DATA LOGGER INSTRUCTIONS

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1. FEATURES

* It can store 8000 measurement values along with time information.
* Sampling time can be preset from 1 second up to 9 hours.
* Auto or Manual data logger.
* Save data with real time (year, month, date, hour, minute, second).
* Battery Operated or Adaptor. (Optional)
* LCD display with low power consumption, provides long battery life.

2. SPECIFICATIONS

2-1 General Specifications

Store Data No.	Max. 8,000 data (16 bits data stream) along with the time information.	
Display	LCD, size: 23 mm x 16 mm	
Interval Recording Time adjustment	Seconds	1 to 59 seconds
	Minutes	1 to 59 minutes
	Hours	1 to 9 hours
Time Information	year, month, date, hour, minute, second	
Max. store data loss	*Max. of one data point may be lost if you store from 1 to 999 data points*	
	Max. of two data points may be lost if you store from 1,000 to 4,999 data points	
	Max. of three points data may be lost if you store from 5,000 - 8,000 data points	
Clock	Crystal O.S.C.	
Battery	1.5 V AA battery x 4. (Alkaline or Heavy Duty Type)	
External Power	9V DC adapter (optional)	
Memory management	The data will be kept in the memory circuit (even if power is off) or continuously when the batteries are used under normal conditions.	

Low Battery Indicator	The LCD shows a low battery indicator when it is time to change the batteries.
Operating Temperature	0 to 50 ˚C (32 to 122 ˚F)
Operating Humidity	Less than 80 % RH
Weight	205 g/ 0.45 LB (including battery)
Dimension	HWD - 131 x 70 x 26 mm (5.2 x 2.8 x 1.0 inch)
Accessories Included	* Software install disk * Double earphone cable * RS232 cable (direct type) for data output
Optional Accessories	AC to DC 9V adapter

2-2

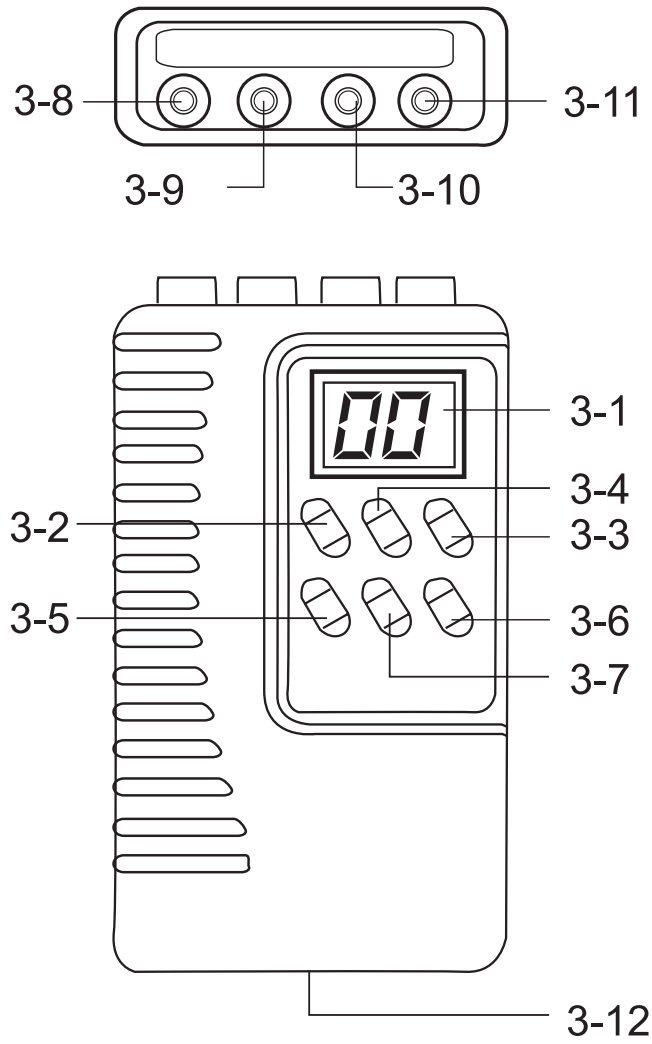
Direct RS232 Instruments:

The RS232 interface of the instruments uses the direct circuit (non photo couple).

