MYNAH℠

AutroSafe Fire Safety System
Programmable Serial Interface Card
Series 2

USER MANUAL

Rev. P1.55

November 2009

Printed in the U.S.A.

1 INTRODUCTION

1.1 Scope

This document is User Manual for the AutroSafe Fire Safety System communications driver firmware for the Emerson Process Management (EPM) DeltaV Control System. The driver runs in the DeltaV Series 2 Programmable Serial Interface Card (PSIC). The reader should be familiar with EPM's DeltaV PSIC and connected AutroSafe Fire Safety System devices.

1.2 Document Format

This document is organized as follows:

Introduction	Describes the scope and purpose of this document.
Theory of Operation	Provides a general functional overview of the AutroSafe Fire Safety System Driver.
Downloading Firmware	Describes downloading procedures for the driver firmware on to the DeltaV PSIC.
Configuration Information	Describes procedures and guidelines for configuring the DeltaV PSIC.
Operational Check	Provides tips and assistance to ensure PSIC is properly setup and configured.
DeltaV–Field Device Electrical Interface	Describes the electrical interface between DeltaV and the AutroSafe Fire Safety System devices. Also describes the cable pin assignments for RS-232.
Technical Support	Describes who to call if you need assistance.

1.3 System Specifications

The following table lists the minimum system requirements for the driver:

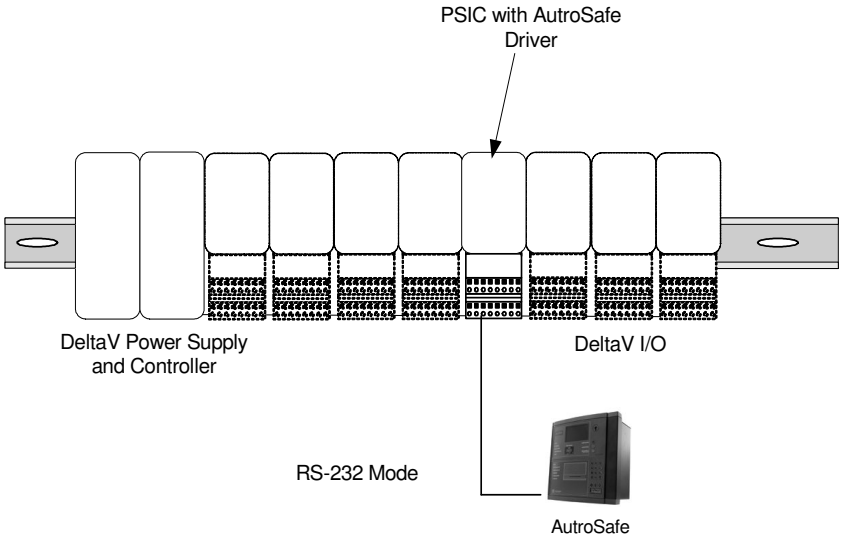
Protocol Compatibility and Reference documents	The communication protocol used is the AutroSafe Fire Safety System RS232 Communication Protocol described in AutroSafe Fire Safety System manual: 031OCT00/04.2-002 Version 3.5.0_3.9
Software Requirements	DeltaV System Software (Release 6.3.2 or later) installed on a hardware-appropriate Windows workstation configured as a ProfessionalPlus for DeltaV Serial Interface Port License (VE4102)
Minimum DeltaV Hardware Requirements	FRSI DeltaV Serial Interface Series 2, Hardware PN: 12P2506X022 FRSI DeltaV M3, M5, MD, or MD Plus Controller, Power Supply and 2 wide controller carrier FRSI 8 wide I/O card carrier

2 THEORY OF OPERATION

The Programmable Serial Interface Card (PSIC) has 2 ports which can be configured for RS-232, RS-422/RS-485 Half Duplex or RS-422/RS-485 Full Duplex communications with external devices.

For communications with AutroSafe Fire Safety System panels, the PSIC is connected to the RS-232 port of the AutroSafe Fire Safety System. Only the first port of the PSIC is used in connecting to a AutroSafe Fire Safety System panel resulting in one panel per PSIC. This driver supports Redundancy

The driver runs in Master mode only. The panel has access to all 16 datasets of both ports in the PSIC, for a total of 32 datasets. The only restriction is the first dataset of port 1 must be an Operation Zone dataset.



AutroSafe
DeltaV Setup Information

Logon Phase: The driver automatically starts sending AutroSafe system Logon messages on startup after reboot or redundancy switchover. This will continue until the driver is logged in. In this phase until logon completion, the driver will assert an error message, “Trying to Logon”, on all configured datasets. DeltaV Diagnostics will show this error message at the dataset level, and all registers will indicate “Bad Device Failure”. Upon successful login, all errors will be cleared.

Initialize Phase: If the system is configured to automatically send the INIT command to AutroSafe, it will do so after login. In this phase, the driver will assert an error message, “Initialize in progress”, on all configured datasets. DeltaV Diagnostics will show this error at the dataset level, and all registers will indicate “Bad Device Failure”. All errors will be cleared upon receiving acknowledgement that initialization is complete.

If the driver is configured for manual Initialization, then the driver will wait for the user to initiate the INIT command. Once initiated, all datasets will show. “Initialize in progress”.

ReSynchronization Phase: After Login and Initialization completion, the driver will send an UpdateStatus command to AutroSafe (after reboot or redundancy switchover). The status of all points will be cleared, and then updated as new point value and alarm status information is received from AutroSafe. The new information received is only for points which are in alarm. Normal points are not reported by AutroSafe.

Consequently, for normal points, the PSIC will not have up to date point value information. To get this information, the PSIC will have to utilize the command/response mechanism. To avoid the heavy network load caused by this data reading, a user defined slow scan will be used.

Normal Scan Phase. The normal scan will follow these steps: (1) The driver will continuously monitor for alarm data messages arriving from AutroSafe. The messages will be parsed and the resulting information sent to DeltaV. (2) If no messages are received, the PSIC will determine if there are any DeltaV commands to send to AutroSafe. All pending commands will be handled first. (3) If no commands are pending, then the PSIC will determine if there are any points to be scanned via the command/response mechanism. If a group of points is found ready for a scan, these will be handled. (4) Lastly, the driver will periodically (every 10 seconds) send the AutroSafe Ping command. This will inform AutroSafe that the connection is valid. The ping acknowledgement received from AutroSafe will inform the driver that it still has a good connection. If a ping is lost, it will be retried immediately based on PSIC port parameters. Based on a user-defined Special Data parameter in the first dataset, a certain number of failed pings will be allowed before considering the connection bad and asserting a “Communication Failure-Ping Failed” error on all configured datasets.

On loss of ping in simplex mode, the driver will start sending Logon requests periodically (every 5 seconds) until communications are re-established. The driver will then request re-synchronization.

On loss of ping in redundant mode, the active PSIC will declare its field connection as dead. This will initiate a switchover, if the standby PSIC has a good connection. Both the active and standby PSICs will now try to logon and re-establish communications. The active PSIC will then request re-synchronization.

Write Functions

The driver will provide write commands from DeltaV to AutroSafe. The write commands will be for all supported point types. Available write commands are listed below for each data type.

User commands for units will follow the procedure below. Each type of dataset has it’s own register setup, please consult section 4.3.5 – 4.3.11 for the appropriate registers.

1. User will wait for command register (3rd register of the specific point) to be 0.

2. User will write command parameter (4th register). Some points require two parameters. These will be written into the 4th and 5th registers.

3. User will write command code into command register.

4. The driver will format the command and send it to AutroSafe. Upon receiving acknowledgement from AutroSafe, the driver will write a 0 into the command register. If AutroSafe rejects the command, the driver will write a 255 into command register.

Read Functions

Point alarm data will be received from AutroSafe on an "event driven" basis. Point value, e.g., temperature or smoke data will be scanned based on one of the following mechanisms:

1. A user defined scan rate. The resulting information will be sent to the DeltaV controller in dataset registers. The scan rate will be specified at the dataset level. The only datasets scanned will be those containing FPE and Detector data. Special data 1 register of each dataset will be scan time in minutes, in the range 0-288. Each count of the scan rate will correspond to 5 minutes. A value of 0 indicates no scan. A maximum value of 288 corresponds to 24 hours. When a dataset is ready for a scan, all points in that dataset will be scanned.

