



**PROCESS DATA
CAPTURE PROGRAM**

USER GUIDE



Bellingham + Stanley Ltd.

INSTRUCTION MANUAL: ISSUE 11.0 AUGUST 2007

SOFTWARE CODE: 27-316

This manual is applicable to Disk Set 27-316 version 11.0 and above

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PROCESS DATA CAPTURE PROGRAM USER GUIDE

(For use with Version 11.0)

Program Description

The 'Process Data Capture Program', code number 27-316 has been designed to allow up to 5 instruments to be easily remotely monitored and their readings recorded. The data is conveniently displayed in a vertical strip chart format and the current reading is also displayed as a large, easy to read, digital display. This program is designed to be used with Windows 9x or above.

Installation

The installation program will copy all the necessary files on to the computer. The installation program will also give the user a number of installation options, such as which directory the program is installed to. Before running the installation program ensure that no other programs are running.

Place the CD-ROM disk supplied in the CD drive

- Place the disk provided in the CD drive of the PC.
- The disk should auto-start the installation program after a few seconds.
- The installation program will now start copying some temporary files. From now on follow the on screen prompts.

The installation program will create two new short cuts in the Windows Start button, one for the program, and one for the user guide.

Using the Program

In order to use the program, follow the instruction below.

Run the program

1. Locate the program's shortcut in the location specified when installing the program. By default this will be in the 'Process Data Capture Program' folder in the 'Programs' section of the Window Start button menu.
2. Click on the 'Process Data Capture Program' shortcut.
After a short wait, the program will appear.

Selecting the Serial Port

3. Select the 'Serial Configuration' option from the 'Instruments' menu. A new window will be displayed. Highlight the serial port that the local PC interface is connected to and press 'OK' to confirm the change.

Adding an instrument

4. Firstly display the 'Instrument Configuration' window by selecting 'Configure...' from the 'Instruments' menu. The displayed window shows a table with a row for each instrument that has been configured.
5. Click on 'Add', then the program will now display a window allowing the entry of the instruments details.
6. In the 'Poll Address' field, type the instruments poll address. If not known and only one instrument is to be monitored, type 0.
7. In the field 'Alias', a description can be given to the instrument. The alias is displayed in the instrument reading data window.
8. Click 'OK' to confirm the instruments details.
9. The 'Instrument Configuration' window will again be presented; click 'Close'.

Configure the data capture options

10. See appendix B for details of the options.

Starting the capturing of data

11. Click on 'Start' within the 'Data capture' menu. The instrument's window will now be displayed and reading data will be show within.

Stopping the capture of data

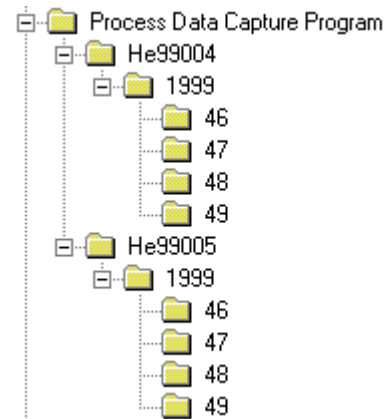
12. Click on 'Stop' found within the 'Data capture' menu.

Closing the program

13. Click on 'Exit' from the 'File' menu.

Directory Structure

The data capture program stores the logged reading in a hierarchical directory structure created within the root path (see appendix B). At the top level is the root path, in the example show 'Process Data Capture Program'. The next level are the instruments, each configured instrument has its own directory. Below this are the year and week number directories. Every week a new directory will be created and the reading log files will be placed in there.

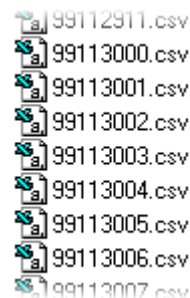


Filename Structure

The file names used are composed simply of the last two digits in the year followed by the month number with a leading zero if the number has only one digit. Next is the day of the month number again with a leading zero should the day number only have the one digit. Finally there is the file number value, starting at 00 in the morning and increasing by one for each new file created that day.

File name format:

yyymmddnn.csv



Logged Reading File Format

The logged data is stored in a simple CSV (comma separated values) file. Some spreadsheet programs automatically associate the CSV file type as being a type of spreadsheet, meaning that simply doubling clicking on the file will open the file from within the spreadsheet program.