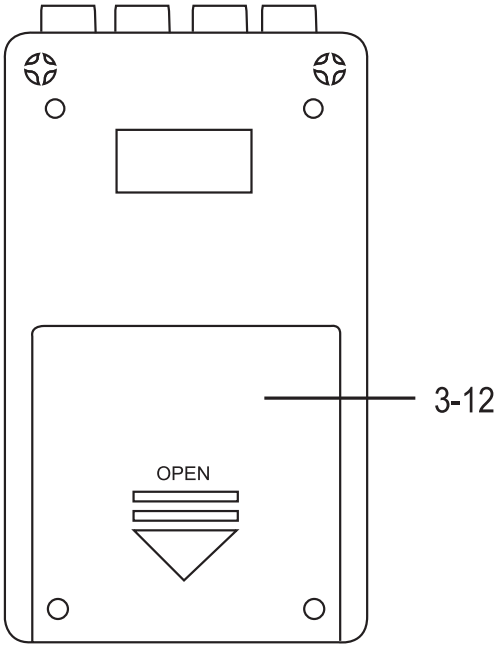
Note:

Direct RS232 Instruments:
The RS232 interface of the instruments direct circuit is built for non-photo couple.

3. FRONT PANEL & LAYOUT DESCRIPTION (Figure 1)



(Figure 1A)

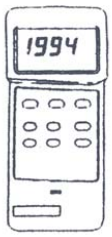


3-1 Display
3-2 Power Button
3-3 Function (▲) Button
3-4 Date/Time Button
3-5 Enter/Clear Button
3-6 Pause (▼) Button
3-7 Sample Time Button
3-8 ISOLATE Input Socket
3-9 ISOLATE Output Socket
3-10 DIRECT Input Socket
3-11 DIRECT Output Socket
3-12 Battery Compartment/Cover

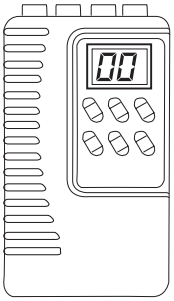
4. OPERATION PROCEDURES of AUTO DATA INPUT

1) Connect the "Data Logger" to the "Data Source Meters" via the "Double earphone cable".

Direct RS232
Instruments
(refer to page 2,2 page 4)



"Double earphone cable"



Data Logger
Direct input
Socket
(3-10, Fig. 1)

2) Press the "Function Button" (3-3, Fig. 1) until the "Display" (3-1, Fig. 1) shows the "AUTO REC" indicator along with "PS" (pause).
3) Press the "Pause Button" (3-6, Fig. 1), the meter's data along with the time (year/month/date/hour/minute/second) will save into the Data Logger per set sampling time.
When the data save into Data logger, the display will show "rC" and the "REC" indicator will flash once in a while.
4) If intend to stop the Auto data input, just press the "Pause Button"(3-6, Fig. 1), the Data Logger's LCD will show "PS".

Note:

a. The method to set/check the Clock Time (year/ month/ date/ hour/minute/ second), refer chapter 6-1, 6-3, page 9, page 10.

b. The method to set/check the Sample Time, refer chapter 6-2, 6-4, page 9, page 10.

c. While in the setting mode, if no button is pressed within 4 seconds the display returns to previous default setting.

5. OPERATION PROCEDURES of MANUAL DATA INPUT

1) Connect the "Data Logger" to the "Data Source Meter" via the double earphone cable to the "Direct Input".

Note: Other details, refer to 4-1, page 7.

2) Press the "Function Button" (3-3, Fig. 1) until the "Display" (3-1, Fig, 1) show the "MANUAL REC" indicator along with "PS" (pause).

3) Press the "Pause Button" (3-6, Fig. 1) once, the Meter's data along with the Time (year/ month/ date/ hour/ minute/ second) will save into the Data Logger one time. When the data is saved into Data logger, both "rC" and the "REC" indicator will flash on the display.
4) To stop the Auto data input, just press the Pause Button" (3-6, Fig. 1), the Data Logger's LCD will show "PS".