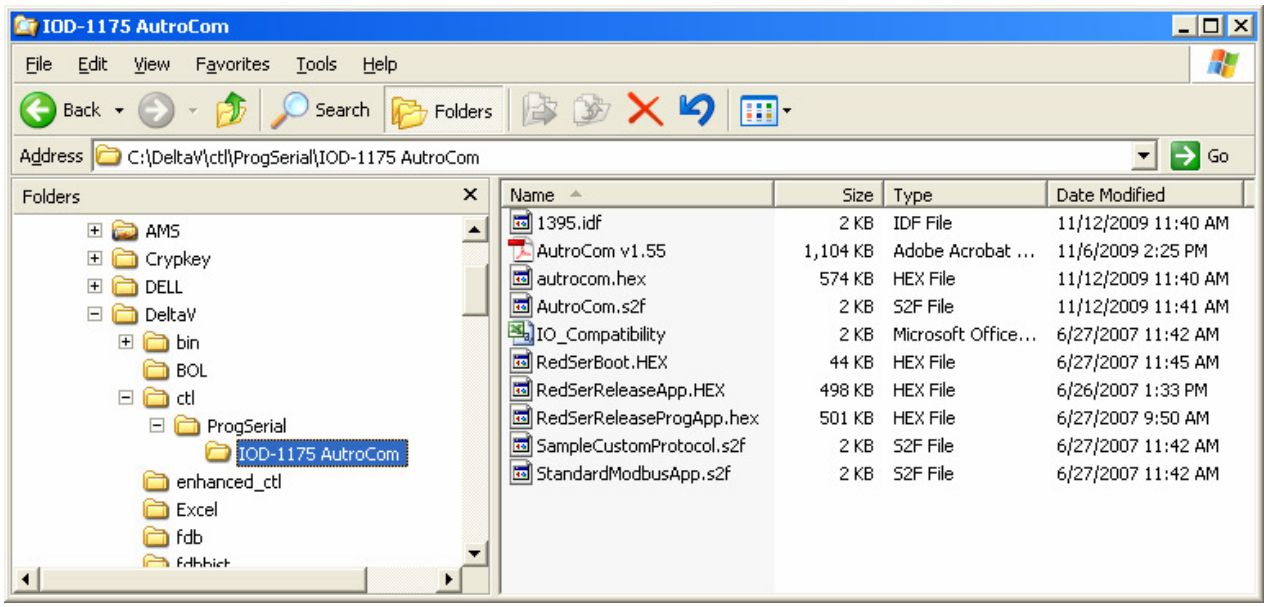
2. A user initiated read command. A DeltaV Control Module will be able to write a read command number into the point specific command register. The driver will send a read command, wait for the response, and update the dataset before sending any other commands.

3 DOWNLOADING THE FIRMWARE

The driver software distribution comprises 14 files, distributed on a CD. These files must be copied to the DeltaV directory on your ProPlus Workstation. The path is:

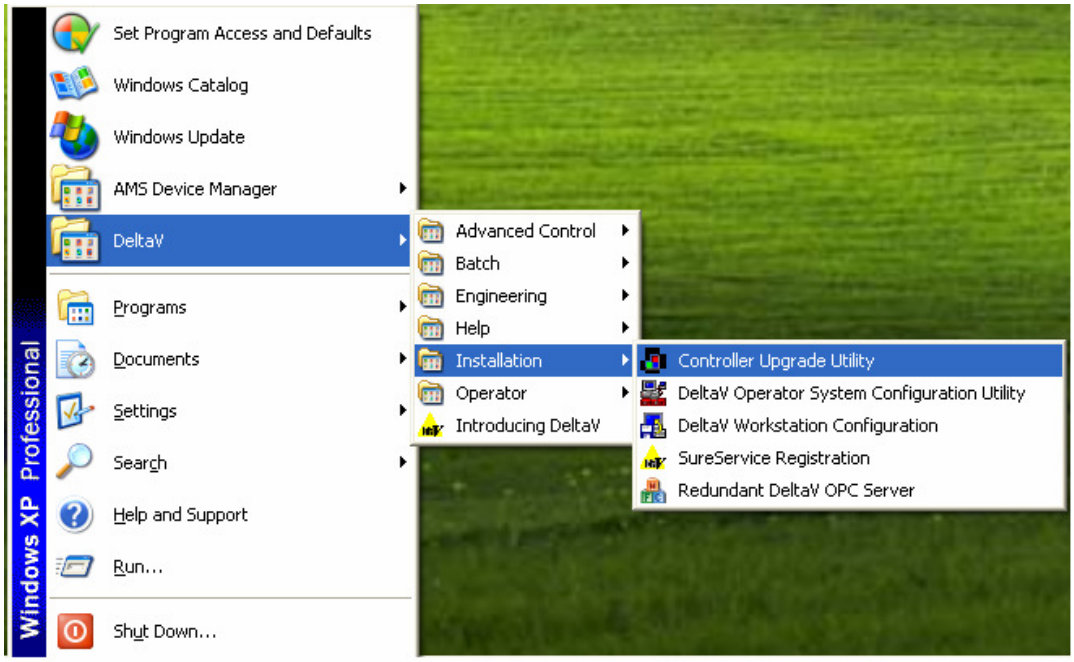
\DeltaV\ctl\ProgSerial\IOD-1175 AutroCom

Note that you will have to create the \IOD-1175 AutroCom subdirectory. The following files will be copied:

