



# Safe Fire Protec Driver FS-8705-57

Chipkin - Enabling Integration

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# 1 SafeFire - Protec Driver Description

There is more than one SafeFire driver. This one, developed for SafeFire for **Protec Cirrus Hybrid** and **Propoint Plus**

The Driver can read and write data, change settings and issue commands to the Protec panels. A single gateway can connect to multiple Protec panels on a RS485 bus using this driver. Each FieldServer gateway has 2x RS485 ports and thus two trunks of Protec panels can be monitored by one FieldServer Gateway

The data that is read will be cached for serving via a 2<sup>nd</sup> protocol such as DNP3 to Cimplicity or Modbus / BACnet for a building management system. Any of the over 140 protocols in the gateway library may be connected to the Protec Driver.

The gateway requires minimal configuration and has an **auto discovery** process and therefore can be considered a plug and play component of a system, in that it is ready to operate out of the box with the default configuration.

A rudimentary web page is provided for testing.

### Max Nodes Supported

FIELDSEVER MODE	NODES	COMMENTS
Client	Many Protec limitation is 98	One Gateway can connect to many irrigation controllers provided each has a unique NodeID.
Server	0	This driver cannot be used to simulate a Protec Device

## 2 Driver Scope of Supply

### 2.1 Supplied by FieldServer Technologies for this driver

FIELDSEVER TECHNOLOGIES PART #	DESCRIPTION
-	No specific cables are shipped with this driver.
-	
FS-8705-57	Driver Manual.

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

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

PART #	DESCRIPTION

#### 2.2.2 Required 3<sup>rd</sup> Party Software

None known.

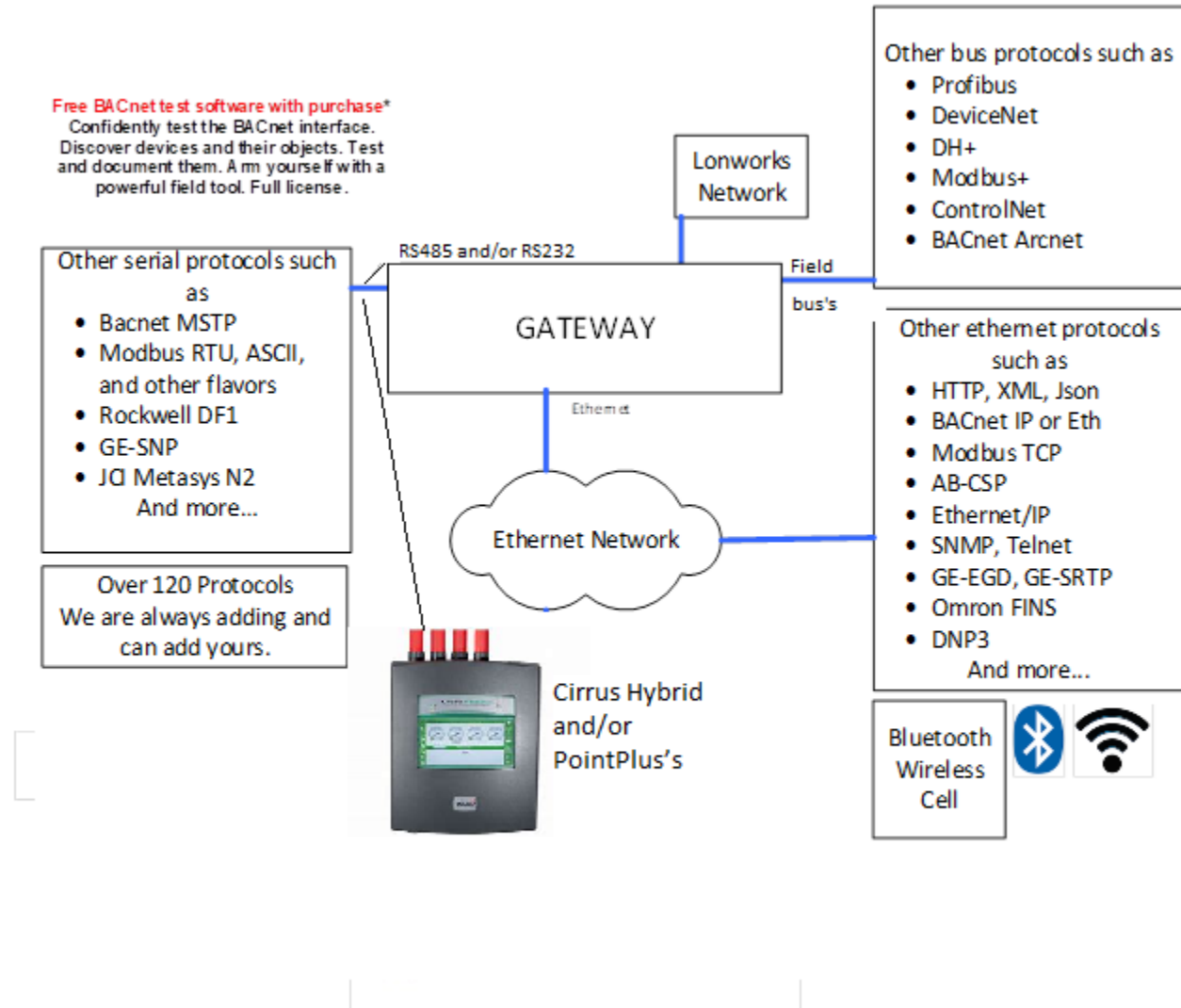
#### 2.2.3 Required 3<sup>rd</sup> Party Configuration

None known.

