1987/32. Field manual for the Unidata 6003 portable logger.

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INTRODUCTION

The UNIDATA model 6003 portable data logger is a battery-operated data
gathering unit, ideally suited to automatic data collection at remote,
unmanned locations.

The data logger is a microprocessor-based device designed to offer very low
power consumption, allowing the use of an internal battery power supply
with a typical life of two years. The recorded data is stored in a low
power CMOS RAM memory which is 8000 characters long. An internal clock
provides accurate time referencing of all recorded data and also controls
the sample rates. The only external connections to the data logger are the
input signal connector for the signals to be recorded and the computer
connection for the transfer of data to the unloading device .

HOW TO USE THE LOGGER

To effectively use the data logger four steps have to be employed.

a)   GENERATE a program which will tell the logger what instruments are
      attached , how to collect the data, and what to do with it once it is
      collected.

b)   LOAD a program into the logger so that the above can be carried out
      effectively.

c)   UNLOAD data from the logger after it has been in the field for a
      period of time.

d)   OUTPUT/DISPLAY/REPORT of data, once the information has been unloaded
      and is stored on the Olivetti. This section can be used to display
      any previously stored data dump.

To use the data logger it is necessary to GENERATE and save a program or
scheme to tell the logger what instruments are attached to which channels,
how frequently the data are to be collected and how, if at all, they are to
be manipulated before the data are stored into the CMOS RAM. If the scheme
generated is defective or no longer required, it can be REMOVEd.

Once a satisfactory scheme has been generated it must be LOADed into the
logger. The logger can then be connected to the termination station where
the collection of data begins. Having collected the data, the logger is
replaced or removed, and returned to the computer instillation where the
data are UNLOADed from the logger. The coded data can then be viewed or
DISPLAYed to either the computer screen or printer.

Each time a logger is unloaded the unloaded data file for that scheme is
assigned a two-digit number (commencing with 01 for the first data file
dump). A CATALOG of the data file dumps may be viewed for any scheme.

A listing of all the schemes which have been generated can be SHOWn on
request. The definition of a scheme can also be EXAMINEd on request.
Finally, the STARLOG program can be terminated by QUITing from the COMMAND
MENU. This returns control to the Disk Operating System (which produces

the prompt C:STARLOG›). To return to the root directory of the Olivetti
M24 type CD ‹CR› and the prompt C:› will be displayed.

At any stage within the STARLOG program package, context sensitive help
menus are available by pressing the F1 function key. The commands are
prompt driven and often display default values. These may be accepted by
simply pressing ‹CR›. If any other value is required then type in that
value. This writes over the default value but does not erase the default.
The characters which are not erased are NOT included as part of your
response.

STARLOG SOFTWARE SUPPORT PACKAGE

A software package known as STARLOG is installed on the Engineering Geology
Olivetti M24 personal computer. This package interacts with the data
loggers and the data they collect. To use the data loggers it is first
necessary to use this software package. This package is activated by:

- turning on the Olivetti M24

- at the DOS root directory prompt (i.e. C:›) type CDSTARLOG ‹CR›

- at the STARLOG directory prompt (i.e. C:STARLOG›) type PDLGO ‹CR›

This sequence will generate the STARLOG COMMAND MENU (see fig. 1)

    UNIDATA Portable Data Logger Version 1.5

            Time: 15:38:31   Date: 04/06/87

            1   - GENERATE a new scheme definition
            2   - REMOVE an old scheme
            3   - LOAD a logger for field operation (setup)
            4   - UNLOAD data from logger
            5   - DISPLAY print/plot data from a logger

            6   - CATALOG of unloaded data files
            7   - QUIT Return to DOS (normal operating system)
            8   - TIME Check and reset date/time
            9   - SHOW list all available schemes
            10   - EXAMINE a scheme definition

            Enter command number :-

Figure 1

Enter the command number that you wish to perform ,for example: type 1 ‹CR›
to create a new scheme (program)

To exit the STARLOG system simply type 7 ‹CR› ,this will return you to the
normal Disk Operating System (DOS).

