

## Driver Manual

# FS-8700-25 Notifier INA

### **APPLICABILITY & EFFECTIVITY**

Effective for all systems manufactured after March 2021.



Driver Revision: 1.07  
Document Revision: 2.A



**fieldserver**

MSA Safety  
1991 Tarob Court  
Milpitas, CA 95035  
Website: [www.MSAsafety.com](http://www.MSAsafety.com)

U.S. Support Information:  
+1 408 964-4443  
+1 800 727-4377  
Email: [smc-support@msasafety.com](mailto:smc-support@msasafety.com)

EMEA Support Information:  
+31 33 808 0590  
Email: [smc-support.emea@msasafety.com](mailto:smc-support.emea@msasafety.com)

## Contents

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>Description</b> .....  | <b>4</b>  |
| <b>2</b> | <b>Driver Scope of Supply</b> .....                                   | <b>4</b>  |
|          | 2.1 Supplied by MSA Safety.....                                       | 4         |
|          | 2.2 Provided by the Supplier of 3 <sup>rd</sup> Party Equipment ..... | 4         |
|          | 2.2.1 Required 3 <sup>rd</sup> Party Hardware .....                   | 4         |
| <b>3</b> | <b>Hardware Connections</b> .....                                     | <b>5</b>  |
| <b>4</b> | <b>Data Array Parameters</b> .....                                    | <b>6</b>  |
| <b>5</b> | <b>Client Side Configuration</b> .....                                | <b>7</b>  |
|          | 5.1 Client Side Connection Parameters .....                           | 9         |
|          | 5.2 Client Side Node Descriptors .....                                | 9         |
|          | 5.3 Client Side Map Descriptor Parameters .....                       | 10        |
| <b>6</b> | <b>Driver Notes</b> .....   | <b>11</b> |
|          | 6.1 Zone Alarms and Troubles .....                                    | 11        |
|          | 6.2 TAC-Americas Heartbeat .....                                      | 11        |
|          | 6.3 Level Status .....  | 12        |
|          | 6.4 Driver Messages.....  | 13        |

## 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 Supplied by MSA Safety

| Part #     | Description   |
|------------|---|
| FS-8917-10 | Notifier Fire Panel Connection Cable plus UTP cable (3 foot) (see following drawing) 3' Patch cable |
| FS-8915-10 | UTP cable (7 foot) for RS-232 use   |
| FS-8917-02 | RJ45 to DB9F connector adapter  |
| FS-8917-03 | FJ45 to DB9F connection adapter   |
| FS-8917-01 | RJ45 to DB25M connection adapter  |

### 2.2 Provided by the Supplier of 3<sup>rd</sup> Party Equipment

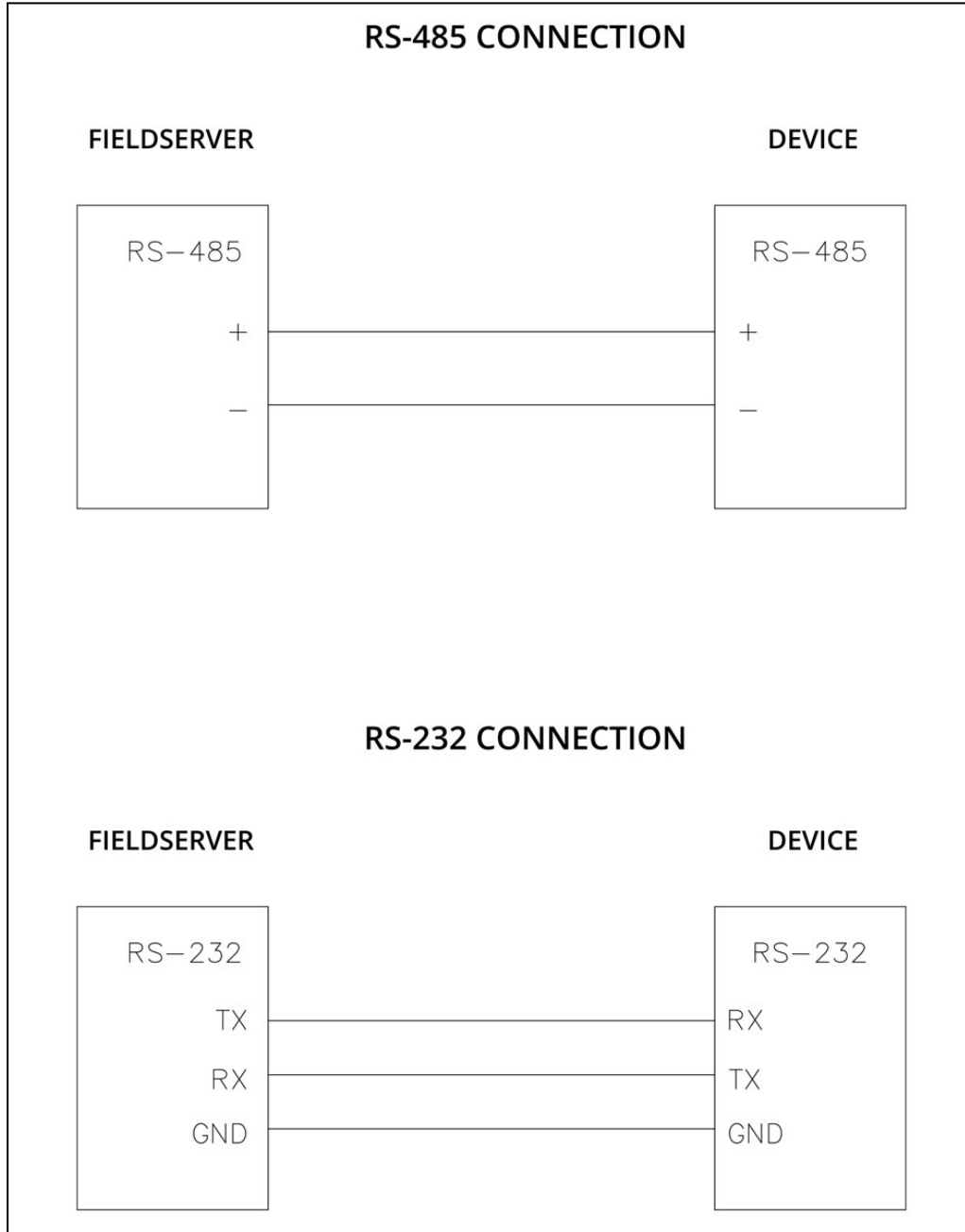
#### 2.2.1 Required 3<sup>rd</sup> Party Hardware

| 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 the 8209 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<br>Detector | = 1 - 1- "(If loop = 10, loop = 0)"<br>= 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                     |

\* 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 <sup>1</sup> |
| 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
```

<sup>1</sup> 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<br>1 bit per zone. Bit 0 is for zone zero, Bit 1 is for zone 1.<br>Bit Number = Zone Number + 8220   | 8220 - 8499         |
| Zone Troubles<br>1 bit per zone. Bit 0 is for zone zero, Bit 1 is for zone 1.<br>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 by 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 is 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<br>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.<br>1 bit per Level. Bit 0 is for level zero, Bit 1 is for level 1.<br>Bit Number = Level Number + 8800 | 8800 – 9099                    |
|   | LEVELS 0-270      8800-9070    |
|   | BASEMENTS            9071-9080 |
|   | MEZZANINES         9081-9082   |
| GARAGES                9083-9099  |                                |
| Level Troubles<br>1 bit per Level. Bit 0 is for level zero, Bit 1 is for level 1.<br>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.