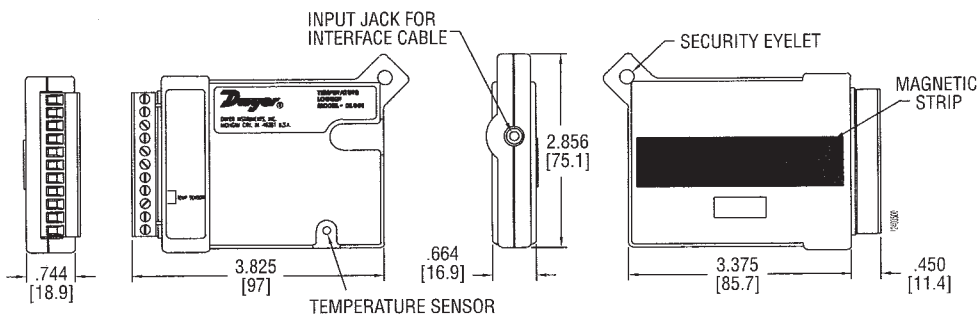
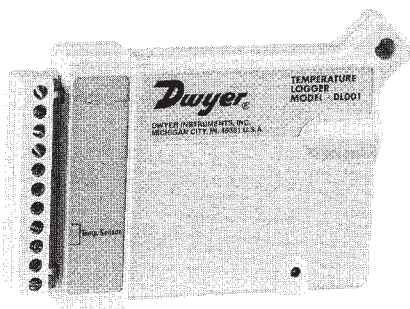




Series DL001 Temperature Datalogger



Specifications - Installation and Operating Instructions



GENERAL

The Model DL001 Dataloggers are easy-to-use battery-powered data loggers that can monitor temperature. The logger is designed to work as a stand alone unit or perform remote temperature monitoring with an NTC thermistor probe. Pocket-sized and rugged, they can be used in a wide range of environmental and industrial applications. Each unit can reliably record time-based data for later analysis, by TreadReader software and any IBM PC or 100% compatible computer.

Series DL dataloggers run continuously—constantly measuring and recording readings from any enabled channel. Self-powered by a long life lithium battery that will provide years of reliable operation, your logger can work independently from any external power supply or computer. Each DL001 Datalogger has an on-board thermistor that can be used to monitor and record ambient temperature.

GENERAL INSTALLATION (for all DL Loggers)

The TreadReader software must be installed on your computer prior to the use of any data logger described in this reference.

Setup

To setup your datalogger you must first have TreadReader software installed and running on your computer. You can then configure your logger with various options by plugging into your computer via the interface cable.

Set Sampling Rate

Always confirm the sampling rate (how often the logger takes readings) to make sure it will be acceptable to your application. You can alter the frequency at which the logger records readings by accessing Logger, Communicate, Setup, Sample rate in TreadReader software. Here you will be able to choose from a menu that gives the following interval alternatives: 8, 16, 32, 56 seconds, 2 minutes, 4 minutes and 56 seconds, 10 minutes, 20 minutes, and 30 minutes. The sampling rate will apply to all active channels on the logger.

PHYSICAL DATA

No. of Channels: Two, one internal thermistor and one external temperature sensor.

Internal Thermistor Range: -40 to 158°F (-40 to 70°C).

Internal Thermistor Resolution: 0.7°F (0.4°C), R₂₅ value equal to 10,000Ω.

External Sensor: Interchangeable NTC (negative temperature coefficient) thermistor recommended (not included).

Memory Size: 32,768 readings.

Sampling Methods: Continuous (First-in, First-out) or Stop when full (Fill-then-stop).

Sampling Rates: 8 seconds to

once every 5 days, selectable.

Resolution: 8 bits (1 in 256).

Power: 3.6V Lithium battery.

Power Consumption: 5-10 μA.

Clock Accuracy: ±8 seconds per day plus one sampling interval.

Ambient Operating Temp: -50 to 160°F (-45 to 70°C), 0 to 95% RH, non-condensing.

Connection: Removable screw terminal.

Computer Requirements: IBM compatible 386 or above and Windows 3.1 or later with 2mB RAM and 2mB hard drive disk space, one serial port.

Housing: Noryl™

Weight: 5 oz (110 g).

Making External Connections

If you are using your logger to monitor external modules, sensors, or circuitry, make sure the connections are secure. Also, be sure the terminal block is snapped securely in the logger.