IF at any time you become unfamiliar or confused with what to do next,
press the F1 button and a help menu will appear to guide you through.

TO GENERATE A NEW PROGRAM

If a new LOGGER installation is required then a new scheme (program) must be generated. A few simple steps are all that is required to complete this. Insert a formatted floppy disk into the drive; this disk should always be used when this scheme is being RUN.

1:   Enter the STARLOG drive program by typing PDLGO <CR>, and a menu will appear as in fig 1.

2:   Type in 1 <CR> this will now allow you to GENERATE a new scheme (program).

3:   A prompt will appear to ask for the reference name of the scheme that you wish to create. Answer this with a name which is 6 letters or less long. This is name you use in all future references to the scheme you have created.

4:   Answer the next question with a more descriptive title on what the scheme really does. This is a good idea to allow you in future periods to identify one scheme from another. At the end of this title put at least 3 characters to distinguish who created the scheme (i.e. your initials) (see fig 2.2).

Section 1   -   Scheme Identification

Enter Scheme name (6 letters)
or <CR> to end   :- Demo

Figure 2.1

Section 1   -   Scheme Identification

Scheme title: Demonstration scheme (not to be used in field).   R.J.S

Figure 2.2

5:   To set up communications to the logger the default settings are given; a simple carriage return is all that is required (see fig 2.3)

Section 2 - Logger Communications

Default com port is 1 (com1:)
Enter communication port number (1,2,*) :- 1 <CR>

You have 3 types of logger access available:

    1   Direct connection (this is the default)
    2   Remote connection (via telephone dial up)
    3   Cannon X-07 FTU transfers

Enter logger access form :   1   <CR>

Figure 2.3

6:    The memory size of the loggers we use is 8K (don't worry what this
      means); just enter the number 8 then carriage return and this will
      set the correct size. When the return key is pushed the number
      appearing will be 82.   Ignore this as the number is really just 8.
      (see fig 2.4a).

7:    Logger cycle time is set by the manufacturer and is something we do
      not change, so a simple carriage return for this prompt is all that
      is required (see fig 2.4b).

8:    Log interval is the length of time between recordings and is set in
      units of minutes (e.g. 1 hour interval - type 60, 2 hours and 30
      minutes - type 150, 30 second interval - type 0.5, etc.). Now type
      carriage return <CR>. (see fig 2.4c)

Section 3 - Logger definition

Logger sizes: 8K,16K,24K,32K etc. default 32K
enter logger size :32   <- default setting

(before entering size)

Logger sizes: 8K,16K,24K,32K etc. default 32K
enter logger size :82   <- do not enter 2, just enter 8 and <CR>

Data buffer is 6656 bytes long. <- confirmation of correct size.

(after entering size)

Figure 2.4a

Enter logger cycle rate (1-15) : 5 <CR>

Figure 2.4b

Enter log interval (in minutes) :- 60 ‹CR› (i.e. 60 minutes)

Figure 2.4c

9:   All data retrieved from the logger is to be stored on floppy disks.
     To enable this you have to enter the letter a followed by a
     carriage return to the prompt "enter drive letter" (see fig 2.5a).

10: No comments should be put on the data file, therefore to answer the
     next question just hit carriage return (see fig 2.5b).

Section 4 - Log file definitions

Disk drive to store data files (a, b or c),
Default is current drive
Enter drive letter :- a ‹CR›

Figure 2.5a

Do you want to put a comment on the data file (Y/N):- N ‹CR›

Figure 2.5b

11: The logger has to know what transducers are connected to which
     channels. All transducers are defined and have model numbers to
     distinguish them from one another. A prompt will appear to ask for
     the transducers that are attached to the logger. If you are unsure of
     the model number just hit carriage return and a list of available
     transducers and their codes will appear to help you (see appendix A).

12: Type in the transducer model number as in fig 2.6a

13: You will be given a brief description of what the transducer does and
     be asked to confirm whether this was the transducer that was intended
     to be used. If this is correct, type ‹CR› or if this is incorrect
     type N ‹CR› and re-enter the code (see fig 2.6b).

