

# DICKSON

## SM300/SM320/SM325 TM320/TM325

### LCD Display Loggers Operation



SM300



SM320



SM325



TM320



TM325

### Getting Started

- Install version 8.0 or higher of DicksonWare™ Software (compatible with Windows® 98 or higher).
- Connect the cable (supplied with the software) to the logger and to a working serial or USB port on your computer.
- If using the USB connection, your computer may detect the logger when the logger is powered on and connected to the computer via the USB connection. Depending on your version of Windows, the computer may go through an Add New Hardware routine.
- Click the Setup button. You will be prompted to to select a USB or Serial COM Port connection, then click Continue. A Setup window will appear, and all fields should be automatically filled in, this will confirm that DicksonWare™ has recognized the logger. Should all fields remain blank, refer to "No Communication" in the Troubleshooting section of this manual. Once DicksonWare™ recognizes the logger, press the Clear button. This will delete all data currently stored.

Please refer to the "Software and Logger Operations" section of this manual for more Setup and Download instructions.

**Note:** Make sure thermocouple probes are connected for SM320/SM325 models.

- The logger is now sampling and ready for use, a Delta ( $\Delta$ ) symbol will appear in the display to confirm logging. The default sample interval is 1 minute. You may choose to change Default settings for sample interval and start-date and time. When changing these settings, the logger will automatically go through the clear process to accept your changes.

**Note:** To achieve longer battery life during operation, use a less frequent sample rate, disconnect the unit from the USB port when not downloading data, limit the frequency of memory card transfers, and DO NOT insert the memory card all the way unless downloading.

## Useful Features

### Real Time Monitoring

Monitor and graph your process as it happens and print and save from real time screen. (This feature should be used sparingly as it causes the battery to drain very quickly unless using optional AC adapter)

### Customize Graphed Data

DicksonWare™ calculates Min, Max and Average of all data collected. Customize data by eliminating unnecessary data points and customize Min, Max and Average to show only desired information.

### Export Data

A snapshot of your graph or a real-time graph of points can be easily exported to other programs such as Excel™ or PowerPoint™.

### Super Size Storage

With the use of the optional Flash Memory Card and reader you can store 100 Full Data Loggers. This eliminates the need to physically remove your loggers from their application for uninterrupted monitoring.

**\*\* CLICK ON THE FEATURES BUTTON IN THE SOFTWARE FOR DETAILED INSTRUCTIONS ON HOW TO USE ABOVE FEATURES**

## Logger Operating Instructions

**Note:** The loggers have a continuous display that cannot be disabled. Dual variable models such as the TM320/TM325 and SM325 will toggle between Temperature and Humidity or two Temperature readings automatically. The SM320/325 models will read PROB on the display if the Thermocouple is not connected.

### Button Functions:

#### Save

**Note:** This feature is only for use with the Dickson Memory Cards.

Pressing this button will download any data stored in the logger to the removeable memory card. STORE will appear on the display momentarily and the counter will start counting down from 100. DO NOT remove the memory card until STORE is no longer in the display and the unit is displaying current readings.

**Note:** Leaving the memory card installed in the Logger will reduce battery life by 50%. If you notice "Err" on the display, please refer to the Trouble Shooting section of this manual.

#### Alarm

Pressing this button will silence the alarm. Holding this button down for about 5 seconds will toggle between Fahrenheit and Celsius. (Alarm parameters can only be set in DicksonWare™. Refer to the DicksonWare™ software manual.)

### MIN/MAX

Pressing this button will start the Min/Max display cycle.

### Clearing MIN/MAX Values

Holding the "MIN/MAX" and "ALARM" buttons down together until "clr" appears on display will clear the stored minimum and maximum values. The Min and Max displayed by the logger will be the minimum and maximum values sensed since it was last cleared.

**Note:** DicksonWare™ will show the minimum and maximum values of the downloaded data. These could be different than that displayed on the unit itself.

**For Example:** Your logger is set for a 2 minute sample which is good for about 11 days. After 5 days you clear MIN/MAX. After another 6 days you download the logger. The Min/Max displayed by the logger will be the MIN/MAX for the last 6 days. The MIN/MAX shown by DicksonWare™ will be the Min/Max for the last entire 11 days. Dew point MIN/MAX in the TM320 and TM325 models are not updated unless dew point is enabled using DicksonWare™ software.