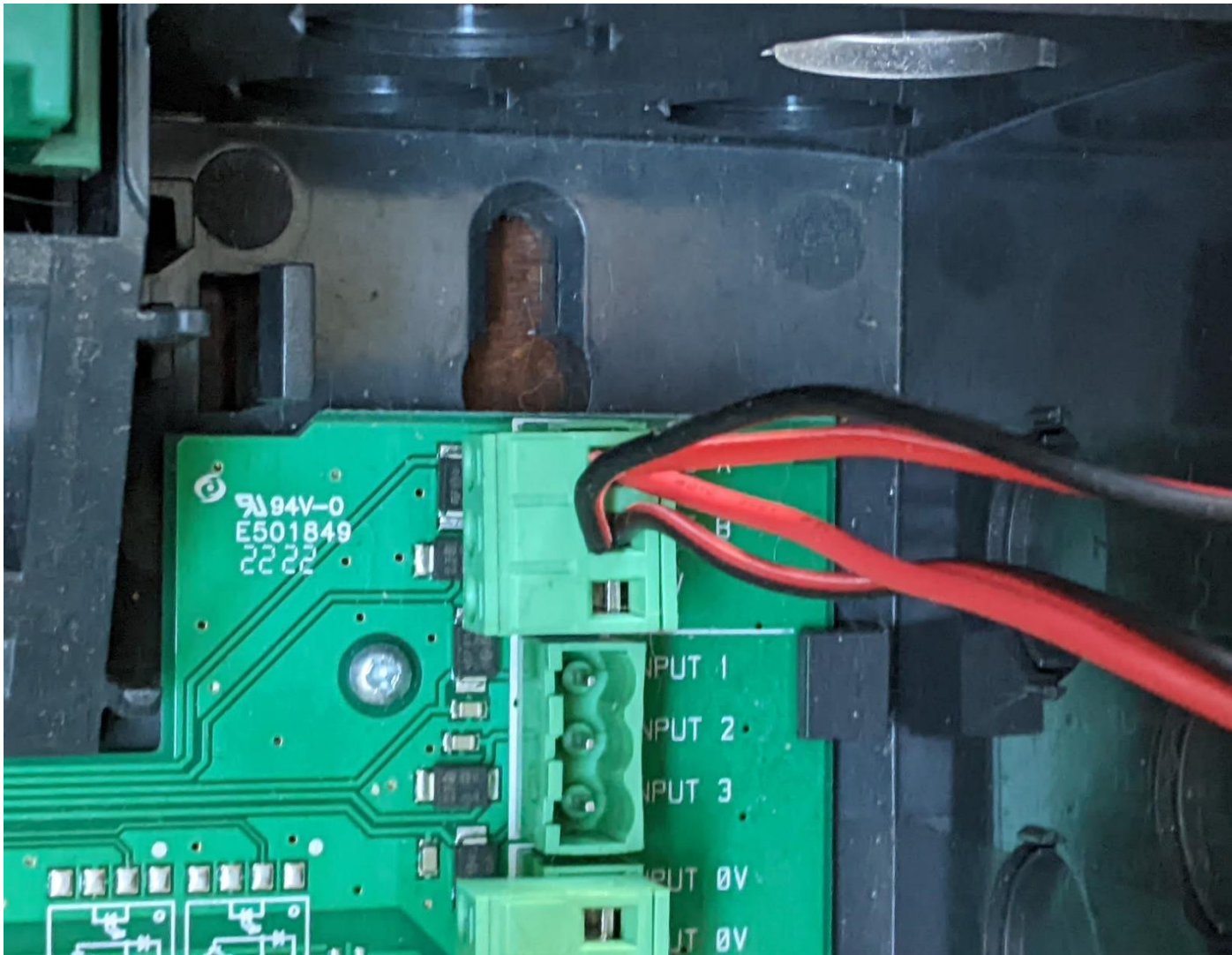
### 3 Hardware Connections

#### 3.1 Typical Block Diagram

Multiple upstream protocols and connection supported. See list of FieldServer Drivers.



### 3.2 Hardware Connection Tips / Hints



RS485 is meant to be carried on a twisted pair with a drain wire connected to the shield.

Daisy chain the Cirrus Hybrid or PointPlus's using a RS485 cable.

## 4 Configuring the FieldServer as a Protec 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 Comput25 controller.

### 4.1 Data Arrays/Descriptors

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the gateway for Protec 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, UInt32, 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,

Dev03_FLT,                 UNT16,                 200
```



## 4.2 Client Side Connection Descriptions

Create one adapter for each Ethernet port. Each connection can only be used to connect to a single PRO2000 interface/port.

SECTION TITLE		
Adapters		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Connections	Specify which serial port the device is connected to the gateway	R1, R2
Protocol	Specify protocol used	Protec
Protec_Token_Timeout	If the token stops passing then this timer is used to restart the token	Suggest 1000secs
Protec_MaxNode	During autoconfig this parameter is used to limit how many panels can be detected.	<b>Eg 10</b> <b>During discovery, the gateway will try and find node 1-10 and will ignore node number &gt; 10</b>

### Example

Connections

Port , Baud , Parity , Data\_Bits , Stop\_Bits , Protocol , poll\_delay , timeout , ic\_timeout , Protec\_MaxNode , Protec\_Token\_Timeout

R1 ,19200 , None ,8 , 1 , Protec ,0.01secs , 2.35secs , 0.5secs , 10 , 1000s /

### 4.3 Client Side Node Descriptors

Create one Node per Protec Controller.

SECTION TITLE		
Nodes		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	Station address of physical server node	Whole Numbers 0,1,2,...
Protocol	Specify protocol used	Protec
Adapter	Specify which network port the device is connected to the gateway	N1.N1

**Example:**