Each line or reading has the following format.

<time>, <reading>, <quality value>, <instrument temperature>, <product temperature>

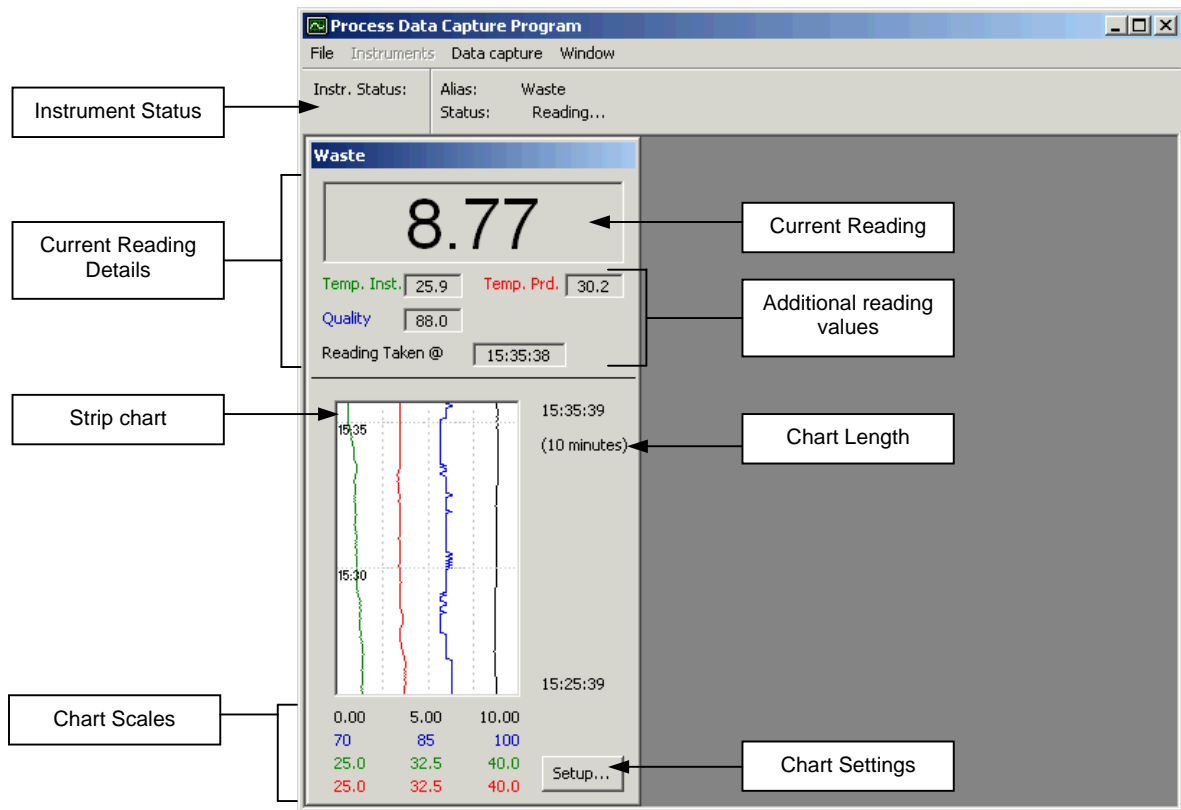
```
36494.4270138889, 1.50, 91, 29, 26.9
36494.4277083333, 1.50, 91, 29, 26.9
36494.4284027778, 1.50, 91, 29, 27
36494.4290972222, 1.49, 91, 29, 26.9
36494.4297916667, 1.49, 91, 29, 27
36494.4304861111, 1.50, 91, 29, 27
36494.4311805556, 1.49, 91, 29, 27
36494.431875, 1.49, 91, 29, 27
36494.4325694444, 1.49, 91, 29, 27
```

The time value is the number of days since 1st January 1900. The value is understood as a raw date/time value within most popular spreadsheet programs so can easily be formatted to show the date and or time.

Appendix A

Process Data Capture Program Window

Below is a labelled picture showing the 'Process Data Capture Program' and its various objects and fields.



Appendix B

Data Capture Configuration Window

The manner in which data is logged will be affected by the data capture configuration options.

