



**Driver Manual**  
(Supplement to the FieldServer Instruction Manual)

**FS-8700-30 York ASCII**

**APPLICABILITY & EFFECTIVITY**

**Effective for all systems manufactured after May 1, 2001**

<b>Driver Version:</b>	<b>4.01</b>
<b>Document Revision:</b>	<b>9</b>

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## 1. York ASCII\* Description

The York ASCII driver allows the FieldServer to transfer data to and from devices over either RS-232 or RS-485 using York ASCII protocol. The FieldServer can emulate either a Server or Client.

The York ASCII driver can be configured to communicate with different kinds of York devices. Depending on the York device, the capabilities of the driver differ. The supported York devices are listed below.

### 1.1. Device Options:

<b>York Translator</b>	The recommended option: A direct RS-232 connection is made to the chiller. This is a very cost effective option as a single FS-B40 can support 8 simultaneous RS-232 connections. The aggregate bandwidth is then also 8 times higher than in the case of a single multidrop connection to 8 devices.
<b>XL Translator</b>	A RS-232 connection is made to the XL Translator (also known as ISN LDC 17 Link Data Controller), which in turn communicates with York devices via RS-485. For this configuration, the York Chillers must be fitted with the "Linc Chiller" module to allow compatibility with the LDC's RS-485 network.
<b>MicroGateway</b>	A RS-232 connection is made to the MicroGateway, which in turn communicates with York devices via RS-485. For this configuration, the York Chillers must be fitted with the "Linc Chiller" module to allow compatibility with the LDC's RS-485 network.

York ASCII addresses are composed of 3 parts: feature, section and page (prefixed by f, s and p).

For the first three devices, the driver can read from addresses f02s01p01 to f02s01p81 and write to addresses f01s01p01, f01s02p01 and f01s02p02.

For the MicroGateway device, the driver can read from any addresses starting with f53 or f54 and write to any desired address.

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\* This driver has previously been referred to as YorkTalk. The more appropriate term York ASCII is now used to avoid confusion between this and other, binary protocols used with York devices.

## 2. Driver Scope of Supply

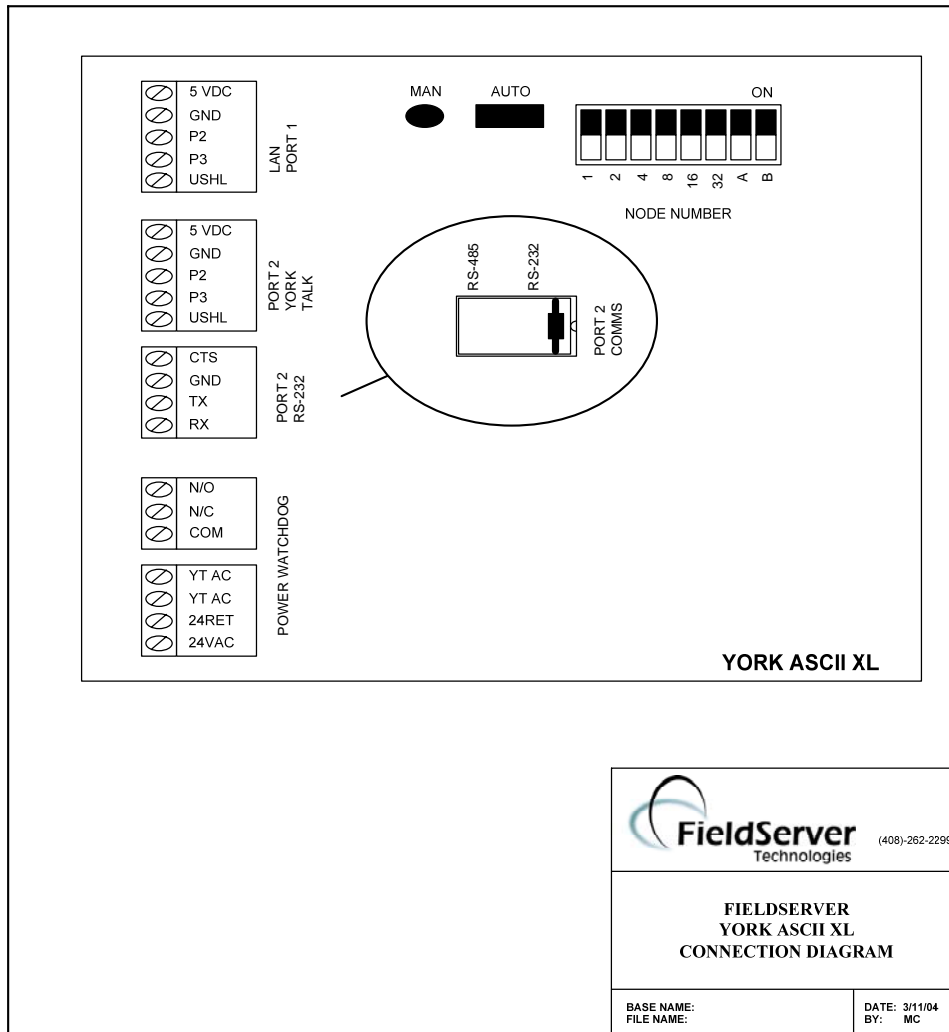
### 2.1. Supplied by FieldServer Technologies for this driver

