

TECH NOTES

F-3500 Insertion Electromagnetic Flow Meter



SOFTWARE DOWNLOADING PROCEDURE

OVERVIEW AND GENERAL INFORMATION

The F-3500's configuration details can be changed via an S19 data file using TeraTerm Software.

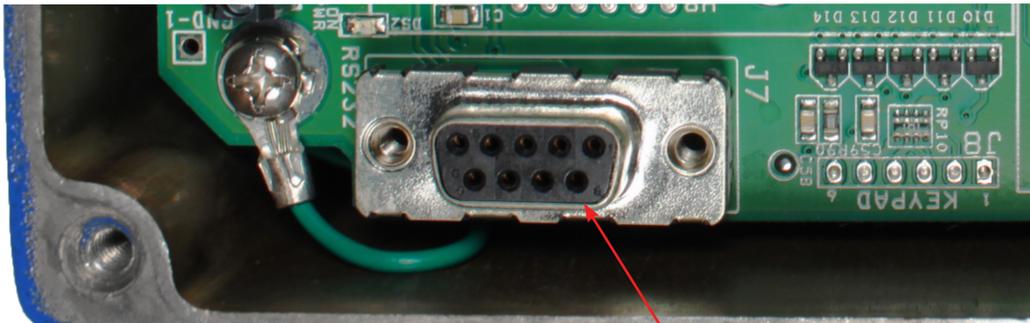
For information obtaining an S19 data file, please contact ONICON at techsupport@onicon.com or call 727-447-6140.

- The S19 file is specific to the F-3500 flow meter serial number it was created for. Do not use the S19 file for a different F-3500 meter.
- Do not change the S19 file format or save it under a different file name.
- Do not use cables longer than 6 ft.
- Be careful not to skip or get ahead of any of the process steps.



REQUIRED CABLE TYPES

Circuit board connector type is DB9 Female type. (Depending on PC Output Port Type)



DB9 CONNECTOR

IMPORTANT NOTE

DO NOT USE A NULL MODEM CABLE. When selecting a USB to Serial adapter, verify it contains a genuine FTDI chipset and is compatible with your operating system.



Germom USB to Serial RS-232 Adapter with Genuine FTDI Chipset (For reference only)

F-3500 Insertion Electromagnetic Flow Meter SOFTWARE DOWNLOADING PROCEDURE

FOR COMPUTERS RUNNING WINDOWS 7, 10 AND WINDOWS XP



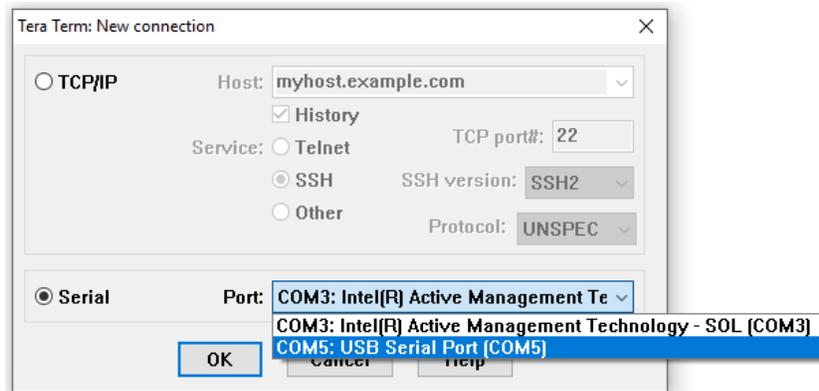
COMPUTER SET-UP PROCEDURE

TeraTerm is an open-source terminal emulator compatible with Windows, it can be installed with the following steps:

1. Search "TeraTerm Download" in your web browser and download it from a top result. The download may be a 'setup.exe' file or compressed in a ZIP file. If in a ZIP, extract and run 'setup.exe'. The default installation location is usually C:\ProgramFiles\TTERMPRO.
2. Connect your PC to the F-3500 using a serial cable.
3. Launch TeraTerm from the Start menu or desktop shortcut, or by clicking 'ttermpro.exe' in the program folder.
4. In TeraTerm, select your computer's USB Serial Port number and click "OK".

