Description
The LoggerStor is a battery powered, hand-held instrument that allows the user to retrieve and store up to 31 full recordings made with any of Dwyer's Series LCL data loggers. The user can then transfer the stored recordings to a PC or print them on the spot to virtually any parallel printer without using a PC. Each recording is individually numbered for easy tracking and the user can transfer the saved recordings to a PC using the software supplied with Model LCL05. An alphanumeric display and structured menus provide easy, intuitive operation.

Getting Started
Place a fresh 9V alkaline battery into the unit. Any other type of battery will result in unsatisfactory performance and may cause damage to the instrument. Press and hold the “ON” button on the front panel until the opening message appears in the display. The display will show the instrument name and software version number. If no display is visible, or if the display is all black, adjust the display control until the lettering is visible.

After a few seconds the display will change to the opening menu. The LoggerStor is now ready for operation.

To Retrieve A Data Logger Recording
To retrieve a data logger recording plug the data logger you want to retrieve information from into the LoggerStor using the supplied cable. The LoggerStor will automatically recognize the logger and indicate what type of logger it is and the first 16 characters of the user message. The LoggerStor records logger information into Bins. Each of the 31 Bins will hold a full logger recording.

This means that you can hold 31 logger recordings before you will have to record over a previously loaded Bin. It is not necessary to erase a given Bin to re-use it. Simply select the Bin you wish to re-use and save the recording to it.

PHYSICAL DATA
Storage Capacity: Full recordings from up to 31 data loggers.
Logger Connection: Custom cable (included).
Printer Connection: Parallel printer cable (not included).
Operating Temperature: 32°F to 140°F (0°C to 60°C).
Storage Temperature: -40°F to 170°F (-40°C to 76°C).
Power: 9 V Alkaline Battery.
Display: Alphanumeric LCD, 16 Characters × 2 Lines.
Dimensions: 5⅛" × 3⅛" × 1⅜" (130mm × 89mm × 38mm).
Weight: 13 oz. (369 g).

Press SET/MENU once and the display will indicate:

Use the RETRIEVE/UP ARROW and PRINT/DOWN ARROW buttons to scroll through the available Bin numbers.

The top line of the display will show the Bin number and the bottom line of the display will show the first 16 characters of the user message stored in the Bin. If the second line of the display is blank, then the Bin has no information stored in it or the user message in the logger was left blank. When you have selected the desired bin number, press SET/MENU.

The display will show:

When you push SET/MENU the logger will begin to retrieve information and the display will indicate the progress of the recording. After the LoggerStor has finished retrieving the recording, it will return to the display indicating the type of logger connected and the first 16 characters of the user message. At this point you may remove the logger and can view or print the information. You may also connect an additional logger to retrieve if you are working on more than one logger.
To View a Data Logger Recording

Once a data logger recording has been retrieved to the LoggerStor you can view the information directly on the LoggerStor screen. A data logger or printer does not have to be attached to do this. You cannot, however, view a recording while another recording is being retrieved or printed.

Press PRINT/DOWN ARROW and display will show a print or view message for several seconds and then change to the menu to select a Bin to print or view.

Use the RETRIEVE/UP ARROW or PRINT/DOWN ARROW to scroll through the available Bins to select the recording you wish to view.

When you have selected a Bin number to view, press SET/MENU.

The next menu will allow you to select the temperature reading in Fahrenheit or Celsius.

Use the RETRIEVE/UP ARROW and PRINT/DOWN ARROW to select the temperature scale.

Press SET/MENU to continue.

The LoggerStor will now prompt you to select View or Print.

Press RETRIEVE/UP ARROW to continue.

The final menu item is the option to select a filter function for the information being viewed. If the user were to view a recording which used all of the memory capacity of the data logger, this would be a very long record of 8000 data samples for LCL20 and LCL22 and 10,000 data samples for LCL10.

To view this information would be a cumbersome and time-consuming process. In most cases the information required from the data recording is only when the temperature or humidity has changed. If the temperature or humidity remains constant, it is not necessary to view line after line of the same information.

The LoggerStor allows the user to select from 1 to 10 degrees of temperature change or 1 to 10% of humidity change to view. Note that only ONE parameter may be used as a filter.

