

## Setting up and using the *dataTaker DT50* programmed for under frequency power events

### Overview:

The *dataTaker DT50* series of data loggers was specifically programmed to log under frequency power events. The following was assumed:

1. A 4-20mA signal representing Kw available.
2. A voltage free contact, normally open available. This contact closes when an under frequency event occurs and re-opens again a short time later.

### The data logger:

- a. The data logger is Pre-programmed to log Kw every 5 seconds.
- b. Optionally it can log every 2 seconds by connecting a strap between digital input 4 and ground.
- c. When the strap is removed, the changeover occurs automatically the log rate will revert to 5 seconds in 10 seconds or less.

Connections are to be made as shown in the .bmp files supplied on this disk.

When an under frequency error occurs, the edge trigger to digital 5 logs the time and date of this occurrence. It is used in subsequent data retrieval. The Kw log continues until the memory card is full and then overwrites the old data. A complete overwrite will take place in approximately 35 days, but it's recommended that the data is processed on site at less than 25 day intervals for data security reasons. Install the memory card in the logger by gently but firmly inserting in the direction noted on the card, making sure the male socket pins on the logger do not suffer damage in any way.

### The software:

The software is supplied on a single CD.

The connection to the data logger can be by either the RS232 or the USB to serial converter.

To install the USB to serial converter on a notebook PC, attach the converter and turn the PC on. Windows XP will automatically detect the converter and attempt to install the software for it. If asked for a disk, use the mini CD disk supplied with the converter. Check the converter is registered by looking at the hardware profile under <My Computer><properties>. It will show a virtual comms port to which the converter is attached.

#### **(a) Installing dataTaker ActiveX control**

The communication with the logger is by a Datataker written ActiveX component called Datataker.ocx. Look for the folder "dtOcx-1v01" on the CDROM and install by double clicking the setup.exe file. No further action is necessary.

#### **(b) Setting up UFlogger.xls Excel spreadsheet**

Copy the spreadsheet referred to on the CD to the desktop. It resides in the folder of the same name.

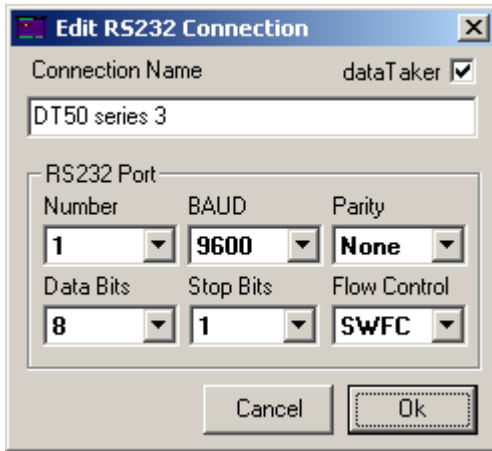
Change the properties of this file from read only to archive to allow saving.

Connect the comms lead to the logger, ensuring the internal battery lead is connected and there is power being supplied via the plug in power pack.

Start UFlogger.xls. A communication box will pop up as shown below:



At this time there will be no connections registered. Click add, and review the box that appears as below:



Enter the connection name such as Effluent Substation 1 (“DT50 Series 3” is shown in this example).

Enter the baud rate and flow control as shown.

If the comms port number in the drop down box is not visible, then it is likely a USB to RS232 lead is being used and COM5 or some other port is required.

In this case, use the file “Set\_Com\_Ports.reg” supplied on the CD disk to add more comms ports (Exit this programme to do this, and Restart). Simply paste this file to desktop and double click.

Click OK and return back to the programme, clicking “Done”

The programme will now attach to the logger, and in the top menu bar there will be “Connected to...<your connection name>” showing. This completes the set up.

Using the same data logger, the remaining 4 connections are configured and the connections checked. To do this, close the programme and reopen, select the desired connection from the drop down box.

In practice, the Excel programme will be saved as 4 different programmes, one for each site (use simple file names). Each programme stores the retrieved data for a site, and using the right connection simplifies matters of housekeeping. *Note:* Always enter “Done” when connecting to the logger.

Opening any of these programmes off line will enable the user to recall the data stored.

