



# DT4208SD

USER'S MANUAL



## 12-CHANNEL TEMPERATURE RECORDER WITH DATALOGGING SD CARD

Please read this manual carefully and thoroughly before using this product.

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## INTRODUCTION

Thank you for purchasing General Tools & Instruments' DT4208SD 12-Channel Temperature Recorder with Datalogging SD Card. Please read this user's manual carefully and thoroughly before using the instrument.

The DT4208SD is a general-purpose handheld instrument that can measure up to 12 channels of temperature with 0.4% accuracy using any of six different types of thermocouple. Up to eight channels can be displayed at a time. The instrument also can be configured to automatically record up to 12 channels during the same period every day—a function called loop data recording.

Although thermocouples are not as accurate as other types of thermometers, they more than make up for this shortcoming with an extended measurement range. For example, the DT4208SD can measure and read out temperatures from  $-148^{\circ}$  to  $2372^{\circ}\text{F}$  ( $-100^{\circ}$  to  $1300^{\circ}\text{C}$ ) using Type K thermocouples, and temperatures from  $-148^{\circ}$  to  $2102^{\circ}\text{F}$  ( $-100^{\circ}$  to  $1100^{\circ}\text{C}$ ) using Type J thermocouples. Type R and Type S thermocouples have an even higher upper limit. These very wide ranges, plus a fast response time and a low price tag, suit thermocouple thermometers for a variety of commercial and industrial tasks requiring measurement of very high and low temperatures. Examples include applications in the food and chemical processing industries, HVAC (heating, ventilation and air-conditioning), power generation, and paper production.

Because it is microprocessor-based, the DT4208SD can make full use of the portability, reliability and large storage capacities that SD memory cards offer. Measurements can be made automatically at any sampling rate between one second and one hour. After time-stamping and storing the measurements on an SD card plugged into the instrument (a process called datalogging), the user can remove the card and plug it into a laptop or desktop computer either directly or through an SD card reader. The data logs are stored on the card as files with the .xls extension, which can be opened by Microsoft's Excel application.

The DT4208SD has a backlit 2-1/2 in. diagonal display and is powered by eight "AA" Alkaline batteries or an optional 9-VDC AC adapter.

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## KEY FEATURES

- Twelve independent temperature measurement channels
- Displays up to eight channels at a time; one push of a button switches to Channels 9 through 12
- Works with and automatically temperature-compensates for six popular thermocouple types: K, J, T, E, S and R
- Combining thermocouple types extends overall measurement range to -148° to 3092°F (-100° to 1700°C)
- Can automatically log 12 channels of data every day during same period
- Big (2.5 in. diagonal) front-panel green backlit LCD is easy to read
- Displays maximum and minimum readings and holds any reading
- Automatically logs measurements at sampling time settable from one second to one hour
- Also supports manual datalogging and changing of SD card storage location
- Outputs Excel-compatible data logs
- Accepts SD memory cards of up to 16 GB capacity
- Auto power off function
- Powered by eight “AA” batteries or optional 9V AC/DC adapter

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## OPERATING INSTRUCTIONS

### ***WHAT'S IN THE CASE***

The DT4208SD comes fully assembled in a carrying case along with a 2 GB SD memory card, two Type K thermocouples (General SKU TPK500) and this user's manual.

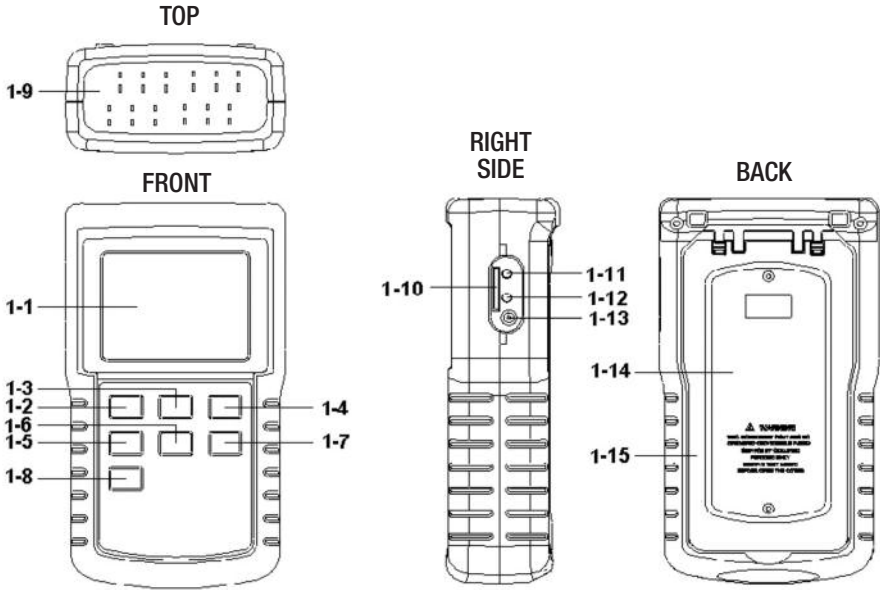
Optional accessories available from General Tools & Instruments include:

- Additional Type K thermocouples of various diameters, types and measurement ranges
- A 9VDC adapter for a 110V power supply

*See the Optional Accessories section of this manual for more details.*

Figure 1 shows all of the controls and indicators on the front, right side, back and top of the DT4208SD. Familiarize yourself with the positions and functions of these controls, indicators and connectors before moving on to the setup procedure.

**Fig. 1**



## **1. The DT4208SD's controls and indicators and other physical features**

- 1-1 Liquid-crystal display
- 1-2 POWER/ESC button
- 1-3 HOLD/NEXT button
- 1-4 REC/ENTER button
- 1-5 Type ▲ button
- 1-6 Page ▼ button
- 1-7 SET button
- 1-8 LOGGER button

- 1-9 T1 through T12 thermocouple jacks
- 1-10 SD card socket
- 1-11 RS-232 output jack
- 1-12 RESET button
- 1-13 Socket for 9VDC AC adapter
- 1-14 Battery compartment cover
- 1-15 Kickstand

## SETUP

**1. Choose the power source.** Before using the DT4208SD, make sure it is powered by fresh batteries or an optional 9VDC AC adapter plugged into the bottom jack on its right side (callout 1-13).

To remove the battery compartment cover (callout 1-14), remove the two screws holding it in place. Then install eight “AA” batteries in the correct orientation, using the polarity marks on the inside of the compartment as a guide. Replace the cover by replacing the two screws.

**2. Install an SD card.** To prepare for setup, also install the supplied 2 GB SD card or another card of 1 GB to 16 GB capacity in the socket on the right side of the instrument (callout 1-18). When installing the card, make sure its gold contacts are facing front and push the card into the socket until you hear a click. To remove the card, push it in until you hear a click and the card pops out.

Now power on the instrument by pressing the POWER/ESC button (callout 1-2) to generate a short beep. (To power off the DT4208SD, press the POWER/ESC button and hold it until the instrument responds with a long beep.)

When the temperature recorder powers on, a series of transient startup screens will briefly appear. Once the display has stabilized, perform the following eight setup steps in the order presented.

**3. Set the date and time.** Press the SET button (callout 1-8) and hold it for at least five seconds, until the word “dAtE” appears flashing on the top line of the left column of the display.

Press the REC/ENTER button. Set the current year by pressing the Type ▲ or Page ▼ button repeatedly until the correct value appears flashing on the top line of the left column. Quickly (within three seconds), press the REC/ENTER button to store the setting. The next screen that appears will show the value “01” flashing on the second line. Use the Type ▲ or Page ▼ button to navigate to the current month and press the REC/ENTER button to store the setting. When the value “01” begins flashing on the third line, again use the Type ▲ or Page ▼ button to navigate to the current day and press the REC/ENTER button to store the setting.

(If you press buttons too slowly in setup mode, the screen will revert to the normal display. To return to the setup sequence, press and hold the SET button again. To move ahead to the next field in the sequence or to the next parameter, press the HOLD/NEXT button.)

Once you have set the date, the display will prompt you to set the hour, minute and second of the current time, in 24-hour format, in the right column. Again use the Type ▲ or Page ▼ buttons to navigate to the correct values, and the REC/ENTER button to store the settings.

**4. Set the start and end times for “loop recording”**—logging 12 channels of temperature information during the same period (for example, 14:15 to 15:30) every day. Once you have set the date and time, the display will show the flashing term “Loop”. Press the REC/ENTER button and then use the Type ▲ and Page ▼ buttons to set the first of the four values that define the loop: the starting hour. Press the REC/ENTER button

to store your selection. Then use the Type ▲ and Page ▼ buttons to set the loop's starting minute. Again press the REC/ENTER button to store your selection. Repeat this sequence twice more to set and store the loop's ending hour and minutes values.

Once you have entered the fourth value—the loop's ending minute—the following screen will appear:



StAr Loop  
no

To enable recording of data during the specified loop duration, press either the Type ▲ or Page ▼ button to change the “no” to a “yES” and then press the REC/ENTER button to store the selection. To disable recording, press the REC/ENTER button without changing the “no” to a “yES”.