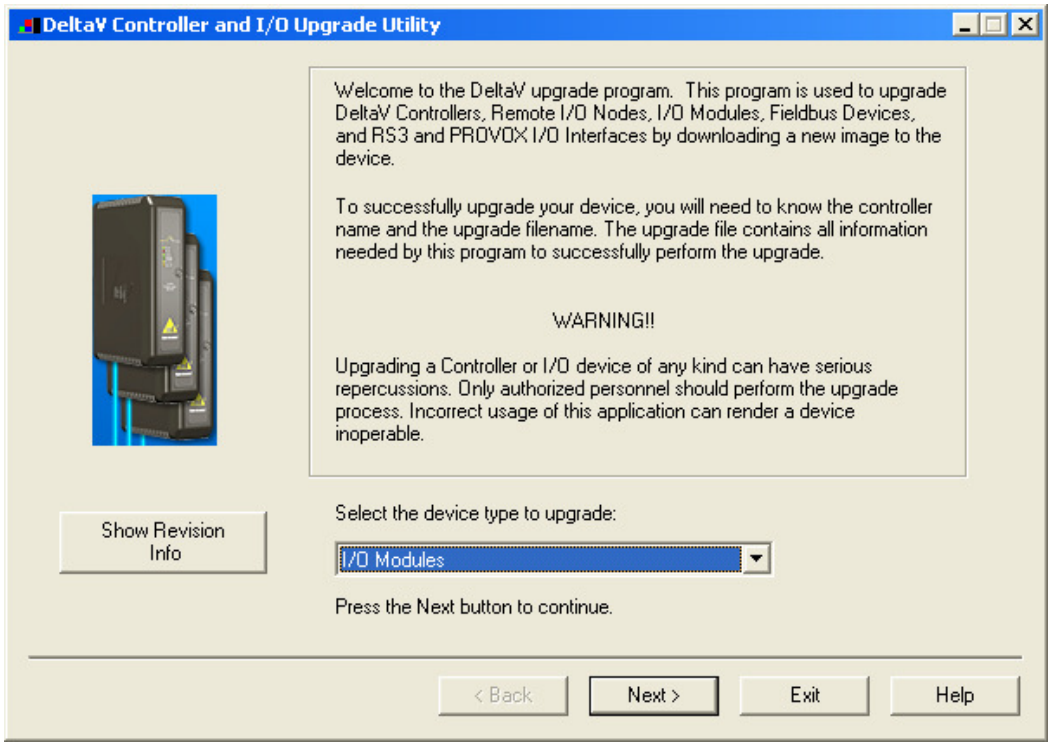


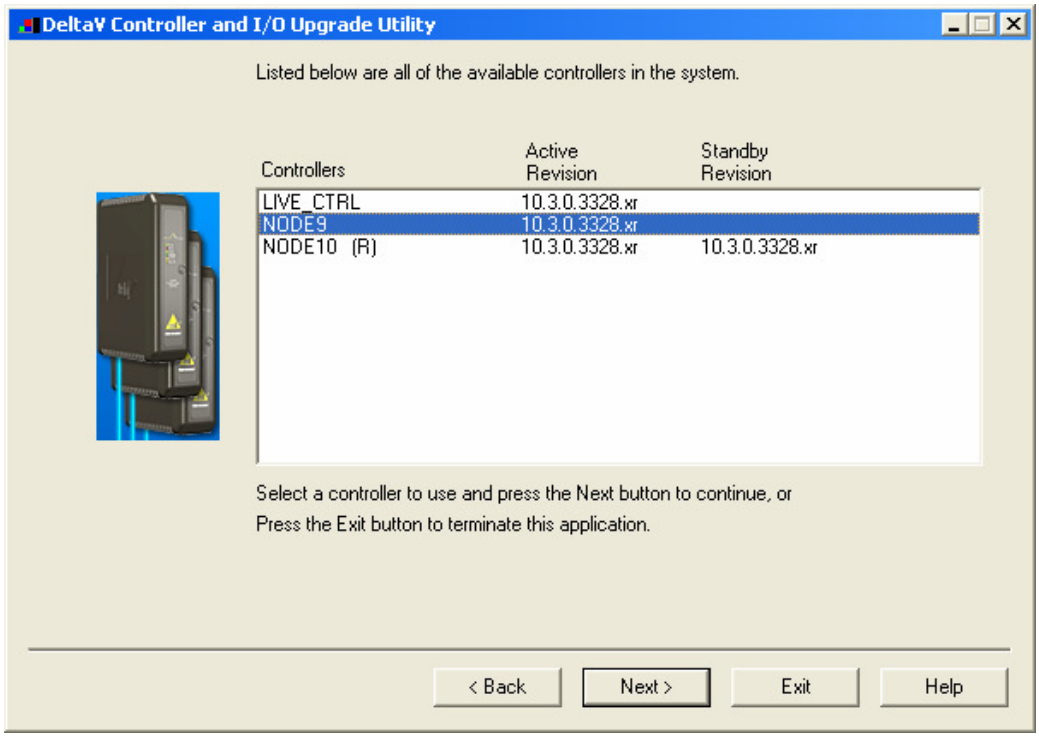
After copy completion, you are ready to program (or upgrade) the Programmable Serial Card with the supplied custom driver software. The steps are as follows:

1. Click on the Start button and select DeltaV-> Installation-> Controller Upgrade Utility as shown below, and the following dialog will appear:



2. Click on the Upgrade I/O Modules radio button, and then click Next.

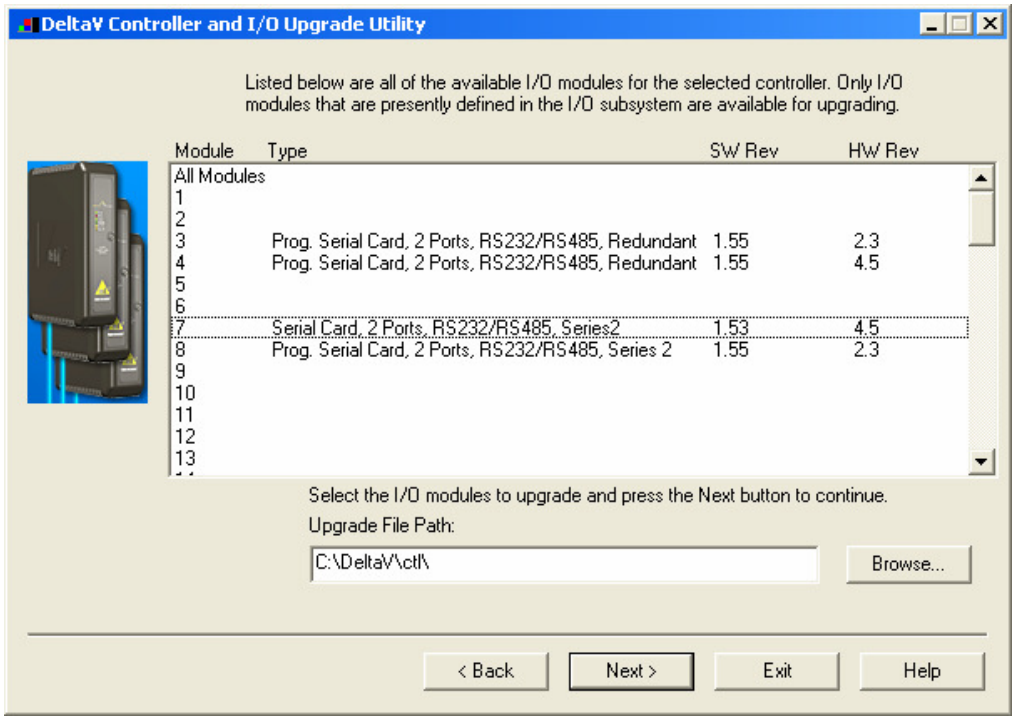




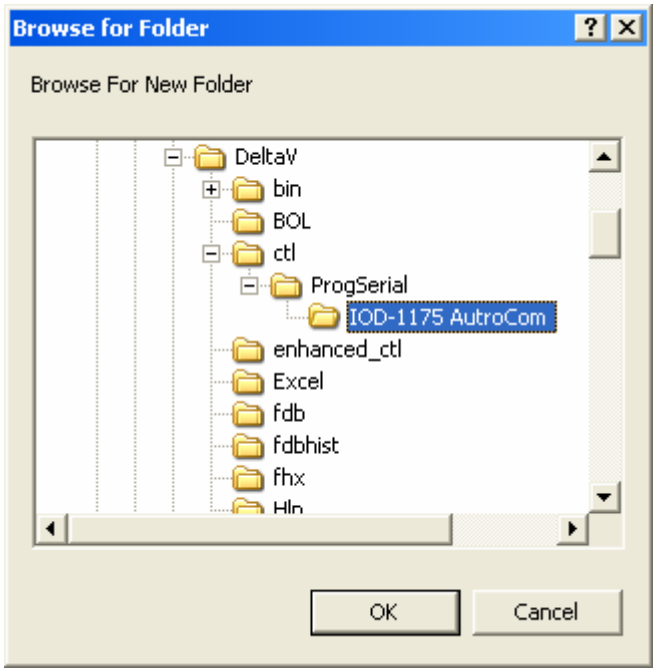
3. The above dialog will appear, listing all the available Controllers in your network. From this dialog, select the appropriate Controller and then Click Next.

4. The following dialog will appear, listing all the I/O modules in your selected Controller. The shown list of I/O modules is an example only. Your list will be different.

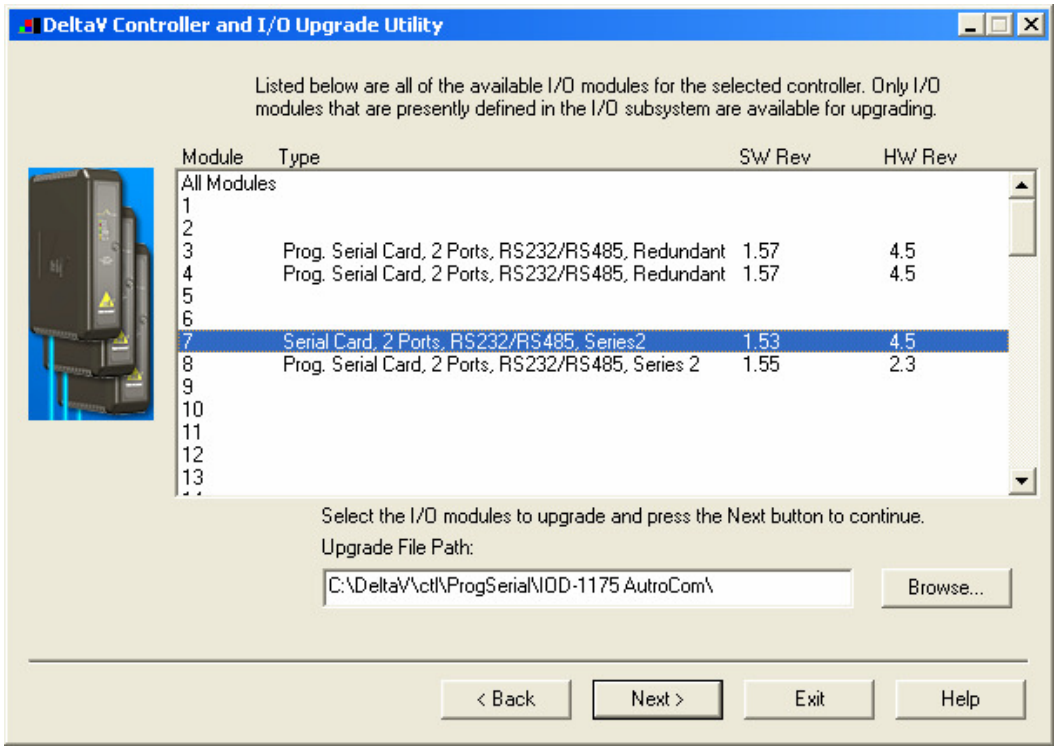
Note: The first time a standard Serial card is upgraded to the AutroCom Driver, the dialog will be as shown below. When upgrading an existing Programmable Serial Card, skip Steps 5 and 6, and go to Step 7.



