

**Driver Manual**

(Supplement to the FieldServer Instruction Manual)

**FS-8705-34**

**Xprotect CCTV System Event Driver**

**APPLICABILITY & EFFECTIVITY**

**Effective for all systems manufactured after Aug 20, 2012**

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## 1 Xprotect Functional Summary

Sends text messages to the Xprotect CCTV system. These message drive actions.

Which actions ? – This is configured in the CCTV.

Messages are triggered by data from another protocol such as Modbus or BACnet.

Which data triggers what message ? – This is configured in the gateway.

The message format and payload is also configurable.

## 2 Xprotect Driver Description

The XProtect CCTV system can accept 'Generic Event' messages sent from remote systems.

In this document we describe the gateway interface developed to provide a gateway to XProtect CCTV products allowing for easy integration into Building and Industrial Automation Systems using protocols like BACnet and Modbus.

### Gateway

The gateway consists of

- A Physical Device eg. FSB3510-Series or FS-QS-Series
- Firmware
  - Firmware Consists of
    - Protocol Driver for XProtect
    - Protocol Driver (other eg Modbus) (More than 1 can be linked)
    - Gateway Engine (connects the 2 protocols. Provides all the gateway functionality.)

Therefore complete documentation of the delivered product consists of

1. Manual for XProtect Driver – connections, settings, trouble shooting
2. Manual for Physical Gateway – Install, power, trouble shooting
3. Manual for Gateway Configuration and Software tools – How to configure the gateway
4. Manual for 'other' protocol. Such as Modbus

The XProtect protocol driver is capable of being linked with other FieldServer drivers to form regular FieldServer firmware that can be installed on QuickServer and other FieldServer gateways.

The driver is fully compatible with other FieldServer drivers and meets FieldServer's quality assurance standards. The driver was developed by Chipkin Automation Systems, an Approved FieldServer Integrator.

Only Client functionality have been implemented. Server functionality is not supported thus you cannot use it to emulate an Xprotect CCTV system.

### **Max Nodes Supported**

FieldServer Mode	Nodes	Comments
ACTIVE CLIENT	LARGE NUMBER OF NODE	PRACTICAL LIMITATION IS GATEWAY MEMORY AND RESOURCES. DESIGNED TO OPERATE WITH A SINGLE SYSTEM
Active Server (Simulate a Panel)	0	Not supported or documented.

### 3 Driver Scope of Supply

#### 3.1 Supplied with this driver

FieldServer Technologies PART #	Description
8915-10	No specific cables are shipped with this driver. A generic RJ45 Ethernet cable is shipped with the hardware.
FS-8705-34	Driver Manual.

