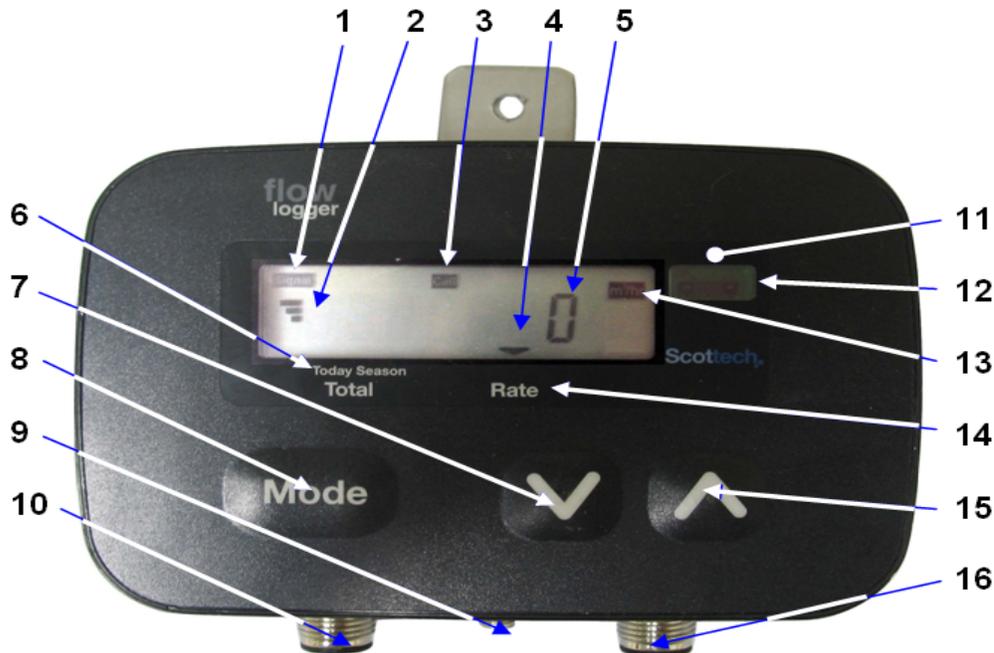**Flow Logger**

User Manual

Table of contents

Hardware

Display Reference Guide

The display shows the following information:
- Current flow rate or total flow quantity
- Units of measurement (m^3/h or l/s)
- Display mode
- Communications mode

Display
1. Signal
2. Received Signal Strength (RSSI)
3. Cell Communications
4. Display Marker
   (Currently on Present Rate)
5. Flow Rate (Current)
6. 'Today', 'Total', 'Season'
13. Flow Rate units
14. Present Rate
11. Red 12v Power and
    Communications Light

Mode Selection Buttons
7. Down Button
8. Mode Button
15. Up Button

Physical Inputs
9. Antenna Socket
   (telemetered model only)
10. Power Socket
12. IrDA (infrared) Communications
    Port
16. Flow Sensor Socket

The unit has three push buttons that allow the "display mode" to be changed. You are able to alter what the display tells you by using the *Up* and *Down* Buttons. By pressing either of these buttons repeatedly, the display maker will move left or right to indicate one of the six choices.

Display Mode

There are two main modes for the Flow Logger. The Display Mode shows current and total flow meter readings. The Menu Mode is used for communications.
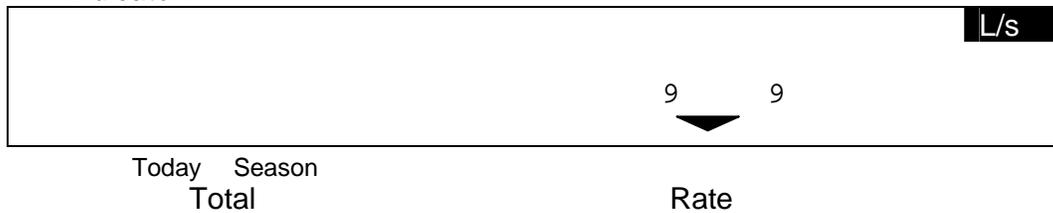
Pressing the *Mode* key switches between "display mode" and "menu mode".

Press the *Up* or *Down* keys to move between the following settings.

Display Mode Settings

Present Rate
> Shows the current flow rate in litres per second as measured and recorded by the logger, indicated by the *Display Marker* being above the *Rate Indicator*.