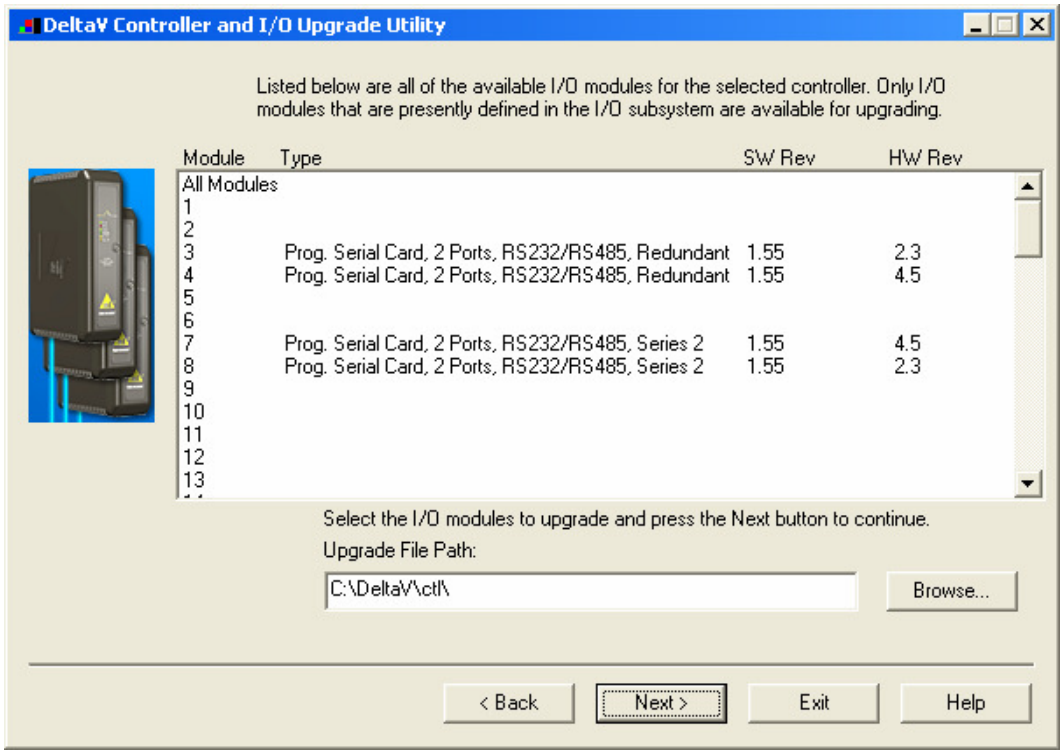
5. Click the Browse button and select the DeltaV path as shown below, and then click Ok. Note that the disk drive could be C or D.



6. Select the I/O module again as shown below and then click Next. Go to Step 9.



7. If you are upgrading an existing Programmable Serial Card, the dialog will be as shown below. From this dialog, select the Programmable Serial Card I/O Module in the list.



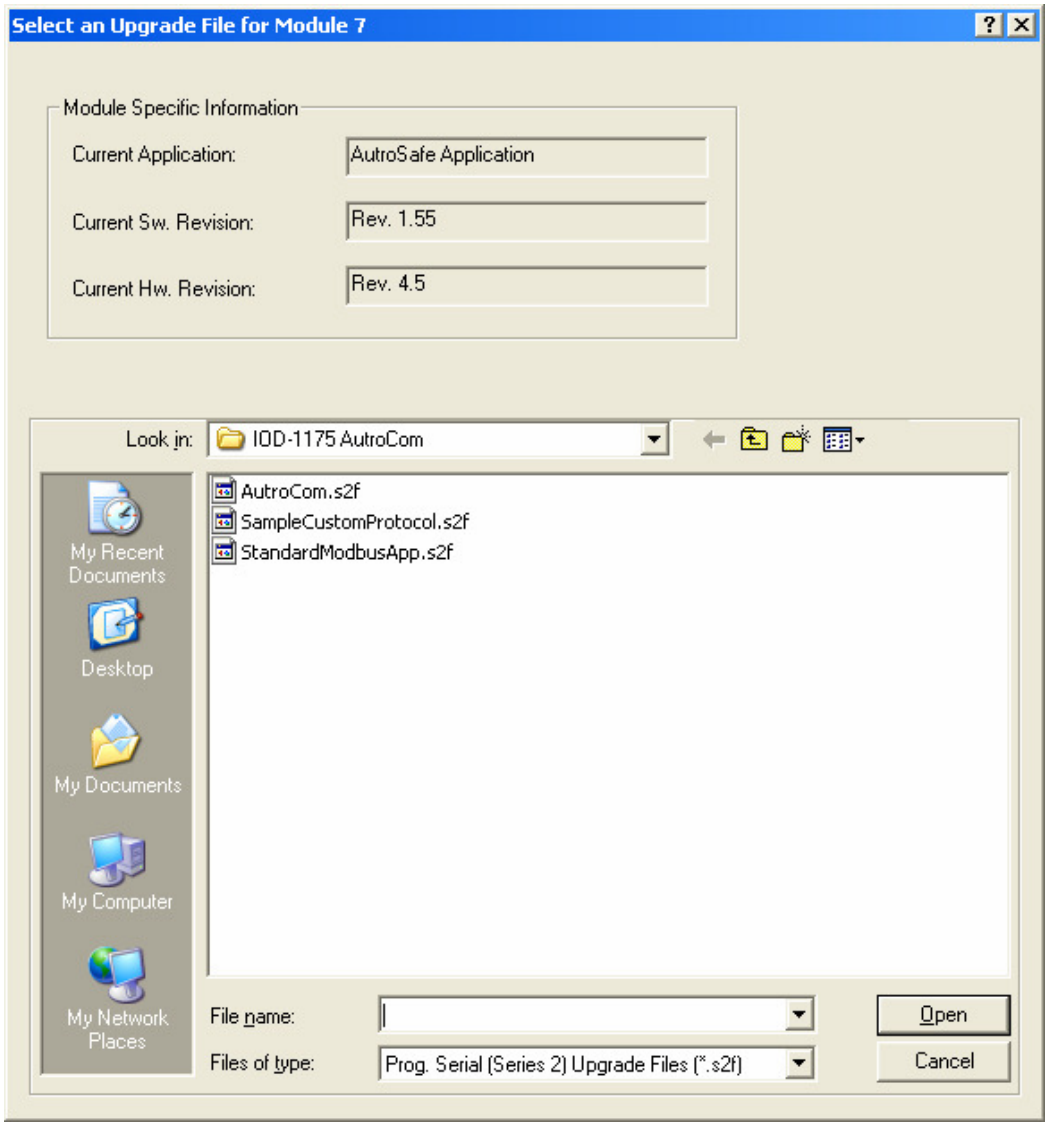
For example, we will select I/O Module 7. This will give you a dialog, from which you will select the file path to where the driver software is located. This path will be:

