FieldServer Protocol Driver Sheet
Modbus TCP

FS-8704-03 Version: 1.02 / Rev. 5

1 DESCRIPTION

The Modbus TCP Driver allows the FieldServer to transfer data to and from devices over Ethernet using Modbus TCP Protocol. The Modbus TCP driver uses port 502. This port is not configurable. The driver was developed for Modbus Application Protocol Specification V1.1a" from Modbus-IDA. The specification can be found at www.modbus.org. The FieldServer can emulate both a Client and a Server simultaneously on the same ethernet port.

The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer.

There are various register mapping models being followed by various vendors. To cover all these models FieldServer uses the following three Models

- **Modicon_5digit** – Use this format where addresses are defined in 0xxxx, 1xxxx, 3xxxx or 4xxxx format. A maximum of 9999 registers can be mapped of each type. This is FieldServer driver's default format.
- **ADU** –Application Data Unit address. Use this format where addresses of each type are defined in the range 1-65536
- **PDU** –Protocol Data unit address. Use this format where addresses of each type are defined in the range 0-65535.

The key difference between ADU and PDU is for example if Address_Type is ADU and address is 1, the driver will poll for register 0. If Address_Type is PDU, the driver will poll for address 1.

Note 1: If vendor document shows addresses in extended Modicon (i.e. 6 digit) format like 4xxxxx then consider these addresses as xxxxx (omit the first digit) and use either ADU or PDU

Note 2: The purpose of providing 3 different ways of addressing the Modbus registers is to allow the user to choose the addressing system most compatible with the address list being used. At the protocol level, the same protocol specification is used for all three with the exception of the limited address range for Modicon_5digit.

1.1 Connection Facts

FieldServer Mode	Nodes	Comments
Client	1	Only 1 client node allowed on Multidrop systems
Server	255	Actual electrical loading may reduce number of usable Server nodes

2 FORMAL DRIVER TYPE

Ethernet

Client or Server

3 COMPATIBILITY MATRIX

FieldServer Model	Compatible with this driver
FS-x30	Yes
SlotServer	Yes
ProtoNode	Yes
QuickServer FS-QS-1010	Yes
QuickServer FS-QS-1011	Yes
ProtoCessor FPC-ED2	Yes
ProtoCessor FPC-ED4	Yes

4 CONNECTION INFORMATION

Connection type: Ethernet
Ethernet Speeds Supported: 10Base-T,100Base-T[1]

5 DEVICES TESTED

Device	Tested (FACTORY, SITE)
Quantum PLCs	Customer
Fix Intellution	Factory
Wonderware Intouch	Factory
GE Cimplicity	Customer
Others	Please contact Factory

[1] Not all FieldServer models support 100BaseT. Consult the appropriate instruction manual for details of the Ethernet speed supported by specific hardware.

6 COMMUNICATIONS FUNCTIONS - SUPPORTED FUNCTIONS AT A GLANCE:

6.1 Data Types Supported

Command	Description
01	Read Discrete Output Status (0xxxx)
02	Read Discrete Input Status (1xxxx)
03	Read Output Registers (4xxxx)
04	Read Input Registers (3xxxx)
05	Force Single Coil (0xxxx)
06	Preset Single Register (4xxxx)
15	Force Multiple Coils (0xxxx)
16	Preset Multiple Registers (4xxxx)
EX	Exception Status
FF	FIFO
Data Type	Comments
ASCII	8-bit character
Digital	Digital
Float	32-bit IEEE floating point
Long	Unsigned 32-bit integer
Signed	Signed 16-bit integer
Slong	Signed 32-bit integer
Unsigned	Unsigned 16-bit integer

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