- 5. Choose a decimal point or comma** to represent the decimal division between integers and fractions (for example, American-style 20.88 vs. European-style 20,88). Once you have set the date and time, the display will show the word “bASIC” above the phrase “dEC”. Press the SET button to make “bASIC” (American style) or “Euro” appear in the upper display, as desired. Press the REC/ENTER button to store the selection as the default.
- 6. Enable or disable auto power off.** Once the format of decimal point divisions has been set and stored, the display will show the word “yES” over the term “PoFF”. Press the Type ▲ or Page ▼ button until the desired automatic power off management scheme (“yES” for enable; “no” for disable) is displayed. Press the REC/ENTER button to store the selection. If enabled, the power off function shuts off the DT4208SD after a period of inactivity of ten minutes.
- 7. Enable or disable the beeper.** The next step in the setup sequence turns the thermometer's beeper on or off. Once the auto power off function has been enabled or disabled, the display will show the word “yES” over the word “bEEP”. Press the Type ▲ or Page ▼ button until the desired setting (“yES” or “no”) is displayed, and then press the REC/ENTER button to store the selection as the default.
- 8. Select the temperature unit.** Once the beeper has been enabled or disabled, the lower part of the display will show the term “t-CF”. Press the Type ▲ or Page ▼ button until the unit you prefer (“F” for Fahrenheit, “C” for Celsius) is displayed. Then press the REC/ENTER button to store the selection as the default.
- 9. Set the datalogging sampling time.** Once the default temperature unit has been selected and stored, the display will show a value above the letters “SP-t”. Press the Type ▲ or Page ▼ button to decrease or increase the value until the desired sampling time appears above “SP-t”. The options are 0, 1, 2, 5, 10, 30, 60, 120, 300, 600, 1800 and 3600 seconds (0 seconds to 1 hour).
- 10. Format the SD card.** Once the sampling time has been set and stored, the term “Sd-F” will appear in the lower half of the display. Press the REC/ENTER button.

Pressing the REC/ENTER button causes the word “no” or “yES” to appear over the term “Sd-F”. Press the Type ▲ or Page ▼ button to make a selection. Choose “yES” whenever a new SD card is being used, or when a used card is being repurposed (from use with another SD card instrument or a camera, for example) and all data on it is to be erased. Choose “no” to preserve any data on a card previously used with this instrument.

If you choose “yES”, after you press the REC/ENTER button the instrument will prompt you to confirm that decision by displaying the term “Ent” below “yES” and sounding three beeps. To confirm that you want to begin the erasure/formatting procedure, press the REC/ENTER button. “Ent” will then flash several times and the instrument will sound another three beeps to confirm that the SD card has been erased and formatted.

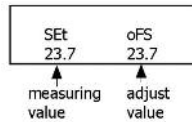
Once the SD card has been set up, the display will then either return to the first of the eight steps in the setup sequence—setting the current date and time—or show the term “ESC”. If “ESC” appears, press the POWER/ESC button to exit the setup procedure and enter normal operating mode.

## **ADJUSTING THERMOCOUPLE OFFSETS**

To maximize the accuracy of measurements, General strongly recommends that you compensate for (offset) the small measurement error peculiar to each thermocouple used with the instrument.

**To adjust the offset of a thermocouple**, press the Type ▲ button until its type appears on the display. Then plug the thermocouple into the T1 jack on the top of the thermometer.

Press the LOGGER OFFSET button, hold it for at least three seconds, and then release the button. A screen similar to the following should appear:



Next, use the Type ▲ or Page ▼ button to adjust the value under “oFS” to match the value under “SEt”. Then press the REC/ENTER button to store the offset adjustment and return the instrument to measurement mode. Repeat the procedure for each thermocouple to be used.

## **NORMAL OPERATION**

**1. To prepare to make measurements**, power on the DT4208SD and make sure an SD card is firmly seated in the socket on the bottom of the instrument.

By default, the DT4208SD uses Celsius units for temperature measurements. If you wish to make Fahrenheit units the default, press the SET button to enter the setup procedure and perform Step 8.

**2. To use Type K thermocouples** to measure up to 12 channels of temperature, plug one to 12 of them (two are supplied, others are available for purchase from General) into the jacks (callout 1-9 of Fig. 1) on the top of the thermometer. Make sure jack T1 is occupied. Because Type K is the instrument’s default thermocouple type, plugging in the thermocouples will instantly produce eight display readings. Any of the eight channels that are not used will show the overrange reading “- - - -”.

To show the other four of the 12 channels, press the Page ▼ button once. To return the display to Channels T1 through T8, press the Page ▼ button again.