				L/s
		9	9	
		▼		

    Today   Season
       Total   Rate

Total Pumped Since Meter Installed
> This Figure should match the display on the flow meter.
> No *Display Marker* is displayed on screen.

	9	9	9	
				m³/hr

    Today   Season
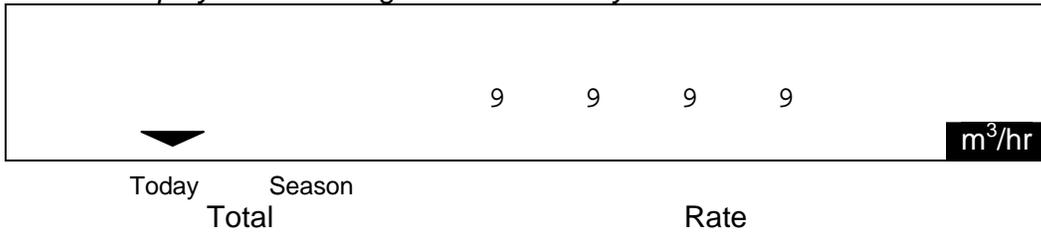   Total   Rate
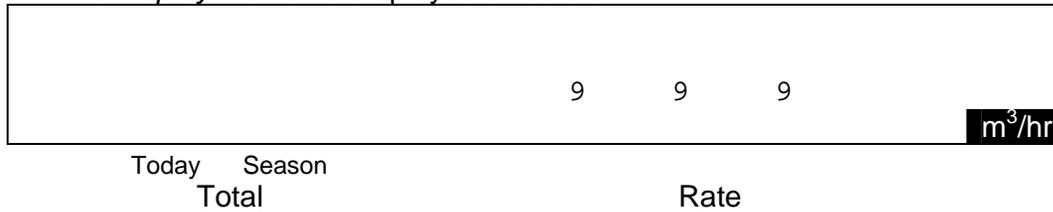
Yesterday's Total
> This displays the total number of cubic metres pumped yesterday, indicated by the *Display Marker* being to the left of the *Today Indicator*.

	9	9	9	9
▼				m³/hr

    Today   Season
       Total   Rate
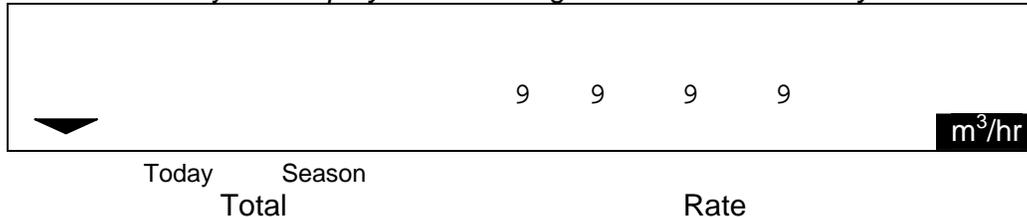
Today's Total

This displays the total number of cubic metres pumped today, indicated by the *Display Marker* being above the *Today Indicator*.

9   9   9   9

m^3/hr

Today   Season
Total   Rate

Season Total

This displays the total number of cubic metres pumped for the season, indicated by the *Display Marker* being above the *Season Indicator*.

9   9   9   9

m^3/hr

Today   Season
Total   Rate
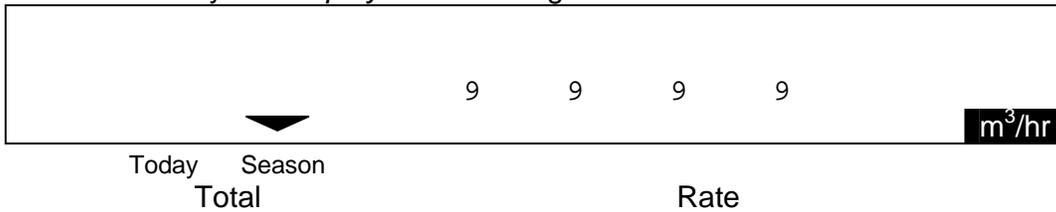
Allowable Take Remaining

(If programmed at installation / prior to season starting)

This displays the amount of cubic metres allowed for the season less the season total, indicated by the *Display Marker* being to the right of the *Season Indicator*. This option allows you to see how many cubic metres of water you have left available to take for the season.