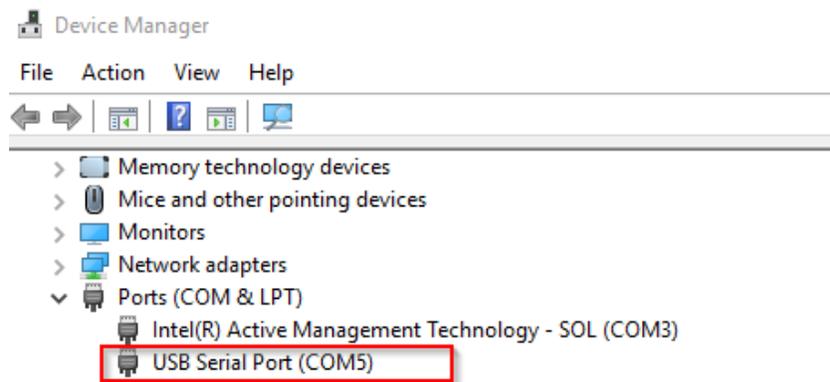
IMPORTANT NOTE

To verify the device COM port number, open your Control Panel and access to the Device Manager. Once in the



Device Manager, open the Ports (COM & LPT) tree to verify the COM port number associated to your computer.

5. Click **Setup** in the TeraTerm tool bar and select **Serial Port**.



6. Set-up as follows:
 - Port – Select the COM port to be used (This COM port number should be the same as step 4.)

F-3500 Insertion Electromagnetic Flow Meter SOFTWARE DOWNLOADING PROCEDURE



COMPUTER SET-UP PROCEDURE (CONTINUED)

- Baud Rate – 19200
 - Data – 8 bit
 - Parity – None
 - Stop – 1 bit
 - Flow Control – none
 - Transmit Delay – 0 msec/char and 0 msec/line
7. Click **OK**. The connection is established.

SOFTWARE DOWNLOAD PROCEDURE

IMPORTANT NOTE

DO NOT skip any entry steps or get ahead of the process. Skipping any of the steps will result in the program failing to load.

1. Apply power to the F-3500 Insertion Magmeter (IMM) using 24 VAC/VDC.
2. Remove the cover from the meter to expose the circuit board.
3. Connect the cable from the PC to the F-3500 circuit board's DB-9 connector. **Do Not Use a Null Modem.**
4. Once connected, the messages will appear.

```
0> 0 0 0 00 00 00 00 03 00 00 00 00 7974
0> 0 0 0 00 00 00 00 03 00 00 00 00 7961
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7962
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 795F
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7962
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7961
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7962
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7960
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7961
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7960
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
```

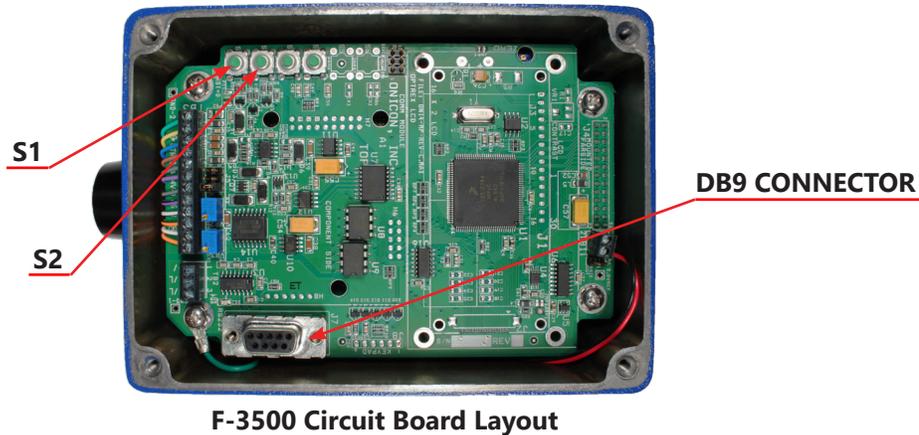
IMPORTANT NOTE

You have made an error with the COM port set-up if you see messages similar to the image below.



