**FieldServer**
Technologies

FieldServer Driver - Serial
FS-8700-31
Siemens TIWAY I

Description

The FieldServer Siemens TIWAY I driver, hereafter simply referred to as the TIWAY driver, can be used to emulate the host side of a Siemens Unilink Host Adaptor (UHA) using BDLC "Host Command Protocol". The original Siemens UHA device was used to interface other host devices to a TIWAY I network as shown below:
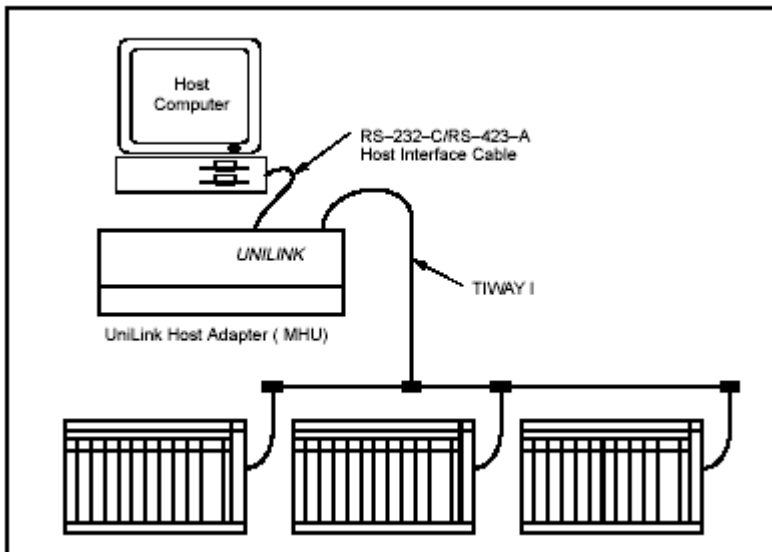
The original Siemens UHA is really a protocol bridge in itself. It speaks "Host Command Protocol" on the host interface which may contain embedded TIWAY primitives (commands) and speaks Siemens TIWAY I protocol on its secondary interface. The FieldServer TIWAY I driver emulates the UHA's host interface when used in the server mode, however the FieldServer does not speak Siemens TIWAY protocol and therefore cannot be used to connect to legacy TIWAY devices directly. The driver's use is primarily as a server to allow legacy SCADA systems speaking "Host Command Protocol" containing TIWAY primitives to communicate with modern PLCs speaking Modbus or other industrial protocols. The accompanying FieldServer client driver in a configuration setup will typically be Modbus or some other industrial protocol. The TIWAY driver's use as a client is limited to emulating a host to a UHA or for testing purposes.

The TIWAY driver operates in the Master Host Interface Unit (MHIU) mode and only supports a limited selected set of Host Adapter commands and TIWAY primitives which are listed under the Supported Host Adaptor Commands and Primitives section of this driver factsheet.

| Fieldserver Mode	Nodes	Comments
Client	1	Only 1 client node allowed
Server	254	Up to 254 secondary PLCs may be emulated

Formal Driver Type

Serial
Client or Server

Connection Information

Connection type: RS-232C
Baud Rates: 110; 300; 600; 1200; 2400; 4800; 9600; 19200; 28800; 38400; 57600; 115200 Baud
Data Bits: 8
Stop Bits: 1,2
Parity: None
Multidrop Capability: No

Connection configurations
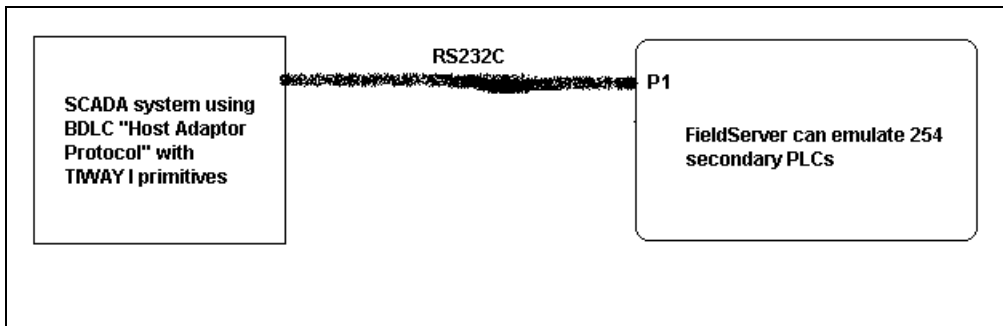
Connection Notes

Please refer to your SCADA system and FieldServer manual for connection pinouts before constructing a communications cable.