FIELDSEVER PART #	DESCRIPTION
FS-8915-10	UTP cable (7 foot) for Ethernet connection
FS-8915-10	UTP cable (7 foot) for RS-232 use
FS-8917-02	RJ45 to DB9F connector adapter
FS-8917-01	RJ45 to DB25M connection adapter
FS-8917-21	RS-485 connection adapter
FS-8700-30	Driver Manual

### 3. Hardware Connections

#### 3.1. York Translator

The FieldServer is connected to the York Translator as shown below. Configure the York Translator according to manufacturer's instructions.



#### 3.2. York ASCII XL

The FieldServer is connected to the York ASCII XL as shown above. Configure the York ASCII XL according to manufacturer's instructions.

#### 3.3. York ASCII MicroGateway

Configure the York ASCII MicroGateway according to manufacturer's instructions.

#### 4. Configuring the FieldServer as a York ASCII Client

For a detailed discussion on FieldServer configuration, please refer to the 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” files on the driver diskette).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a York ASCII Server.

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

##### 4.1. 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_Format	Provide data format. Each data array can only take on one format.	FLOAT, Int16, Int32
Data_Array_Length	Number of Data Objects. Must be larger than the data storage area required for the data being placed in this array.	1-10,000

##### Example

```
//      Data Arrays
//
Data_Arrays
Data_Array_Name,      Data_Format,      Data_Array_Length
DA_AI_01,             Float,          200
```

**4.2. Client Side Connection Descriptors**

Section Title		
Connections		
Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2 <sup>1</sup>
Baud*	Specify baud rate	110 – <b>9600</b> – 115200, standard baud rates only
Parity*	Specify parity	Even, Odd, <b>None</b> , Mark, Space
Data_Bits*	Specify data bits	7, <b>8</b>
Stop_Bits*	Specify stop bits	<b>1</b>
Protocol	Specify protocol used	York ASCII
Handshaking*	Specify hardware handshaking	RTS, RTS/CTS, <b>None</b>
Poll Delay*	Time between internal polls	0-32000 seconds, <b>1 second</b>

**Example**

// Client Side Connections					
Connections					
Port,	Baud,	Parity,	Protocol,	Handshaking,	Poll_Delay
P8,	9600,	None,	York ASCII,	None,	0.100s

<sup>1</sup> Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.

### 4.3. Client Side Node Descriptors

Section Title		
Nodes		
Column Title	Function	Legal Values
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	Station address of physical server node	1-255
Protocol	Specify protocol used	York ASCII
Port	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2 <sup>2</sup>
PLC_Type	Specify what type of York ASCII device this is	YT, York_Translator XL MicroGateway, MGW

#### Example

// Client Side Nodes				
Nodes				
Node_Name,	Node_ID,	Protocol,	Port,	PLC_Type
PLC 1,	1,	York ASCII,	P8,	YT

<sup>2</sup> Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.



#### 4.4. Client Side Map Descriptors

##### 4.4.1. FieldServer Specific 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_Location	Starting location in Data Array	0 to maximum specified in "Data Array" section above
Function	Function of Client Map Descriptor	RDBC, WRBC, WRBX

##### 4.4.2. Driver Specific 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	Starting address of read block	0 – 86 MicroGateway: n/a
Length <sup>3</sup>	Specifies how many register bits, etc. to read	0-97 MicroGateway reads: 97 MicroGateway writes: 1
MGW_Feature	MicroGateway writes only: Specify feature to be accessed	62*
MGW_Section	MicroGateway only: Specify section to be accessed	99*
MGW_Page	MicroGateway writes only: Specify page to be accessed	99*

##### 4.4.3. Timing Parameters

Column Title	Function	Legal Values
Scan_Interval	Rate at which data is polled	>0.1s

<sup>3</sup> Correct (max) length for Microgateway Map Descriptors is 97. This is the greatest value that will actually occur, but many features will actually have much shorter responses. It's safe to work with the max value of 97.

\* refer to the MicroGateway Revision 8 Software Reference Manual

### 4.4.4. Map Descriptor Example. - MicroGateway

```
// Client Side Map Descriptors
```

Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Location,	Function,	node_name,	Length,	MGW_Feature,	MGW_Section,	MGW_Page,	Timeout
chiller1_read,	DA_READ1,	0,	rdbc,	DEV1,	94,	53,	1,	-,	10
curr_limit,	DA_WRITE,	0,	Wrbc,	DEV1,	1,	3,	2,	4,	2s

This specifies which of the previously configured data arrays the data received from the device must be stored to, or from which data array the values to be written are taken. The next parameter (Data Array Location) defines where in the array the data starts.