F-3500 Insertion Electromagnetic Flow Meter SOFTWARE DOWNLOADING PROCEDURE

SOFTWARE DOWNLOAD PROCEDURE (CONTINUED)



IMPORTANT NOTE

Once S1 released, the ONICON Boot Monitor data will appear, followed by a 3C> prompt.

```
0> 0 0 0 00 00 00 00 03 00 00 00 00 7961
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7960
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7963
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7962
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7964
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7962
0> 0 0 0 00 00 00 00 03 00 00 00 00 7975
0> 0 0 0 00 00 00 00 03 00 00 00 00 7964

Onicon Boot Monitor U01.3 for Onicon.D64
Copyright (C)2005-2008 by Onicon, Inc.
```

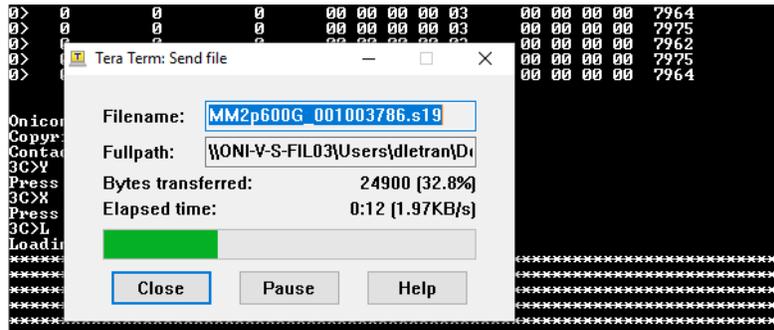
5. On the F-3500 circuit board, while holding down the S2 button, press and release the S1 button.
6. In the 3C> prompt, type Y and press ENTER to erase the EEPROM.
7. The computer will show "Press Y to erase EEPROM". Type Y WITHOUT pressing Enter.
8. Wait until the 3C> prompt appears.
9. In response to the 3C> prompt, type X and press ENTER to clear the flash memory.

```
Onicon Boot Monitor U01.3 for Onicon.D64
Copyright (C)2005-2008 by Onicon, Inc.
Contact http://www.onicon.com
3C>Y
Press Y to erase EEPROM Y
3C>X
Press Y to erase FLASH Y
3C>
```

10. The computer will show "Press Y to erase FLASH". Type Y WITHOUT pressing Enter.
11. Wait until the 3C> prompt appears.
12. Type L and press ENTER. TeraTerm will display "Loading..."
13. From the tool bar at the top of the TeraTerm window, choose File and from the pulldown list, select Send File.

SOFTWARE DOWNLOAD PROCEDURE (CONTINUED)

14. Browse to the directory where you saved the S19 file. Select it and click **Open**.
15. A series of asterisks will appear and TeraTerm will display the bytes transferred count.



16. When the transfer is complete, the asterisks will stop, and the byte count display will close.



17. Press the **S1** button on the F-3500 to restart with the new software.
18. Allow 10-15 seconds for the processor to re-initialize.
19. Follow the standard commissioning procedure in the F-3500 installation manual to confirm proper operation.

FOR COMPUTERS WITH HYPERTERMINAL

COMPUTER SET-UP PROCEDURE USING HYPERTERMINAL

1. Prior to HyperTerminal set-up, the COM port number used to connect to the Insertion Electromagnetic Meter (IMM) must be determined as follows:
 - A. **For using with USB to serial adapter**
(required for many laptops that are no longer equipped with DB9 serial ports)
 - Click on **Start > Control Panel**.
 - Choose **Switch to Classic View** and double click the system icon.
 - Inside the **Hardware** tab, click the **Device Manager** button.
 - Click on the + to expand Ports (COM & LPT).
 - Take note of the COM port number that has been assigned to the USB adapter (COM3, COM4, COM5, etc).

F-3500 Insertion Electromagnetic Flow Meter

SOFTWARE DOWNLOADING PROCEDURE



COMPUTER SET-UP PROCEDURE USING HYPERTERMINAL (CONTINUED)

B. For using with a serial port (built in to the PC)

- Click on **Start > Control Panel**.
 - Choose **Switch to Classic View** and double click the system icon.
 - Inside the **Hardware** tab, click the **Device Manager** button.
 - Click on the "+" to expand Ports (COM & LPT).
 - Take note of the COM port numbers listed. Generally, if the flow meter is connected to the PC, it will be assigned COM1 or COM2.
2. Click **Start > All Programs > Accessories > Communications > HyperTerminal** to start the HyperTerminal program.
 3. The **New Connection** dialog box will open. Enter a name for the new connection. A good name might be "IMM COM X", where X is the COM port number. Click **OK**.
 4. In the **Connect Using** dropdown, choose the appropriate COM port from step 1. Click **OK**.
 5. Set-up the port as follows:
 - Bits per second – 19200
 - Data bits – 8
 - Parity – None
 - Stop bits – 1
 - Flow Control – None
 6. Click **OK**.
 7. Click **Call > Disconnect**
 8. Select **File > Properties**. Click the **Connect to** tab then **Configure**.
 9. Verify the COM Port setting from step 5 above. Click **OK**.
 10. Select **File > Save As** and save the **IMM COM X.ht** file to the desktop for future use.
 11. Click **Call > Call**. Verify that the HyperTerminal status bar (bottom of the window) displays **Connected – AutoDetect – 19200 8-N-1**.