\DeltaV\ctl\ProgSerial\IOD-1175 AutroCom

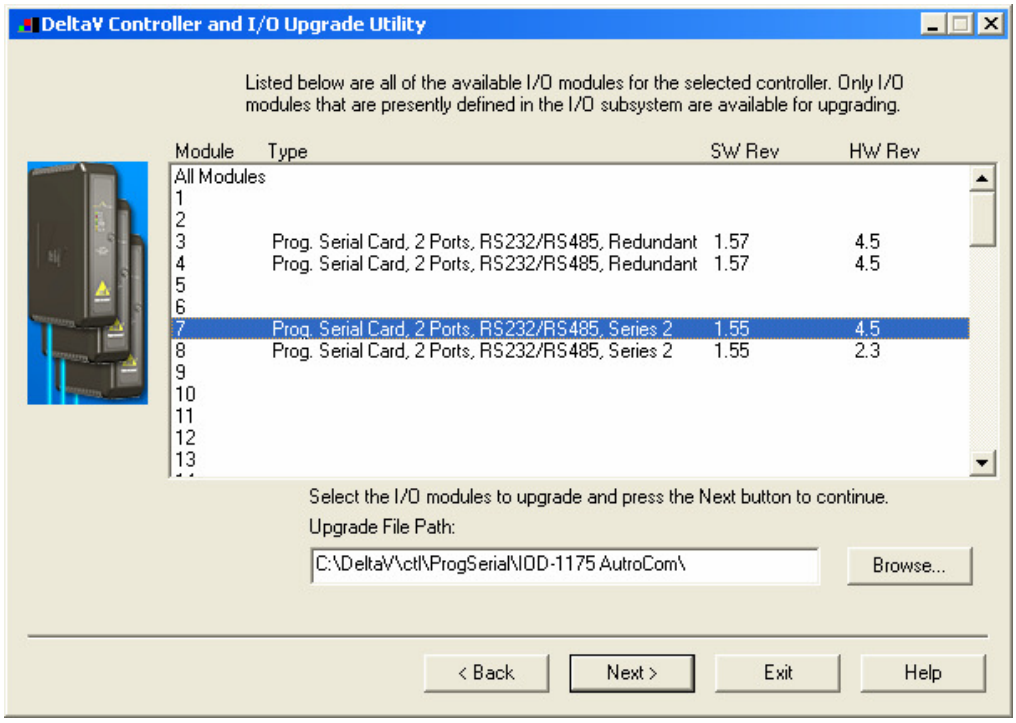
Once you are in the specified directory, you will need to select the following file:

AutroCom.S2F

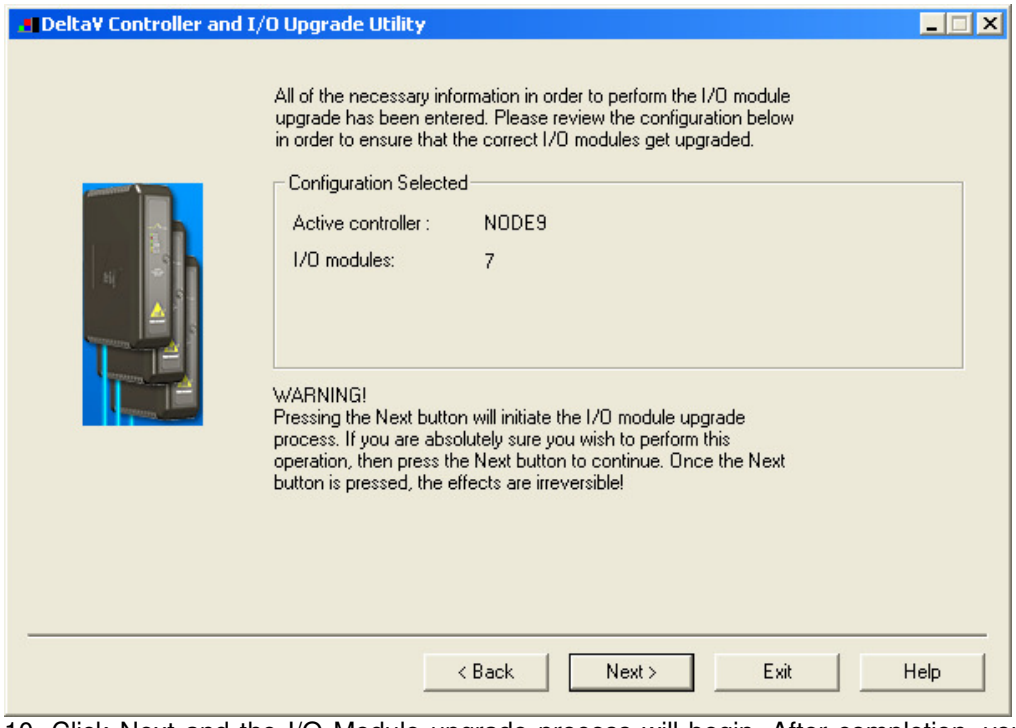
This is shown in the following dialog.



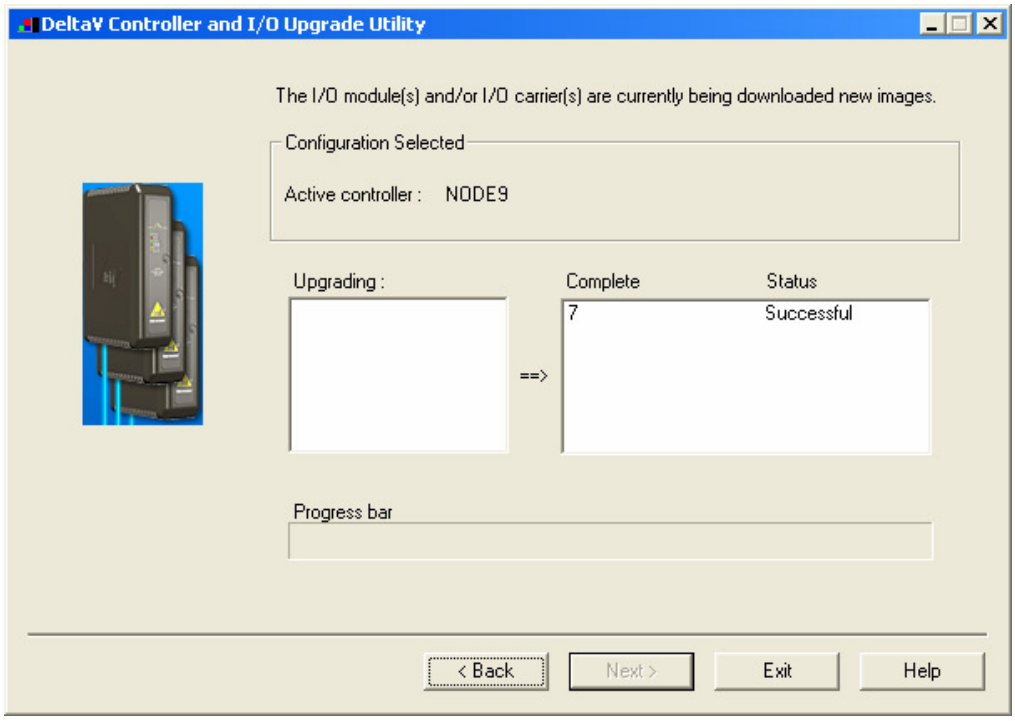
8. After selecting the .S2F file, Click on Open. This dialog will close and you will be back to the following:



9. In this dialog, Click Next again. You will get the following dialog, confirming the Controller and I/O Module to program.



10. Click Next and the I/O Module upgrade process will begin. After completion, you will receive the following dialog, indicating success.



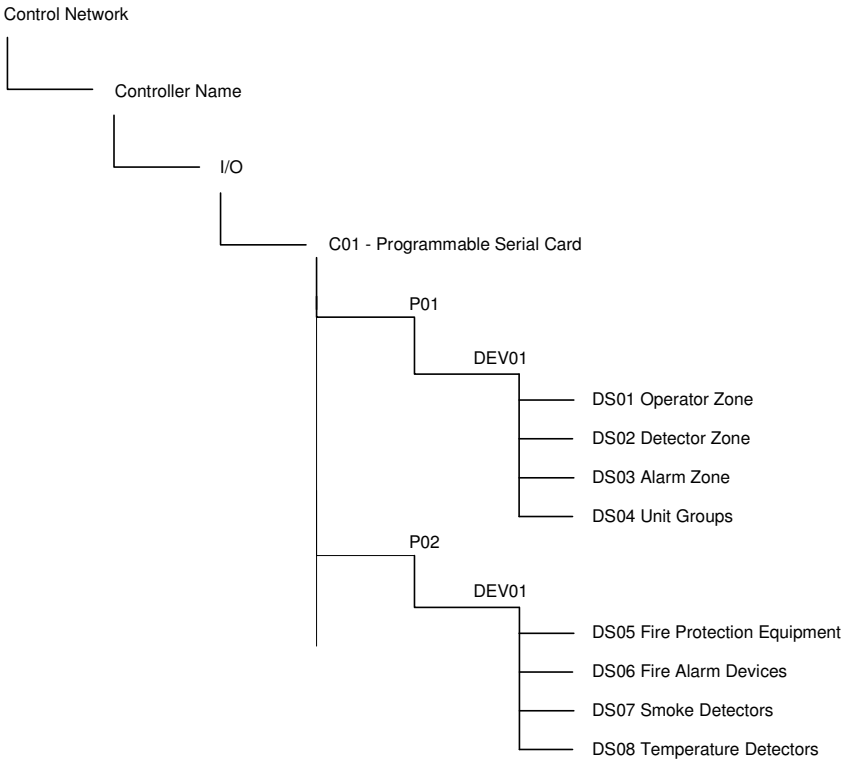
11. This completes the I/O Module upgrade process.