The Function defines the operation of the map descriptor; in these instances continuous read (rdbc) and continuous write (wrbc) operations.

For MicroGateway, up to 94 read values are available in a single read operation. The actual number of available read values depends on the feature being addressed.  
  
Writes are single length.

For reads and writes, the feature, section and page must be specified.

Map Descriptor Examples

```
York ASCII Translator: XL Translator
//
//Set up the YORK TALK READ map,
//0 to 81,           Chiller status READ_ONLY values
//82,               Set Point 1
//83,               Set Point 2
//84,               Set Point 3
//85,               Last System error
//86,               Last Comms error
```

Map\_Descriptors

Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Location,	Function,	Data_type,	Node_name,	Address,	Length
YTMB_RO,	DA_READ,	0,	Rdbc,	Register,	DEV1,	0,	82
YT_SP1,	DA_READ,	82,	Rdbc,	Register,	DEV1,	82,	1
YT_SP2_3,	DA_READ,	83,	Rdbc,	Register,	DEV1,	83,	2
YT_SYS_ERR,	DA_READ,	85,	Server,	Register,	DEV1,	85,	1
YT_COM_ERR,	DA_READ,	86,	Server,	Register,	DEV1,	86,	1

```
//
//Set up the YORK TALK WRITE map.
//0,               Set Point 1
//1,               Set Point 2
//2,               Set Point 3
//3,               Clear System error
//4,               Clear Comms error
```

Map\_Descriptors

Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Location,	Function,	Data_type,	Node_name,	Address,	Length
YTW_SP1,	DA_WRITE,	0,	Wrbc,	Register,	DEV1,	82,	1,
YTW_SP2,	DA_WRITE,	1,	Wrbc,	Register,	DEV1,	83,	1,
YTW_SP3,	DA_WRITE,	2,	Wrbc,	Register,	DEV1,	84,	1,
YTW_CE1,	DA_WRITE,	3,	Wrbc,	Register,	DEV1,	85,	1,
YTW_CE2,	DA_WRITE,	4,	Wrbc,	Register,	DEV1,	86,	1,



## 5. Configuring the FieldServer as a York ASCII Server

This option is not available for the York ASCII driver.

## Appendix 1. Driver Notes

Map of the FieldServer York Talk Client driver – XL Translator and York Translator

FieldServer address	York Talk Block	York Talk Line	Read/Write	Comment
0 -> 81	f02s01	P01 -> P81	Read Only	Read chiller status of length 82. Any single point can be read, or sub-blocks of any inclusive address range can be read.
82	f01s01	P01	Read or Write	First set point.
83	f01s02	P01	Read or Write	Second set point block.
84	f01s02	P02	Read or Write	Same as above
85	none	none	Read or Write	Enumerated York ASCII Client state machine error code. 0.0 means none. Write will clear
86	none	none	Read or Write	York Talk returned error code. 0.0 means none. Will contain last logged error. Write will clear.

### Notes:

The following combinations can be read:

- 0 – 81 or any subset thereof
- 82 by itself
- 83 – 84 or any subset thereof
- 85 by itself
- 86 by itself

The following combinations can be written to:

- 82 by itself - Only the value 0.0 (Off) or 1.0 (On)
- 83 by itself
- 84 by itself
- 85 by itself - Will reset latched error code to 0.0
- 86 by itself - Will reset latched error code to 0.0

The system is offset sensitive allowing single data blocks but multiple scan blocks

Map of the FieldServer York Talk Client driver – MicroGateway

### Note:

The MicroGateway option differs from all the others in that the feature, section and page are specified explicitly for each write operation, and each read operation assumes feature 54, but allows the section (typically a device ID) to be specified.

The successive values received after a read (i.e. “list”) request are stored to successive data array locations. The MicroGateway currently stores 94 read values.

**Appendix 2. Driver Error Codes**

Error #	Error Condition Encountered
10	YTD_LOGON_TIMEOUT_ERROR
11	YTD_PASSWORD_TIMEOUT_ERROR
12	YTD_OPEN_TIMEOUT_ERROR
13	YTD_E1E_TIMEOUT_ERROR
14	YTD_LIST_TIMEOUT_ERROR
15	YTD_COMMAND_TIMEOUT_ERROR
16	YTD_INACTIVITY_TIMEOUT_ERROR
17	YTD_CLOSE_TIMEOUT_ERROR
18	YTD_LOGOFF_TIMEOUT_ERROR

The following map descriptors may be configured to store the LAST error condition encountered:

Map Descriptors						
Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Location,	Function,	Node_Name,	Address,	Length
YT_SYS_ERR,	DA_READ,	85,	Passive_Client,	DEV1,	85,	1
YT_COM_ERR,	DA_READ,	86,	Passive_Client,	DEV1,	86,	1

The driver identifies the correct map descriptor for storing errors by the name (as per the examples) and the Node.

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