



StageLogger Version 42103 USER GUIDE (Updated September 21, 1999)

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StageLogger Wiring and Maintenance

Warning: Special care must be taken to complete all wiring of the StageLogger and sensors properly prior to powering the system (connecting the battery). Wiring should not be adjusted while the system is powered. Wiring the system while under power or wiring the system incorrectly may result in user damage to the StageLogger or sensor components.

Warning: The StageLogger should be installed in the shelter with the RS232 port oriented downward. This is to prevent any internal battery problem (acid leakage) from damaging the StageLogger motherboard. These internal batteries (2, AAA cells) should be inspected every 3 months and changed every 6 months or as needed.

Photos of the wiring are available at www.SouthernDataStream.com. A wiring diagram is provided in Figure 1. A demonstration unit is also available as an example.

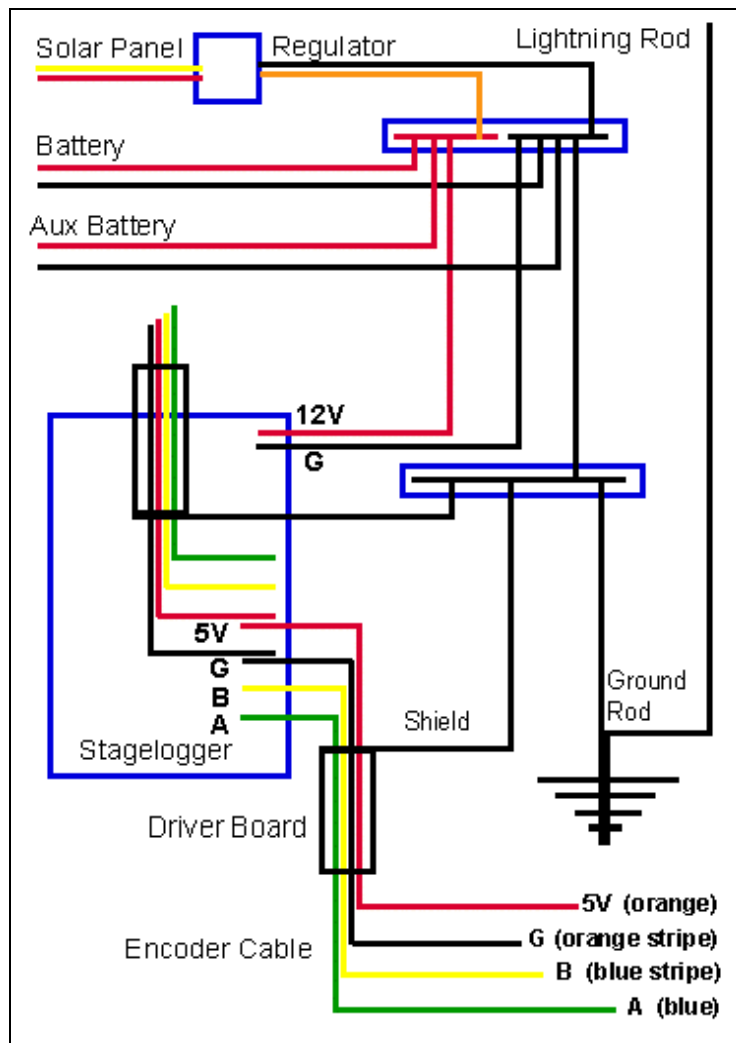


Figure 1. StageLogger and encoder system wiring diagram.



StageLogger Software, Ver. 42103

Southern DataStream Stageloggers include a custom program designed to match the sensor configuration of the specific StageLogger model. The StageLogger can be reprogrammed using the Dynamic C language and compiler available from Zworld (www.zworld.com). Southern DataStream also offers reprogramming services.

Power-up Display

When the StageLogger is powered up it will display the unit serial number (SL0000##) and software version (Ver. 42103) in its header:

```
Stagelogger SL0000##  
Ver. 42103  
Southern DataStream  
datastream@gulfcoast.net
```

Status Display

This header will be followed by the *status* display listing: [1] StageLogger mode (RUNNING or IDLE), [2] time increment for data storage, [3] number of records saved (up to a maximum 5118, enough for 52 days at 15 minute increments), [4] date, [5] time, and [6] values in each sensor register.

```
RUNNING every 1 193/5118  
99/09/05 6:10:07  
  
Encoder 1      0.00 Ft  
Encoder 2      0.00 Ft  
Encoder 3      0.00 Ft  
Encoder 4      0.00 Ft  
RPM 1          0.  
RPM 2          0.
```

Menu Options

After printing the header and status, the StageLogger will await user entry of a command. This can be one of the menu option characters followed by "/" or simply the "/" character which will bring up a list of the menu options. In the RUNNING mode there are only 5 options (D, E, I, Z, and Q) available to the user:

```
D - Download Data Buffer  
E - Empty Data Buffer  
I - Identification Number  
Q - Quit Program
```



S - Status Check

In the IDLE mode, the StageLogger brings up the main menu with 9 options.