<i>Data Capture Settings</i>	
Data capture root path:	The path where the data capture program will create the instruments folder.
Use instruments serial number for path:	If selected each instrument will have a folder created using their serial number as its name. If not selected the instruments will have folders called 'sensor01' to 'sensor04'.
Capture a reading every:	How often in minutes a reading will be recorded.
No of files per day:	The number of periods the day will be divided into. Each period has a separate file which is sequentially numbered from 00. For example, setting this value to 4, will create 4 files, each covering a 6 hour period.

<i>Calendar Settings</i>	
These settings are used to determine how the week numbers should be calculated. British week numbers are calculated using the Monday as the first day of the week and the first week of the year being the first week with 4 days in it.	

<i>Miscellaneous Settings</i>	
Allow collection of remote digital inputs:	Enable collection of digital input data (see Appendix C).
Title:	Title shown when referring to the digital input.
On:	The text shown when the digital input status is on.
Off:	The text shown when the digital input status is off.

Appendix C

Collecting addition data

Each refractometer connected to the Data Capture Software can have a digital input module associated to it. This can be used for example to collect the status of a flow switch in-line with an instrument.

This software is compatible with ADAM-4055 digital input module. The software will read the status of the modules DIO input after a measurement has been collected for the associated refractometer.

The digital input module sits on the same RS-485 bus as the refractometer. In order for the software to correctly communicate with an input module the modules poll address must be set. The ADAM-4000 Utility can be used to do this.

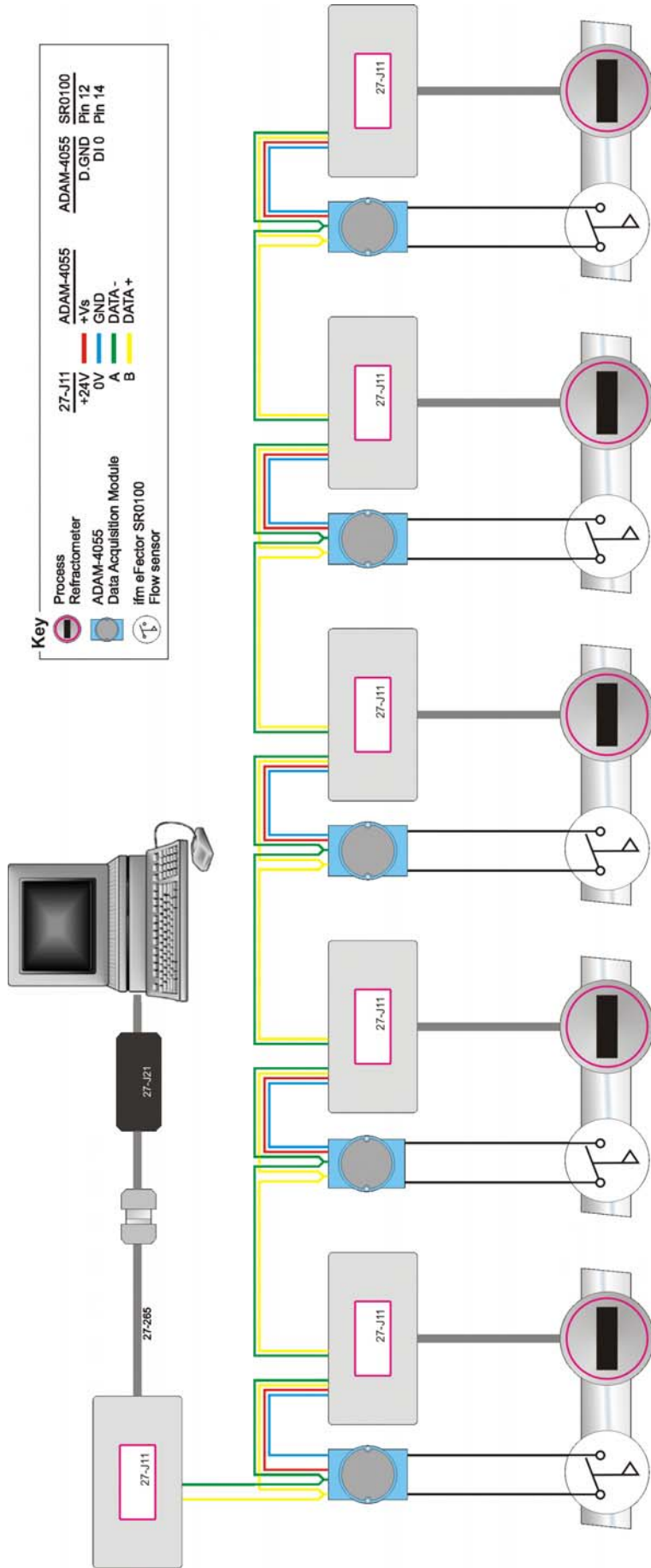
To use a digital input module first select the 'Allow collection of remote digital inputs' option from the Settings Window. Next view the Instrument Configuration Window, by selecting 'Configure' from the 'Instrument' menu. Click on the instrument that the digital input module is associated with and the click 'Alter'. Tick the 'Digital Input' check box by clicking on it. Finally enter the modules poll address. Click 'OK' to confirm the settings. From now on, when a measurement is collected from this instrument the state of the digital input will also be read.