9   9   9   9

m^3/hr

Today   Season
Total   Rate
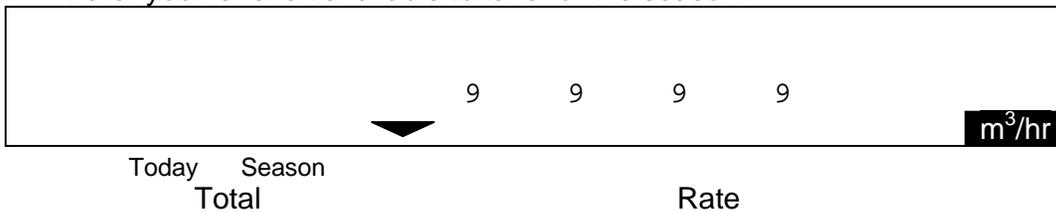
Menu Mode

All seven markers along the bottom of the display are on when in menu mode. The current menu option is indicated by a number at the left of the display as well as an indicator.

Pressing the *Mode* key exits menu mode and returns to normal display mode, displaying the flow rate.

Pressing the *Up* key moves on to the next menu option.

Repeatedly pressing the *Up* key cycles through all possible menu options.

Pressing the *Down* key selects and activates the currently displayed menu option.

Note: The logger continues to monitor and log flow pulses regardless of the display mode or menu mode.

Mode Number	LCD Indicator	Description
1	IrDA	Enable IrDA communications. Pressing the *Down* key enables the IrDA communications port so that the logger can communicate with a PC using IrDA. The Flow Logger normally has the IrDA interface switched off to conserve power. The IrDA communications port will be switched off automatically after 60s with no communications activity. For telemetered loggers all cellular communications are disabled while the IrDA communications port is enabled.
2	Cell	Connect to server (Telemetered option only). Pressing the *Down* key causes the logger to immediately start connecting to the server to report status and transfer any logged data.
3	Signal	Cellular modem signal test (Telemetered option only). Pressing the *Down* key puts the logger into signal test mode. The logger will display the current cellular modem RF signal level. The level is displayed using the signal level meter to the left of the display, as well as the signal level as a number.

Mode Number	LCD Indicator	Description
		0 = Signal not available
		1 = -99 dBm or less
		2 = -97 to –83 dBm
		3 = -81 to –67 dBm
		4 = -65dBm or greater
4	%	Test mode on or off.
		Pressing the *Down* key toggles the test mode on or off. Test mode can be used for testing or commissioning the logger and ensures that any analysis software ignores data logged while in test mode.
		Turning on test mode inserts a "test mode on" marker in the logged data. Turning off test mode inserts a "test mode off" marker in the logged data. The telemetry server can then ignore data between these modes.
		When test mode is on the % indicator is displayed.
5		Enable RF communications (not yet supported).
6	Serial	Enable serial communications port (factory only).
		Pressing the *Down* key enables the serial communications port and disables the IrDA communications port. This option is provided for factory testing and diagnostics.

Software

The FlowTool software has been built to communicate with the XISYS Flow logger. It can perform the following functions:
- Configure the logger
- Retrieve data
- Graph data
- Export data

Requirements

This software has the following requirements:
1. Microsoft .net framework version 2.0 (or above)
2. Microsoft Windows 2000, XP, Vista and perhaps newer
3. Microsoft Windows IrDA stack and com API is required (installed when an IrDA device is plugged in for the first time)
4. This system uses a DCOM API to talk to the IrDA subsystem, some firewall or security software will prompt you when installing and while using the software.
5. Microsoft Internet Explorer 6 or newer

This software requires the following computer hardware:
1. 16bit, 24bit or 32bit desktop colour depth – it will work with lower but it is not recommended.
2. IrDA device (see below)
3. 256 Mb RAM
4. 15 Mb hard drive space for installed applications
5. Additional storage space for data files

USB – IrDA Interface

The Flow Logger IrDA communication method requires the use of an infrared interface (adaptor/dongle) which communicates to the logger through the IrDA Port.

While many laptops have this interface built in, we recommend the use of a USB-IrDA interface, as this makes downloading data from the Flow Logger much easier. These are generic products and can also be purchased from your Flow Logger supplier. Many of these units also come with their own Software/Driver which needs to be loaded onto the PC or laptop first.