Section 5 - Instrument definition

Enter catalog code of instrument: List

(to see list type ‹CR›)

Figure 2.6a

```
-------------------------------------------------------------------------
                Enter catalog code of instrument: 6508d
                Instrument measures water depth 10m
                is this correct (Y/N) :- Y    <-- type <CR> if correct
                                              <-- if not correct type N <CR>
```

Figure 2.6b

```
-------------------------------------------------------------------------
```

14:   So that the logger knows where to look to find the data to be stored
      we have to specify which channel the transducer is connected to. This
      is done by the following procedure. A brief description is given and
      the default channel on which the transducer works is displayed. In
      cases when only one transducer is connected it is okay to accept the
      default by just typing <CR> (see fig 2.7a). In cases where a number
      of transducers are connected it is important that no two transducers
      are assigned to the same channel, i.e.

                    transducer 1   a0
                    transducer 2   a1
                    transducer 3   a1   (this is not allowed)

15:   Types of transducers and channels they are connected to:

            Channels with the prefix a:

                    Water probe   No. 6508d
                    Displacement   No. 2222
                    Volt meter   No. 2223
                    Conductivity   No. 6802a
                    Strain   No. 2224

            Channels with the prefix c:

                    Rain gauge   No. 6506a
                    Water flow   No. 6800a

      It is important that the correct prefix appears for each transducer.

      It is important that no more than 8 channels appear with the prefix
      a: and no more than 2 appear with the prefix c:. If multiple
      transducers of the same type are used then the number following the
      prefix should be in an ascending order.

            e.g.   water level 1   a0
                        water level 2   a1
                        conductivity 1   a2
                        etc.
                        water flow   c0
                        rain gauge   c1

16:   Data from each transducer can be collected a number of different ways
      (see fig 2.5a). To answer the next prompt it is important to know
      two things:

a)   data collected from channels with the prefix a: are averaged over a period of time .This is done to obtain a higher degree of accuracy over the time period for logging.

and

b)   data collected from channels with the prefix c: are total accumulations over a period of time.

Therefore the answer to this prompt is 2 for channels with the prefix a: and 4 for the channels with the prefix c:.

17:   The answer to the next prompt (do you wish to perform any other operations on this channel) is always "No". So the response is to accept the default by typing <CR>.

18:   If more than one transducer is attached then the the next prompt [Any more instruments are attached (Y/N)] should be answered by typing a Y followed by a <CR>. Then steps 11 to 18 must be repeated until the logger has no more transducers to be informed about. At this stage the default for this question can be accepted by typing <CR>.

See example 1:

Example 1:

A scheme where two, 10 m water probes and two water-flow meters are connected to the logger.

****** Water probe 1 *******

Enter catalog code of instrument: 6508d Instrument
Instrument measures water depth 10m is this correct (Y/N)
:- Y

Transducer 1 of 6508d is depth 10m
Standard (default) channel is a0
Enter channel number: a0-7,c0-5,s0-3 a0

Operations on depth 10m (a0)

Select 1 of the following : (default is 1)
    1   log raw data
    2   log average over whole log interval
    3   log average over last n seconds of log interval
    4   log accumulated total over log interval
    5   log maximum (over log interval)
    6   log minimum (over log interval)
    7   do not log this channel