Note:

The method to set/check the clock Time (year/ month/ date/ hour/ minute/ second), refer chapter 6-1, 6-3 page 9, page 10.

6. SETTING CLOCK TIME & SAMPLE TIME

6-1 Clock Time Setting

1) Power ON the Data Logger by pressing the "Power Button" (3-2, Fig. 1), the display will show "PS" (pause).
2) Press the "Date/Time Button" (3-4, Fig. 1) continuously at least 2 seconds, release the button, the LCD display will flash. Now the Data Logger is ready to set the clock time.

   a. During the LCD flashing, press the "Date/Time Button" (3-4, Fig. 1) once to select the Clock Time setting unit of year/ month/ date/ hour/ minute/ second in sequence.
   b. Using "▲ Button" (3-3, Fig. 1) "▼ Button" (3-6, Fig. 1) to select the clock time value.
   c. After setting the clock time value, press the "Enter Button" (3-5, Fig. 1) to finish the clock time setting procedures and save the desired value into the memory circuit, the LCD will show "PS" again.

Note:
For the year clock time setting, 05 = 2005 year,
06 = 2006 year, 11 = 2011 year.

6-2 Sample Time Setting

1) Power ON the Data Logger by pressing the "Power Button" (3-2, Fig. 1), the display will show "PS" (pause).
2) Press the "Sample Button" (3-7, Fig. 1) continuously at least 2 seconds, release the button, the LCD display will flash. Now the Data Logger is ready to set the sample time.

   a. During the LCD flashing, press the "Sample Button" (3-7, Fig. 1) once a while to select the Sample Time setting unit of hour/ minute/ second in sequence.
   b. Use "▲ Button" (3-3, Fig. 1) and the "▼ Button" (3-6, Fig. 1) to select the sample time value.
   c. After setting the sample time value, press the "Enter Button" (3-5, Fig. 1) to finish the sample time setting procedures and save the desired value into the memory circuit, the LCD will show "PS" again.

6-3 Clock Time Checking

1) Power ON the Data Logger by pressing the "Power Button" (3-2, Fig. 1), the display will show "PS" (pause).
2) Press the "Date/Time Button (3-4, Fig. 1). The display will show the existing clock time value in the sequence of year/ month/ date/ hour/ minute/ second.

6-4 Sample Time Checking

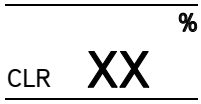
1) Power ON the Data Logger by pressing the "Power Button" (3-2, Fig. 1), the display will show "PS" (pause).
2) Press the "Sample Time Button" (3-7, Fig. 1) The display will show the existing sample time value in the sequence of hour/ minute/ second.

7. CLEAR/CHECK THE MEMORY

7-1 Clear the memory

1) Power ON the Data Logger by pressing the "Power Button" (3-2, Fig. 1), the display will show "PS" (pause).

2) Press the" Enter/Clear Button "(3-5, Fig. 1) continuously until the display shows the following:



Note:

* XX is the memory size (%) that already saved into the memory circuit.
* *For example XX = 13.*

3) Using "▲ Button" (3-3, Fig. 1) "▼ Button" (3-6, Fig. 1) to select "YS" or "NO". If select "YS", then press "Enter Button" (3-5, Fig. 1) will clear the memory. The display will show "00%" then return to "PS" (pause)

7-1 Check the memory

1) Power ON the Data Logger by pressing the "Power Button" (3-2, Fig. 1), the display will show "PS" (pause).
2) Press the "Enter/Clear Button" (3-5, Fig. 1) once, display will show the existing memory size in %. For example display show 96%, 75%...then return to "PS" (pause).