SOFTWARE DOWNLOAD PROCEDURE USING HYPERTERMINAL

IMPORTANT NOTE

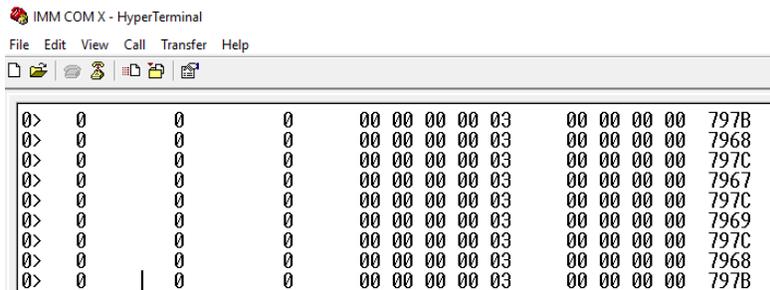
Do not skip any entry steps or get ahead of the process. Skipping any of the steps will result in the program failing to load.

1. Apply power to the F-3500 Insertion Magmeter (IMM) using 24 Volts (DC or AC)
2. Remove the cover from the meter to expose the circuit board.
3. Connect the cable from the PC to the F-3500 circuit board's DB-9 connector. **Do Not Use a Null Modem.**

F-3500 Insertion Electromagnetic Flow Meter SOFTWARE DOWNLOADING PROCEDURE

SOFTWARE DOWNLOAD PROCEDURE USING HYPERTERMINAL (CONTINUED)

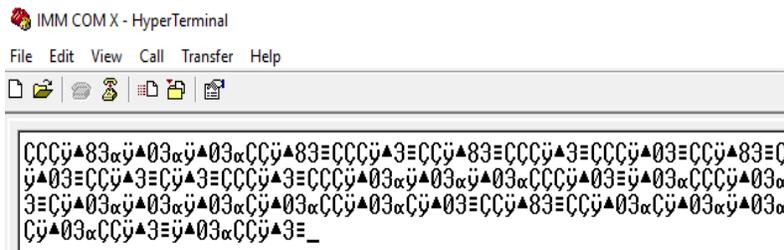
- From the PC desktop, double-click the **IMM COM X.ht** icon. This will open a HyperTerminal window. When correctly connected to the F-3500, the message below will appear.



```
IMM COM X - HyperTerminal
File Edit View Call Transfer Help
0> 0 0 0 00 00 00 00 03 00 00 00 00 797B
0> 0 0 0 00 00 00 00 03 00 00 00 00 7968
0> 0 0 0 00 00 00 00 03 00 00 00 00 797C
0> 0 0 0 00 00 00 00 03 00 00 00 00 7967
0> 0 0 0 00 00 00 00 03 00 00 00 00 797C
0> 0 0 0 00 00 00 00 03 00 00 00 00 7969
0> 0 0 0 00 00 00 00 03 00 00 00 00 797C
0> 0 0 0 00 00 00 00 03 00 00 00 00 7968
0> 0 0 0 00 00 00 00 03 00 00 00 00 797B
```