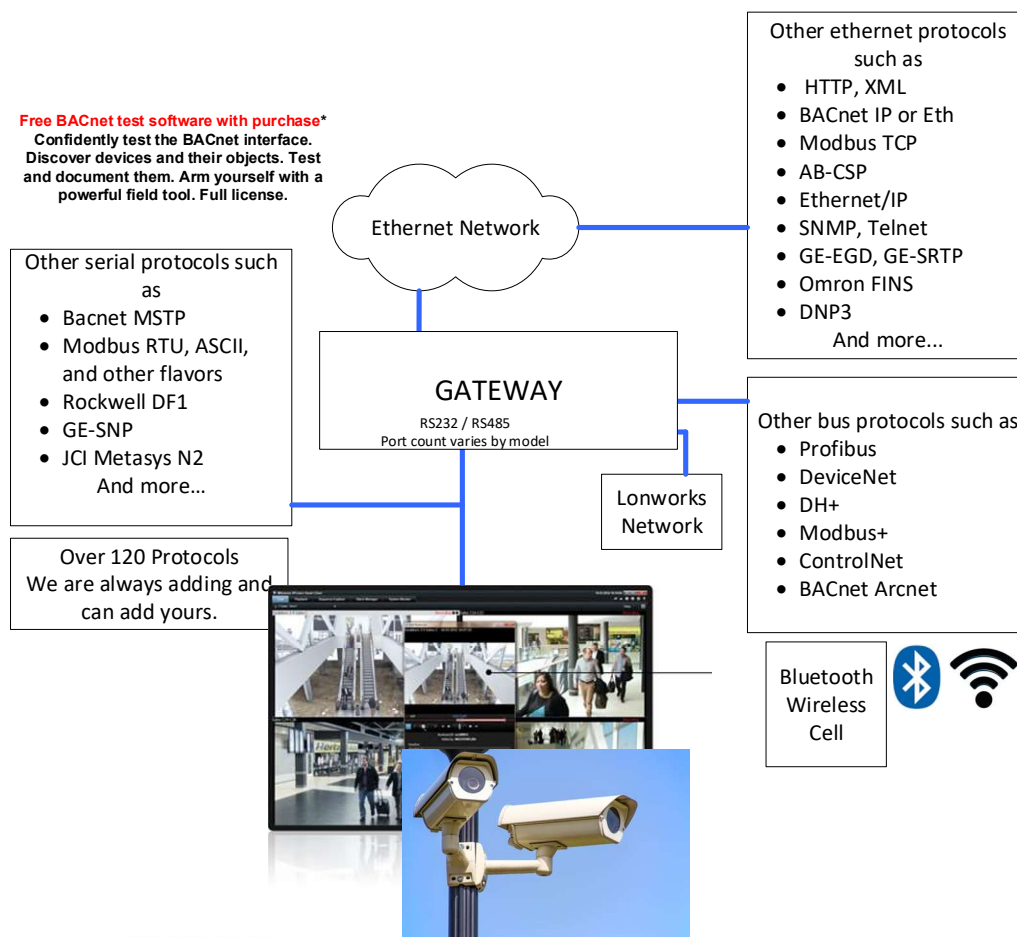
## 4 Hardware Connections

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

### 4.1 Hardware Connections

This is an Ethernet Driver. Connections are via standard networking equipment such as hubs, switches, routers and patch cables.

### 4.2 Block Diagram #1 - Generic



## Xprotect CCTV System



XProtect® Professional Series

The ideal video management software for mid-sized installations

### 4.3 Block Diagram #2 – Shows Autronica PLC as Modbus Master





## 5 Configuring the FieldServer Gateway

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 an Xprotect CCTV System.

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the FieldServer for Xprotect CCTV System monitoring, 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.

### 5.1 Data Arrays

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.	<b>Recommended:</b> Byte, UInt16, Also Supported: Float, 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

#### 5.1.1 Data Arrays - Example

```
// Data Arrays
Data_Arrays
Data_Array_Name,          Data_Format,          Data_Array_Length,
DA_STRING1,              BYTE,                200
```

### 5.2 Client Side Connections

Create one connection for each Xprotect CCTV System serial port. Each connection can only be used to connect to a single Xprotect CCTV System interface/port.

Section Title		
Adapters		
Column Title	Function	Legal Values
Adapter	Specify which Ethernet Port is used to connect to the Xprotect System	N1, N2
Protocol	Specify protocol used	XProtect

#### 5.2.1 Client Side Connection Descriptions - Example

```
// Client Side Connections

Adapters

Adapter,      Protocol,
N1,          Xprotect,
```

### 5.3 Client Side Nodes

Create one Node per Xprotect Panel. Create one of these for each CCTV system IP address you want to send messages to.

Section Title		
Nodes		
Column Title	Function	Legal Values
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID		This commonly used gateway parameter does not have a use in this protocol driver.
Protocol	Specify protocol used	XProtect
Adapter	Which Adapter you are using at the connection level	N1, N2
IP_Address	The IP Address of the Xprotect CCTV System you want to send a message to.	Eg 192.168.1.168 (normal IP format)

#### 5.3.1 Client Side Nodes - Example

```
// Client Side Nodes

Nodes

Node_Name,           Node_ID,  Protocol,  Adapter  IP_Address
MainPanel,           1,       Xprotect ,  N1       192.168.1.168
```

## 5.4 Client Side Map Descriptors

### 5.4.1 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..	Wrbx,wrbc

### 5.4.2 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
Address	This commonly used parameter is not used by this driver.	0
Length	Length of Map Descriptor	Set the value to 1. One map descriptor is required for each point.
Da_Byte_Name	The name of the data array where the string to be transmitted to the Xprotect CCTV system is stored.	Any of the previously defined data arrays.  Suggestions, DA_STRING1,2,3..  Please note – strings are expected  1) to start at offset zero  2) to be < 100 bytes long.  3) Potentially could contain control chars.
Xprotect_PortNo	UDP port the Xprotect system has been configured to listen on.	Eg. 1234
Xprotect_Option	If this parameters is	2

	<p>specified and its value=2 then the driver sends the string from the DA_BYTE_NAME but also appends the following string</p> <p>=value</p> <p>Where value is the value of found in the data array point which triggered the action.</p>	
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## 5.5 Examples

### 5.5.1 Example 1 – Define Data Arrays – Load the Xprotect action strings.

```
Data_Arrays

Data_Array_Name , Data_Format , Data_Array_Length

DA_STRING1      , BYTE          , 1000
DA_STRING2      , BYTE          , 1000
DA_STRING3      , BYTE          , 1000

Preloads

Data_Array_Name , Preload_Data_Index , Preload_Data_Format , Preload_Data_Value

DA_STRING1      , 0                , String              , Detector Type
DA_STRING2      , 0                , String              , String100
DA_STRING3      , 0                , String              , String33333333333333333333333333333333
```

First we define and create the data arrays

Second, we preload them with the strings we want to send the Xprotect System



### 5.5.2 Map Descriptor Example 2 – Send a String on Update

In this example one point is written on update and another continuously.

```
Map_Descriptors
Map_Descriptor_Name ,Data_Array_Name ,Data_Array_Offset ,Da_Byte_Name ,Function ,Node_Name ,Address ,Length ,xprotect_PortNo ,timeout
Channell ,DA_CONTROL ,0 ,DA_STRING1 ,wrbx ,Node01 ,0 ,1 ,1234 ,1
```

Wrbx means – write on update. Whenever the data in DA\_CONTROL[0] is updated (value might not change) then the action is triggered.

The string found in this data array starting at offset zero is sent.  
  