Enter option number: 2

Do you want to perform any other operations on this channel
(Y/N) :- N

Any more instruments attached (Y/N) :- Y

```
******  Water probe 2   ******

Enter catalog code of instrument: 6508d
Instrument measures water  depth  10m is this correct (Y/N)
:- Y

Transducer 2 of 6508d is depth 10m
Standard (default) channel is a0
Enter channel number: a0-7,c0-5,s0-3 a1

Operations on depth 10m (a1)

Select 1 of the following : (default is 1)
   1         log raw data
   2         log average over whole log interval
   3         log average over last n seconds of log interval
   4         log accumulated total over log interval
   5         log maximum (over log interval)
   6         log minimum (over log interval)
   7         do not log this channel

Enter option number: 2

Do you want to perform any other operations on this channel
(Y/N):- N

Any more instruments attached (Y/N):- Y

******  Water flow 1  ******

Enter catalog code of instrument: 6800a
Instrument measures water flow is this correct (Y/N):- Y

Transducer 3 of 6800a is flow
Standard (default) channel is c0
Enter channel number: a0-7,c0-5,s0-3 c0

Operations on flow (c0)

Select 1 of the following : (default is 1)
   1         log raw data
   2         log average over whole log interval
   3         log average over last n seconds of log interval
   4         log accumulated total over log interval
   5         log maximum (over log interval)
   6         log minimum (over log interval)
   7         do not log this channel

Enter option number: 4

Do you want to perform any other operations on this channel
(Y/N):- N

Any more instruments attached (Y/N):- Y
```

```
*******   Water flow 2  *******

Enter catalog code of instrument: 6800a

Instrument measures water flow is this correct (Y/N):- Y

Transducer 4 of 6800a is flow
Standard (default) channel is c0
Enter channel number: a0-7,c0-5,s0-3 c1

Operations on flow (c1)

Select 1 of the following : (default is 1)
  1        log raw data
  2        log average over whole log interval
  3        log average over last n seconds of log interval
  4        log accumulated total over log interval
  5        log maximum (over log interval)
  6        log minimum (over log interval)
  7        do not log this channel

Enter option number: 4

Do you want to perform any other operations on this channel
(Y/N):- N

Any more instruments attached (Y/N):- N
```

19:    The time format is selected as the default so a <CR> is all that is
       required with this prompt.

```
        Enter any new time format,
        or <CR> for default :- hh:mm dd/mm/yy   <CR>
```

Figure 2.6

20:    To view the data once it has been collected a number of formats have
       to be set. One of these is a BASIC readable file. The answer to this
       prompt is a 'Y' ,so this has to be typed followed by a <CR> (see fig
       2.7a).

21:    Now to obtain a written report of the data collected it is important
       to type a 'Y' <CR> to the next prompt (see fig 2.7b). The printer is
       where you want the report to go to, so you must specify this by
       typing exactly 'lpt1:' <CR> (see fig 2.7c).

       A plotted graph is very important for data to be represented the
       default for this prompt is 'Y' so <CR> is all that is required (see
       fig 2.7d).

        Do you want a BASIC readable file (Y/N) :- Y <CR>

Figure 2.7a

        Do you want a detailed print-out of the data (Y/N) :- Y <CR>

Figure 2.7b

        Devices are: scrn:,lpt1:
        Device to print to, or <CR> for a file: lpt1: <CR>

Figure 2.7c

        Do you want any plotting done (Y/N) :- Y <CR>

Figure 2.7d

22:   All plots are relative to time, so all that is required is to specify
which data is to be plotted. The next stage allows you to set this
parameter. All transducers are displayed with a number in front of
them. To get a plot you need only specify the prefix number. It is
not a good idea to get a plot of '1' as this will produce a graph of
time versus time which is not very useful. If you require more then
one plot per axis then type in the prefix of 1 transducer then
separate it from the next by typing 'and' and then the prefix of the
next transducer. This can be done to any number of transducers. When
you know that no more graphs are to be plotted leave the prompt
unanswered and press <CR>. This will exit you from this section (see
example 2).

Example 2:

You have the following log entries defined:
     1   time
     2   depth 1
     3   depth 2
     4   water flow

Enter entry number(s) to plot,
  or <CR> for no more :- 2   <--- plots time v depth 1
Enter entry number(s) to plot,
  or <CR> for no more :- 3   <--- plots time v depth 2
Enter entry number(s) to plot,
  or <CR> for no more :- 4   <--- plots time v flow
Enter entry number(s) to plot,
  or <CR> for no more :- 2 and 3   <-- plots time v depth 1 and
                                depth 2
Enter entry number(s) to plot,
  or <CR> for no more :- 2 and 4   <-- plots time v depth 1 and flow
Enter entry number(s) to plot,
  or <CR> for no more :- 3 and 4   <-- plots time v depth 2 and flow
Enter entry number(s) to plot,
  or <CR> for no more :- 2 and 3 and 4 <- plots time v all three
Enter entry number(s) to plot,
  or <CR> for no more :-

23:     No data display is required using PDLOUT ,so the default should be
        accepted by typing <CR> only.