### Battery Replacement

To replace the batteries (4 "AA" alkaline) remove the screw on the back of the case.

### Installing a Flash Memory Card Reader

Follow the instructions included with the flash card reader. Additional information and trouble shooting information on the card reader can be found at that manufacturers website.

## Basic Software & Logger Operating Instructions

### SETUP

Click this button first to establish communication between your Logger and DicksonWare™ software. You will be prompted to select a USB or Serial COM Port connection, then click Continue. A Setup window will appear with ALL fields populated, this confirms that the software has recognized the logger. Should all fields remain blank and communication is not established, refer to the Troubleshooting section of this manual. There are three tabs within the Setup window:

### Identification

Provides you with the Model and Serial number of the logger as well as the option to set a custom User Id by clicking the active Setup to the right of the User Id field.

### Samples

Majority of the setup process takes place in this section. Each field with an active Setup button to the right is a parameter that you can customize. Sample Interval is for telling your logger how frequently you want it to take

and store readings. This can be done in 10 or 1 second intervals. The dialog box that allows you change the sample interval will also inform you of how much time your chosen sample rate will cover. Sub Ten Second interval should be enabled for desired sample intervals with less than a 10 second interval. Stop or Wrap when Full determines what the logger should do when it has collected all possible samples, either STOP and shut down, or continue logging by Wrapping the newest data over the oldest.

Channels

By clicking the Adjust / Customize button to the right of the temperature or Humidity value for each channel, you will be allowed to Disable a channel that is not neces-

sary, change the name of a channel, set and activate Alarm parameters.

Download

Clicking this button will automatically extract all logged data into a Graph and Table format for you to view. You may also choose to retrieve data via the optional Flash Memory Card. After Saving data to the card, simply insert the card into your reader, open the LOG Folder, then double click on the appropriate LOD file which will automatically open DicksonWare™, if not, manually open DicksonWare™. Form the top Menu bar, click on File > Open and browse to the appropriate drive for your reader and select the LOD file.

Specifications

|                             | SM300                            | SM320                            | SM325                            |
|-----------------------------|----------------------------------|----------------------------------|----------------------------------|
| Operating Range (unit only) | -4 to +158°F<br>(non-condensing) | -4 to +158°F<br>(non-condensing) | -4 to +158°F<br>(non-condensing) |
| Int. Temperature Sensor     | Thermistor                       | Thermistor                       | N/A                              |
| Int. Temperature Accuracy   | ±0.8°F                           | ±1.8°F                           | N/A                              |
| Ext. Temperature Sensor     | N/A                              | Thermocouple                     | Thermocouple (x2)                |
| Ext. Temperature Range      | N/A                              | -300 to +2000°F                  | -300 to +2000°F                  |
| Ext. Temperature Accuracy   | N/A                              | ±1.8°F (unit)                    | ±1.8°F (unit)                    |
| R/H Sensor Type             | N/A                              | N/A                              | N/A                              |
| % RH Accuracy               | N/A                              | N/A                              | N/A                              |
| Storage Capacity            | 32,000                           | 32,000 (div. x 2)                | 32,000 (div. x 2)                |
| Resolution                  | 0.1°                             | 0.1°                             | 0.1°                             |
| Response Time (63%)         | 2.5 minutes typical              | 1 minute                         | 1 minute                         |

|                             | TM320                            | TM325                            |  |
|-----------------------------|----------------------------------|----------------------------------|--|
| Operating Range (unit only) | -4 to +158°F<br>(non-condensing) | -4 to +158°F<br>(non-condensing) |  |
| Int. Temperature Sensor     | Thermistor                       | N/A                              |  |
| Int. Temperature Accuracy   | ±0.8°F                           | N/A                              |  |
| Ext. Temperature Sensor     | N/A                              | Thermistor                       |  |
| Ext. Temperature Range      | N/A                              | -40 to +176°F                    |  |
| Ext. Temperature Accuracy   | N/A                              | ±0.8°F                           |  |
| R/H Sensor Type             | Capacitive                       | Capacitive                       |  |
| % RH Accuracy               | ±2% @ 73°F<br>0 to 95%           | ±2% @ 73°F<br>0 to 95%           |  |
| Storage Capacity            | 32,000 (div. x 2)                | 32,000 (div. x 2)                |  |
| Resolution                  | 0.1°                             | 0.1°                             |  |
| Response Time (63%)         | 2.5 minutes typical              | 2.5 minutes typical              |  |

