



Gamewell FCI E3 Series NGA Adapter Driver Using RS232

For application with

**Network Graphics Adapter
Network LED Adapter**

FS-8705-60

Chipkin - Enabling Integration

salesgroup1@chipkin.com

Tel: +1 866 383 1657

© 2025 CHIPKIN AUTOMATION SYSTEMS

This manual may not be published on a website other than Chipkin.com without written permission.

Driver Version: 100aA

Document Revision: 1

TABLE OF CONTENTS

Contents

TABLE OF CONTENTS	2
1 FCI E3 SERIES NGA ADAPTER DRIVER DESCRIPTION.....	3
1.1 MAX NODES SUPPORTED.....	3
1.2 COMPATIBILITY	3
1.3 BAUD RATES, PARITY	3
2 DRIVER SCOPE OF SUPPLY	4
2.1 SUPPLIED BY CHIPKIN AUTOMATION FOR THIS DRIVER.....	4
2.2 PROVIDED BY THE SUPPLIER OF 3RD PARTY EQUIPMENT.....	4
2.2.1 <i>Required 3rd Party Hardware</i>	4
3 HARDWARE CONNECTIONS.....	5
3.1 AS SHIPPED BLOCK DIAGRAM	5
3.2 WIRING DIAGRAM.....	6
4 CONFIGURING THE FIELDSEVER	7
4.1 DATA ARRAYS/DESCRIPTORS	7
4.2 PASSIVE CLIENT SIDE CONNECTION DESCRIPTIONS	8
4.3 CLIENT SIDE NODE DESCRIPTORS.....	9
4.4 CLIENT SIDE MAP DESCRIPTORS	10
4.4.1 <i>FieldServer Related Map Descriptor Parameters</i>	10
4.4.2 <i>Driver Related Map Descriptor Parameters</i>	10
4.5 MANUAL CONFIGURATION	11
4.5.1 <i>Sample Configuration</i>	11
4.5.2 <i>Points List</i>	12
4.6 AUTO CONFIGURATION	13
4.7 SYNCHRONIZATION	14
4.8 EVENT MESSAGE FORMATS AND DETERMINATION OF THE EVENT STATE	14
4.9 OBJECT NAMES AND AUTO CONFIGURATION.....	15
4.10 TESTING	16
5 SUPPORT.....	17
6 REVISION HISTORY	18

NOTICE:

1. The General Configuration Manual provides supplemental information
2. Instructions on loading firmware, setting IP and taking a Diagnostic are found at this URL

<https://store.chipkin.com/support/chipkin-simplified-support>

1 FCI E3 Series NGA Adapter Driver Description

This serial (RS232) driver can be used to monitor the status of virtual devices / points programmed into the Gamewell-FCI E3 Series NGA Network Graphic Annunciator

It is a passive client driver in that it listens for unsolicited messages from the NGA. The driver does not send messages to the NGA.

The driver can be configured as a manual operation in the same way that all FieldSever’s are configured. An additional semi-automatic process is provided.

1.1 Max Nodes Supported

FIELDSEVER MODE	COMMENTS
Passive Client	The FieldServer connects to a single NGA RS232 port
Server	Not supported or documented. Use for Chipkin QA testing.

1.2 Compatibility

FIELDSEVER MODEL	COMPATIBLE
Series – F FS-QS-2XX0	Yes
Series – F FS-QS-3XX0	Yes
Other models past March 2018	Yes
Older than March 2018	No

1.3 BAUD RATES, PARITY

Parity Even, Odd or None (Default)

Baud Rates 9600, 19200, 38400, 57600, 76800

1 Stop Bit

2 Driver Scope of Supply

2.1 Supplied by Chipkin Automation for this driver

PART #	DESCRIPTION
FS-8705-60	Driver Manual.