When data collecting additional data the log string will contain one extra parameter, the status of the digital input. This will show either 0 off, or 1 on.

The digital input status will be shown in the instrument measurement window. Optionally the status can also be viewed in the strip chart, selected by clicking 'Settings' on the instrument measurement window. When viewed on the strip chart, the status will be show at either $\frac{1}{8}$ position for off, or $\frac{7}{8}$ position for on.

The following page shows a typical application.

A typical example of digital inputs in use



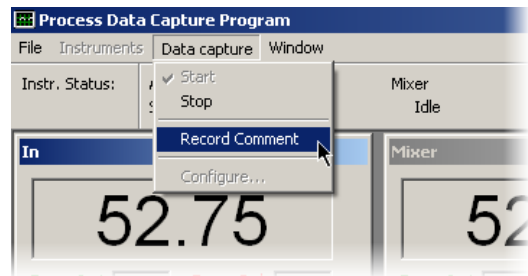
Appendix D

Recording Comments To Logs Files

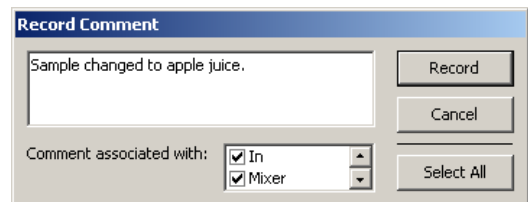
Whilst data is being captured, a comment can be recorded with each logged reading. This feature can for example be used to record changes to the system. The entered comment will be saved to the log file when the next measurement is logged. This means that if measurements are logged once every 5 minutes it could take up to 5 minutes to record the comment.

Below are some instructions on how to record comments.

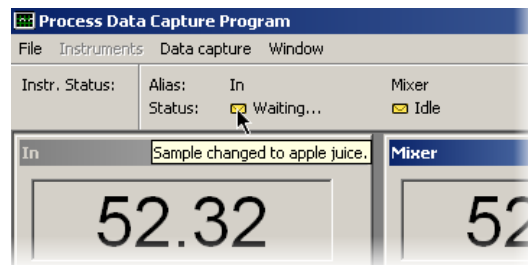
1. Select the 'Record Comment' item from the 'Data capture' menu.



2. The 'Record Comment' window will be displayed. Type the comment in the text box. Then select which instruments to associate the comment with.
3. Click 'Record' to complete the comment entry.



4. The comment will be recorded the next time a result is logged, until that time a small mail icon will be displayed. Hovering the mouse pointer over a mail icon will display the entered comment.



When the result has been logged and the comment recorded to the log file the mail icon will disappear. The comment will be appended to the reading result.

```
38735.49350333333, 52.0, 93, 15.0, 18.4  
38735.49368055556, 51.9, 96, 16, 18.3  
38735.4944560185, 52.03, 96, 16, 18.1  
38735.4950810185, 52.37, 95, 16, 18  
38735.4958564815, 52.9, 95, 15.9, 18.1, Sample changed to apple juice.  
38735.4964814815, 52.82, 96, 16, 18.1  
38735.4972916667, 52.56, 95, 16.1, 18.1
```