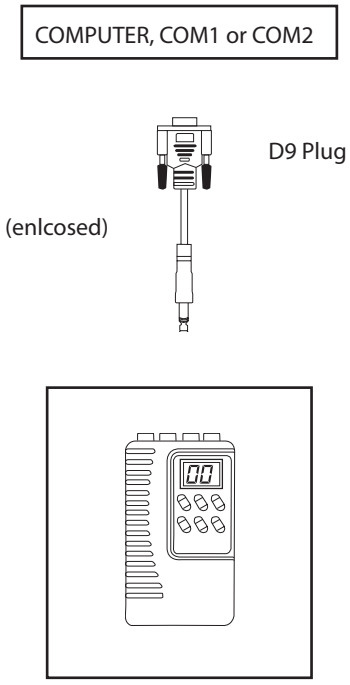
8. LCD SYMBOLS

PS	Pause
rC	Recording
Er	Error
Fu	Full (memory full)
yS	Yes
no	No

9. OPERATION PROCEDURES OF DATA OUTPUT

9-1 Hardware Setup

1) Prepare the standard RS232 cable for data transferring.
   Plug the 9-pin plug head with computers COM 1, COM 2, ...COM 8 and the earphone head with the data logger.
   a. Plug in the earphone to "Direct Output Socket" (3-11, Fig. 1) when use the direct RS232 cable to transfer data.
   b. Plug in the earphone to "Isolate Output Socket" (3-9, Fig. 1) when use the isolate RS232 cable to transfer data.
2) Press the "Function Button" (3-3, Fig 1) until the Display (3-1, Fig. 1) show the "OUT %" indicator along with "PS" (pause)



DATA LOGGER
Direct Output Socket (3-11, Fig 1)

USE USB CABLE, USB to transfer data

For certain computer only build USB port, so it also can use the USB cable. (USB Cable Not Supplied or Available From Manufacturer)

a. Plug in the earphone plug to "Direct Output Socket" (3-11, Fig. 1) when use the USB cable (set the range to position 1/direct type) to transfer data.

9-2 Software Setup & Operation

There is one CD ROM containing the software.

Insert the CD ROM into the CD driver and execute file setup.exe to install the programs. Follow the instruction of the installation wizard to finish the setup procedure.

After you install the program successfully, there will be a new item "DI9601a" under "program file". Just select and click on the item to start the program.

Data Acquisition Procedure:

1. Select COM 1, COM 2... COM 8 that RS-232 cable plugs in.
2. Input Data File Name
3. Press Start Button
4. Press "Pause" button
5. Press "View Data" button to see the record

You should see the data listed on the left table; otherwise, please check your operation procedure again.

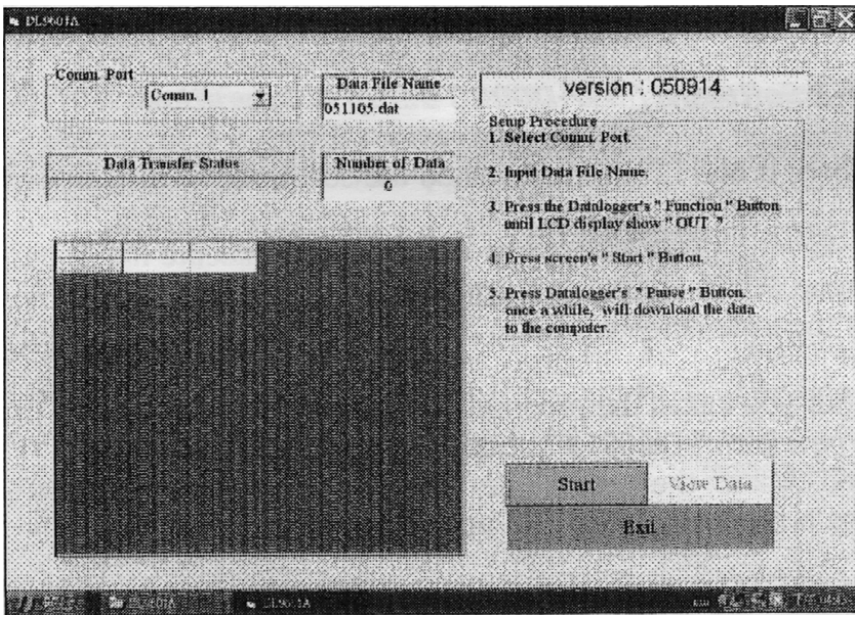


Fig. 2

10. RETRIEVE THE DATA FROM THE DIRECTORY AND COOPERATE WITH APPLICATION SOFTWARE, EXCEL.

For example: You want to save data as "Control.dat" and you want to retrieve from application software EXCEL.

