LUDLUM MODEL 9DP LOGGING SOFTWARE INSTRUCTIONS

April 2021

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Introduction

While the Ludlum 9DP series of instruments do not have the capability of saving logged data points internally, the instrument does possess the capability of transmitting live readings to a computer using a special USB cable, as well as saving readings directly to a USB thumb drive. This process is commonly referred to as "logging" or "data logging" and is used interchangeably in this document with "stream" or "streaming."

Furthermore, the Model 9DP Data Logging feature supports logging to a data file on a USB thumb drive and streaming to a computer, and the instrument does not need to distinguish between the two. If data logging is enabled and you plug in a USB thumb drive, the instrument opens and logs the data to a file on the thumb drive. If data logging is enabled and you plug in a USB cable and connect to a computer, the instrument streams the data to the computer. The only noticeable difference for the instrument is whether a thumb drive icon or a computer icon is displayed on the LCD screen.

This document describes a software package developed to process data that is live-streamed to a computer and viewed in Microsoft Excel.

Logging Spreadsheet

The Model 9DP Logging Spreadsheet allows the user to view data that is streamed real-time from the instrument directly to an Excel spreadsheet.
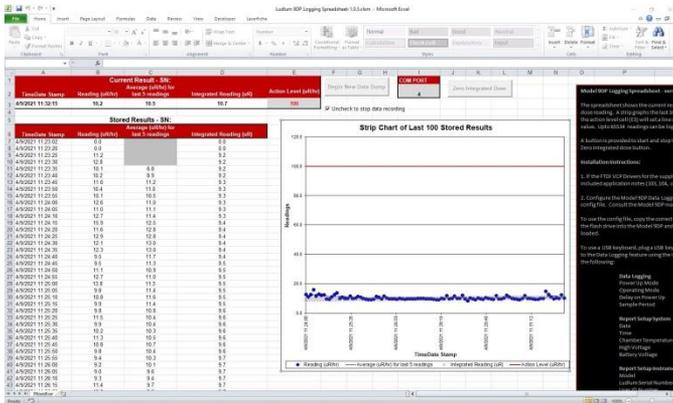

Figure 1 - Screen Shot

The spreadsheet displays the last reported reading, the average of the last five readings, and the integrated dose reading (see Figure 2 - Most Recent Readings).

| | | Current Result - SN: | | |
TimeDate Stamp	Reading (uR/hr)	Average (uR/hr) for last 5 readings	Integrated Reading (uR)	Action Level (uR/hr)
4/9/2021 11:34:20	10.5	9.8	11.1	100

Figure 2 - Most Recent Readings

There is a strip chart (see Figure 3 - Strip Chart) that graphs the last 100 readings, averages, and integrated readings. Changing the Action Level, cell E3 (Figure 2 - Most Recent Readings) will set a line on the chart to easily identify readings that exceed this value.
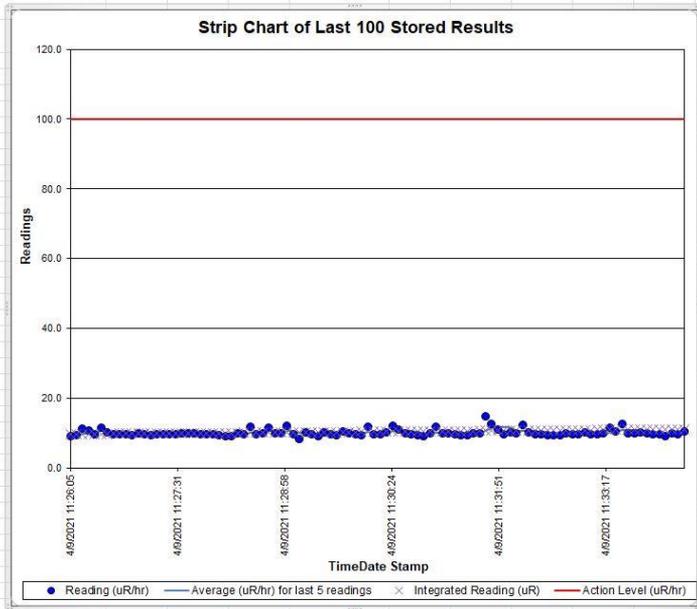
Figure 3 - Strip Chart

There is also a continual record of the last stored data results (see Figure 4 - Stored Results). Up to 65,534 readings can be logged.