2.2 Provided by the Supplier of 3rd Party Equipment

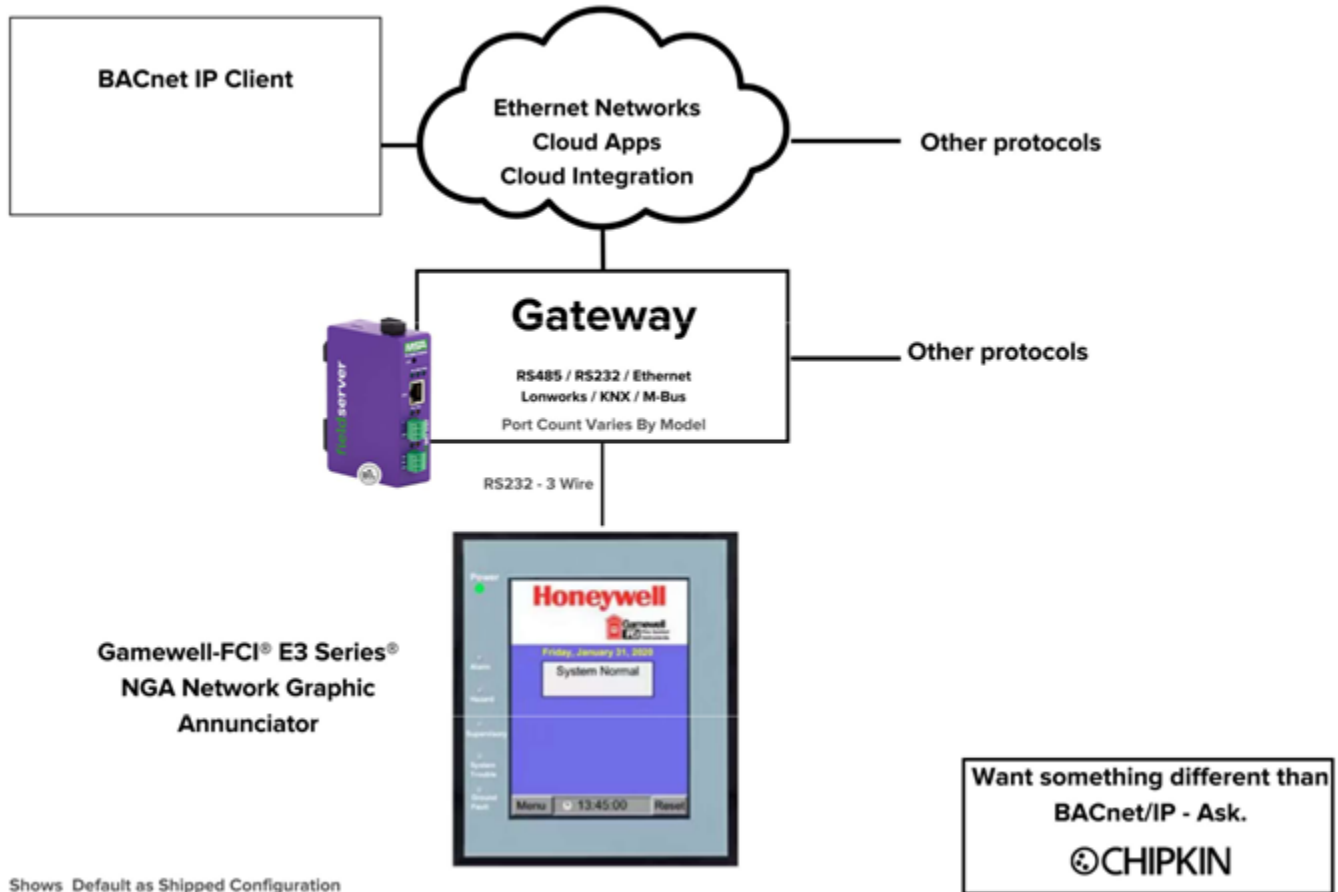
2.2.1 Required 3rd Party Hardware

PART #	DESCRIPTION
	FCI E3 Series system with NGA

3 Hardware Connections

3.1 As Shipped Block Diagram

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



Shows Default as Shipped Configuration

3.2 Wiring Diagram

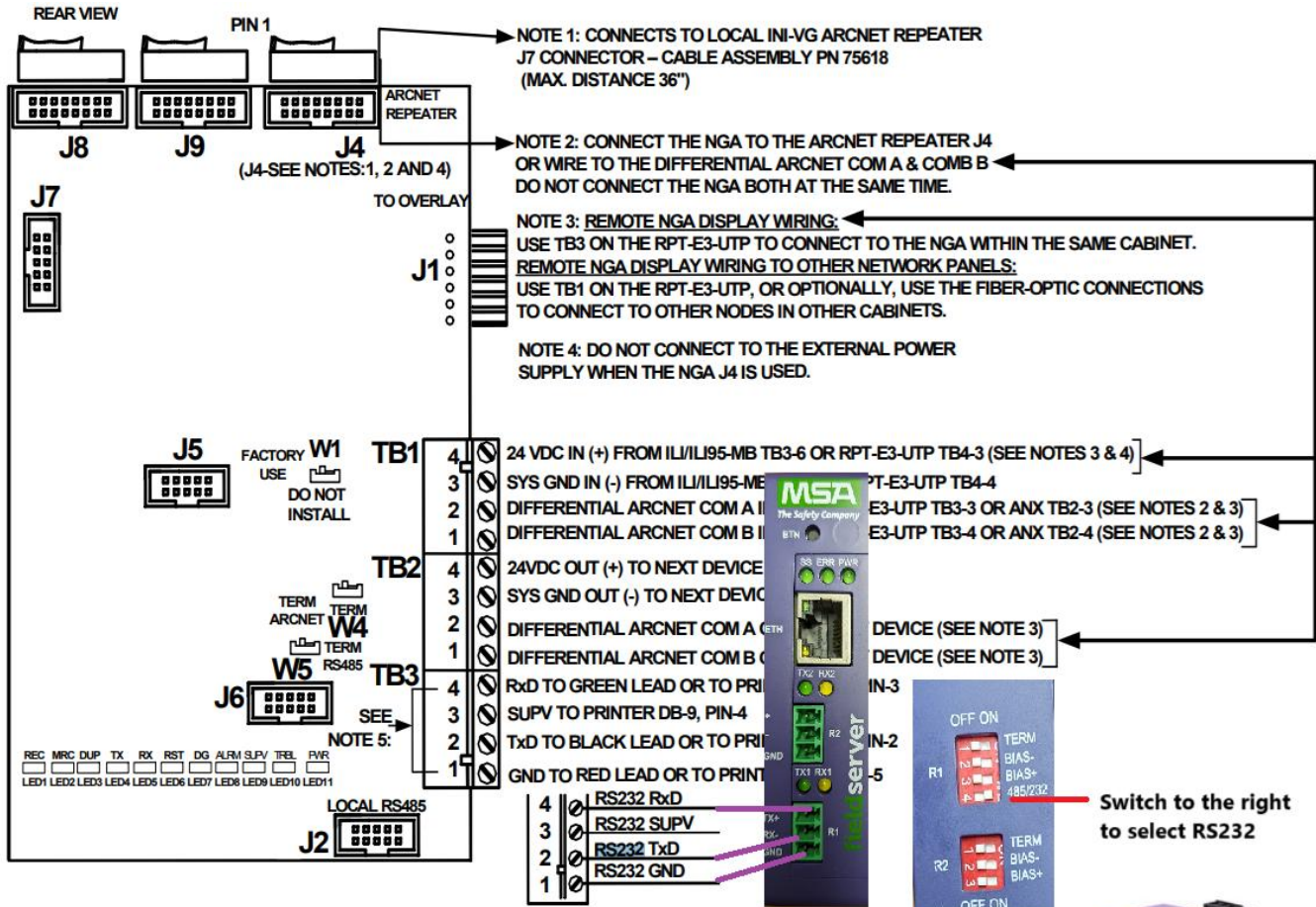


Figure 3.3.1 NGA (Second Generation) Wiring Diagram

4 Configuring the FieldServer

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 Hochiki Media Gateway.

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 Hunter ACC 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.

Required Data Arrays for the Event Processor driver

Data_Arrays

Data_Array_Name , Data_Format , Data_Array_Length

DA_NGA_DATA , Uint16 , 1000

DA_NGA_TRIGGER , Uint16 , 10

Each NGA ‘point’ has a bit number allocated to it. The state of that point is stored in the Data Array DA_NGA_DATA at offset = Bit Number.

Ensure nit numbers are not duplicated.