What this means is that data samples that are less than the selected temperature or humidity change are ignored and only when the temperature or humidity has changed by the selected amount is a sample displayed. That temperature or humidity becomes the new value to compare to and the temperature or humidity will have to change again by the selected amount before another sample is printed.

The display will show:

Press SET/MENU to view all the temperature data or press RETRIEVE/UP ARROW to scroll from 1 to 10 degrees of temperature filtering.

Press PRINT/DOWN ARROW to do the same for the second temperature probe if you are using a LCL22 or for humidity if you are using a LCL20. After selecting the desired filter press SET/MENU to begin viewing the recording.

Use RETRIEVE/UP ARROW and PRINT/DOWN ARROW to move through the recording samples.

You can exit the viewing function at any time by pressing SET/MENU.

Example Display

The LoggerStor uses a display with 16 characters by 2 lines. As a result of this, the information displayed when viewing a recording will be compacted to fit in the display. A typical example of a LCL22 recording will look like the example to the right.

The first line of the display will show the temperature recorded by probe #1 and the date in the month/day/year format. The second line will show the temperature recorded by probe #2 and the time in the hours:minutes:seconds format. Note that the 24 hour system is used in the LoggerStor.

Printing a Recording from the LoggerStor

Once a data logger recording has been retrieved to the LoggerStor you can print the information directly to a printer. A data logger does not have to be attached to do this. You cannot, however, print a recording while another recording is being retrieved or viewed.

Press PRINT/DOWN ARROW and the display will show a print or view message for several seconds and then change to the menu to select a Bin to print or view.

Press RETRIEVE/UP ARROW or PRINT/DOWN ARROW to scroll through the available Bins and select the recording you wish to print.

When you have selected a Bin number to print, press SET/MENU.

The next menu will allow you to select the temperature reading in Fahrenheit or Celsius.

Use the RETRIEVE/UP ARROW and PRINT/DOWN ARROW to select the temperature scale.

Press SET/MENU to continue.

The LoggerStor will now prompt you to select View or Print.

Press PRINT/DOWN ARROW to continue.

The final menu item is the option to select a filter function for the information being printed. If the user were to print a recording, which used all of the memory capacity of the data logger, this would be a very long record of 8000 data samples for the LCL20 and LCL22 and 10,000 data samples for the LCL10—about 120 pages of paper! To print this information would be a cumbersome and time-consuming process. In most cases the information required from the data recording is only when the temperature or humidity has changed. If the temperature or humidity remains constant, it is not necessary to print line after line after line.
The LoggerStor allows the user to select from 1 to 10 degrees of temperature change, or 1 to 10% of humidity change to print. Note that only ONE parameter may be used as a filter.

What this means is that data samples that are less than the selected temperature or humidity change are ignored and only when the temperature or humidity has changed by the selected amount is a sample printed. That temperature or humidity becomes the new value to compare to and the temperature or humidity will have to change again by the selected amount before another sample is printed.

The display will show:

Press SET/MENU to view all the temperature data, or press RETRIEVE/UP ARROW to scroll from 1 to 10 degrees of temperature filtering.

Press PRINT/DOWN ARROW to do the same for the second temperature probe if you are using a LCL22 or for humidity if you are using a LCL20.

After selecting the desired filter, press SET/MENU to begin printing the recording.

You can exit the printing function at any time by pressing SET/MENU.

Printer Error Messages
If a printer is not connected to the set to operate, an error message will be displayed to alert the user to a printer problem.

There are several possible problems that may occur if the printer is not ready. The LoggerStor will alert the user to a problem with the printer. As each printer has its own set of controls and settings, the user is recommended to consult the owner’s manual supplied with the printer.

This is an error message that appears when the printer is not connected or is turned off. Make sure the printer cable is attached to both the printer and the LoggerStor and that power is supplied to the printer.

This is an error message to alert the user that the printer has run out of paper. Refer to the owner’s manual of the printer for instructions on paper replacement.

This is an error message that will indicate the printer has not been set to ON LINE. Refer to the owner’s manual for specific instructions on setting the printer controls.

Using the LoggerStor to Set a Data Logger Sampling Interval
The LoggerStor can be used to set the sampling rate of a LCL10, LCL20 or LCL22. This is useful when a user would like to make a change in the field without returning the logger to a location that has a PC available. The LoggerStor cannot change the user information. A PC is required to do this.