**3. To use Type J, T, E, R or S thermocouples** to measure up to 12 channels of temperature, first press the Type ▲ button as many times as necessary until the letter of the thermocouple type you are using appears on the display. Then plug one to 12 of the optional accessories into the jacks on the top of the thermometer. As with Type K thermocouples, display readings are instantaneous. Use the Page ▼ button to toggle between displaying Channels T1 through T8, or Channels 9 through 12, as with Type K thermocouples.

Whenever the thermometer is in measurement mode, you can turn off the backlight (which is on by default) by briefly pressing (but not holding) the POWER/ESC button. To reactivate the backlight, briefly press the button again.

Whenever the instrument is in measurement mode, you also can check the current date and time by briefly pressing the SET (which has the words “Time check” stenciled to its right). Doing so causes both values to appear briefly at the lower left of the display.

### ***HOLDING AND STORING MEASUREMENTS***

- 1. To hold a measured value**, press the HOLD/NEXT button during the measurement. Doing so will cause the word “HOLD” to appear at the top of the display. Pressing the HOLD/NEXT button again releases the hold.
- 2. To record and recall readings**, press the REC/ENTER button while making measurements. This will make the term “REC” appear at the top of the display. Pressing the REC/ENTER button again, briefly, will make the term “MAX” appear to the right of “REC” and switch the display to the maximum value stored in memory during the last recording session. Pressing the REC/ENTER button again, briefly, will make the term “MIN” appear to the right of “REC” and switch the display to the minimum value stored during the last session.
- 3. To exit recording mode**, press the REC/ENTER button and hold it for at least three seconds, until the term “REC” disappears from the top line of the display. The display will then revert to showing the current reading.

### ***AUTOMATIC VS. MANUAL DATALOGGING***

The DT4208SD can automatically log data at a user-selected sampling period from 1 second 3,600 seconds (one hour). To view the sampling time that the instrument has been set up to use, press the LOGGER button (which has the words “Sampling time check” stenciled below it) once. To change the sampling time, perform Step 9 of the setup procedure.

- 1. To start automatic datalogging**, press the REC/ENTER button once. The top line of the display will then show the term “REC”. Pressing the LOGGER button at this point will make REC flash and add the flashing term “LOGGER” at the top right of the display. This indicates that the instrument is currently storing measured values and their time stamps in memory.
- 2. To pause automatic datalogging**, press the LOGGER button once; this action makes the flashing term “LOGGER” disappear from the top right of the display and changes the term “REC” from flashing to constant. Pressing the LOGGER button again resumes automatic datalogging.

- 3. To end automatic datalogging**, press the REC/ENTER button and hold it for at least two seconds. This action causes the “REC” message to disappear.
- 4. To log data manually**, set the sampling time to zero using Step 9 of the setup procedure. Then press the REC/ENTER button once. The display will show the term “REC” on the top line, a value in the middle, and below it the letter “P” on the left and a number from 1 to 99 on the same line to the right. The number indicates the position on the SD card that will be used to store manually logged data.

Now press the LOGGER button. This will cause the beeper to sound and the term “LOGGER” to briefly appear at the upper right of the display. As in automatic datalogging mode, in this mode the instrument is storing measurements and their time stamps on the SD card.

In manual datalogging mode, however, measurements are being stored continuously (with a sampling time of zero), and their locations on the card can be changed.

- 5. To change the storage location of manually logged data**, press the SET button once; this causes the “P” to disappear from the left side of the display and the value on its line to begin flashing. Once the flashing begins, you can use the Type ▲ and Page ▼ buttons to change the flashing value to any number between 1 and 99. Once you have chosen the storage location, press the REC/ENTER button to save the setting. This causes the value to stop flashing and the “P” to return.
- 6. To end manual datalogging**, press the REC/ENTER button and hold it for at least three seconds. This action causes the “REC” message to disappear from the top line of the display.
- 7. To execute the loop data recording function** (if the function was enabled during setup) press the REC/ENTER button while the instrument is in measurement mode. Doing so makes the term “REC” appear at the top of the display and prepares the instrument to log data during the specified daily period.
- 8. To pause loop data recording** during the specified period, press the LOGGER button once. This will make the term “REC” stop flashing. Pressing the LOGGER button again resumes loop data recording.
- 9. To end loop data recording**, press the REC/ENTER button and hold it for at least three seconds. This causes the “REC” term to disappear from the display and ends datalogging.

# TRANSFERRING DATA FROM THE SD CARD TO A COMPUTER

After automatic or manual datalogging of measurements, or loop data recording, remove the SD card from the instrument and plug it into your computer either directly (if it has an SD card slot) or through an SD card reader.