A - Adjust Time Step
C - Clock/Calendar Set
D - Download Data Buffer
E - Empty Data Buffer
I - Identification
R - Run Collection
P - Parameter Adjust
S - Status Check
Z - Zero Levels

To invoke a menu option the user enters the single letter corresponding to that option followed by the "enter" key on the PC interface or by the slash "/" motion on the Palm Pilot. In the menu option section below the user entries are shown as *User: **bold*** while the StateLogger responses are shown in Courier typeface after the user entry. The StageLogger is not case sensitive relative to menu option characters.

A - Adjust Time Step

The Adjust Time Step option allows the user to set the time interval at which sensor data are saved to the StageLogger memory.

*User: **A /***

Select from 1,2,3,4,5,6,10,12,15,20,30 or 60
and Enter New Time Step in minutes (15)-

*User: **5 /***

New Time Step SET to 5.

C - Clock/Calendar Set

The Clock/Calendar Set option allows the user to set the date and time of the StageLogger.

*User: **C /***

Enter new year (2 digit) - *User: **99 /***
Enter new month (1 - 12) - *User: **9 /***
Enter new day (1-31) - *User: **20 /***
Enter new hour (0-23) - *User: **14 /***
Enter new minute (0-59) - *User: **41 /***
Enter new second (0-59) - *User: **/***
New day and time SET.



D - Download Data Buffer

The Download Data Buffer option allows the user to transfer data from the StageLogger memory to the Palm IIIx or the PC interface. The user may collect data starting from the ending point of the last data download (default option) or the user may start from the beginning of the StageLogger data memory (by resetting the pointer).

User: **D /**

Do you want to Reset the First (1) Pointer? [y/n]

User: **Y /**

First Pointer RESET to BEGINNING.

Ready to capture data download? [y/n]

User: **Y /**

```
$$$$$$$  
Stagelogger SL000013  
Ver. 42104  
Southern DataStream  
datastream@gulfcoast.net
```

```
IDLE every 5 4/5118  
99/09/20 14:41:16
```

```
Encoder 1      1.11  Ft  
Encoder 2      2.22  Ft  
Encoder 3      3.33  Ft  
Encoder 4      4.44  Ft  
RPM 1          5.  
RPM 2          6.
```

```
$$$$$$$  
263,14,39,1.11,2.22,3.33,4.44,5.,6.  
263,14,40,1.11,2.22,3.33,4.44,5.,6.  
263,14,41,1.11,2.22,3.33,4.44,5.,6.  
$$$$$$$  
Data buffer DOWNLOADED.
```

The data records are listed one record per line between the \$\$\$\$\$\$ strings. The first 3 fields in each record list the Julian Day, Hour, and Minute. The next 6 fields represent Encoders 1-4 and RPM Sensors 1-2, respectively.

E - Empty Data Buffer



The Empty Data Buffer option allows the user to erase the data stored in StageLogger Memory. This is not done automatically after a data download but rather requires the user to specifically request data erasure so as to avoid accidental loss of data. The memory is sequential. Data writing to memory is halted once the data buffer is full (5118 records).

User: **E /**

Are you sure you want to DELETE ALL DATA? [y/n]

User: **Y /**

Data Buffer ERASED.

I - Identification

The Identification option allows the user to view the StageLogger version number and serial number.

User: **I /**

Stagelogger SL0000##
Ver. 42104
Southern DataStream
datastream@gulfcoast.net

Q - Quit Program

The Quit Program option allows the user to temporarily halt data collection and moves the StageLogger into IDLE mode. This permits the user to access 4 functions not available in the RUNNING mode (A, C, P, and Z).

User: **Q /**

Do you really want to STOP? [y/n]

User: **Y /**

Now IDLE.

R - Run Collection

The Quit Program option allows the user to resume data collection and moves the StageLogger into RUNNING mode during which data are saved to the StageLogger memory. The StageLogger reminds you that you are appending the data buffer in case you need to erase the existing data before resuming data collection.