End of string is determined by the first null (zero) character

### 5.5.3 Map Descriptor Example 3 – Send a String on Update

In this example one point is written on update and another continuously.

Map\_Descriptors

Map_Descriptor_Name	Data_Array_Name	Data_Array_Offset	Da_Byte_Name	Function	Node_Name	Address	Length	xprotect_PortNo	timeout
Action1	,DA_CONTROL	,0	,DA_STRING1	,wrbx	,Node01	,0	,1	,1234	,1
Action2	,DA_CONTROL	,1	,DA_STRING2	,wrbx	,Node01	,0	,1	,1234	,1
Action3	,DA_CONTROL	,2	,DA_STRING3	,wrbx	,Node01	,0	,1	,1234	,1

DA\_CONTROL[x]  
If x=0 then string1 data is sent  
If x=1 then string2 data is sent  
If x=2 then string3 data is sent

The other Protocol 'eg Modbus' sends data to the gateway. We configure it to receive data into DA\_CONTROL[x]  
Eg.  
DA\_CONTROL[0] corresponds to 40001  
DA\_CONTROL[1] corresponds to 40002  
DA\_CONTROL[2] corresponds to 40003



```

Adapters
Adapter ,Protocol , Poll_Delay
N1      ,xprotect ,0.100s

Nodes
Node_Name ,Node_ID ,Protocol ,Adapter ,IP_Address
Node01    ,1      ,xprotect ,N1      ,192.168.1.17

Map_Descriptors
Map_Descriptor_Name ,Data_Array_Name ,Data_Array_Offset ,Da_Byte_Name ,Function ,Node_Name ,Address ,Length ,Scan_Interval ,xprotect_PortNo ,timeout
Channel1            ,DA_CONTROL      ,0                ,DA_STRING1  ,wrbx     ,Node01    ,0      ,1      ,10.0s      ,1234      ,2
Channel2            ,DA_CONTROL      ,1                ,DA_STRING2  ,wrbx     ,Node01    ,0      ,1      ,10.0s      ,1234      ,2
Channel3            ,DA_CONTROL      ,2                ,DA_STRING3  ,wrbx     ,Node01    ,0      ,1      ,10.0s      ,1234      ,2
    
```

Enable Xprotect protocol on Ethernet Port N1

The Address of the Xprotect CCTV System

Here are 3 possible strings to send. Each is controlled by a different offset of the data array called DA\_CONTROL

```
=====
//
// ModbusTCP - Server
//

Adapters
Adapter ,Protocol
N1      ,Modbus/TCP

Nodes
Node_Name ,Node_ID ,Protocol ,
Mdbst_TCP ,1      ,Modbus/TCP ,

Map_Descriptors
Map_Descriptor_Name ,Data_Array_Name ,Data_Array_Offset ,Function ,Node_Name ,Address ,Length ,
Readtask TCP_1      ,DA_CONTROL      ,0      ,Server ,Mdbst_TCP ,40001 ,100 ,
```

Modbus Server (Could have been BACnet or any other protocol)

Modbus writes to 40001 to trigger DA\_STRING1 data to be sent ....

Here we see 40001 corresponds to DA\_CONTROL[0]  
Here we see 40002 corresponds to DA\_CONTROL[1]  
Here we see 40003 corresponds to DA\_CONTROL[2]

### 5.5.4 A Variation of the Message String

If the remote PLC writes to 40001 it triggers the message found in DA\_STRING1 to be sent. This time it is sent using Style=2

Lets say DA\_STRING1 has been preloaded with "Fire Point 1 in state"

Lets say the value written to 40001 is 99. Then string string that will be sent =

"Fire Point 1 in state=999"

In this variation of the configuration Style 2 has been specified.

The other Protocol 'eg Modbus' sends data to the gateway. We configure it to receive data into DA\_CONTROL[x]  
 Eg.  
 DA\_CONTROL[0] corresponds to 40001  
 DA\_CONTROL[1] corresponds to 40002

Adapters										
Adapter	Protocol	Poll_Delay								
N1	xprotect	0.100s								
Nodes										
Node_Name	Node_ID	Protocol	Adapter	IP_Address						
Node01	1	xprotect	N1	192.168.1.17						
Map_Descriptors										
Map_Descriptor_Name	Data_Array_Name	Data_Array_Offset	Da_Byte_Name	Function	Node_Name	Address	Length	Scan_Interval	xprotect_PortNo	Xprotect_Option
Channel1	DA_CONTROL	0	DA_STRING1	wrbx	Node01	0	1	10.0s	1234	2
Channel2	DA_CONTROL	1	DA_STRING2	wrbx	Node01	0	1	10.0s	1234	2
Channel3	DA_CONTROL	2	DA_STRING3	wrbx	Node01	0	1	10.0s	1234	2



## 6 Configuring the FieldServer as a Xprotect CCTV System Server

This driver cannot be used to emulate an Xprotect CCTV System Panel



**Revision History**

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
2018Seo04	PMC		1.0	1.0	Created
2019Jan	PMC		8	2.0	Added Xprotect_Option=2 So that "=999" is added to end of string. Where 999 is the trigger value.