Communications functions

Supported functions at a glance:

Data Types Supported

FieldServer Data Type	Description (or Device Data Type)
Raw - 16 bit word	Instruction Execution Ladder Variable Constant Word Input Word Output Word Force Timer or Counter Preset Timer or Counter Current Drum Count Preset
Digital Register - 16 bit word	Loop Status
Digital Input - 8 bit byte	Discrete Input
Digital Input - 8 bit packed byte	Discrete Input Packed
Digital Output - 8 bit byte	Discrete Output
Digital Output - 8 bit packed byte	Discrete Output Packed
Digital Register - 8 bit byte	Control Register Discrete Force Control Register Force
Digital Register - 8 bit packed byte	Control Register Packed
Raw - 8 bit byte	Drum Step Preset Drum Step Current
Analog Input / Output – 32 bit float	Loop Gain Loop Reset Loop Rate Loop High Alarm Loop Low Alarm Loop Process Variable Loop High Process Variable Loop Orange Deviation Loop Yellow Deviation Loop Sample Rate Loop Set Point Loop Output

Read Operations supported

FieldServer as a Client	FieldServer as a Server
Read Analog Status: **Read Binary Status:** **Read Raw Data:**	**Provide Analog Status:** **Provide Binary Status:** **Provide Raw Data:**
Read Block Primitive Read Random Primitive	Respond to Read Block Primitive Respond to Read Random Primitive

Write (control) Operations supported

FieldServer as a Client	FieldServer as a Server
Write Analog Status:	**Accept Analog Status:**
Write Binary Status:	**Accept Binary Status:**
Write Raw Data:	**Accept Raw Data:**
Write Block Primitive	Respond to Write Block Primitive
Write Random Primitive	Respond to Write Random Primitive
Fill Block Primitive	Respond to Fill Block Primitive

Host Adaptor Protocol Commands Supported

FieldServer Client / Server
00 – Error Response
01 – Send Network Data
04 – Connect Secondaries
05 – Disconnect Secondaries
06 – Read Secondary Log
11 – Configure HIU
12 – Report HIU Configuration
20 – Configure Adaptor
21 – Report Adapter Configuration
30 – Configure Network Manager
31 – Report Network Manager Configuration
FE – Soft Reset
FF – Reset Adapter

TIWAY 1 Primitives Supported

FieldServer Client / Server
00 – Exception
02 – Status
20 – Read Block
21 – Read Random
30 – Write Block
31 – Write Random
32 – Fill Block

Unsupported Functions and Data Types

Function	Reason
Programming messages	FieldServer is a data transfer device, and as such, programming messages are not required
Macro Commands 10,13-18,1C	Macro commands are for slower systems to auto-schedule primitives
HIU Performance Commands 19-1B	Performance parameters cannot be obtained since HIU to NIM interface does not exist on a FieldServer
Network Performance Commands 32-38	The FieldServer has no interface to a TIWAY network.
All primitives not listed under supported list	Other primitives perform complex functions not pertaining to basic data transfer. May be implemented on request

Functions Described

Unsupported Devices or Protocol Options

Device / Protocol Option	Details
Non-Intelligent Terminal Protocol	Not suitable for this driver. BDLC protocol has much less overhead than NITP being an ASCII based protocol

Revision History

Date	Driver Version	Document Revision	Resp	Comment
02/07/03	1.00a	0	DR	Created document
04/24/03	1.00a	1	DR	Updated with new specifications after design review
8/14/03	1.00a	3	JD	Releasing