Installing Flow Logger Software

The Flow Tool software installation file should be downloaded from the web page and installed by double clicking on the downloaded file. The installer will automatically start and will prompt if you want to change the installation directory (default is C:\Program files\Flow Tool). It will also install a short cut to the desktop.

Connecting to the Flow Logger

1. Set up the IrDA (InfraRed Adaptor)

    a. Make sure the IRDA adaptor is plugged into the USB port and you have a direct line of sight from the adaptor to the logger's IrDA port.

2. Set up the Flow Logger

    a. Press the *Mode* button on the logger

    b. Press the *Up* button on the logger until the Cell communications indicator says IrDA

    c. Press the D*own* button to activate IrDA mode in the logger. The Signal display should come up on the LCD.

3. In Flow Tool software

    a. Open the Connect Window

    b. Wait for the computer to recognise that there is an IrDA device in range. Normally an icon will pop up on the system tray and a sound effect will go. This may take a few seconds as computer "handshaking" takes place.
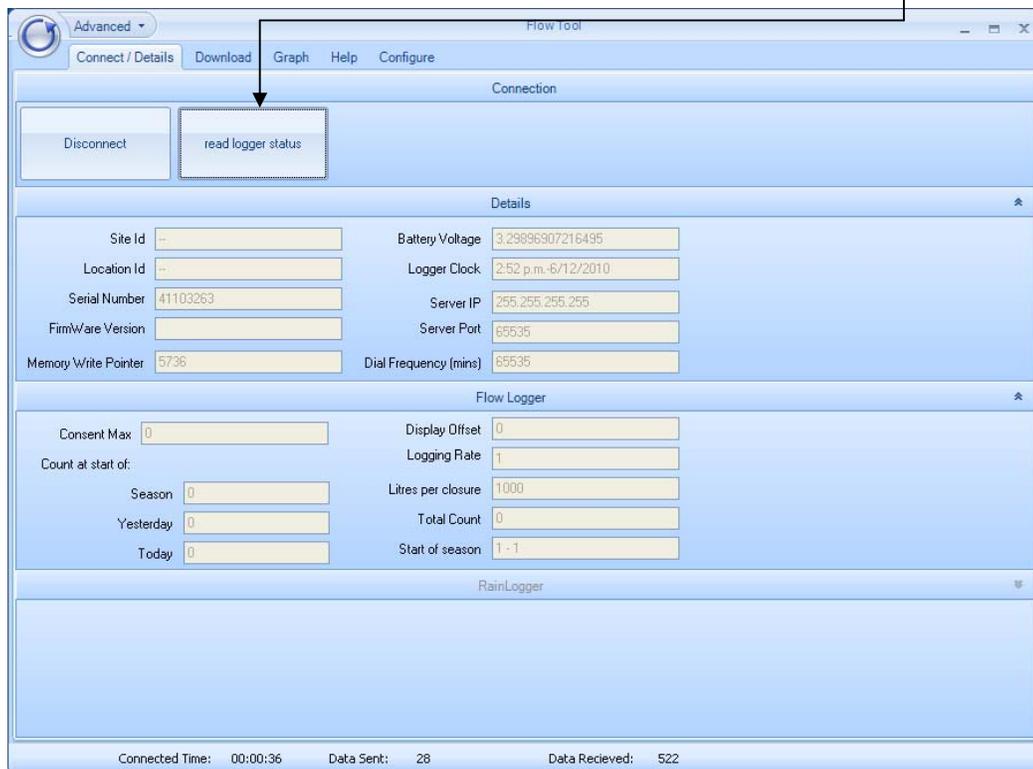
    c. On the connect window click the *Connect* button
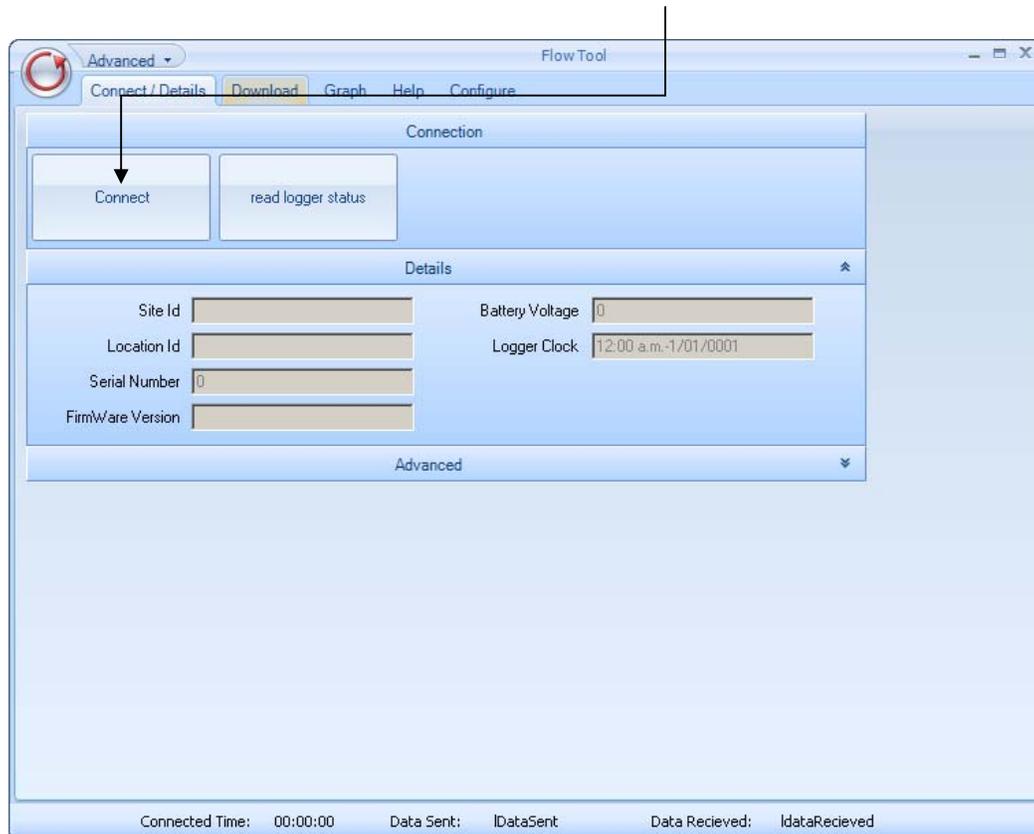
d. A popup window will appear asking for the Signal Indicator to disappear. This is in the top left hand of the loggers LCD window. Signal