```

Nodes

Node_name , Node_ID, Protocol , Port , Retry_Interval , Recovery_Interval

Cirrus_01 , 1 , Protec , R1 , 0.1secs , 0.1secs
    
```

The Retry and Recovery Interval are set to low numbers during testing – it saves waiting times  
 Default values are 10secs and 30secs

#### 4.4 Client Side Map Descriptors

##### 4.4.1 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, ARB, WRBX, WRBC

##### 4.4.2 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	This commonly used parameter is not used by this driver.	
Length	Length of Map Descriptor Reserves space in the Data Array.	1
Address	This commonly used FieldServer parameter is not used by this protocol.	
ProtecCMD	The Protec Command / Services to be executed. For a complete list see section 4.4.3	One of the following
ProtecDataType	Must be specified when using 'Get Data'. Does not need to be provided for all other services. For a list see section 4.4.5	
ProtecdBConstant	Some commands sent to the Panel use data set by this parameter. Eg 'Clear Log' is triggered by writing a value to DA Offset[0] but the value actually sent is the value specified by this	

	parameter. In this example - 1 = Clear historic graphs, 2 = Clear event log Rx	
ProtecDOW	Some ProtecDataType require the day of the week to be specified	

4.4.3 Supported Services

Message no.	Message name	Description
2	NETMSG_SILENCE	Requests nodes to silence buzzers
3	NETMSG_READ_NODETEXT	Read node text string, this is currently the software type and version number.
4	NETMSG_RESYNCHRONIZE	Request nodes to resend all current faults.
5	NETMSG_FAULT	Node transmitting a fault event
6	NETMSG_TOKEN	Network token packet
7	NETMSG_MAPINFO	Network mapping information
8	NETMSG_GET_DATA	Network data transfer request
<del>9</del>	<del>NETMSG_GET_PAGED_DATA</del>	<del>Network paged data transfer request</del>
10	NETMSG_FIRE	Fire event.
<del>11</del>	<del>NETMSG_EVENT</del>	<del>Non-specific event</del>

22	Discover Does not result in a new configuration using the discovered panels. Rather it display information on the 'Combined Messages'	' ProtecDataType' is not specified for this service	
33	Discover, generate new CSV and then restarts to apply the new config	' ProtecDataType' is not specified for this service	
77	Remap The process of allocating 'Next Node' to each panel for the token passing.	' ProtecDataType' is not specified for this service When executed the Next Node debug info is printed to the combined log.	
44	Resynch All Sends an instruction to the panel = "When you get the token next please transmit all active faults and Fire events,	' ProtecDataType' is not specified for this service	
2	Silence	' ProtecDataType' is not specified for this service	
3	Read Node Text	' ProtecDataType' is not specified for this service	
6	Send Token For testing only	' ProtecDataType' is not specified for this service	
66	Token Regen This task is used to kick start the token is it stops passing.	' ProtecDataType' is not specified for this service	
8	Get Data	The ' ProtecDataType' <b>must</b> be specified when 'Get Data' is executed	

	Used to read one of the sets of data that correspond to the data type of interest		
5	Fault	Not used. Fault Data is received by the gateway. It is stored in a Data Array with a specially reserved name.  DA_Devxx_FLT , UINT16 , 1000	Where xx is the NodeID of the protec panel
10	Fire	Not used. Fault Data is received by the gateway. It is stored in a Data Array with a specially reserved name.  DA_Devxx_FIRE , UINT16 , 4	Where xx is the NodeID of the protec panel

**4.4.4 Timing Parameters**

COLUMN TITLE	FUNCTION	LEGAL VALUES
Scan_Interval	Rate at which data is polled	≥0.001s

### 4.4.5 Protec Data Types Supported

‘GET DATA’ data types

See Appendix B

### 4.4.6 Map Descriptor Example 1 – Read ‘GET DATA’ Datatypes

In this example the driver reads the Controller’s Pipe Status Data for all 4 pipes. This task is executed at best every 1.0 seconds. The data read by the command is stored in the data array named “DA\_Dev03\_dt010” starting at offset zero in the array. Exactly what data is stored is dependent on the ProtecDataType.. How and what data is stored is provided in the appendices.

Map\_Descriptors,,,,,,,,,,,,

Map\_Descriptor\_Name , Data\_Array\_Name , Data\_Array\_Offset , Function , Node\_Name , Scan\_Interval , ProtecCMD , ProtecDataType , ProtecdBConstant , length,

,,,,,,,,,,,,

Dev03 Pipe 1 Status	, DA_Dev03_dt010	,0, rdbc	, Dev03	, 1.0s	, 8 (Get Data)	, 10(DATATYPE_PIPE1_STATUS)	, -	,40,
Dev03 Pipe 2 Status	, DA_Dev03_dt011	,0, rdbc	, Dev03	, 1.0s	, 8 (Get Data)	, 11(DATATYPE_PIPE2_STATUS)	, -	,40,
Dev03 Pipe 3 Status	, DA_Dev03_dt012	,0, rdbc	, Dev03	, 1.0s	, 8 (Get Data)	, 12(DATATYPE_PIPE3_STATUS)	, -	,40,
Dev03 Pipe 4 Status	, DA_Dev03_dt013	,0, rdbc	, Dev03	, 1.0s	, 8 (Get Data)	, 13(DATATYPE_PIPE3_STATUS)	, -	,40,

Descriptive only. Not used.

Data Array and offset where data will be stored.

Read Continuously

The name of the Node.