24:     Now your scheme definition has been completed and the computer will
        produce all the relevant data . After a period of time the definition
        that you have created will appear on the screen. This information
        contains the maximum logging time before the internal memory runs out
        of space to store data. A copy of this is required so make sure the
        printer is switched on and press the screen print button and a
        hardcopy of the scheme definition will be made for future reference.
        After this just press the space bar and you will be returned to the
        main menu .

REMOVING A SCHEME

A scheme (program) should only be removed if:

1)   A scheme is defined incorrectly and a new one is to replace it.

2)   The scheme and all relevant data is no longer required and never will
        be.

3)   The scheme and all relevant data has been copied on to another disk
        and has become redundant.

If one of the above applies then it is all right to continue.

When the main menu is waiting for a command type 2 <CR> to remove a scheme.
Then enter the name of the scheme to be removed on the next line, type
<CR>. As a safeguard against removing the wrong scheme, you are asked to
confirm this removal. If it is the wrong scheme just press <CR> and you
will be returned to the main menu. To confirm a removal type 'Y' <CR> and
all information relevant to that scheme will be removed, including all data
retrieved (see fig 3.1). Now you will be returned to the main menu.

    UNIDATA Portable Data Logger Version 1.5

            Time: 15:38:31   Date: 04/06/87

            1   - GENERATE a new scheme definition
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            4   - UNLOAD data from logger
            5   - DISPLAY print/plot data from a logger

            6   - CATALOG of unloaded data files
            7   - QUIT Return to DOS (normal operating system)
            8   - TIME Check and reset date/time
            9   - SHOW list all available schemes
            10 - EXAMINE a scheme definition

            Enter command number :- 2 <CR>
            Name of scheme to use :- Demo
            Warning: this will *DESTROY* all information
                        related to scheme Demo

                        32-11

```
                              confirm deletion (Y/N) :- Y
     so be it......
```

Figure 3.1

LOADING A LOGGER FOR FIELD OPERATION

For a data logger to collect data in the field it must be loaded with a
suitable program (scheme). Therefore a scheme must be defined to begin with
(see generating a scheme). If a scheme has been generated it can be used
many times over for use in the field.

To load a data logger you will require a logger (referred to as a Brick).
When the main menu is waiting for a command type 3 <CR> to load the Brick.
Then enter the scheme name to be loaded (if you are unsure of the name see
the section on displaying available schemes). A prompt will appear to tell
you to connect logger now. This is done by connecting the cable next to the
Olivetti marked logger to the plug on the Brick marked computer. Now the
Brick is connected. To continue the loading process hit the space bar and
the Olivetti will perform some self tests on the logger then proceed to
load it (see fig 4.1).

After loading has been completed you will be returned to the main menu and
the cable should now be removed from the Brick.

```
     UNIDATA Portable Data Logger Version 1.5

               Time:  15:38:31    Date:  04/06/87

               1    - GENERATE a new scheme definition
               2    - REMOVE an old scheme
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               5    - DISPLAY print/plot data from a logger

               6    - CATALOG of unloaded data files
               7    - QUIT Return to DOS (normal operating system)
               8    - TIME Check and reset date/time
               9    - SHOW list all available schemes
               10   - EXAMINE a scheme definition

               Enter command number  :- 3  <CR>
               Name of scheme to use :- Demo
```

next page.

```
               PDLIO version 1.6 by j von Perger

               *** Connect logger now ***
               Hit a key to continue :-
```

Figure 4.1

UNLOADING A LOGGER AFTER FIELD OPERATION

To unload a data logger you will require a logger (referred to as a Brick).
You will also require the floppy disk which you used when generating the
scheme. This should be inserted into the disk drive. When the main menu is
waiting for a command type 4 <CR> to unload the Brick. Then enter the
scheme name to be unloaded (if you are unsure of the name see the section
on displaying available schemes). A prompt will appear to tell you to
connect logger now. This is done by connecting the cable next to the
Olivetti marked logger to the plug on the Brick marked computer. Now the
Brick is connected . To continue the unloading process hit the space bar
and the Olivetti will perform some self tests on the logger then proceed to
unload it (see fig 4.1).