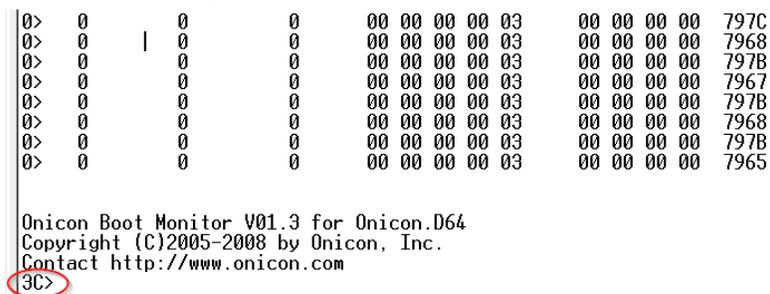
IMPORTANT NOTE

You have made an error with the COM port set-up if you see messages similar to the image below.



```
IMM COM X - HyperTerminal
File Edit View Call Transfer Help
CÇÿ▲83αÿ▲03αÿ▲03αCÇÿ▲83=CÇÿ▲3=CÇÿ▲83=CÇÿ▲3=CÇÿ▲03=CÇÿ▲83=C
ÿ▲03=CÇÿ▲3=Cÿ▲3=CÇÿ▲3=CÇÿ▲03αÿ▲03αÿ▲03αCÇÿ▲03=ÿ▲03αCÇÿ▲03α
3=Cÿ▲03αÿ▲03αÿ▲03αCÇÿ▲03αCÿ▲03=CÇÿ▲83=CÇÿ▲03αÿ▲03αÿ▲03α
Cÿ▲03αCÇÿ▲3=ÿ▲03αCÇÿ▲3=_
```

- On the F-3500 circuit board, while holding down the **S2** button, press and release the **S1** button.



```
0> 0 0 0 00 00 00 00 03 00 00 00 00 797C
0> 0 0 0 00 00 00 00 03 00 00 00 00 7968
0> 0 0 0 00 00 00 00 03 00 00 00 00 797B
0> 0 0 0 00 00 00 00 03 00 00 00 00 7967
0> 0 0 0 00 00 00 00 03 00 00 00 00 797B
0> 0 0 0 00 00 00 00 03 00 00 00 00 7968
0> 0 0 0 00 00 00 00 03 00 00 00 00 797B
0> 0 0 0 00 00 00 00 03 00 00 00 00 7965

Onicon Boot Monitor V01.3 for Onicon.D64
Copyright (C)2005-2008 by Onicon, Inc.
Contact http://www.onicon.com
3C>
```

- The ONICON Boot Monitor prompt should appear on the HyperTerminal window.
- In the 3C> prompt, type **Y** and press **ENTER** to erase the EEPROM.
- The computer will show *Press Y to erase EEPROM*. Type **Y** *WITHOUT* pressing Enter.
- Wait until the 3C> prompt appears.
- In response to the 3C> prompt, type **X** and press **ENTER** to clear the flash memory.
- The computer will show **Press Y to erase FLASH**. Type **Y** *WITHOUT* pressing Enter. Wait until the 3C> prompt appears.
- Type **L** followed by **Enter** to load the software.
- From the toolbar located at the top of the HyperTerminal window, choose **Transfer** and from the pulldown list, choose **Send Text File**.
- A dialog box will appear to choose the file to load.

F-3500 Insertion Electromagnetic Flow Meter

SOFTWARE DOWNLOADING PROCEDURE

SOFTWARE DOWNLOAD PROCEDURE USING HYPERTERMINAL (CONTINUED)

15. Browse to the desktop (or wherever the s19 file is located). Under **Types of Files**, choose **All Files**.
16. Select **filename.s19** and click **Open**.

IMPORTANT NOTE
DO NOT change the file name!

17. A series of asterisks will appear in the HyperTerminal window and will stop when the transfer is complete.
18. Reset the F-3500 by pressing the **S1** button on the circuit board to run the new software.
19. Allow 10-15 seconds for the processor to re-initialize.
20. Follow the standard commissioning procedure in the F-3500 IOM to confirm proper operation.

IMPORTANT TROUBLESHOOTING NOTE

1. After pressing the **L** key and starting the download, if **S1113 xxxx yyyy zz** starts showing on the screen click close to stop the process. Scroll to the start of the error messages and see where the problem occurred. See if the value in the xxxx area of the message equals one of the following:
 - If cannot write to 600 message, then the Y command to erase the EEPROM was not successful. Repeat the Y process.
 - If cannot write to 4000 message, then the X command to erase the Flash was not successful. Repeat the X process.
2. If after pressing the **L** key, *Loading...* does not appear, try pressing **L** and **Enter** several more times.
3. If you are using HyperTerminal and are experiencing problems, ONICON recommends using TeraTerm to download the software into the F-3500.
4. The serial cable used to connect to the F-3500 should be as short as possible. Please limit this length to 6 feet to avoid communication issues.