User: **Q /**

Are you ready to GO? [y/n]



User: **Y /**

You are about to APPEND to the buffer.
Continue? [y/n]

User: **Y /**

Now RUNNING.

P - Parameter Adjust

The Parameter Adjust option allows the user to modify the encoder attributes and the RPM counter attributes. The current encoder attributes are 200 counts per revolution and 1.0 pulley circumference. Note that the StageLogger has a bug in which it incorrectly asks for pulley diameter rather than circumference. The user should input circumference, not diameter. The counts per revolution are dependent on the particular switch system used for measurement. It is recommended that this be checked for each system monitoring and calibrated against each engine RPM meter.

User: **P /**

Enter Encoder 1 Count/Rev (400) - User: **200 /**
Encoder 1 Count/Rev SET to 200.
Enter new pulley 1 Diameter in Ft (1.5)-User: **1.0 /**
New pulley 1 Diameter SET to 1.00.

Enter Encoder 2 Count/Rev (400) - User: **200 /**
Encoder 2 Count/Rev SET to 200.
Enter new pulley 2 Diameter in Ft (1.5)-User: **1.0 /**
New pulley 2 Diameter SET to 1.00.

Enter Encoder 3 Count/Rev (400) - User: **200 /**
Encoder 3 Count/Rev SET to 200.
Enter new pulley 3 Diameter in Ft (1.5)-User: **1.0 /**
New pulley 3 Diameter SET to 1.00.

Enter Encoder 4 Count/Rev (400) - User: **200 /**
Encoder 4 Count/Rev SET to 200.
Enter new pulley 4 Diameter in Ft (1.5)-User: **1.0 /**
New pulley 4 Diameter SET to 1.00.

Enter RPM 1 Count/Rev (2) - User: **/**
RPM 1 Count/Rev UNCHANGED.

Enter RPM 2 Count/Rev (2) - User: **/**
RPM 2 Count/Rev UNCHANGED.



S - Status Check

The Status Check option allows the user to check the current status of each sensor register. This option may be invoked from either the IDLE or RUNNING modes. Sensor values viewed in the IDLE mode are NOT stored to StageLogger memory.

User: S /

RUNNING every 15 1/5118
99/01/01 0:23:51

Encoder 1	1.11	Ft
Encoder 2	2.22	Ft
Encoder 3	3.33	Ft
Encoder 4	4.44	Ft
RPM 1	0.	
RPM 2	0.	

Z - Zero Levels

The Zero Levels option allows the user to reset the stage encoders to match known values (manual readings).

User: Z /

Set the Encoders' Levels? [y/n] *User: Y /*

Enter Encoder 1 Stage in Feet - *User: 1.11 /*
Encoder 1 Stage SET to 1.11 Feet.

Enter Encoder 2 Stage in Feet - *User: 2.22 /*
Encoder 2 Stage SET to 2.22 Feet.

Enter Encoder 3 Stage in Feet - *User: 3.33 /*
Encoder 3 Stage SET to 3.33 Feet.

Enter Encoder 4 Stage in Feet - *User: 4.44 /*
Encoder 4 Stage SET to 4.44 Feet.



StageLogger Data Transfer

General Notes

Supplemental Palm IIIx Software

There are 3 additional software packages included on the Palm IIIx in the **DataStream** category: **TermPilot**, **SmartDoc**, and **PopCalc**. These are provided on the accompanying diskette. TermPilot and SmartDoc are required for StageLogger communications and data retrieval. PopCalc allows use of the calculator simultaneously with other applications.

Palm Desktop Organizer

When you first install the Palm Desktop Organizer Software to your office PC and your portable PC, you will need to give an initial ID name as "**DataStream**." Once you have installed the PC software you will need to start the Palm Desktop and add 3 users names, one for each Palm IIIx. This is done in the **User** window at the top right of the Palm Desktop. In the "**User:**" drop menu you choose "**Edit Users**" and then create 3 new users with the names: **Data11**, **Data12**, and **Data13**. Subsequently, whenever you perform a Hotsync for your Palm IIIx you will need to specify the appropriate user name for the particular unit. This will allow you to maintain separate telephone lists, schedulers, etc. for each Palm IIIx and its associated staff member. Also, you will need to create a subdirectory with the name "**Backup**" under the **Palm/DataStream** directory. This will be used as a receptacle for .PDB data files to be converted by the **QEX** software.