1. Execute EXCEL program and open file from Directory: "C:\Program File\DI9601w\Control.dat"

Note:

* **Initial setup directory is**
  C:\Program File\DI9601w
* **You may find all data files in this directory.**

2. File type select All Files (*.*).
3. Double Click "Control.dat" to open the file
4. Select "Comma" as the separation symbol to separate data into different columns.

Then you see the data listed on the monitor like:

1	25	4		4
2	25	4		4
3	25	4		4

11. REPLACEMENT OF BATTERY

1) When power on, if the LCD display shows the "  ", low battery indicator, it is necessary to replace the batteries.
2) Slide the "Battery Cover" (3-12, Fig. 1A) away from the instrument and remove the battery.
3) Install the 1.5 V AA battery x 4. Use the Alkaline or heavy duty type battery. When installing the batteries, you should be careful of the battery polarity. Please reinstate the battery cover after the batteries replaced.

Consideration of Battery

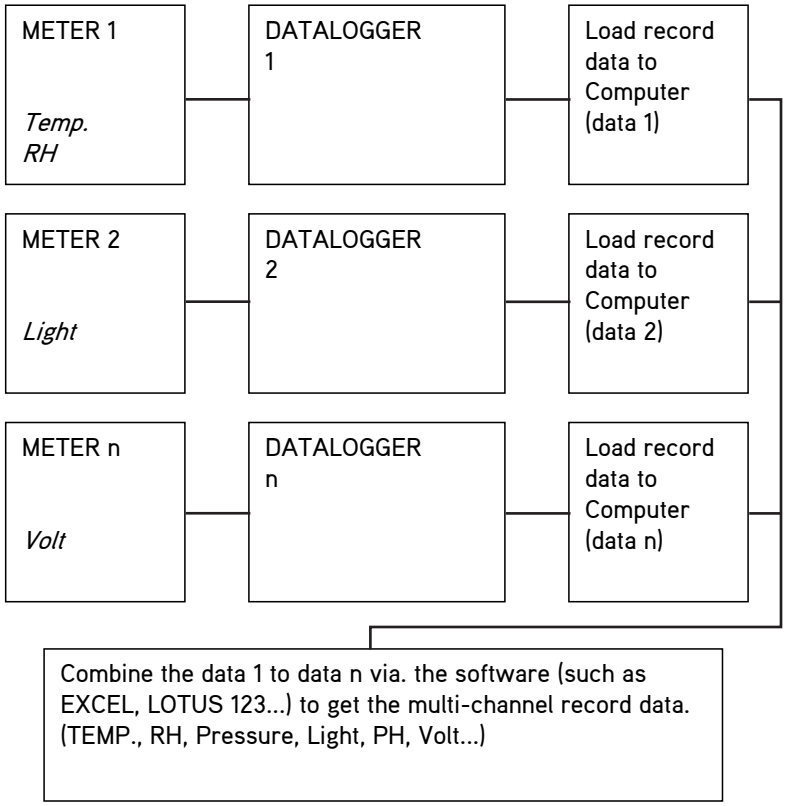
a. The batteries drain a small current (approx. 0.5 uA) for the Real-time clock (RTC) even the power off. Though it is a small current, when not using the DATA LOGGER for a certain period, batteries should be taken away from the battery compartment to save the batteries' life.

b. When using the external Power Adapter as the power source, for keeping the memory circuit working properly, the batteries should be kept in the battery compartment at the same time.

12. Use several DATALOGGER'S as the MULTI-CHANNEL RECORDER

It can apply several dataloggers be used as the multi-channel recorder.

For example:



Note:

1. Set all data loggers at the same time interval (time adjustment) at the same time.