ProtecCMD is a code used to tell the driver which Protec service / command to execute.

ProtecDataType is a code used to tell the driver which Protec data type to read.

#### 4.4.7 Read 'GET DATA' Datatypes – How Data is Stored

In this section we provide details of how data is stored in the gateway when a 'GET DATA' command is completed



## 5 Configuring the FieldServer as a Protec Server

This driver cannot be used to emulate a Protec device. In other words, you cannot use this driver to make some other device appear like a Protec device.

## 6 Revision History

DATE	RESP	DRIVER VER.	DOC. REV.	COMMENT
2024Feb13	PMC	1.00	1	Released
2024Feb20	PMC	1.00	2	For release

## Appendix A – Supported Data Types

Yellow indicates the Data Type is supported.

Specified by setting the ' ProtecDataType' parameter of a map descriptor.

Data type number	Data type name	Description
1	DATATYPE_TEXT_UNIT	Read device text
2	DATATYPE_TEXT_PIPE1	Read text of pipe 1
3	DATATYPE_TEXT_PIPE2	Read text of pipe 2
4	DATATYPE_TEXT_PIPE3	Read text of pipe 3
5	DATATYPE_TEXT_PIPE4	Read text of pipe 4
6	DATATYPE_TEXT_ALARM1	Read text for pre-alarm
7	DATATYPE_TEXT_ALARM2	Read text of fire level 1
8	DATATYPE_TEXT_ALARM3	Read text of fire level 2
9	DATATYPE_TEXT_ALARM4	Read text of fire level 3
10	DATATYPE_PIPE1_STATUS	Read status of pipe 1
11	DATATYPE_PIPE2_STATUS	Read status of pipe 2
12	DATATYPE_PIPE3_STATUS	Read status of pipe 3
13	DATATYPE_PIPE4_STATUS	Read status of pipe 4
14	DATATYPE_LOGIN	Log in to detector
15	DATATYPE_TIME	Read detector time
16	DATATYPE_FANSPEED	Read detector fan speed
17	DATATYPE_SET_FANSPEED	Write detector fan speed
18	DATATYPE_AF_IGNORE	Read/Write Ignore airflow
19	DATATYPE_AF_ERROR	Read/Write airflow error
20	DATATYPE_AF_ZERO	Zero airflow on pipe
21	DATATYPE_AF_CLEAR	Clear latched airflow faults
22	DATATYPE_AF_LATCH	Write airflow fault latch on/off
23	DATATYPE_ALARM LATCH	Read/Write pipe fire latch level
24	DATATYPE_LOGOUT	Log out
25	DATATYPE_DNTIME	Read day & night settings
26	DATATYPE_DAYNIGHT	Write day & night settings
27	DATATYPE_OUTPUT	Read / Write output settings
28	DATATYPE_DELAY	Read / Write output delay settings
29	DATATYPE_OUTPUT_TEST	Write output override
30	DATATYPE_INPUT	Read / Write input settings
31	DATATYPE_INVERT_INPUTS	Read / Write invert inputs setting
32	DATATYPE_TEXT_CAM1	Read a page of camera url
33	DATATYPE_TEXT_CAM2	Read a page of camera url
34	DATATYPE_TEXT_CAM3	Read a page of camera url

35	DATATYPE_TEXT_CAM4	Read a page of camera url
36	DATATYPE_TEXT_CAM5	Read a page of camera url
37	DATATYPE_TEXT_CAM6	Read a page of camera url
38	DATATYPE_LOOP	Read device loop serial number
39	DATATYPE_IPNET_SET	Write ip/mask/gateway
40	DATATYPE_IPNET_GET	Read ip/mask/gateway
41	DATATYPE_IPNOW	Read current ip/mask/gateway
42	DATATYPE_NODENUMBER	Read/Write node number
43	DATATYPE_CODE	Write user & engineer access codes
44	DATATYPE_SETTIME	Write time to detector
45	DATATYPE_WRITEFL	Write fire levels
46	DATATYPE_READFL	Read fire levels
47	DATATYPE_TIMEZONED	Read / Write zimezone on/off
48	DATATYPE_WRITETEXT_UNIT	Write unit text to device
49	DATATYPE_WRITETEXT_PIPE1	Write pipe 1 text
50	DATATYPE_WRITETEXT_PIPE2	Write pipe 2 text
51	DATATYPE_WRITETEXT_PIPE3	Write pipe 3 text
52	DATATYPE_WRITETEXT_PIPE4	Write pipe 4 text
53	DATATYPE_WRITETEXT_ALARM1	Write pre-alarm text
54	DATATYPE_WRITETEXT_ALARM2	Write fire 1 text
55	DATATYPE_WRITETEXT_ALARM3	Write fire 2 text
56	DATATYPE_WRITETEXT_ALARM4	Write fire 3 text
57	DATATYPE_READTEXT_SI_LOCATION	Read text site location
58	DATATYPE_READTEXT_SI_COMMBY	Read text site commissioned by
59	DATATYPE_READTEXT_SI_DATE	Read text site commissioned date
60	DATATYPE_READTEXT_SI_NAME	Read text site name
61	DATATYPE_READTEXT_SI_CONTACT	Read text site contact
62	DATATYPE_READTEXT_SI_ADDRESS	Read text site address
63	DATATYPE_READTEXT_SI_POSTCODE	Read text site postcode
64	DATATYPE_READTEXT_SI_PHONE	Read text site phone number
65	DATATYPE_READTEXT_SI_COMMENT	Read text site comments
66	DATATYPE_READTEXT_MI_DATE	Read text manufacture date
67	DATATYPE_READTEXT_MI_SERIALNUMBER	Read text manufacture serial number
68	DATATYPE_READTEXT_MI_LIFE	Read number of seconds powered
69	DATATYPE_READTEXT_MI_TESTEDBY	Read text manufacture tested by
70	DATATYPE_AF_AIRFLOW	
71	DATATYPE_SI_ILED	Read chamber LED commissioned / current value
72	DATATYPE_SI_CPRESS	Read commissioned chamber pressure & current pressure
73	DATATYPE_SI_OBACK	Read current & commissioned background optical
74	DATATYPE_SI_PMINMAX	Read pipe min/max values
75	DATATYPE_SI_PTEMP	Read pipe temperature

76	DATATYPE_SI_WAVE	Read water fill average
77	DATATYPE_GET_EVENT	Read an event from event log
78	DATATYPE_WRITETEXT_SI_LOCATION	Write text site location
79	DATATYPE_WRITETEXT_SI_COMMBY	Write text site commissioned by
80	DATATYPE_WRITETEXT_SI_DATE	Write text site commissioned date
81	DATATYPE_WRITETEXT_SI_NAME	Write text site name
82	DATATYPE_WRITETEXT_SI_CONTACT	Write text site contact
83	DATATYPE_WRITETEXT_SI_ADDRESS	Write text site address
84	DATATYPE_WRITETEXT_SI_POSTCODE	Write text site post code