Please note that sometimes after flashing, the PSIC will be stuck in the "Trying to log on" error state. Remove the PSIC and reseat it to correct this.

4 CONFIGURATION INFORMATION

Under each port, there exist 16 datasets. The AutroSafe Fire Safety System panel can access all 16 datasets from both ports for a total of 32 datasets. There can only be one AutroSafe Fire Safety System per PSIC, connected to the first port. Under the port a device is created for the attached panel. The device address is not needed and may be disregarded in this driver. Under the device, one to 16 datasets may be configured to hold data and control different zones and devices in the AutroSafe Fire Safety System configuration. Dataset 1 of the first port must always be an Operation Zone dataset, otherwise the datasets may be configured in any way needed by the user.

The figure below shows an example AutroSafe Fire Safety System setup:



4.1 Port Configuration

The port should be configured as Master. Transmit delay may be left as the default. The Port Type should be defined as RS-232. The Baud Rate, Parity, Data Bits and Stop Bits should match the settings of the AutroSafe Fire Safety System panel.

4.2 Device Configuration

One device should be configured for the AutroSafe Fire Safety System panel connected to port 1. A device must be created on port 2 for access to datasets on that port. The device address is not used in this driver. Only one panel can be connected to a PSIC, through port 1, but datasets in port 2 are accessed in port 1.

4.3 Dataset Configuration

4.3.1 Data Direction:

All datasets should be configured as Output With Readback.

4.3.2 Device Data Type and Number of Values

Table 1 – Dataset Configuration

AUTROSAFE UNIT TYPE	DEVICE DATA TYPE	DeltaV DATA TYPE	DATA START ADDRESS	NUMBER OF VALUES
Operation Zone	0	16-Bit UINT	0	5-100
Detection Zone	1	16-Bit UINT	0	5-100
Alarm Zone	2	16-Bit UINT	0	4-100
Unit Group	3	16-Bit UINT	0	4-100
FPE	4	16-Bit UINT	0	4-100
FAD	5	16-Bit UINT	0	4-100
Temperature Point	6	16-Bit UINT	0	5-100
Smoke Point	7	16-Bit UINT	0	5-100
Measured Value Point	8	16-Bit UINT	0	5-100

4.3.3 Special Data

Three dataset types use Special Data values, Operation Zone (only the first dataset), Temperature Points, Smoke Points and Measured Value Points. Table 2 explains Special Data usage for the first dataset, which must be an Operation Zone.

Table 2 – Operation Zone Special Data values

Special Data	DESCRIPTION
1	0 (default) = Don't automatically initialize panel 1 = Initialize panel automatically.
2	Time in seconds to wait before sending the Initialization command if Special Data 1 is set to a 1. It is recommended that this be set to a minimum of 5 if auto initialization is being used.
3	Number of failed Pings to allow before an error is set (Pings sent every 10 seconds). It is recommended that this be set to 2 or higher.
4	How long to wait in seconds before setting an error when no idle frames are being received from the panel. It is recommended that be set to 10 or higher.
5	Time in increments of 5 minutes to wait between the end of an automatic scan and start of new scan.

For Temperature, Smoke and Measured Value Points, enter a 1 into Special Data 1 to enable automatic scanning of that dataset for values. The default value of 0 in Special Data 1 removes all configured points in this dataset from the automatic scan. These points may be manually scanned via a user command. If data is not required, an automatic scan does not need to be enabled.

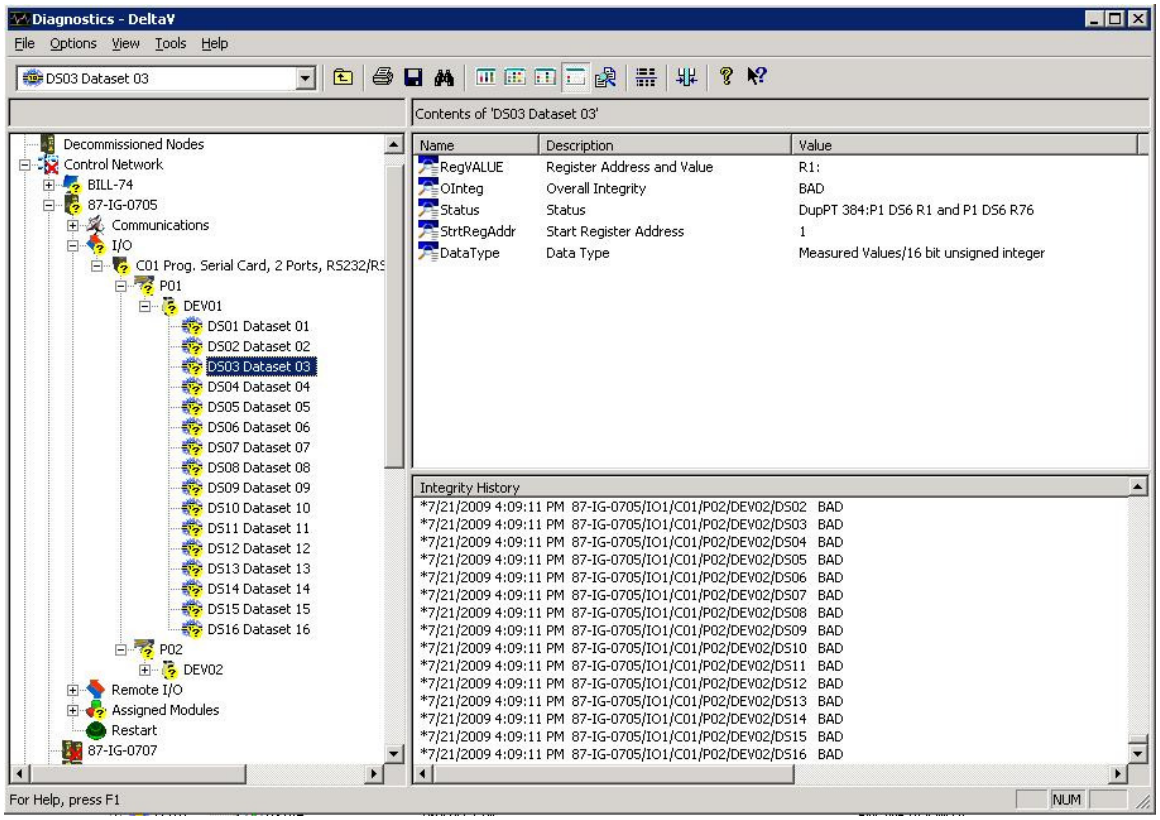
4.3.4 Duplicate ID's

Duplicate ID's of any Device Data Type are not supported. If duplication is detected the driver will set the entire card into an error state and prevent the serial card from communicating until the error is corrected. Multiple duplicate ID's are detected one at a time. Error information will be asserted on all the datasets and DeltaV Diagnostics will display the error message at the dataset level. Below is an example of the error string and an explanation.

DupPT 384: P1 DS6 R1 and P1 DS6 R76

This indicates that Point ID 384 was duplicated in Port 1 Dataset 6 Register 1 and Port 1 Dataset 6 Register 76.

To correct this error, change the dataset configuration and download the serial card. The following screen shot shows the error in DeltaV Diagnostics.



