Getting Started with the FS1001M Multiplex Transceiver System

(Compiled by Ernie Lin)

Note: It is best that you become familiar with the FS2001-ISO Reader and single-antenna system before using this multiplex system.

System Components

The FS1001M Multiplexing Transceiver System is housed in a large heavy metal enclosure.

Make sure the following components are present before using:

- Metal enclosure with Acumen DataBridge SDR-CF, AC-DC power converter, and six tuning boxes attached to it.
- FS1001M Multiplex Transceiver System (removable from metal enclosure)
- Six antennas (3 “pucks” and 3 large pass-through rings)
- Six antenna cables
- Power cord for Acumen DataBridge SDR-CF (thin cord connected to recording device)
- Serial port connector

Contents

Setting up the FS1001M Multiplexing Transceiver system.

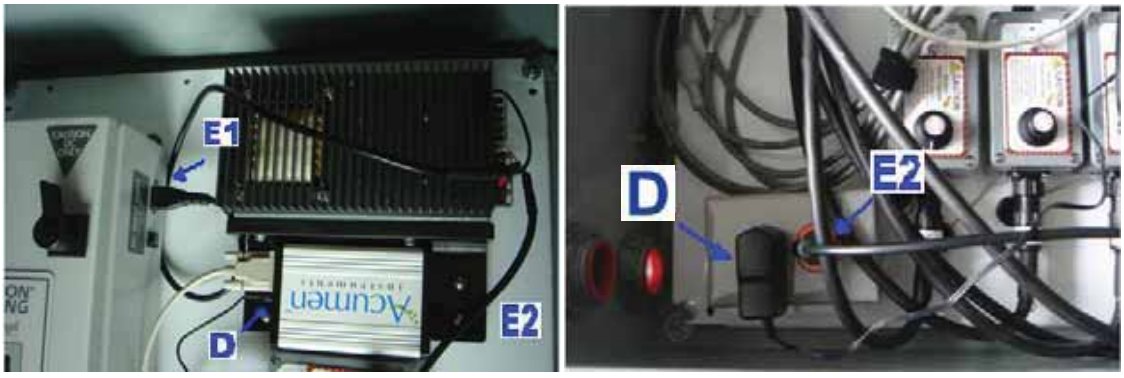
1. Attach each antenna with its corresponding antenna cables. The figure below shows the cable attachment to one of the antennas. The cable has the corresponding label at its other end.

2. Pass each black antenna cable through the appropriate opening in the metal box, as shown for cable **A** in the figure below. Connect each cable to the corresponding tuning box (attachment located at the side of the tuning box having a black cap).

3. Attach the grey cable on the other end of each tuning box to the corresponding antenna ports on the FS1001M Multiplex Transceiver System (see cable and attachment **B** in the figure below). The antenna ports on the FS1001M are numbered the same way as the openings on the metal enclosure.

4. Connect the 9-pin male end of the serial port connector to the FS1001M Multiplex Transceiver System and connect the 9-pin female end of the serial port connector to Acumen DataBridge SDR-CF (indicated by **C** in the figure above).

5. Connect one end of the Acumen DataBridge SDR-CF power cord to the Acumen DataBridge SDR-CF and the other end to one of the power outlets, as indicated by **D** in the figure below (note: power outlet shown in right panel of figure is not yet operational so need to use outside source for now).



6. Connect one of the two power cords from the AC-DC power converter (black block with “radiators”) to the side of the FS1001M Multiplex Transceiver System as indicated by **E1** in the previous figure. Connect the other power cord from the AC-DC power converter to a power outlet, as indicated by

E2 in the previous figure (note: power outlet shown in figure is not yet operational so need to use outside source for now).

Operating the Multiplexing Transceiver System

This provides only a brief introduction to operating the FS 1001M. Consult the full manual for details. It is best that you become familiar with the FS2001-ISO Reader and single-antenna system before using this multiplex system because the basics are similar.

The FS 1001M Multiplexing Transceiver is inside the large grey box. (Ours actually says “Destron Fearing” on the front, which is the subsidiary of Digital Angel).

To turn on the FS1001M Multiplexing Transceiver System, flip the power switch located on the side. The device will undergo self diagnostic tests and then go into scan mode. Once it is in scan mode, it is ready to detect tags. Press the READ button to exit scan mode and go into standby mode.

Configuring FS1001M Multiplexing Transceiver System

Refer to the official FS1001M Multiplexing Transceiver System for detail configuration settings. No instructions given here. The procedures are similar to those of the FS2001 but there are more settings. There are only a few menu items, but there are many submenus. Here is the list, extracted from the full manual:

Main menu	Sub-menu	Available settings	Default
Reader			
	Unique	On, Off, Delay	On
	Unique Delay	0001 – 1440 (unique mode delay in minutes)	0030
	ID in HEX	00 – F0	F0 (can be set when the reader is programmed)
	Buzzer	On, Off	On
	Reset params	No, Yes	No
Buffer			
	Active	On, Off	On
	Download	Pressing **Enter** will download the buffer memory to the communication port	
	Erase	No, Yes	No
	Test Tag	On, Off (determines if test tag IDs are stored in the buffer)	On
Local			
	Send tag	No, Yes (determines if tag IDs are sent to the communication port as they are detected)	Yes
Antenna			
	Sequence	XXXXXXXXXXX (where X is 1 – 6)	123456000000
	1 Tuned Ph	0000 – 9999 (Antenna 1 target phase value)	0650
	2 Tuned Ph	0000 – 9999 (Antenna 2 target phase value)	0650
	3 Tuned Ph	0000 – 9999 (Antenna 3 target phase value)	0650
	4 Tuned Ph	0000 – 9999 (Antenna 4 target phase value)	0650
	5 Tuned Ph	0000 – 9999 (Antenna 5 target phase value)	0650
	6 Tuned Ph	0000 – 9999 (Antenna 6 target phase value)	0650
	Scan Time	0040 – 1000 (Antenna dwell time, in milliseconds, when a tag presence is detected)	0100
	Sleep Time	0000, 0002 – 9999 (Antenna idle time, in 10 milliseconds, before switching to the next antenna)	0000
Diag			
	Sys Temp	Displays system temperature in Celsius	
	Exciter	Displays exciter power supply voltage (+VE) in volts	
	Curr gain %	001 – 200 (antenna current calibration gain %)	103
	Alarm mA	0001 – 9999 mA (antenna current alarm threshold in milliamps)	1000 (can be set when the reader is programmed)
	Virtual Test tag	On, Off, S-S (for all antennas or for a specific antenna)	Off All
	TstTAG delay	0000 – 1440 (Test tag activation delay in minutes)	0060
	Report delay	0000 – 1440 (Status report sending delay in minutes)	0240
	Noise delay	0000 – 1440 (Noise report sending delay in minutes)	0000
	Send status	Pressing **Enter** will send the status report to the communication port	
	Noise gain %	001 – 200 (Noise level calibration gain %)	100
	Noise Alm	01 – 99 (Noise level alarm threshold %)	50

Using the FS1001M with a computer

This section details the operations available to be performed between the FS1001M Multiplexing Transceiver System and a computer. Instructions here refer to Windows XP.

Before you start

Set the Comm (N, 8, 1) Speed to 57600 on the FS1001M.

Connect the male nine-pin end of the serial port cable to the FS1001M (or Acumen DataBridge SDR) and the female nine-pin end to the serial port on the computer.

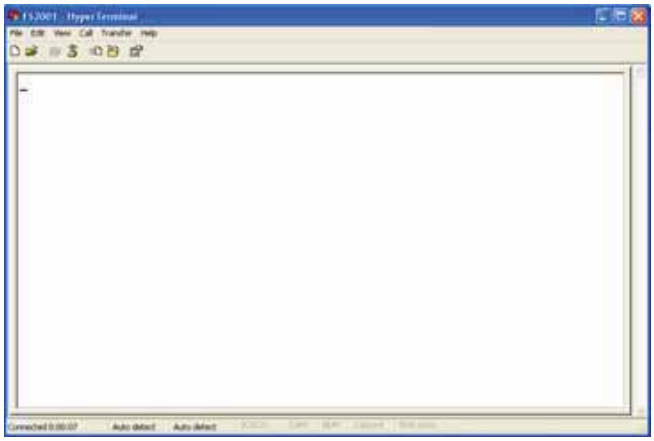
To access HyperTerminal in XP, go to Start → All programs → Accessories → Communications.

Once HyperTerminal is opened, a dialog box labeled "Connection Description" appears (see figure below). Type in a name and select an icon (any icon will do).

A dialog box labeled "Connect to" will appear (see next figure). Click on the down arrow at the bottom field labeled "Connect Using" and select COM1. Click Ok to proceed.

A dialog box labeled "COM1 Properties" will appear. Change Bits per second to **57600**, Data bits to **8**, Parity to **none**, Stop bits to **1**, and Flow control to **none** as in the figure below. Click apply, then press Ok.

A HyperTerminal Box should now appear as seen in Figure 8. You are now connected to the FS1001M.



Downloading Files from the reader to the computer using HyperTerminal

There are two ways to download files from the FS1001M to the computer. One is using HyperTerminal by connecting the FS1001M to the computer and the other one is using HyperTerminal by connecting the Acumen DataBridge SDR to the computer.

Downloading and Saving files to the Computer from FS1001M

Once Connected to Hyperterminal, type "BD" into the HyperTerminal Window to download all the files from the FS1001M to the computer.

Once the file is downloaded from the reader to the computer, you need to save the downloaded files or else they will be lost.

HyperTerminal saves the downloaded File into text format so it is easy to import the saved files to other programs such. To save files, you need to apply appropriate settings in HyperTerminal before you start downloading files from the reader.

Go to the "transfer" tab on the Hyperterminal Screen. Then, select a path and folder name in which the downloaded files will be stored by clicking "browse."

When finished, Click "Start"

Go ahead and downlaod the files from the reader, once finished, click on the "transfer" tab on HyperTerminal, select "Capture Text," and click Stop.

The downloaded files are now saved in the designated place in the computer. Open it to make sure that the file is saved correctly.

FS1001M-Hyperterminal Commands

Some FS1001M configuration settings can only be changed through HyperTerminal. Setting the date and Time on the reader is one of them. There are many commands available that can be inputted into HyperTerminal in order to configure or monitor the reader status. To see the full list of commands available, type "H" of "?" into HyperTerminal Window.

Downloading and Saving files to the computer from Acumen DataBridge SDR.

Connect the male nine-pin end of the serial port cable to the Acumen DataBridge SDR and the female nine-pin end to the serial port on the computer.

Open up HyperTerminal and set the COM port settings as follows: Bits per second to **57600**, Data bits to **8**, Parity to **none**, Stop bits to **1**, and Flow control to **none**. Press apply, then press Ok. A HyperTerminal window should appear with a blue background.

For detailed instructions on how to download files through Acumen DataBridge SDR-CF, see the official guide from Acumen Instruments Corporation.