4.2 Passive 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		
Connections		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Port	Specify which Serial Port the device is connected to NGA	A mandatory value of R1 is required Selector switch for R1 on the FieldServer must be set to select RS232.
Protocol	Specify protocol used	FCI_NGA
Baud	Must be set to this value	9600
Data_Bits	Must be set to this value	8
Stop_Bits	Must be set to this value	1
Parity	Must be set to this value	N

Example

```

Connections
Port , Baud , Data_Bits , Stop_Bits , Parity , Protocol
R1 , 9600 , 8 , 1 , None , FCI_NGA
    
```

4.3 Client Side Node Descriptors

Create one Node per Hunter ACC2 Controller.

SECTION TITLE		
Nodes		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	This parameter is required but its value is not used	255
Port	The Media Gateway's IP	xxx.xxx.xxx.xxx
Protocol	Specify protocol used	FCI_NGA
Port	Specifies Port Number on the FieldServer	A mandatory value of R1 is required

Example

```
Nodes
Node Name , Node ID , Protocol, Port
NGA DEVICE , 255 , FCI NGA , R1
```

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 Must be set to this value	DA_NGA_DATA
Data_Array_Offset	Starting location in Data Array Must be set to this value	0
Function	Must be set to this value	Server

4.4.2 Driver Related Map Descriptor Parameters

COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Name of Node to fetch data from	The node names specified in "Client Node Descriptor" above
Data_Type	This commonly used parameter is not used by this driver.	
Length	Must be set to this value	1000
Address	This commonly used FieldServer parameter is not used by this protocol.	

4.5 Manual Configuration

It is possible to manually construct or edit the configuration file.

You will need to review other chapters in this manual as well as the manual(s) for the 'other' protocol such as BACnet/IP, Modbus, Rockwell, MQTT, OPC, SNMP etc. You will find these manuals here.

4.5.1 Sample Configuration

The NGA part of the configuration is provided below

Bridge

```
Title           , System_Node_ID , Network_Number
NGA FieldServer , 389001           , 5
```

Data_Arrays

```
Data_Array_Name , Data_Format , Data_Array_Length
DA_NGA_DATA     , Uint16      , 1000
DA_NGA_TRIGGER  , Uint16      , 10
```

Connections

```
Port , Baud , Data_Bits , Stop_Bits , Parity , Protocol
R1   , 9600 , 8         , 1         , None   , FCI_NGA
```

Nodes

```
Node_Name , Node_ID , Protocol , Port
NGA_DEVICE , 255     , FCI_NGA , R1
```

Map_Descriptors

```
Map_Descriptor_Name , Scan_Interval , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Length
Process NGA Events , 0.0s          , DA_NGA_DATA     , 0                  , Server , NGA_DEVICE , 1000
```

4.5.2 Points List

A list of point names and their bit number allocations is required. This is a required component of a complete configuration. A file named nga.ini must be prepared. The format must follow the example below. It is installed using the Setup / File Transfer General Tab on the FieldServer UI

```
// Lines that begin // are ignored
//
<rev_number_of_nga.ini=1.00>
<baud=9600>
// = "Inputs" for Bi objects
// = "Values" for Bv objects This is the default
<bacnet_object_type=binary>
// = "IP" for Bi BACnet/IP
// = "MSTP" for BACnet/MSTP
<bacnet_object_type=mstp This is the default

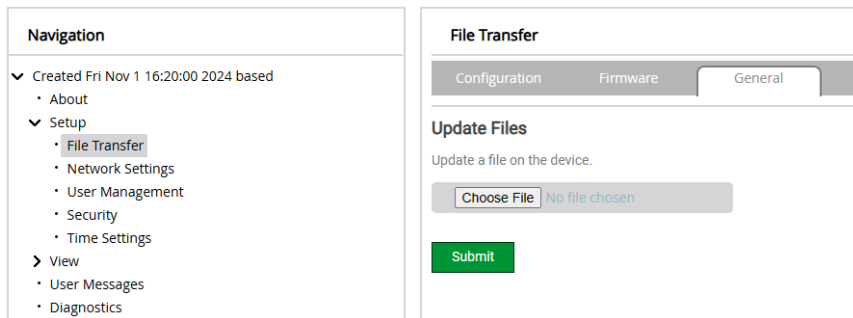
// List of point names. Bit numbers can only be used once
// Bit number is the offset number in the Data Array DA_NGA_DATA
// Bit number is used as BACnet object Instant Number when Autoconfig option is used
<node=0> <point_name=SF-1 Damper Open> <bit_number=0>
<node=0> <point_name=SF-1 Damper Normal> <bit_number=1>
<node=0> <point_name=SF-1 Damper Closed> <bit_number=2>
<node=0> <point_name=SF-1 Damper Fault> <bit_number=3>
<node=0> <point_name=SF-1 Running> <bit_number=4>
<node=0> <point_name=SF-1 Normal> <bit_number=5>
<node=0> <point_name=SF-1 Stopped> <bit_number=6>
<node=0> <point_name=SF-1 Fault> <bit_number=7>
<node=0> <point_name=SF-1 Switch On> <bit_number=8>
```