File Conversion Software

You will need to install the **QEX** software package on your office PC and your portable PC. QEX converts the .PDB data files collected by the Palm IIIx and converts them to .txt files.

Portable PC Software

On your portable PC you will need to install both the **VBTERM** software package. VBTERM allows your portable PC to communicate with the StageLoggers for data collection via an RS232 cable (no null modem connector required). VBTERM is a very simple package that only requires the user to perform two steps via its menu options: (1) specify the serial port to be used and open/close the serial port for communications purposes, and (2) open/close log files for data storage purposes.

StageLogger Data Transfer to Palm IIIx

1. Connect Palm cable to StageLogger using the portable Hotsync cable. Be sure to include the *null modem* converter.
2. There are two methods of establishing communications between the Palm IIIx and the StageLogger: (a) automated method using macros or (b) manual method using standard software character instructions.



(a) Automated macro method. Press the "**checklist**" button (2nd button from right). This turns on the Palm IIIx, establishes communications with the Stagelogger and initiates data transfer. If this fails to initiate the data transfer then press the **home** icon followed by the **checklist** button. The data file carries a name based on the date and time of downloading.

Note: the **checklist** button activates the TermPilot program that is set to automatically establish communications with the DataStream device (Stagelogger). TermPilot is configured to do this via its **Host Setting** window accessed through the **edit** option on the menu bar. Host settings requiring modification from default settings are: Baud:9600, Code:Ascii, and Return:CR. Within the **Host Setting** window is a the **Login** menu bar option. It is here that TermPilot is configured to receive **DOC** files and to **USE** a macro (m.dat/ p.1/ e./). See MACRO_E.TXT for explanation of macro commands.

(b) Manual character instruction method.

- (i) Turn on Palm. Select software (**home** icon). Select **TermPilot** (press icon).
- (ii) Select **DataStream** so that it is highlighted. Press **Dial**.
- (iii) Confirm connection by entering **/**. To check text that has scrolled out of the window, use the scroll bar at the right of the screen or the arrow up/down bar at the center of the Palm row of physical buttons.
- (iv) To download the data, enter the character sequence **d y / y /** (download, yes, enter, yes, enter). This sets the buffer pointer to the beginning of the data file and starts the data transfer. Allow the transfer to reach completion as indicated by display of **\$\$\$\$\$\$\$ Databuffer DOWNLOADED**. The resulting Palm database file will carry the name **MM/DD HH:MN**.

3. The data file is next viewed by the SmartDoc software by pressing the **memopad** button (rightmost button). An alternate way to initiate SmartDoc is to first press the **home** icon and then the **SmartDoc** icon.
4. To open up the recently collected datafile, first close any already open files by pressing "**Done**" at the bottom of the screen. Then select the desired *file* (**MM/DD HH:MN**). The scroll bars allow you to move through the datafile.
5. To prepare the file for transfer to a PC, press **Info**. In this window you need to select (check box) the **Backup on HotSync**. Also change the category to **DataStream**. You must also choose an alternate file name from the **MM/DD HH:MN** format to some other format (*example: RD990801*). This is required because the QEX conversion software cannot recognize the underscore characters inserted in the **MM/DD HH:MN** file name.
6. End the **Info** session by pressing **OK**.

Data File Transfer from Palm IIIx to Office PC

1. Place Palm IIIx in the Hotsync cradle attached to a PC where the **Palm Desktop Manager** is installed. Press the **Hotsync** button on the cradle. Specify the particular



- Palm IIIx unit being synchronized (**Data11**, **Data12**, or **Data13**). This will transfer the .PDB data files to the **Backup** subdirectory under the **Palm/Data##** directory.
2. Using your file explorer, move the .PDB file from its original location (**Palm/Data##/Backup**) to its QEX accessible location (**Palm/DataStream/Backup**). QEX sometimes has difficulty finding the file if it is not under the root user ID (DataStream) established at the time of Palm Desktop installation.
 3. In the Windows Start menu, select the **QEX** software.
 4. Select the desired new Palm IIIx data file (**Pilot File**) using the lower **browse** button. Look in the **Palm/DataStream/Backup** subdirectory.
 5. Select the desired new destination subdirectory and file name (PC File) using the upper **browse** button. Put the file in any subdirectory you desire and provide an appropriate file name for the .txt file to be created after conversion of the .PDB file.
 6. Click the arrow up button (**Convert to PC**). The file is now available for use in ASCII format.