4.3.5 Operation Zone

Table 3 – Register Mapping

Register	Description
1	OZ Unit Id to control 1-252
2	OZ Status
3	OZ Command Code
4	OZ Command Parameter 1
5	OZ Command Parameter 2
…	…
96	OZ Unit ID to control 1-252
97	OZ Status
98	OZ Command Code
99	OZ Command Parameter 1
100	OZ Command Parameter 2

Table 4 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	None	Enable Zone
2	58-D	1-Timeout Value (Relative)	Disable Zone
3	50-A	None	Initialize System
4	50-C	None	Reset System (Clear Alarms & Faults)
5	50-D	None	Alarm Disable
6	50-E	None	No Alarm Disable
7	50-F	None	Reactivate
8	50-G	None	Silence Sounders
9	50-H	None	Resound Sounders
10	50-W	None	Reset Alarms
11	N/A	None	Rebuild the driver's internal database.
12	50-K	1-High 16 bits of 32 bit Absolute Time (seconds since 1/1/1970) 2-Low 16 bits of 32 bit Absolute Time	Set System Time

Note: Command 11 is only needed if unit id's are being changed while online, and only after a redundant switchover. While online the secondary card will not receive changes in unit id's, or new unit id's

.

Table 5 – Status Bits

Bit	Description
1	Fault
2	Ready (Initialized)
3	Command In Progress
4-16	Not Used

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

4.3.5 Detector Zone

Table 6 – Register Mapping

Register	Description
1	DZ Unit Id to control 1-16380
2	DZ Status
3	DZ Command Code
4	DZ Command Parameter 1
5	DZ Command Parameter 2
…	…
96	DZ Unit ID to control 1-16380
97	DZ Status
98	DZ Command Code
99	DZ Command Parameter 1
100	DZ Command Parameter 2

Table 7 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	1-Handle of individual disabled FADs (0-1)	Enable Zone
2	58-D	1-Timeout Value (Relative) 2-Handling of manual call points (0-1)	Disable Zone

Table 8 – Status Bits

Bit	Description
1	Fault
2	Type – 0=Fire, 1=Gas
3	Alarm
4	Alarm Accepted
5	Early Warning
6	Early Warning Accepted
7	PreAlarm
8	PreAlarm Accepted
9	Quiescent
10-16	Not Used

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

4.3.6 Alarm Zone

Table 9 – Register Mapping

Register	Description
1	AZ Unit Id to control 1-1020
2	AZ Status
3	AZ Command Code
4	AZ Command Parameter
…	…
97	AZ Unit ID to control 1-1020
98	AZ Status
99	AZ Command Code
100	AZ Command Parameter

Table 10 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	1-Handle of individual disabled FADs (0-1)	Enable Zone
2	58-D	1-Relative Timeout Value	Disable Zone
3	64-I	None	Activation ON
4	64-O	None	Activation OFF
5	64-L	None	Activation ALERT
6	64-B	None	Activation BELL TEST
7	64-V	None	Activation EVACUATE
8	64-G	None	Activation GENERAL ALARM

Table 11 – Status Bits

Bit	Description
1	Fault
2	Activation Status: Alert
3	Activation Status: Bell Test
4	Activation Status: Evacuate
5	Activation Status: General Alarm
6	Activation Status: Steady On
7	Activation Status: Off
8	Activation Act Status: Alert
9	Activation Act Status: Evacuate
10	Activation Act Status: Off
11	Silenced
12-16	Not Used

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

4.3.7 Unit Group

Table 12 – Register Mapping

Register	Description
1	UG Unit Id to control 1-252
2	UG Status
3	UG Command Code
4	UG Command Parameter
…	…
97	UG Unit ID to control 1-252
98	UG Status
99	UG Command Code
100	UG Command Parameter

Table 13 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	None	Enable Point
2	58-D	1-Relative Timeout Value	Disable Point
3	64-I	1-Group Type (0-1)	Activation ON
4	64-O	1-Group Type (0-1)	Activation OFF
5	64-L	1-Group Type (0-1)	Activation ALERT
6	64-B	1-Group Type (0-1)	Activation BELL TEST
7	64-V	1-Group Type (0-1)	Activation EVACUATE
8	64-G	1-Group Type (0-1)	Activation GENERAL ALARM

Table 14 – Status Bits

Bit	Description
1	Fault
2-16	Not Used

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

4.3.8 Fire Protection Equipment

Table 15 – Register Mapping

Register	Description
1	FPE Unit Id to control 1-2044
2	FPE Status
3	FPE Command Code
4	FPE Command Parameter
…	…
97	FPE Unit ID to control 1-2044
98	FPE Status
99	FPE Command Code
100	FPE Command Parameter

Table 16 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	None	Enable Point
2	58-D	1-Relative Timeout Value	Disable Point
3	64-I	1-FPE Value (0-255)	Activation ON
4	64-O	1-FPE Value (0-255)	Activation OFF

Table 17 – Status Bits

Bit	Description
1	Fault
2	Operation State: On
3	Operation State: Off
4	Operation State: Not Initialized
5	Operation State: Initializing
6	Operation State: Init Failed
7	Operation State: Timeout On Init
8	Operation State: Void
9	Activation State: On
10	Activation State: Off
11	Activation State: Off Pending Act
12-16	Not Used

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

4.3.9 Fire Alarm Devices

Table 18 – Register Mapping

Register	Description
1	FAD Unit Id to control 1-2044
2	FAD Status
3	FAD Command Code
4	FAD Command Parameter
…	…
97	FAD Unit ID to control 1-2044
98	FAD Status
99	FAD Command Code
100	FAD Command Parameter

Table 19 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	None	Enable Point
2	58-D	1-Relative Timeout Value	Disable Point
3	64-I	1-FPE Value (0-255)	Activation ON
4	64-O	1-FPE Value (0-255)	Activation OFF
5	64-L	None	Activation ALERT
6	64-B	None	Activation BELL TEST
7	64-V	None	Activation EVACUATE
8	64-G	None	Activation GENERAL ALARM

Table 20 – Status Bits

Bit	Description
1	Fault
2	Operation State Bit 1
3	Operation State Bit 2
4	Operation State Bit 3
5	Operation State Bit 4
6	Activation State: Alert
7	Activation State: Bell Test
8	Activation State: Evacuate
9	Activation State: General Alarm
10	Activation State: Steady On
11	Activation State: Off Pending Act
12-16	Not Used

FAD Operation State:

0= State Unknown(default)
1= Alert
2= Bell Test
3= Evacuate
4= General Alarm
5= Steady On
6= Off
7= Not Initialized
8= Initializing
9= Init Failed
10= Timeout On Init

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

4.3.10 Temperature, Smoke and Measured Value Points

Table 21 – Register Mapping

Register	Description
1	Point Unit ID to control 1-32764
2	Point Value
3	Point Status
4	Point Command Code
5	Point Command Parameter
…	…
96	Point Unit ID to control 1-32764
97	Point Value
98	Point Status
99	Point Command Code
100	Point Command Parameter

Table 22 – Supported Commands

Command Code	AutroCom Command	Parameters	Description
1	58-E	None	Enable Point
2	58-D	1-Relative Timeout Value	Disable Point
3	92-S	None	Smoke Measurement Value
4	92-T	None	Temperature Value
5	92-M	None	Measured Point Value

Table 23 – Status Bits

Bit	Description
1	Fault
2	Alarm
3	Alarm Test
4	Early Warning Test
5	Early Earning
6	PreAlarm Test
7	PreAlarm
8	Quiescent
9	Unknown Disabled
10	Driver received multi-byte value, only first byte used.
11-16	Not Used

Note: If all bits are 0, this means we have not received any status at all. Once any statuses are received, the value will never go back to 0.

Note: The driver accepts single byte responses only. If a device/detector responds with multiple bytes, only the first byte is used, and all remaining bytes are discarded. The driver sets bit 10 of the status word to indicate this error condition.

4.3.11 Command Examples

Example 1: Disabling Point 33

1. Enter 33 into register 1, telling the driver which point to send to. Note that in the AutroSafe configuration utility the addresses are in hexadecimal as opposed to decimal, which is what the PSIC uses.
2. Wait for register 4 to go to equal 0.
3. Enter a timeout value of 1 or more into register 5. A value of 1 equals 5 minutes, 2 equals 10 minutes, and so on.
4. Enter 2 into register 4 to send the command.
5. When the command has been sent register 4 will return to 0.

Example 2: Silencing alarms in Operation Zone 1

1. Enter 1 into register 1, telling the driver which Operation Zone to send to.
2. Wait for register 3 to equal 0.
3. Enter 8 into register 3.
4. When the command has been sent register 0 will return to 0.

Note: In each case above, the register 1 value should already be present as part of the point configuration.

5 OPERATIONAL CHECK

5.1 Scope

The following sections provide some assistance to ensure the interface is working properly.

