the level number is invalid or greater than 300 then the message is ignored. The driver produces a message in the error log but does not generate a panic, as it assumes a single corrupt message has been processed. The driver may produce one of the following messages under these circumstances.

NFA/INA:#3 Err. Level status ignored. Level=%d > 300. Subsequent similar msgs suppressed!

NFA/INA:#4 Err. Array(%s) too short. Level=%d. Index=%d. Subsequent similar msgs suppressed!

No common bit is provided to indicate if any zone is in alarm or trouble.

The bits will remain set until a network system reset message is received in which case, they will all be cleared.

6.4   Driver Messages

When the driver loads it sends a message to the error log to report the suitability of the driver for INA/NFA/1010/2020 devices.

INA:#1 FYI. Driver suitable for INA devices.

or

NFA:#1 FYI. Driver suitable for NFA/1010/2020 devices.

This message does not require any corrective action. It is for your information only.

The driver also validates node numbers. The Node_ID (station) must be less than 256 for the INA driver.

INA:#2 Err. Node_Id(=%d) should be < 256 for INA driver

The message contains the offending node number. To correct the error, edit you CSV file, change the node numbers, download the modified CSV to the FieldServer and reset the FieldServer for the changes to take effect.