4.6 Auto Configuration

This process generates a full configuration where the NGA data is mapped onto BACNet objects. The same file could be generated manually if preferred. To retrieve the config.csv file produced by the configuration use the UI Setup / File Transfer Configuration Tab – click ‘retrieve’

There is a manually triggered auto configuration process. Process works as follows

1. Using the UI
2. Install the nga.ini file



3. View the Data Arrays and select DA_NGA_TRIGGER
4. Enable edits
5. Set the value of offset 0 to 2. Immediately the value will be changed to 99 to indicate the process has been initiated. After some seconds the FieldServer will restart with the new configuration applied

4.7 Synchronization

To Synch the data in the FieldServer activate the RESET event in the NGA.

4.8 Event Message Formats and Determination of the event state

Messages are expected in the following Format.

They consist of

- 1) the reporting node
- 2) a description. Each of which will have a corresponding bacnet object
- 3) an event / status word
- 4) a fixed text element which can be used to separate these types of messages from

Local: SF-1 Damper Closed
 MESSAGE [NGA CAM Text] 12:03:40 11/20/24

Local: SF-1 Damper Closed
 MESSAGE RSTRD [NGA CAM Text] 12:03:42 11/20/24

Determination of the Active / Inactive State

Active

MESSAGE RSTRD

Inactive

MESSAGE

4.9 Object names and auto configuration.

The maximum length of an point / object name is 37 characters. To work around this limitation the driver has a system that can use abbreviations.

The object name cannot contains comma's, double quote mark or backslashes.

4.10 Testing

Whenever an event is received the Driver reports either an error or that the event has been processed. These messages are available in the UI Combined Logg

Success is reported by the following

```
NGA FYI. Processed <point_name=pppppppppppppp>
```

Where ppppppppppppppp is the point name

```
DA=DA_NGA_DATA offset=x value=y
```

Where x = bit_number offset into the Data Array

Y = Active (1) Inactive (0)

Error is reported as follows

```
NGA Err. Ignored unknown point_name=pppppppppppp>
```

The errors occurs when an event message is received but the point name cannot be found in the file nga.ini

5 Support

FCI E3 Series NGA Adapter serial driver was developed by Chipkin, and we are proud to provide support for our products. For technical support, sales and customer service, please call us at 1 (866) 383-1657.

Thanks for choosing Chipkin's products and integration services to meet your building and industrial automation requirements!

Chipkin™ is a building and industrial automation protocol expert. We develop, configure, install and support gateways (protocol converters), data loggers and remote monitor and controlling applications. Founded in October 2000, Chipkin provides expert solutions for converting BACnet®, Modbus®, and LonWorks®—to name just a few—and enabling interfaces for HVAC, fire, siren, intercom, lighting, transportation, and fuel systems. The high-quality products we offer (including those from other vendors) interface with Simplex™, Notifier™, McQuay™, GE™ and many others—so you can rest assured that we will select the most appropriate solution for your application.

With Chipkin you are buying a solution. Our configuration expertise in this field combined with free BACnet and other tools ensure your success; and our customer support via phone, email and remote desktop tools means that we are there when you need us. Chipkin is a small responsive company, and we live or die by the quality of our service—and with offices in two time zones—we can provide support when you need it. Give us a call now!

Sales and Customer Service

Toll Free: +1 866 383 1657 Email: salesgroup1@chipkin.com

6 Revision History

This table summarizes the update history for this document. Please contact Chipkin for an updated version of this document if required.

DATE	RESP	DRIVER VER.	DOC. REV.	COMMENT
2025	PMC	1.01	1	Released