e. When the Signal Indicator disappears on the logger click *OK* and the program will request the logger's status.

f. Now you are connected. The logger status will show in the window.

g. You can refresh the status readings by clicking the *Read Logger Status* button.
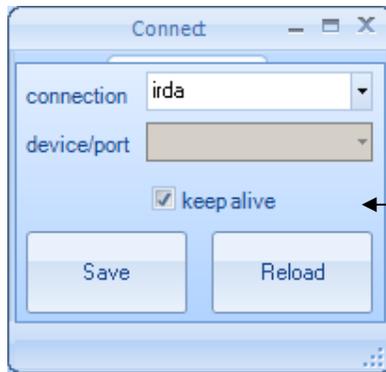
If you have problems connecting:

1. Confirm the connection settings by going into the connection options.

2. Click the down arrow on the *Advanced* tab illustrated below.
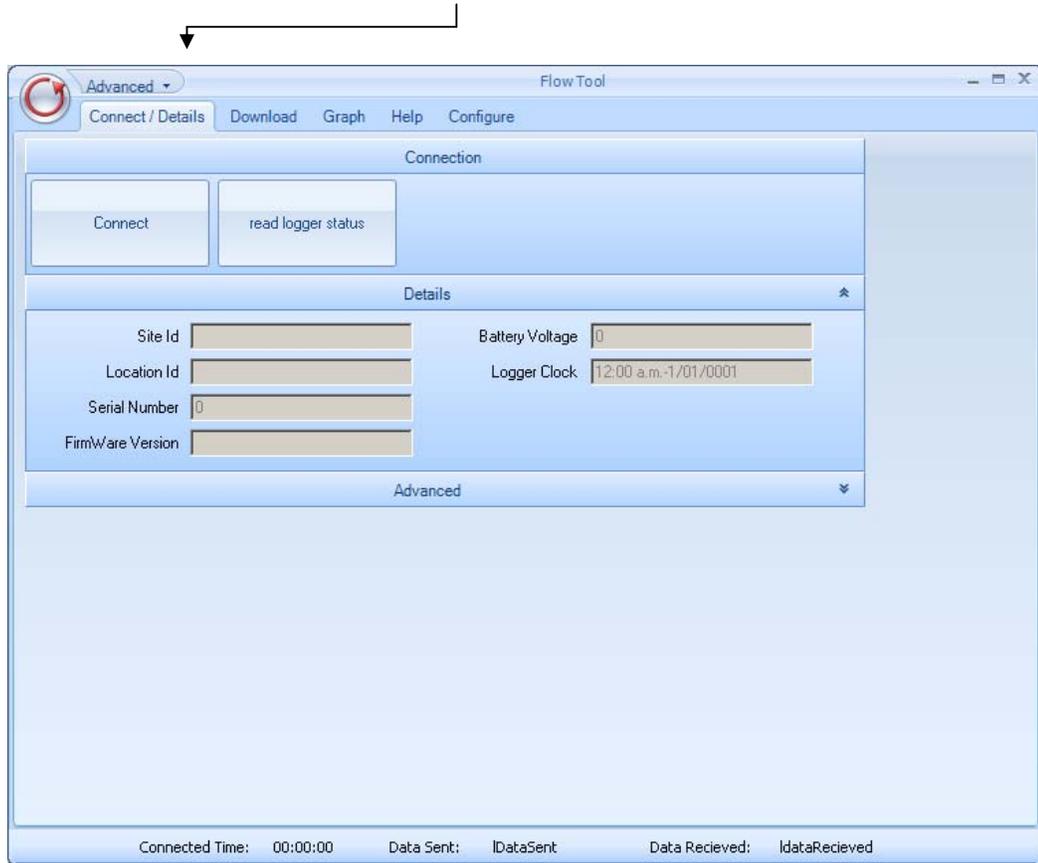
When the connection window pops up make sure:

3. The *keep alive* box is ticked

4. The *connection* is set to *irda*

5. Click *Save*

Downloading Data

Once you are connected to the logger you can download data. Make sure that you do not lose the connection with the logger during this process by keeping the logger aligned with the IrDA adaptor.

The logger has been designed to store a considerable amount of data so it has the capability to hold a complete season's record (The actual number of days data will depend on how the logger is configured and the amount of time the flow meter is running).

The *Download* tab will open the following window, with options to download as follows:

1. *New data* – this downloads all new data in the logger since the last download to this computer. Note that if you have not downloaded with this computer before, it will download all the data.

2. *From location* – this downloads data starting from a specific location in memory and for a specified number of bytes (advanced users)

3. *All data* – downloads all of the data in the logger.

The most commonly used function is *New data* but this is only suitable if you are using the same user login on the computer each time as the pointer indicating the last download point is stored on your computer user profile.