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Stored Results - SN:			
TimeDate Stamp	Reading (uR/hr)	Average (uR/hr) for last 5 readings	Integrated Reading (uR)
4/9/2021 12:49:30	0.0		0.0
4/9/2021 12:49:31	9.1		23.6
4/9/2021 12:49:36	9.0		23.6
4/9/2021 12:49:41	8.9		23.6
4/9/2021 12:49:46	8.8	7.2	23.6
4/9/2021 12:49:51	8.7	8.9	23.6
4/9/2021 12:49:56	11.3	9.3	23.7
4/9/2021 12:50:01	9.8	9.5	23.7
4/9/2021 12:50:06	9.7	9.7	23.7
4/9/2021 12:50:11	9.6	9.8	23.7
4/9/2021 12:50:16	9.9	10.1	23.7
4/9/2021 12:50:21	9.5	9.7	23.7
4/9/2021 12:50:26	11.3	10.0	23.7
4/9/2021 12:50:31	9.6	10.0	23.8
4/9/2021 12:50:36	9.5	10.0	23.8
4/9/2021 12:50:41	9.7	9.9	23.8
4/9/2021 12:50:46	9.6	9.9	23.8
4/9/2021 12:50:51	9.8	9.6	23.8
4/9/2021 12:50:56	9.6	9.6	23.8
4/9/2021 12:51:01	9.5	9.7	23.8
4/9/2021 12:51:06	9.6	9.6	23.9
4/9/2021 12:51:11	10.6	9.8	23.9
4/9/2021 12:51:16	9.9	9.9	23.9
4/9/2021 12:51:21	9.7	9.9	23.9
4/9/2021 12:51:26	9.6	9.9	23.9
4/9/2021 12:51:31	9.4	9.9	23.9
4/9/2021 12:51:36	9.3	9.6	23.9
4/9/2021 12:51:41	9.2	9.5	23.9
4/9/2021 12:51:46	9.0	9.3	24.0
4/9/2021 12:51:51	8.8	9.2	24.0
4/9/2021 12:51:56	9.0	9.1	24.0
4/9/2021 12:52:01	11.3	9.5	24.0
4/9/2021 12:52:06	9.1	9.5	24.0
4/9/2021 12:52:11	9.3	9.5	24.0
4/9/2021 12:52:16	9.6	9.7	24.0
4/9/2021 12:52:21	11.1	10.1	24.1
4/9/2021 12:52:26	14.2	10.7	24.1

Figure 4 - Stored Results

Installation Instructions

1) Configure the 9DP Data Logging feature using either a USB keyboard or the supplied configuration file.

   To use the configuration file (*.cfg) included on the cd, copy the file with the appropriate units of measure to a blank USB thumb drive. Insert

the drive into the Model 9DP series instrument while the instrument is powered on and wait approximately 5 seconds for the configuration file to be loaded. If the configuration file is used, the default sample period is 5 seconds; however, the file may be edited with a simple text editor to allow for shorter or longer sample periods (from 1 to 255 seconds). (See below.)

INS:FEA:DLG:SET:DSP:5 - change 5 as needed

To use a USB keyboard, plug the keyboard into the Model 9DP and press the F1 key and navigate to the Data Logging feature using the UP/DOWN/ENTER keys. Set the logging parameters to the following states (For additional instructions, please reference your 9DP series instrument manual).

Data Logging	
Power Up Mode	ON
Operating Mode	ON
Delay on Power UP	60 (this can be user-defined)
Sample Period	User Defined
Report Setup System	
Date	OFF
Time	OFF
Chamber Temperature	OFF
High Voltage	OFF
Battery Voltage	OFF

Report Setup Instrument	
Model	OFF
Ludlum Serial Number	ON
User ID Number	OFF
User Serial Number	OFF
Report Setup Readings	
Reading	ON
Reading Multiplier	ON
Reading Units	ON
Integrated Reading	ON
Integrated Multiplier	ON
Integrated Units	ON

Table 1 - Data Logging Configuration

WARNING: The Excel spreadsheet program only supports the above configuration of the reported data. Deviation from this configuration may result in improperly parsed data in the Excel spreadsheet.

2) Ensure the FTDI VCP Drivers are installed. (This happens automatically on most Internet-connected computers once the FTDI cable is connected to the computer.) If the drivers are not installed automatically when the cable is connected, using the FTDI driver software package included on the CD, install the FTDI

drivers on the computer. Once complete, the computer should recognize the FTDI cable being connected to the computer.

Usage

1) Connect the supplied cable to the Ludlum 9DP series instrument and the computer, if it's not already connected.

2) Copy the Model 9DP Logging Spreadsheet from the CD to a location on the hard drive, and open the file. There is a file marked "original," which is a backup copy of this file and should not be modified.

> WARNING: A standard USB cable will not function with the Model 9DP; therefore, keep the cable supplied by Ludlum Measurements in a safe location.

3) Use the Windows Device Manager to find the Com Port number for the instrument and enter it into cell I2. All COM ports are listed in Windows Device Manager under the section PORTS (COM & LPT). If you are unsure which number to use, try disconnecting the cable from the computer and see which COM port disappears.

4) If required, press "Zero Integrated Dose" (see Figure 5 - Controls) to zero the current integrated dose readings on the connected instrument.

5) Begin recording data using the "Begin New Data Dump" button. This will erase any data values in the Excel spreadsheet. Stop recording by unchecking the "Uncheck to stop data recording" box (see Figure 6 – Stop Recording). Once recording has been stopped, all data will be lost should you wish to restart recording data. If necessary, save your progress (see step 7).

6) The Model 9DP is continually streaming readings. When the Excel file begins recording

data using the "Begin New Data Dump", the first reading can take as long as the sample period time before arriving. For example, if the sample period between readings is set to 30 seconds, it may take as long as 30 seconds before receiving the first reading from the instrument.

7) To save your progress, select File / Save As and save the spreadsheet under a new name.