85	DATATYPE_WRITETEXT_SI_PHONE	Write text site phone number
86	DATATYPE_WRITETEXT_SI_COMMENT	Write text site comment
87	DATATYPE_BUZZER	Write buzzer on/pff
88	DATATYPE_COMMISSION	Store commissioned values
89	DATATYPE_READ_DETECTORINFO	Read info from detector
90	DATATYPE_AF_HIGHERROR	Write airflow high error
91	DATATYPE_CLEARLOG	Clear event log
92	DATATYPE_READ_PPSSENS	Read ProPointPLUS sensitivity
93	DATATYPE_WRITE_PPSSENS0	Write PPP Sensitivity pipe 1
94	DATATYPE_WRITE_PPSSENS1	Write PPP Sensitivity pipe 2
95	DATATYPE_WRITE_PPSSENS2	Write PPP Sensitivity pipe 3
96	DATATYPE_WRITE_PPSSENS3	Write PPP Sensitivity pipe 4
97	DATATYPE_READ_EVTIMEOUT	Read PPP Event timeout
98	DATATYPE_WRITE_EVTIMEOUT0	Write PPP Event timeout pipe 1
99	DATATYPE_WRITE_EVTIMEOUT1	Write PPP Event timeout pipe 2
100	DATATYPE_WRITE_EVTIMEOUT2	Write PPP Event timeout pipe 3
101	DATATYPE_WRITE_EVTIMEOUT3	Write PPP Event timeout pipe 4
102	DATATYPE_WRITE_PREALARM0	Write PPP Pre-alarm level pipe 1
103	DATATYPE_WRITE_PREALARM1	Write PPP Pre-alarm level pipe 2
104	DATATYPE_WRITE_PREALARM2	Write PPP Pre-alarm level pipe 3
105	DATATYPE_WRITE_PREALARM3	Write PPP Pre-alarm level pipe 4
106	DATATYPE_RESET	Fire reset
107	DATATYPE_SINGLE_ADDRESS	Set / Read single loop address
108	DATATYPE_DEVICEINFO	Read device info.

## Appendix B – How Data is Stored.

### For all of the following:

40 bytes of data are stored in Data Array offsets 0-39. The string is null terminated.

DATATYPE\_TEXT\_UNIT  
DATATYPE\_TEXT\_PIPE1  
DATATYPE\_TEXT\_PIPE2  
DATATYPE\_TEXT\_PIPE3  
DATATYPE\_TEXT\_PIPE4  
DATATYPE\_TEXT\_ALARM1  
DATATYPE\_TEXT\_ALARM2  
DATATYPE\_TEXT\_ALARM3  
DATATYPE\_TEXT\_ALARM4  
DATATYPE\_READTEXT\_SI\_LOCATION  
DATATYPE\_READTEXT\_SI\_COMMBY  
DATATYPE\_READTEXT\_SI\_DATE  
DATATYPE\_READTEXT\_SI\_NAME  
DATATYPE\_READTEXT\_SI\_CONTACT  
DATATYPE\_READTEXT\_SI\_ADDRESS  
DATATYPE\_READTEXT\_SI\_POSTCODE  
DATATYPE\_READTEXT\_SI\_PHONE  
DATATYPE\_READTEXT\_SI\_COMMENT  
DATATYPE\_READTEXT\_MI\_DATE  
DATATYPE\_READTEXT\_MI\_SERIALNUMBER  
DATATYPE\_READTEXT\_MI\_LIFE  
DATATYPE\_READTEXT\_MI\_TESTEDBY

### For all of the following:

case DATATYPE\_PIPE1\_STATUS :  
case DATATYPE\_PIPE2\_STATUS :  
case DATATYPE\_PIPE3\_STATUS :  
case DATATYPE\_PIPE4\_STATUS :

DA Offset [0 ] Pipe Number

DA Offset [1 ] Pipe cloud T1 (0 – 1000)

DA Offset [2 ] Pipe optical T1 (0 – 1023)

DA Offset [3 ] Pipe CO T1 (0 – 1023)

DA Offset [4 ] Pipe temperature (Temperature in Deg.C)

DA Offset [5 ] Pipe optical THist (0 – 1023)

DA Offset [6 ] Pipe CO THist (0 – 1023)

DA Offset [7 ] Pipe temperature THist (Temperature in Deg.C)

DA Offset [8 ] Pipe airflow (m/s \* 10)

DA Offset [9 ] Pipe Accepted airflow (m/s \* 10)

DA Offset [10] Pipe vanilla cloud (0 – 100)

DA Offset [11] Pipe hybrid (0 – 65535, enveloped weighted product)

DA Offset [12] Pipe min (0-1000, minimum cloud value over time period)

DA Offset [13] Pipe max (0 – 1000, maximum cloud value over time period)

DA Offset [14] Pipe T4 – 15 minutes (0 – 1000)

DA Offset [15] Cloud chamber hardware gain (0 – 63)

DA Offset [16] Pipe CFS value

DA Offset [17] Pipe flags

Bit 0 Initialising

Bit 1 Night mode

Bit 2 AFS (Airflow sensor) No optical signal

DA Offset [18] Current Prealarm threshold (0 – 1000)

DA Offset [19] Current Fire 1 threshold (0 – 1000)

DA Offset [20] Current Fire 2 threshold (0 – 1000)

DA Offset [21] Current Fire 3 threshold (0 – 1000)

DA Offset [22] Fire level (0-4)

DA Offset [23 ] Optical obscuration in db/m \* 1000

**case** DATATYPE\_AF\_ERROR:

DA Offset [1]        Airflow error pipe 1  
 DA Offset [2]        Airflow error pipe 2  
 DA Offset [3]        Airflow error pipe 3  
 DA Offset [4]        Airflow error pipe 4"

**case** DATATYPE\_TIME

DA Offset [0] DATATYPE\_TIME  
 DA Offset [1] Time in seconds since 1/1/1970  
 DA Offset [2] Access level

**case** DATATYPE\_CLEARLOG

Trigger CMD by Storing 1 in DA Offset[0]  
 The value sent is set using parameter= ProtecdBConstant

**case** DATATYPE\_FANSPEED

DA Offset [0]        Fan speed (0% - 100%)

**case** DATATYPE\_SET\_FANSPEED

Trigger CMD by Storing new fan speed in DA Offset[0]

**case** DATATYPE\_DNTIME

Trigger CMD by pipe number in DA Offset[1]  
 Response data is stored as follows

DA Offset [0]        Pipe Number  
 DA Offset [1+x]     Sunday Day Hour



DA Offset [2+x]      Sunday Day Minute  
 DA Offset [3+x]      Sunday Night Hour  
 DA Offset [4+x]      Sunday Night Minute  
 Etc for Monday, Tues, Wed, Thur, Fri, Sat

Where x = 100\*pipe number

Eg for Pipe 4 Tuesday Night Hour – DA Offset = 3\*100+9

**case**    DATATYPE\_IPNET\_GET

Trigger by setting value of DA Offset[0]

- 0    IP Address
- 1    Network mask
- 2    Gateway

Address is stored in DA Offset[1..4]

**case**    DATATYPE\_READFL

Trigger by setting the day number then the pipe number

DA Offset[0] = Pipe Number(0..3)

DA Offset[1] = Day Number (0-6)

Response Data is stored

DA Offset [1]      Pipe Number  
 DA Offset [2]      Day Number  