Enable Channels

Always make sure that you have enabled and verified the correct channels for your application. It can be very distressing to find out later that the information you hoped to collect was from an inactive channel. You can selectively enable additional channels in your logger as required. However, in order to avoid using logger memory unnecessarily, disable any channels which are not required.

Clear Memory

Before sending the logger out to the field to collect data, empty the logger memory. This will help to keep collected files smaller as well as decrease the time needed to backup the logger later. Note that clearing the logger's memory is automatic if you make setup changes (i.e. assign different equations, change filename, etc.)

Test

You can directly read the values that the logger is sensing, on a reading-by-reading basis, by using the real-time capability of the TreadReader software. To do this, choose Logger, Communicate, Realtime. Data on any enabled channel will be instantly displayed. Make sure the proper channels are enabled. This test gives an opportunity to check the logger setup and make necessary changes before the logger is placed in location for data collection.

Label

If working with more than one logger, label each, identifying the task and location before you distribute them throughout a building or system. To do this, simply use shipping tags. Later, when you retrieve them to graph their data, you will know what each graph refers to.

Mounting

Use the magnetic backing to conveniently mount the logger on metal surfaces like ductwork or electrical control cabinets. If concerned about theft, make sure to lock the logger to a permanent fixture using the special locking tab. Special mounting methods (using Velcro® fasteners) to secure the loggers to other surfaces may be used. NOTE: Do not rely on the logger's magnetic strip for secure mounting if the surface is uneven, unstable, or above 150°F (65°C).

Cold or Humid Environments

The environment the logger will be placed in must be suitable, please refer to the physical data section. If conditions are not acceptable, consider using a protective enclosure. For humid environments, the logger can be protected by placing it in a ziplock plastic bag.

If the logger is used in a cold environment, make sure condensation will not settle on the logger when it is brought back into a warmer environment. The best way to prevent condensation is to place the logger in a plastic ziplock bag and include a dessicant. When you bring the logger back into the warmer climate, leave the logger in the bag with the dessicant until the logger has come to equilibrium with the environment.

Keep Track

Be sure to keep record of the locations of each logger. This will save time in looking for them when the data-gathering is completed. Also, keep track of when the loggers were put into service. This will help when producing graphs.

Retrieval

After sufficient time has passed to obtain a representative profile of data, retrieve the logger and bring it back immediately for analysis. Make sure the logger has a label so it can be properly identified and differentiated.

Analysis

To analyze the logger, you must first transfer a copy of its data into your computer. To do this, plug the logger into the TreadReader interface cable and choose Logger, Communicate, Backup. After describing the information to the computer, the data is automatically copied to disk, time and date stamped, and converted into the appropriate measurement units. A portion or the entire data set can be copied.

Each file will initially have the same descriptive title, but you can use Files, Revise Logger to alter these accordingly. To view graphs, choose Draw, New and select the appropriate file. A detailed description of all software functions can be found in the TreadReader Reference Guide.

INSTALLATION (specifically for DL001 Loggers)

The TreadReader software must be installed on your computer prior to the use of any data logger described in this reference.

Setup

The DL001 Temperature Datalogger has one on-board thermistor for local measurement and an external temperature sensor channel for remote measurements.

1. Connect the logger to the computer via the interface cable connected to the serial communication port (COM1 or COM2)
2. Choose Logger, Communicate, COM Port to confirm COM port used for logger and change if necessary.
3. Choose Realtime to confirm the channels you want to use are activated and that the logger is reading correctly. Make any changes necessary by choosing Setup.
4. When backing up the logger to disk, the internal temperature channel will always have a filename ending in "0" and the external channel (if enabled) will always have a filename ending in "2".

NOTE: Use the TreadReader software to enable channels and assign an equation for the specific logger you are using (see table 1). A detailed description of all software functions can be found in the TreadReader Reference Guide.

EQUATION #

Description	Range	Equation #
Internal Thermistor	-40 to 158°F (-40 to 70°C)	45

TABLE 1

Remote Temperature Probe

Temperature can be monitored remotely using a NTC thermistor temperature probe (R25 value=10000Ω). Connect the two wires to the terminals marked "Temp. Sensor" and activate the external temperature channel. Note that polarity does not matter when connecting thermistor leads. If you are using shielded cable, terminate the shield wire by connecting it to the lower of the two "Temp. Sensor" terminals (the common terminal).