5.2 Verify Hardware and Software Version Number

The user can verify that the AutroSafe Fire Safety System driver has been installed using the DeltaV Diagnostics tool. The Diagnostics tool will show the Hardware Revision No. (HwRev) and the Software Revision No. (SwRev).

To begin the DeltaV Diagnostic tool select Start-> DeltaV-> Operator-> Diagnostics. In the Diagnostics tool expand the Controller, I/O and then double click on the Programmable Serial Interface Card that has the driver installed.

The following information will be displayed:

:	:	:
SwRev	Software Revision	1.10 (or later)
HwRev	Hardware Revision	2.3 (or later)

5.3 Verify Configuration

- Verify port configuration: The serial port must be enabled. It must be set to Master mode. User needs to make sure communication settings such as baud rate, parity, and number of data bits match the AutroSafe Fire Safety System settings.

- Verify Dataset configuration: All datasets should be output with readback, 16-bit UINT registers.

5.4 Verify I/O Communication With Control Studio

- User can create I/O modules in the control studio to verify correct values are read and written between the foreign device into the PSIC. For input data, the values should be changed in the foreign device and verified that the new data are correctly reported. For output data, change the values in the controller and then verify that the values are transferred to the foreign device.

- To assign a Dataset and a register in the Dataset to an I/O module, follow these steps:

    1. Double click the IO_IN/IO_OUT parameter for the module. This brings up the IO_IN/IO_OUT Property window.

    2. Click on the Browse button. This brings up the Browse window.

    3. Click on the Object_Type drop down list, select All. This displays all the Dataset tags.

    4. Double click on the desired Dataset tag. This assigns the tag to the module and closes the Browse window.

    5. Choose the desired register in the Parameter drop down list.

    6. Click the OK button.

- For output modules, user also needs to change the MODE parameter to Manual for Normal Mode and Target.

5.5 Using Diagnostics

- Verify PSIC communication: Select the PSIC on Diagnostics and press the right mouse button. Select Display Real -Time Statistics from the drop down menu. If the Programmable Serial Interface Card is functioning then the user will see the Valid Responses counter and the Async and/or Sync Transactions counters incrementing. There will not be any error counting up.

- Verify port statistics: Select the Port on the Programmable Serial Interface Card and press the right mouse button. Then select Display Port Statistics form the drop down menu. Verify that the port communications statistics are being displayed properly and are counting as expected for the protocol's functionality.

- Verify dataset values: Select a dataset and press the right mouse button. Select View Dataset Registers from the Drop down window. Verify that the dataset values are displayed as expected.

- Also see Section 4.3.4

5.6 LED Indication

The Yellow LED for the port should be on solid when all communications on that port are valid. The Yellow LED should be blinking if there is some valid communications and some communications with errors on that port. The Yellow LED should be OFF if there are no valid communications on that port. The Green and Red LEDs should blink if the card is in stand by when used in redundant configurations.

6 DeltaV–FIELD DEVICE ELECTRICAL INTERFACE

The electrical interface between DeltaV and field devices conforms to the RS-232 and RS-422/485 standards.

Each PSIC has 2 ports. The AutroSafe Fire Safety System operates in RS-232 Full-Duplex mode only. If RS-485 is required for distance, the appropriate converter must be used.

6.1 Pin Assignments for DeltaV PSIC

RS-232 Standard

Table 24

Terminal Number	Signal Description
1	Port 1 – Isolated Ground (GND)
2	Unused
3	Port 1 - TXD
4	Unused
5	Port 1 - RXD
6	Unused
7	Port 1 - DTR
8	Port 1 - DSR
9	Port 2 – Isolated Ground (GND)
10	Unused
11	Port 2 - TXD
12	Unused
13	Port 2 - RXD
14	Unused
15	Port 2 - DTR
16	Port 2 - DSR

6.2 Pin Assignments for AutroSafe EAU-321 Board

Below is the pin assignments as shown in document P-EAU-321/CE – 020910 Rev. A.

Table 25

Terminal Number	Port Number	Signal Description
1	1	DCD
2	1	DCR
3	1	RXD
4	1	RTS
5	1	TXD
6	1	CTS
7	1	DTR
8	1	R1
9	1	GND
10	1	Unused
11	2	DCD
12	2	DCR
13	2	RXD
14	2	RTS
15	2	TXD
16	2	CTS
17	2	DTR
18	2	R1
19	2	GND
20	2	Unused

6.3 AutroSafe Panel Configuration

To utilize an AutroSafe Panel, a configuration must first be uploaded to it. A special serial cable, the XJ-A019 cable, must be created to connect to the pin headers inside the panel. Table 26 shows the wiring connections that need to be made, from XJ-A0129 document.

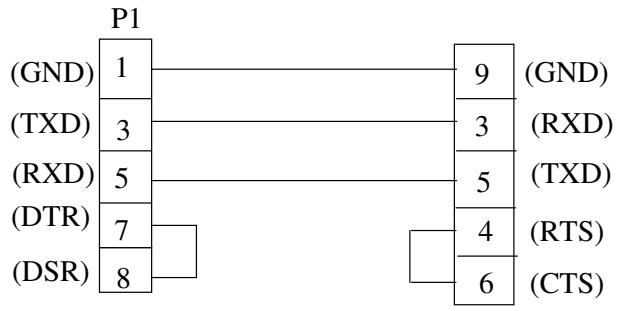
Table 26

Signal	9-Pin PC Connector	Connector To Panel
RXD	2	3
TXD	3	2
GND	5	1

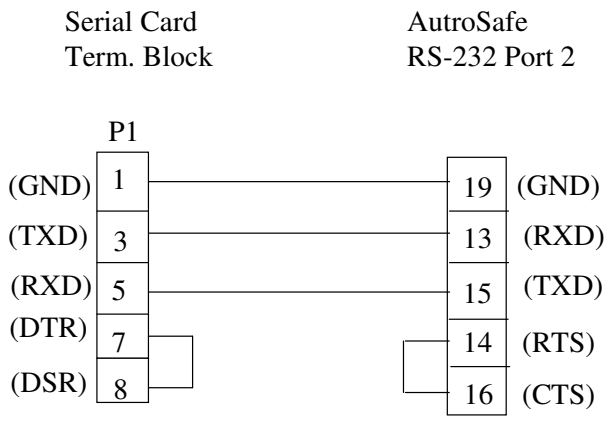
Please contact Autronica for instructions on how to flash the panel.

6.4 Wiring Connections

The figure below shows the connections between the AutroSafe Fire Safety System RS-232 port 1 and Port 1 on the Serial Card Termination Block.



For Redundant connections, a second PSIC is connected to the AutroSafe Fire Safety System RS-232 port 2.



7 TECHNICAL SUPPORT

For technical support or to report a defect, please give Mynah Technologies a call at (636) 681-1555. If a defect is discovered, please document it in as much detail as possible and then fax your report to us at (636) 681-1660.

You can also send us your questions via e-mail. Our address is:

support@mynah.com

Thank you for using DeltaV.

8 Revision History

Revision Number	Checked By	Approved By	Date	Description
1.10 – 1.17	EC	NFW	May, 2007	Internal Release for testing
1.18	EC	NFW	Sept, 2007	Added time synchronization command so that time data can be sent from DeltaV Control Modules to AutroSafe.
1.19	EC	NFW	Jan, 2009	Changed the AutroCom Login request string on driver startup. In v1.18, the login request string had an invalid character. The driver still worked because the AutroCom system tested (v3.6.0) did not report an exception. The correct string is required by AutroCom v3.7.0. Initial general driver release
1.20	EC	NFW	July, 2009	Added duplicate ID detection and corresponding error handling.
1.21	EC	NFW	Aug, 2009	1. Corrected database locking defect 2. Added AutroCom alarm state query after receiving new serial card download so that alarm states can be refreshed.
1.22	EC	NFW	Sept, 2009	1. Added AutroCom alarm state query after detecting loss of communications, and subsequent communications restoration. 2. Added redundant card switching request on duplicate ID detection, so that both Active and Standby cards will assert the error.
1.55	NFW	NFW	Nov, 2009	Updated the driver to use the current Emerson Serial Driver Toolkit v3.01. This build of the driver is required for Serial cards HW v5.6 or later. This build of the driver can be flashed in Serial cards with HW version prior to v5.6. However, thereafter the serial card will only accept a Toolkit v3.01 based driver.