After unloading has been completed you will be returned to the main menu
and the cable should now be removed from the Brick.

To obtain a detailed printout and graphs of the results see the section on
DISPLAY print/plot data from logger.

        UNIDATA Portable Data Logger Version 1.5

                Time: 15:38:31   Date: 04/06/87

                1   - GENERATE a new scheme definition
                2   - REMOVE an old scheme
                3   - LOAD a logger for field operation (setup)
                4   - UNLOAD data from logger
                5   - DISPLAY print/plot data from a logger

                6   - CATALOG of unloaded data files
                7   - QUIT Return to DOS (normal operating system)
                8   - TIME Check and reset date/time
                9   - SHOW list all available schemes
                10   - EXAMINE a scheme definition

                Enter command number :- 4 <CR>
                Name of scheme to use :- Demo

next page.

                PDLIO version 1.6 by j von Perger

                *** Connect logger now ***
                Hit a key to continue :-

DISPLAY, PRINT/PLOT

To obtain a detailed printout and graph of data collected you require the
floppy disk on to which the data has been unloaded . This disk should be
inserted into the disk drive.

1) To retrieve data to print/plot you press 5 ‹CR› when the main menu is in front of you. You will then be asked for the scheme name (this is the name you gave the scheme when you created it - if you are unsure of the name see the section 'SHOW LIST OF SCHEMES'). Type in the name.

You will then be asked to Enter the unload number to display. If you wish to display the most recent data just type ‹CR›. If however you want to display some previously collected data type in the number of that Dump (if you are unsure of the number see the section on CATALOG OF UNLOADED DATA FILES). The format is as follows: if you require the first set of data enter the number 01 ‹CR›, or say for the third set of data type 03 ‹CR› etc. (see fig 5.1). The screen in front of you will now show some irrelevant information; just ignore this. After a period of time a print-out of the data will commence .

2) After the detailed print-out has finished the graphed data will appear on the screen before you. To obtain a copy of this graph just press the SCREEN PRINT button and the graph will be printed out. It is important not to press any keyboard buttons until the printer has finished. When the printer has finished press the space bar and if any other graphs are to be plotted another graph will appear. Follow step 2 through again (see example 3).

3) When the last graph has been displayed/printed you will be returned to the main menu.

UNIDATA Portable Data Logger Version 1.5

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    6   - CATALOG of unloaded data files
    7   - QUIT Return to DOS (normal operating system)
    8   - TIME Check and reset date/time
    9   - SHOW list all available schemes
    10 - EXAMINE a scheme definition

    Enter command number   :- 5 ‹CR›
    Name of scheme to use :- Demo

    Enter unload number to display ,
    or ‹CR› for latest : - 02

Figure 5.1

Example: 3

Scheme   DEMO   - Water level and rainfall, data from 12:00 14/04/87
to 12:00 15/06/87

Time		Depth m	Tot rain mm
12:00	14/04/87	7.02	0.0
15:00	14/04/87	7.02	0.0
18:00	14/04/87	7.06	0.0
21:00	14/04/87	7.06	0.4
00:00	15/04/87	7.10	2.6
03:00	15/04/87	7.06	0.2
06:00	15/04/87	7.10	0.0
09:00	15/04/87	7.10	0.8
12:00	15/04/87	7.14	1.2

etc.