 DA Offset [3]      Day Time PreAlarm  
 DA Offset [4]      Day Time Fire 1  
 DA Offset [5]      Day Time Fire 2  
 DA Offset [6]      Day Time Fire 3`  
 DA Offset [7]      Night Time PreAlarm  
 DA Offset [8]      Night Time Fire 1  
 DA Offset [9]      Night Time Fire 2  
 DA Offset [10]      Night Time Fire 3`

**case** DATATYPE\_AF\_AIRFLOW  
DA Offset[0] Pipe 1 airflow  
DA Offset[1] Pipe 2 airflow  
DA Offset[2] Pipe 3 airflow  
DA Offset[3] Pipe 4 airflow  
DA Offset[4] Pipe 1 accepted airflow  
DA Offset[5] Pipe 2 accepted airflow  
DA Offset[6] Pipe 3 accepted airflow  
DA Offset[7] Pipe 4 accepted airflow

**case** DATATYPE\_SI\_ILED

**case** DATATYPE\_SI\_CPRESS  
DA Offset[1] Commissioned chamber pressure  
DA Offset[2] Current chamber pressur

**case** DATATYPE\_SI\_OBACK  
DA Offset[1] Pipe number  
DA Offset[2,3] Pipe optical background at commissioning  
DA Offset[4,5] Current pipe optical background (THist)

**case** DATATYPE\_SI\_PMINMAX  
DA Offset[1] Pipe 1 min  
DA Offset[2] Pipe 1 max  
DA Offset[3] Pipe 2 min  
DA Offset[4] Pipe 2 max  
DA Offset[5] Pipe 3 min  
DA Offset[6] Pipe 3 max  
DA Offset[7] Pipe 4 min  
DA Offset[8] Pipe 4 max

**case** DATATYPE\_SI\_PTEMP

DA Offset[1] Pipe 1 temperature

DA Offset[2] Pipe 2 temperature

DA Offset[3] Pipe 3 temperature

DA Offset[4] Pipe 4 temperature

case DATATYPE\_SI\_WAVE

DA Offset [1] Time in secs (UINT32)

case DATATYPE\_READ\_DETECTORINFO

DA Offset[1] Internal node type for pipe 1

DA Offset[2] Internal node type for pipe 2

DA Offset[3] Internal node type for pipe 3

DA Offset[4] Internal node type for pipe 4

DA Offset[5] Internal node type for cloud chamber

DA Offset[6] Internal node type for zone scanner

DA Offset[7] Internal node type for OLED display

Node types are... 1 Cloud chamber 2 HSSD (SCD Version < 1.001) 3 Pipe scanner 4 Network adapter 5  
OLED Display 6 I/O expander 7 SCD 8 Airflow sensor

case DATATYPE\_READ\_PPSENS

case DATATYPE\_READ\_EVTIMEOUT

DA Offset[1] Optical sensitivity pipe 1

DA Offset[2] Optical sensitivity pipe 2

DA Offset[3] Optical sensitivity pipe 3

DA Offset[4] Optical sensitivity pipe 4

Optical sensitivities are... A1 – A3 Class A, 1 – 3 holes B1 – B5 Class B, 1 – 5 holes C1 – CC Class C, 1 – 12  
holes 11 – 1F India Special (4 Stage Alarm Levels), 1 – 15 holes F0 CirrusHYBRID

case DATATYPE\_DEVICEINFO

Trigger the read by writing the device number to DA Offset[0]

Response

DA Offset[1] Device type

DA Offset[2] 32 bytes of device text use 32 offsets to store text string

DA Offset[3] 32 bytes of device text

DA Offset[4] 32 bytes of device text

DA Offset[5] 32 bytes of device text

DA Offset[6] 32 bytes of device text

DA Offset[7] 32 bytes of device text

DA Offset[8] 32 bytes of device text

DA Offset[9] 32 bytes of device text

DA Offset[10] 32 bytes of device text

DA Offset[11] 32 bytes of device text

DA Offset[12] 32 bytes of device text

DA Offset[13] 32 bytes of device text

DA Offset[14] 32 bytes of device text

DA Offset[15] 32 bytes of device text

DA Offset[16] 32 bytes of device text

DA Offset[17] 32 bytes of device text

DA Offset[18] 32 bytes of device text

DA Offset[19] 32 bytes of device text

DA Offset[20] 32 bytes of device text

DA Offset[21] 32 bytes of device text

DA Offset[22] 32 bytes of device text

DA Offset[23] 32 bytes of device text

DA Offset[24] 32 bytes of device text

DA Offset[25] 32 bytes of device text

DA Offset[26] 32 bytes of device text

DA Offset[27] 32 bytes of device text

DA Offset[28] 32 bytes of device text

DA Offset[29] 32 bytes of device text

DA Offset[30] 32 bytes of device text

DA Offset[31] 32 bytes of device text  
DA Offset[32] 32 bytes of device text  
DA Offset[33] 32 bytes of device text  
DA Offset[34] 32 bytes of device text  
DA Offset[35] 32 bytes of device text  
DA Offset[36] Device Data 0  
DA Offset[37] Device Data 1  
DA Offset[38] Device Data 2  
DA Offset[39] Device Data 3  
DA Offset[40] Device Data 4  
DA Offset[41] Device Data 5  
DA Offset[42] Device Data 6  
DA Offset[43] Device Data 7  
DA Offset[44] Fault flags

**case** EVENT\_FIRE\_LEVEL\_CHANGE

DA Offset[ 1] Pipe number  
DA Offset[ 2] Fire level  
DA Offset[ 3,4] CFS  
DA Offset[ 5] Unused

**case** EVENT\_SENSITIVITY\_CHANGE

DA Offset[2] Pipe 1 PreAlarm fire threshold / 4;  
DA Offset[3] Pipe 1 Fire 1 threshold / 4  
DA Offset[4] Pipe 1 Fire 2 threshold / 4  
DA Offset[5] Pipe 1 Fire 3 threshold / 4  
DA Offset[7] Pipe 2 PreAlarm fire threshold / 4;  
DA Offset[8] Pipe 2 Fire 1 threshold / 4  
DA Offset[9] Pipe 2 Fire 2 threshold / 4  
DA Offset[10] Pipe 2 Fire 3 threshold / 4  
DA Offset[11] Pipe 3 PreAlarm fire threshold / 4;  
DA Offset[12] Pipe 3 Fire 1 threshold / 4

DA Offset[13] Pipe 3 Fire 2 threshold / 4

DA Offset[14] Pipe 3 Fire 3 threshold / 4

DA Offset[15] Pipe 14PreAlarm fire threshold / 4;

DA Offset[16] Pipe 4 Fire 1 threshold / 4

DA Offset[17] Pipe 4 Fire 2 threshold / 4

DA Offset[18] Pipe 4 Fire 3 threshold / 4