Accessories

| Description                                                             | Order # |
|-------------------------------------------------------------------------|---------|
| DicksonWare™ Software & USB Download Cable                              | A016    |
| DicksonWare™ Software & Serial Download Cable                           | A015    |
| DicksonWare SECURE Software & USB Download Cable (21CFR11 Compliant)    | A026    |
| DicksonWare SECURE Software & Serial Download Cable (21CFR11 Compliant) | A025    |
| Card Reader w/ FLASH Memory Card                                        | A220    |
| Extra FLASH Memory Card                                                 | A210    |
| AC Adapter                                                              | R157    |
| NIST Traceable Calibration 3-pt. (new unit)                             | N300    |
| NIST Traceable Calibration 1-pt. (new unit)                             | N100    |
| A2LA Accredited Calibration 3-pt. (new unit)                            | N400    |

## Troubleshooting

### No communication - Serial Connection

- Verify that you have the correct version of DicksonWare™ software installed on your PC. Version 8.0 or higher is required for models SM300, SM320, SM325, TM320 and TM325.
- Verify that the correct COM port is selected: From the main Dicksonware screen, click on Logger then Communication, a black dot will appear next to the selected COM port. You may need to select a different COM port. Should you get an error message stating that "Device Is Already Open", this could mean that you have the proper COM port selected, but another device, or it's software, has it allocated. Palm pilots, for example, will cause this problem, in which case the port is not actually "available" and you may have to disable that device.
- You may need to relocate the download cable to another serial port on the back of the PC and possibly try changing the COM port again in DicksonWare™.
- If communication has not been established with the previous steps, you may need to open the logger and press the reset button and then try all COM port and cable combinations again.
- If possible, try another PC
- Make sure the USB is unplugged, and that "USB" is NOT checked in File > Preferences > Serial.

### No Communication - USB Connection

- Make sure that "USB" is selected under File > Preferences > Serial.
- Unplug USB cable and plug back in.
- Remove all power to the logger (this will not cause the unit to lose any data within the logger, but you will have to start the unit logging again using DicksonWare™) unplug the USB cable, power the logger back on, then reconnect the USB cable.
- If the logger was used in a moist or humid environment Condensation may have formed on

the unit. Place unit in a warm dry environment for 24 hrs. Clear memory and try again. These loggers are designed for use in a non-condensing environment. If the environment creates condensation, try placing the unit (temperature only models) in a small sealed plastic bag to protect it from condensation.

- If possible, try another PC, and/or another USB port.
- If the logger appears to be frozen or non operational, try the following: Open the unit by removing the screw on the back of the case and remove and reinstall or replace the batteries.

**NOTE:** Removing the battery will not erase any stored data

### Unit will not turn on or frozen display

- Unit may be "locked up", try removing the battery and then replacing after a few moments.
- Battery may be to low or dead, replace batteries

### The display reads Prob on RF (remote probe)

- (This would be for SM320 and SM325's only), it means that the unit does not recognize the external probe, check to see that it is connected properly. If it is connected properly, there may be a weak internal connection and should be returned.
- Is there an extension cable being used? It could be defective. Omit the extension cable and try another K-type probe.

### Channel shows extreme reading on the graph

- This is normal when an activated channel has no probe connected at the time a sample is taken.

**PLEASE VISIT [WWW.DICKSONWEB.COM](http://WWW.DICKSONWEB.COM) FOR COMPLETE TROUBLESHOOTING GUIDE**

## Error Codes

**Err 1** ..... No memory card  
**Err 2** ..... Memory card locked or protected

**Err 23** ..... Memory card requires reformatting  
**Err 66** ..... Memory card full

## Factory Service and Returns

Contact the factory for a Return Authorization (RA) Number before returning any instrument. The model number, serial number and a purchase order number will be requested before an RA number is issued.

**NOTE:** Dickson shall not be liable for consequential or incidental damages resulting from failure or malfunction of its products.

CE testing has found that when using unshielded thermocouple probes in a strong RF field in the 350 to 400 MHz frequency range, the reading may be off by several degrees.

**DICKSON**

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