06:00	15/06/87	9.48	0.2
09:00	15/06/87	9.52	0.0
12:00	15/06/87	9.52	0.0

Tot Rain

Plot from 12:00 14/04/87 to 12:00 15/06/87

32-15

5 cm

CATALOG OF UNLOADED DATA FILES

If you want to know how many times data has been unloaded, then by typing
in 6 when the main menu is in front of you, a list of data dumps will
appear with the dump numbers. The list also shows when the dumps took
place, so relevant data can be retrieved by accessing these using DISPLAY
print/plot option (see fig 6.1). (see fig 6.2 for example list of dumps).
To exit from this display just press the space bar and you will be returned
to the main menu .

UNIDATA Portable Data Logger Version 1.5

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         6   - CATALOG of unloaded data files
         7   - QUIT Return to DOS (normal operating system)
         8   - TIME Check and reset date/time
         9   - SHOW list all available schemes
         10 - EXAMINE a scheme definition

         Enter command number :- 6 <CR>
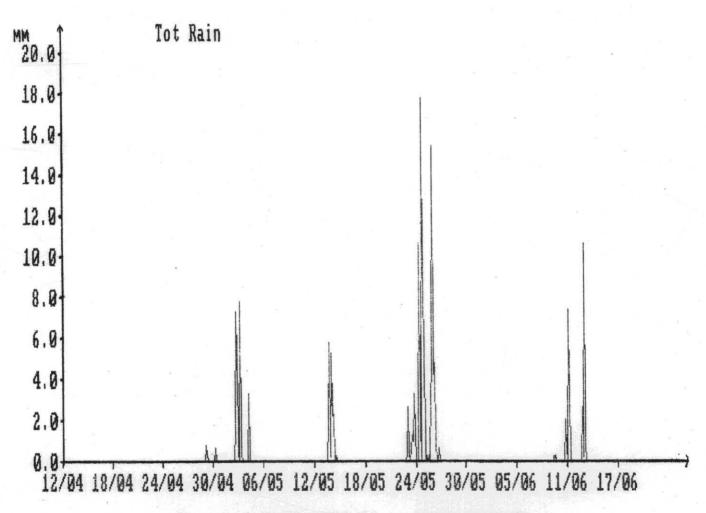   Name of scheme to use :- Demo

Figure 6.1

    Unload record of scheme DEMO

    Unload no.   Unload time/date   Comment
       01   09:56:22 01/04/87
       02   14:44:10 16/04/87
       03   11:29:27 19/06/87

Figure 6.2

QUIT

When all is said and done, to exit this program type in 7 <CR> when the
main menu is in front of you. This will return you to the normal disk
operating system (DOS) (see fig 7.1).

```
--------------------------------------------------------------------------

    UNIDATA Portable Data Logger Version 1.5

            Time:   15:38:31     Date:   04/06/87

            1    - GENERATE a new scheme definition
            2    - REMOVE an old scheme
            3    - LOAD a logger for field operation (setup)
            4    - UNLOAD data from logger
            5    - DISPLAY print/plot data from a logger

            6    - CATALOG of unloaded data files
            7    - QUIT Return to DOS (normal operating system)
            8    - TIME Check and reset date/time
            9    - SHOW list all available schemes
            10   - EXAMINE a scheme definition

            Enter command number   :- 7  <CR>
```

Figure 7.1

```
--------------------------------------------------------------------------
```

TIME

This section is not to be used at all. Do not type in the number 8.

SHOW LIST OF AVAILABLE SCHEMES

To obtain a list of schemes available to you type in 9 <CR> when the main
menu is in front of you. A list of created schemes will appear on the
screen.   They will show the scheme title and a brief description on what
they do (see fig 9.1 for main menu option, see fig 9.2 for example of
list).   To exit from this display press the space bar and you will be
returned to the main menu.

```
--------------------------------------------------------------------------

    UNIDATA Portable Data Logger Version 1.5

            Time:   15:38:31     Date:   04/06/87

            1    - GENERATE a new scheme definition
            2    - REMOVE an old scheme
            3    - LOAD a logger for field operation (setup)
            4    - UNLOAD data from logger
            5    - DISPLAY print/plot data from a logger

            6    - CATALOG of unloaded data files
            7    - QUIT Return to DOS (normal operating system)
            8    - TIME Check and reset date/time
            9    - SHOW list all available schemes
            10   - EXAMINE a scheme definition
            Enter command number   :- 9  <CR>
```