case FAULT\_AIRFLOW\_LOW:

case FAULT\_AIRFLOW\_HIGH:

DA Offset[ 2] Airflow

DA Offset[ 3] Unused

DA Offset[4] Pipe

**How Faults Are Stored**

To store fault data a specially name data array must be part of the configuration

DA Name = DA\_DEVxx\_FLT

Where x == Protec Panel Number

3 items are stored per fault

DA Offset[0+x] Fault Type (See appendix D)

DA Offset[1+x] Fault Address

0 SCD Pipe 1

1 SCD Pipe 2

2 SCD Pipe 3

3 SCD Pipe 4

4 Cloud Chamber

5 Pipe scanner

6 ProPointPLUS Display

253 Main unit

DA Offset[2+x] Fault Data (meaning varies depending on flt number)

**Where x = 'Fault Type' \* 3**

Eg. Fault Type = 2

X = 6

### How Fire Events Data is Stored

To store FIRE data a specially name data array must be part of the configuration

DA Name = DA\_DEVxx\_FIRE

Where x == Protec Panel Number

4 items are stored per FIRE event

DA Offset [0] Pipe 1 Level

DA Offset [1] Pipe 2 Level

DA Offset [2] Pipe 3 Level

DA Offset [3] Pipe 4 Level

Level = 0 Normal 1 Pre-Alarm 2 Fire 1 3 Fire 2 4 Fire 3 Data[1] Fire level pipe 2



## Appendix C – Fault Table

Used by message NETMSG\_FAULT

Fault number	Fault name	Fault description
1	EVENT_ANVAL	Analogue data event
2	EVENT_POWERUP	Panel powered up event
3	EVENT_FIRE_LEVEL_CHANGE	Fire level has changed
4	EVENT_TIME_SET	Panel time changed
5	EVENT_FAULTS_REMOVED	All panel faults cleared
6	EVENT_EVENT_LOG_CLEARED	Panel event log cleared
7	EVENT_ANVAL_LOG_CLEARED	Panel historic log cleared
8	EVENT_SENSITIVITY_CHANGE	Panel sensitivity changed
9	EVENT_LOW_SUPPLY	Panel supply voltage is low
10	EVENT_FIRE_RESET	Panel fire state reset
11	EVENT_DEVICE_RESET	Panel internal device has reset
12	EVENT_WATER_EMPTY	Chamber water emptied by user
13	EVENT_AF_CLEAR	Airflow faults cleared
14	EVENT_DATA_ERROR	Internal device data error
15	EVENT_AF_ZERO	Airflow values accepted
16	EVENT_LOGIN	User has logged in
17	EVENT_BACKGROUND_RESET	Algotec 'THist' reset
18	EVENT_OPTRIG_WARNING	Optical Hybrid warning output has been activated
19	EVENT_OPTRIG	Optical Hybrid output has been activated
64	FAULT_DEVICE_MISSING	Installed device missing
65	FAULT_SLEEP	Unused
66	FAULT_CLOUD_F1	No water
67	FAULT_CLOUD_F2	Seal
68	FAULT_CLOUD_F3	Vacuum
69	FAULT_CLOUD_F4	Dead LED
70	FAULT_CLOUD_F5	Dead water
71	FAULT_CLOUD_F6	Sample blockage
72	FAULT_CLOUD_F7	Purge blockage
73	FAULT_CLOUD_F8	Hardware fault
74	FAULT_CLOUD_F9	Calibration fault
75	Reserved75	Reserved
76	Reserved76	Reserved
77	Reserved77	Reserved
78	Reserved78	Reserved
79	Reserved79	Reserved
80	Reserved80	Reserved
81	Reserved81	Reserved
82	FAULT_OUTPUT_OVERRIDE	Relay output being tested
83	FAULT_DEVICE_ADDED	Unexpected device fitted
84	FAULT_HIGH_OP_BACKGROUND	SCD value is too high
85	FAULT_CORRUPT_SETTINGS	Settings have become corrupt
86	FAULT_MANUFACTURE	Setup information is incomplete

87	FAULT_LOW_SUPPLY	Supply voltage too low
88	FAULT_SUPPLY_FAULT	PSU indicating fault
89	FAULT_CORRUPT_FILE	GUI is corrupt
90	FAULT_COLD	Unit is below operating temperature
91	FAULT_PROCESSOR	Unused
92	FAULT_ISOLATED	Unit is isolated from reporting an alarm
93	FAULT_IGNORE_AIRFLOW	Pipe airflow is being ignored
94	FAULT_HSSD_CALIBRATION	SCD Calibration fault
95	FAULT_HSSD_LED	SCD LED fault
96	FAULT_HSSD_CO	SCD CO cell fault
97	FAULT_HSSD_F4	
98	FAULT_EXTERNAL_BATTERY	Externally triggered fault
99	FAULT_EXTERNAL_MAINS	Externally triggered fault
100	FAULT_PIPE_HOLD	Pipe multiplexing has been stopped
101	FAULT_LOW_BACKGROUND	Signal is lower than expected
102	FAULT_FAN	Problem with fan
103	FAULT_FLASH_CS	ROM Checksum fault
104	FAULT_TEMPERATURE	SCD temperature reading are out of range
105	FAULT_DATA_ERROR	Detector replies are outside expected values
106	FAULT_DISABLED	Pipe is disabled
107	FAULT_DEVICE_TYPE	SCD is of wrong type
108	FAULT_DEVICE_CALIBRATION	SCD is dirty
109	FAULT_TEST	Internal test fault
110	FAULT_CO_EOL	CO Cell is nearing end of life
111	FAULT_AIRFLOW_HIGH	Pipe airflow is too high
112	FAULT_AIRFLOW_LOW	Pipe airflow is too low
113	FAULT_THIRST	Not using enough water
114	FAULT_INITIALISING	Unit is initialising
115	FAULT_CO_MISSING	There is a CO cell expected
116	FAULT_WRONG_SENSITIVITY	Sensitivity set wrong
117	FAULT_NETWORK	Unit is disconnected from network

## Appendix D - plist.ini (Template Configuration)

Note: You do not have to use the template. You can edit the config manually

plist.ini (Template Configuration file is pre-installed)

You can install an updated file using File Transfer – General Tab on the fieldserver UI

Some lines in plist.ini are terminated with **// Once**

When a new config is generated the lines with are only used once. Do not change that part of the template.

All the other lines are the template set of points that will be generated when you do discovery and restart

One chunk for each node on the trunk.

The idea is you edit plist.ini to remove points you do not want or need, install the modified file

When you execute ‘Genrate Config and Restart’ the template will be used

### Explaining the template (and config)