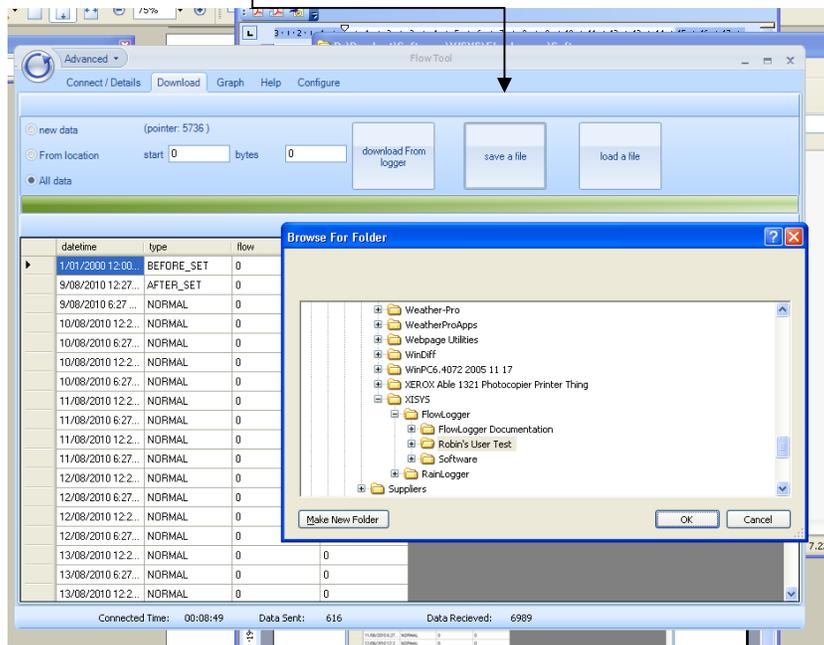Select the appropriate options and click *Download from logger*.
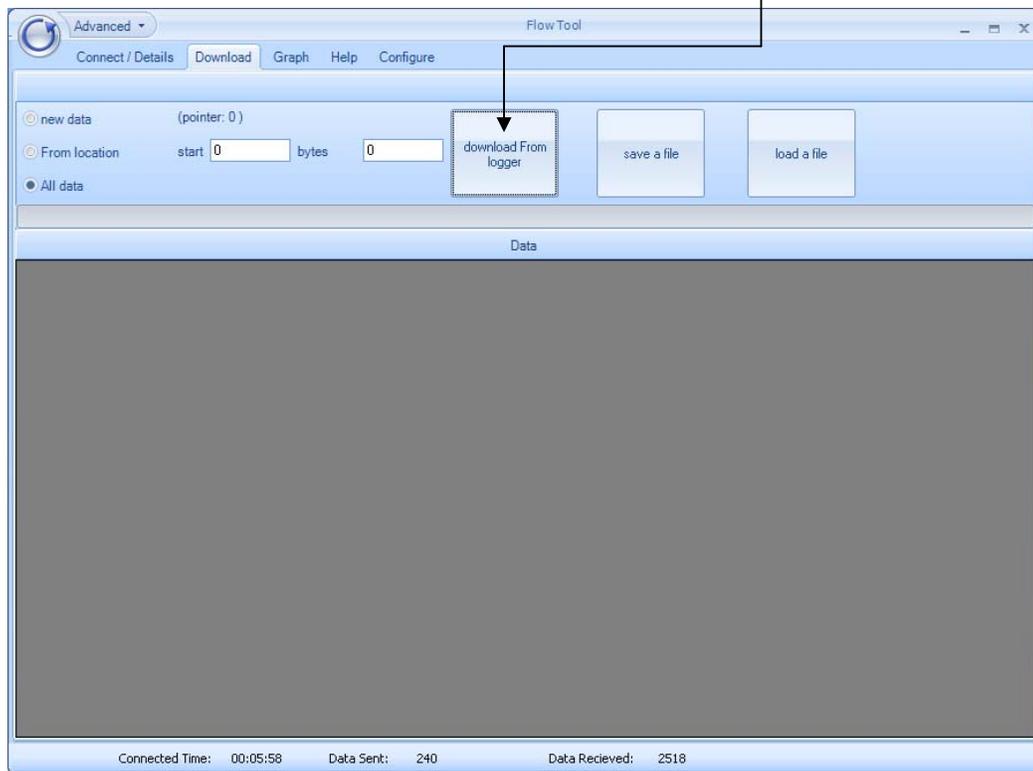