Figure 9.1

```
--------------------------------------------------------------------------
```

```
----------------------------------------------------------------------

    List of schemes on this disk :

    Scheme name             Title

    Demo                    Demonstration scheme
    Rob1                    Water level and rainfall
    Rib221                  Water level and flow
    Grooms                  Grooms slip (water level and rainfall)
```

Figure 9.2

```
----------------------------------------------------------------------
```


EXAMINE A SCHEME DEFINITION

If a scheme definition has to be examined, for example to find out what the
scheme does, you should type 10 ‹CR›. Now type the name of the scheme you
wish to examine. A display will now appear giving the details of the
scheme. These details include what transducers are attached, how long the
logger can run without being changed, the log interval and what transducer
data is to be plotted (see fig. 10.1 for main menu and fig.   10.2 for
example display). To return to the main menu just press the space bar.

```
----------------------------------------------------------------------

    UNIDATA Portable Data Logger Version 1.5

            Time:  15:38:31    Date:  04/06/87

            1    - GENERATE a new scheme definition
            2    - REMOVE an old scheme
            3    - LOAD a logger for field operation (setup)
            4    - UNLOAD data from logger
            5    - DISPLAY print/plot data from a logger

            6    - CATALOG of unloaded data files
            7    - QUIT Return to DOS (normal operating system)
            8    - TIME Check and reset date/time
            9    - SHOW list all available schemes
            10   - EXAMINE a scheme definition

            Enter command number  :-10  ‹CR›
            Name of scheme to use :- Demo
```

Figure 10.1

```
----------------------------------------------------------------------
```

```
Scheme DEMO,     Title : Demonstration scheme
Communication port 1
Access form : Direct
Logger size 8k
Logger cycle rate 5 seconds
Log interval 60 minutes
Instrument 6508d measuring depth 10 m
Log a0 as Av. depth, being Av. water depth
Instrument 6508d measuring depth 10 m
log a1 as Av. depth, being Av. water depth
Instrument 6800a measuring flow
log c0 as tot flow , being total water flow
Instrument 6800a measuring flow
log c1 as tot flow , being total water flow
giving a max logging time of 92 days, 9 hours.
Basic readable file generated
Detailed printout to lpt1:
plot 2
plot 3
plot 4
plot 5
plot 2 and 3
plot 2 and 4
plot 3 and 5
plot 2 and 3 and 4 and 5
```

Figure 10.2

[13 July 1987]

APPENDIX A

Catalogue number   *Name*

6504a	Wind speed/direction
6504b	Wind speed and direction, temperature
6504c	Wind speed and direction, temperature, radiation
6504d	Wind speed and direction, temperature, radiation, humidity
6504e	Wind speed and direction, temperature, humidity
6505b	Ambient temperature
6505c	Temperature, global radiation
6505e	Temperature, humidity
6506a	Rainfall gauge 0.2 mm
6506b	Rainfall gauge 0.5 mm
6507a	Temperature (red thermistor 15k ref)
6507b	Temperature (yellow thermistor 15k ref)
6507c	Temperature (violet thermistor 15k ref)
6508a	Water depth 1 m
6508c	Water depth 5 m
6508d	Water depth 10 m
6508e	Water depth 20 m
6509b	Water level
6512N	Pressure instrument - 10 kPa gauge
6512D	Pressure instrument - 50 kPa gauge
6512E	Pressure instrument - 100 kPa gauge
6512F	Pressure instrument - 200 kPa gauge
6512H	Pressure instrument - 50 kPa differential
1111	level
2222	displacement
2223	volt meter
6800a	water flow
6802a	conductivity

APPENDIX B

Input signals

The data logger can be connected to 16 signal channels.

8	Analog voltage inputs (0 - 2.55 volts)
4	Pulse counting inputs (2' 8 bit or 4' 4 bit)
2	Digital inputs (on / off sensing)
1	Digital output (on / off pulses)
1	Serial I/O bi-directional high speed data bus