```

Nodes // Once
Node_Name , Node_ID , Protocol
/Dev99 , 1099 , BACnet_IP // Once
/Devxx , 10xx , BACnet_IP Note A // Once
----- // Once
// Client Side Map Descriptors // Once
// // Once
Map_Descriptors // Once
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Scan_Interval , ProtecCMD , ProtecDataType , ProtecDBConstant , length , timeout //Once
Do discovery Note B , DA_DISCOVER , 0 , wrb , Devxx , 10.0s , 22(Discover) , - , - , 1 , 0.15 //Once
Do discovery and restrtt , DA_DSCVR_RSTART , 0 Note C , wrbx , Devxx , 10.0s , 33(Disc&resrt) , - , - , 1 , 0.15 //Once
Map_Descriptors // Once
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Scan_Interval , ProtecCMD , ProtecDataType , ProtecDBConstant , length // Once
Occasional Map_Info , DA_REMAP , 0 , wrbc , Devxx , 60.0s , 77(Remap) , - , - , 1 // Once
Occasional Resynch , DA_RESYNCH , 0 , wrbc , Devxx , 30.0s , 44(Resynch) , - , - , 1 // Once
Brdcast Silence Cmd , DA_SILENCE , 0 , Wrbc , Devxx , 10.0s , 2 (Silence) , - , - , 1 // Once
Send Token , DA_TOKENS , 0 , wrbc , Devxx , 15.2s , 6 (Token) , - , - , 1 // Once
Token Regen Timer Task , DA_TOKENS , 1 , wrbx , Devxx , 0.5s , 66(TokenRegen) , - , - , 1 // Once

```

There are 2 types discovery tasks – 1) Does discovery, prints messages to the combined log and take no further action



**Note 1**

Take the list of discovered nodes and tell each device which is the 'next device' that is used in passing the token.

Task is essential after a discovery (if the number of devices OR the NodeID on the Protec panels has been changed).

There is no harm in executing this task repeatedly except for wasting a bit of bandwidth

In this example it will be done once every 60 seconds.

Prints info to the combined log on the gateway UI.

**Note 2**

Resynch tasks tell all Protec panels will report active faults and alarms.

There is no harm in executing this task repeatedly except for wasting a bit of bandwidth

In this example it will be done once every 60 seconds.

Prints info to the combined log on the gateway UI.

There is a BACnet object ( dev99 BV 100004) attached to DA\_RESYNCH [ 0 ]

**Note 3**

When this task is execute a broadcast message to all Protec panels to silence the alarm.

Use function=wrbx to do this on demand instead of periodically (every 10 secs in this example).

There is a BACnet object ( dev99 BV 100001) attached to DA\_SILENCE [ 0 ]

**Note 4 and 5:**

This task must be present in the config.

**Note 5:**

This task must be present in the config.

## Keywords Ignore / Process

All lines between ignore and process are ignored. This is one way of commenting out points you do not need.

```

ignore
Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array
Devxx FireLvl1 P1 Sun , DA_Devxx_dt046a , 1
Devxx FireLvl1 P1 Mon , DA_Devxx_dt046a , 8
Devxx FireLvl1 P1 Tue , DA_Devxx_dt046a , 17
Devxx FireLvl1 P1 Wed , DA_Devxx_dt046a , 25
Devxx FireLvl1 P1 Thu , DA_Devxx_dt046a , 33
Devxx FireLvl1 P1 Fri , DA_Devxx_dt046a , 41
Devxx FireLvl1 P1 Sat , DA_Devxx_dt046a , 49

Devxx FireLvl1 P2 Sun , DA_Devxx_dt046b , 1
Devxx FireLvl1 P2 Mon , DA_Devxx_dt046b , 8
Devxx FireLvl1 P2 Tue , DA_Devxx_dt046b , 17
Devxx FireLvl1 P2 Wed , DA_Devxx_dt046b , 25
Devxx FireLvl1 P2 Thu , DA_Devxx_dt046b , 33
Devxx FireLvl1 P2 Fri , DA_Devxx_dt046b , 41
Devxx FireLvl1 P2 Sat , DA_Devxx_dt046b , 49

Devxx FireLvl1 P3 Sun , DA_Devxx_dt046c , 1
Devxx FireLvl1 P3 Mon , DA_Devxx_dt046c , 8
Devxx FireLvl1 P3 Tue , DA_Devxx_dt046c , 17
Devxx FireLvl1 P3 Wed , DA_Devxx_dt046c , 25
Devxx FireLvl1 P3 Thu , DA_Devxx_dt046c , 33
Devxx FireLvl1 P3 Fri , DA_Devxx_dt046c , 41
Devxx FireLvl1 P3 Sat , DA_Devxx_dt046c , 49

Devxx FireLvl1 P4 Sun , DA_Devxx_dt046d , 1
Devxx FireLvl1 P4 Mon , DA_Devxx_dt046d , 8
Devxx FireLvl1 P4 Tue , DA_Devxx_dt046d , 17
Devxx FireLvl1 P4 Wed , DA_Devxx_dt046d , 25
Devxx FireLvl1 P4 Thu , DA_Devxx_dt046d , 33
Devxx FireLvl1 P4 Fri , DA_Devxx_dt046d , 41
Devxx FireLvl1 P4 Sat , DA_Devxx_dt046d , 49

process
Map_Descriptors

```

Another way is to use // at the begin of a line

```

Devxx FireLvl1 P3 Mon , DA_Devxx_dt046c , 8
Devxx FireLvl1 P3 Tue , DA_Devxx_dt046c , 17
Devxx FireLvl1 P3 Wed , DA_Devxx_dt046c , 25
Devxx FireLvl1 P3 Thu , DA_Devxx_dt046c , 33
Devxx FireLvl1 P3 Fri , DA_Devxx_dt046c , 41
Devxx FireLvl1 P3 Sat , DA_Devxx_dt046c , 49

Devxx FireLvl1 P4 Sun , DA_Devxx_dt046d , 1
Devxx FireLvl1 P4 Mon , DA_Devxx_dt046d , 8
Devxx FireLvl1 P4 Tue , DA_Devxx_dt046d , 17
Devxx FireLvl1 P4 Wed , DA_Devxx_dt046d , 25
Devxx FireLvl1 P4 Thu , DA_Devxx_dt046d , 33
Devxx FireLvl1 P4 Fri , DA_Devxx_dt046d , 41
//Devxx FireLvl1 P4 Sat , DA_Devxx_dt046d , 49

process
Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offs
Devxx Pipe 1 Status , DA_Devxx_dt010 , 0
Devxx Pipe 2 Status , DA_Devxx_dt011 , 0
Devxx Pipe 3 Status , DA_Devxx_dt012 , 0
Devxx Pipe 4 Status , DA_Devxx_dt013 , 0
Devxx Time , DA_Devxx_dt015 , 0
Devxx Fan Speed , DA_Devxx_dt016 , 0
Devxx PipeX Airflow Err , DA_Devxx_dt019 , 0

```