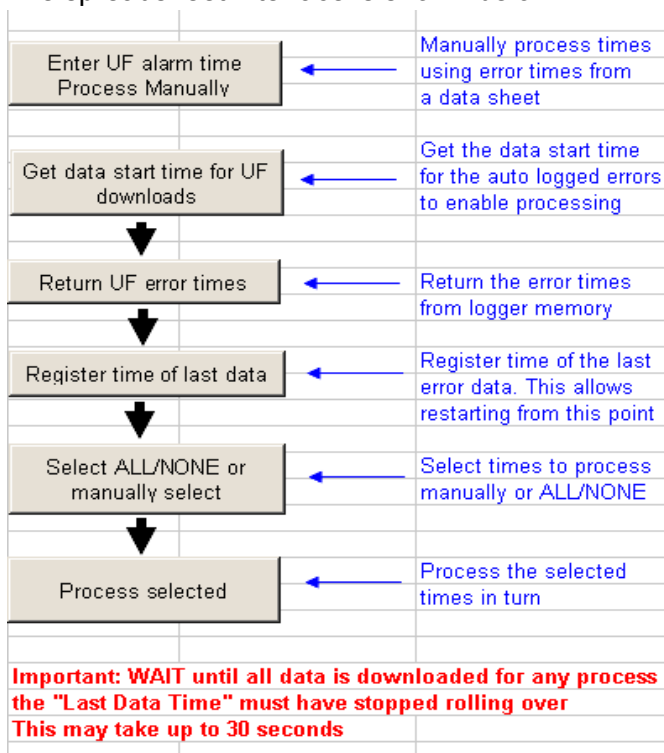
Working offline - “Logger not found” will be posted, to signal the work is being done offline.

### (c) Operating the software

Overview:

The data logger logs three “schedules”, these are Kw (Schedule A), UF alarm time (Schedule B) and time and date of last UF alarm time download (Schedule X).

The spreadsheet interface is shown below:



The arrows indicate the usual transfer of control from one part of the programme to another. Clicking “**Enter UF alarms-process manually**” will prompt the user for times and dates which are entered manually. Take care that these are valid times and dates where data has been logged to memory. After the time has been entered, the user is prompted to review: Clicking “no” will download 10 minutes prior to the time entered and 20 minutes after. Look at the “Last Data time entry rolling around to determine the end of a download.

This process can be repeated several times, each time the columnar data is transferred to the archive sheet, adding to another column set on this sheet. After the archive sheet has 20 odd entries, it is copied to another to free the original.

This is the data that may be transferred to another spreadsheet by copy/paste to draw graphs etc., and then optionally saved as a .CSV file. The date/time is composite by default, but may be split into separate columns by copy and format techniques.

The other method of download is a little more complicated to understand. “**Get start times for UF**

**downloads**” gets data from the X schedule which records the last time/date in the previous UF download set. It needs this to ensure that the UF downloads following will *consist of new time/date records* since the last downloaded data. Since several sites may be accessed, all at different times, this time and date information must be held in the logger at the site rather than in the spreadsheet. When the logger programme is booted up at first, the default time and date logged to memory is 2005/06/01 00:00:00, ensuring that *all* data times will be returned.

If there have been previous downloads, this button will return the last date/time directly, shown by rolling updates in the time/date column to the RHS of “Last Data Time”. Again, wait until all downloads are completed.

The next step is to return the error times. Clicking on “**Return UF error times**” will do just that. Data will now be returned in the “UF error date/time” columns. The last data in this set is the time and date needed in the logger as the last download time, so click on “**Register time of last data**”.

The UF error times are really “pointers” to the time and date when the error occurred, and Kw data has been logged continuously prior to and in advance of the times returned. The “**Select ALL/NONE**” button will locate or remove a “Y” next to all this data. Times can be selected manually at this point as an option, by keying a “Y” or in fact any other text will do.

The last step is “**Process selected**”. The programme will locate the “Y” entries and download 10 minutes prior to, and 20 minutes after the time. Transfer to the archive sheet is automatic as for the manual time/date entry referred to on page 2.

This completes the detail on operating the programme. There are other housekeeping issues that need to be completed before continuing.

### **IMPORTANT!! Please read below...**

#### ***Checking the status of the logger:***

It’s necessary to check that the memory card is inserted properly and the programme running before closing off or disconnecting power to the logger. The programme is embedded in flash RAM on the logger and therefore all power can be removed before installing on site, applying power and reconnecting the battery will start the logger programme running automatically

Supplied with the PC software is a programme called **DTx Terminal**. Navigate to <Start><Programs><Datataker><DTx Terminal> to start this programme, sending a shortcut to the desktop for future use.

Start the programme, and click <Connect><Connections>. Notice the same connections configured earlier are available, choose the one last worked on. (A shortcut to this is F2). The logger will now connect to site. Navigate to <Tools><Show Macros> (or key F12) to show the Macro bar. This allows several actions to be performed. Click “Normal” to return verbose text. Then click “STATUS” and the logger status showing active schedules, alarms and data points stored etc will be returned. ***Ensure the memory card detail and number of free data points etc is visible, showing that all is well and the card installed correctly.*** Finally click “Fixed” to return fixed format data used in the communications with Excel. Exit the programme.