The data file will display in the window as follows:
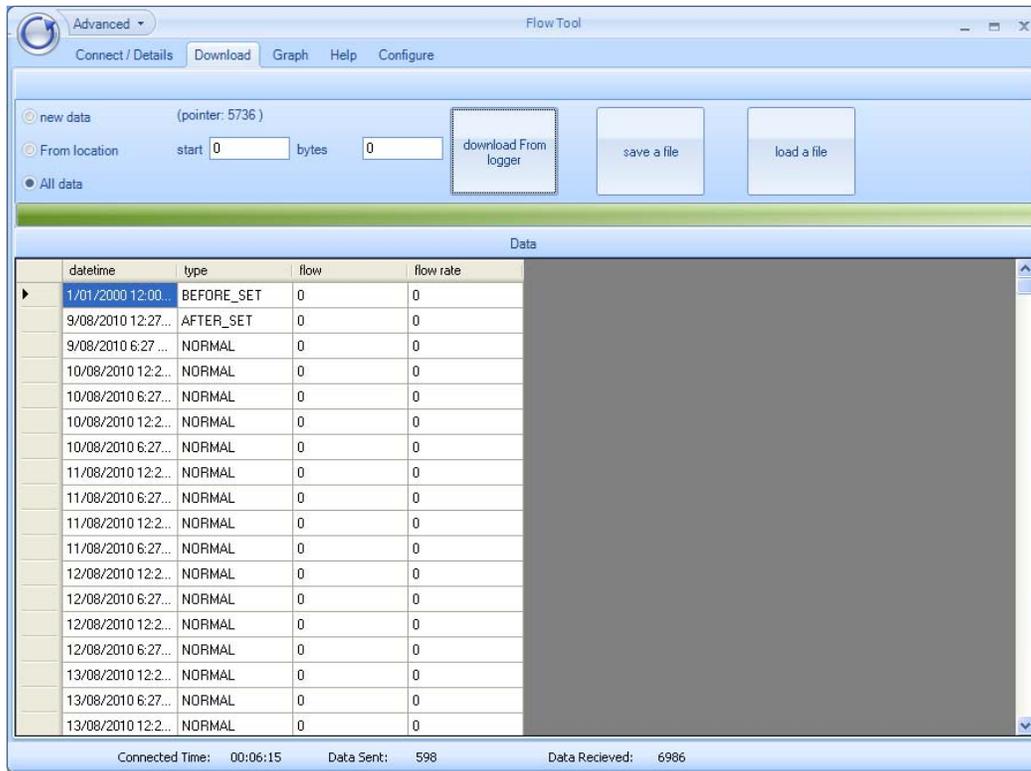
Saving Data to a File