To set a logger, first plug it into the LoggerStor using the supplied cable. The display will show the logger type and the first 16 characters of the user message.

Press SET/MENU and the display will change to the message to use the message to use the arrow keys.

After a short delay the display will then indicate the present sampling rate of the logger.

Use the RETRIEVE/UP ARROW and the PRINT/DOWN ARROW keys to select a sampling rate suitable to the application.

For a recording to accurately reflect a series of events, it is up to the user to select a recording interval that best suits the particular application. In some situations maximum recording time may be sacrificed so that more frequent sampling may be accomplished. Frequent sampling is best suited when monitoring short-term events, such as defrost cycles or start up operation, that benefit from highly detailed recording. Long term monitoring will require less frequent sampling in favor of longer recording times. This type of recording is often used to monitor equipment performance over long periods of time.

After choosing a sampling rate, press SET/MENU and the display will change to a menu that will allow you to save or cancel the sampling rate selected.

Push SET/MENU to save the desired sampling rate.

The display will advise that the sampling rate has been saved and then return to the opening display describing the logger that is plugged into the LoggerStor.

Connecting the LoggerStor to a PC
When the LoggerStor is connected to a PC and the DwyerLog program is running, all functions are controlled from the PC. The LoggerStor display will show a message prompting you to press SET/MENU after you have finished retrieving recordings to a PC.

This display will remain until you press SET/MENU or turn off the LoggerStor.

The automatic shutoff is disabled while the LoggerStor is connected to a PC, so extra care should be taken to avoid draining the battery unnecessarily.

Select the LoggerStor function from the buttons at the top of the screen.

After a short delay while the PC communicates with the LoggerStor, a window will open that will display all of the Bins in the LoggerStor.
Select one of the Bins to retrieve by pointing to the circle next to the Bin number and clicking on it. When you have selected a Bin to retrieve, click on OK to begin the retrieval process. The LoggerStor will show a progress bar much like what is displayed when retrieving information from a data logger.

After the information has been retrieved from the LoggerStor, it will be automatically displayed as an auto-scaled graph.

At this point the information can be treated the same as if it were retrieved from a data logger. Refer to the instructions that came with the LCL05 package to use the various options of the LCL software.

**Erasing the LoggerStor Bins**

A hidden option is available to erase all of the Bins in the LoggerStor. This will completely remove all information stored in every Bin. Start with the LoggerStor OFF.

Press and Hold RETRIEVE/UP ARROW and PRINT/DOWN ARROW.

Press the ON button on the LoggerStor until the opening message is visible.

After a brief delay the display will change to a clear memory message.

When this message is displayed release the RETRIEVE/UP ARROW and PRINT/DOWN ARROW buttons.

The display will prompt the user to select the erase function or to cancel.

Push the PRINT/DOWN ARROW button to erase the information stored in the LoggerStor Bins. Any other button will cancel the erase function and return you to the opening menu.

**Replacing the Battery in the LoggerStor**

When the LoggerStor will not be used for an extended period, or when the battery is exhausted, it is strongly recommended to remove the battery to avoid damage to the LoggerStor from battery leakage.

**USE ONLY ALKALINE BATTERIES IN THE LOGGERSTOR. Substitution of a different battery can result in reduced performance or permanent damage to this instrument.**

To replace the LoggerStor’s battery follow the steps below:

1. Make sure the LoggerStor is OFF. If you are using the optional AC adapter disconnect it now.
2. Remove the rear battery cover.
3. The battery and battery clip may be extended from the battery compartment to facilitate replacement.
4. Remove the battery from the battery clip and dispose of properly.
5. Line up the connector of the new battery and push onto the pins of the battery clip with a firm motion. **Do NOT reverse the battery connection, even momentarily, as this can result in the loss of data or permanent damage to the logger.**
6. Place the battery in the battery compartment of the LoggerStor.
7. Replace the battery cover.

**MAINTENANCE**

No routine maintenance is required on the Model LS1 Data Logger Storage. Please contact Dwyer Instruments, Inc. before returning unit for repair to review information relative to your application and obtain a return authorization number. When returning a product to the factory, carefully package and ship freight prepaid. Be sure to include a complete description of the application and problem and identify any hazardous material used with the product.