Click on the *Save a File* button to save the data to a location on your hard drive. The data will be saved with a .dat extension and able to be viewed in Excel or text reader such as Notepad.

Viewing the data

If you want to open a data file that you have downloaded previously, click on the *Load a File* button from the *Download* tab. This will load the file and allow you to view it as a table, or graph, using the Graph functions.

Graphing Data

The *Graph* tab allows you to quickly view the data that has been collected. It is not designed to carry out analysis which should be done in another program such as Excel.
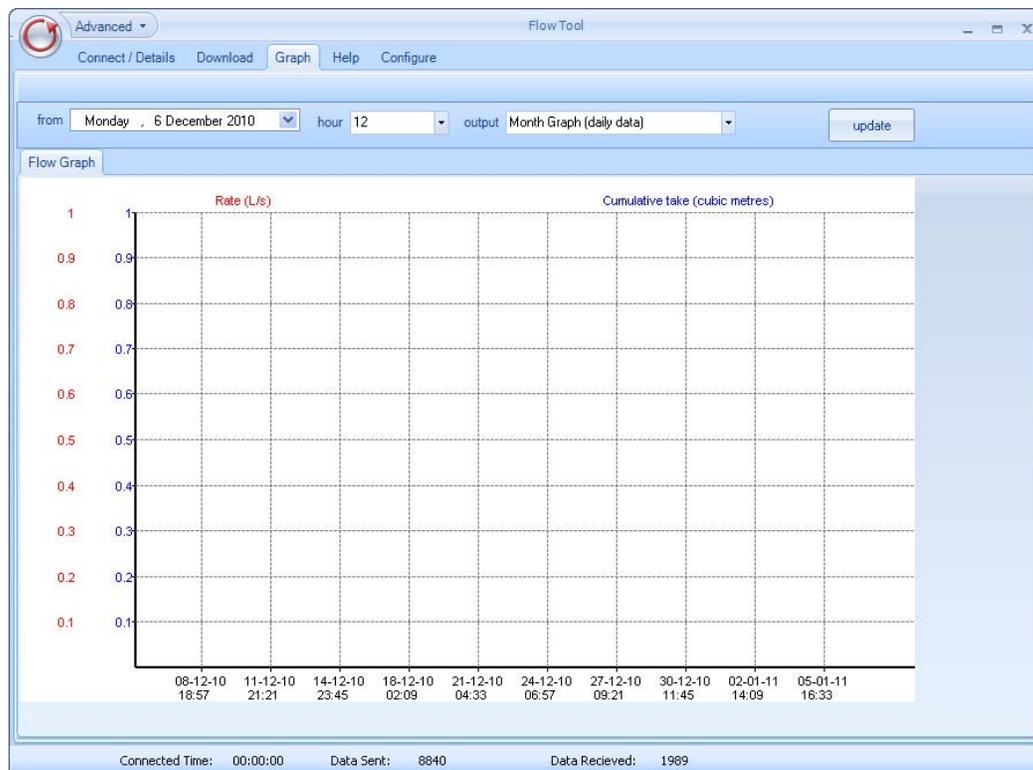
Configuring the logger

A user password is required to change configuration settings in the logger. This should only be carried out by trained installers to ensure the settings are suitable for the flow meter hardware and consent conditions.