Because the files containing time-stamped data logs have the file extension .xls, they open in Microsoft's Excel application. Figures 2 and 3 show two kinds of Excel presentation: a data-only screen and a graphics-only screen.

Place	Date	Time	T1 Unit	T2 Unit	T3 Unit	T4 Unit	T5 Unit	T6 Unit	T7 Unit	T8 Unit	T9 Unit	T10 Unit	T11 Unit	T12 Unit
1	2008/1/16	175935	24.6 T1kTemp C	24.6 T2kTemp C	24.7 T3kTemp C	24.6 T4kTemp C	24.6 T5kTemp C	24.6 T6kTemp C	24.7 T7kTemp C	24.5 T8kTemp C	24.7 T9kTemp C	24.3 T10kTemp C	24.9 T11kTemp C	24.5 T12kTemp C
2	2008/1/16	175937	24.6 T1kTemp C	24.6 T2kTemp C	24.7 T3kTemp C	24.6 T4kTemp C	24.6 T5kTemp C	24.6 T6kTemp C	24.7 T7kTemp C	24.5 T8kTemp C	24.7 T9kTemp C	24.3 T10kTemp C	24.6 T11kTemp C	24.5 T12kTemp C
3	2008/1/16	175939	24.6 T1kTemp C	24.6 T2kTemp C	32.9 T3kTemp C	24.6 T4kTemp C	24.6 T5kTemp C	24.6 T6kTemp C	29.8 T7kTemp C	24.5 T8kTemp C	24.7 T9kTemp C	24.3 T10kTemp C	31.6 T11kTemp C	24.5 T12kTemp C
4	2008/1/16	175941	25.7 T1kTemp C	24.6 T2kTemp C	29.6 T3kTemp C	24.6 T4kTemp C	24.6 T5kTemp C	24.6 T6kTemp C	26.6 T7kTemp C	24.5 T8kTemp C	24.7 T9kTemp C	24.3 T10kTemp C	30 T11kTemp C	24.5 T12kTemp C
5	2008/1/16	175943	30.2 T1kTemp C	24.7 T2kTemp C	31 T3kTemp C	24.6 T4kTemp C	31.4 T5kTemp C	24.6 T6kTemp C	26.6 T7kTemp C	24.5 T8kTemp C	24.7 T9kTemp C	24.3 T10kTemp C	31.4 T11kTemp C	24.5 T12kTemp C
6	2008/1/16	175945	27.5 T1kTemp C	24.8 T2kTemp C	32.1 T3kTemp C	24.7 T4kTemp C	31.4 T5kTemp C	24.6 T6kTemp C	26.6 T7kTemp C	24.5 T8kTemp C	24.7 T9kTemp C	24.3 T10kTemp C	31.4 T11kTemp C	24.6 T12kTemp C
7	2008/1/16	175947	26.2 T1kTemp C	24.8 T2kTemp C	32.1 T3kTemp C	24.7 T4kTemp C	33.7 T5kTemp C	24.7 T6kTemp C	26 T7kTemp C	24.5 T8kTemp C	24.9 T9kTemp C	24.3 T10kTemp C	32.1 T11kTemp C	24.6 T12kTemp C
8	2008/1/16	175949	25.5 T1kTemp C	24.9 T2kTemp C	30.1 T3kTemp C	24.7 T4kTemp C	30.5 T5kTemp C	24.7 T6kTemp C	26 T7kTemp C	24.5 T8kTemp C	25.1 T9kTemp C	24.3 T10kTemp C	30.9 T11kTemp C	24.6 T12kTemp C
9	2008/1/16	175951	25.5 T1kTemp C	24.9 T2kTemp C	28.3 T3kTemp C	24.7 T4kTemp C	28.1 T5kTemp C	24.8 T6kTemp C	26 T7kTemp C	24.5 T8kTemp C	25.3 T9kTemp C	24.3 T10kTemp C	28.2 T11kTemp C	24.7 T12kTemp C
10	2008/1/16	175953	25.5 T1kTemp C	24.9 T2kTemp C	27.4 T3kTemp C	24.7 T4kTemp C	26.9 T5kTemp C	24.8 T6kTemp C	26 T7kTemp C	24.5 T8kTemp C	25.4 T9kTemp C	24.3 T10kTemp C	28.2 T11kTemp C	24.8 T12kTemp C
11	2008/1/16	175955	25.4 T1kTemp C	24.8 T2kTemp C	27.4 T3kTemp C	24.8 T4kTemp C	26 T5kTemp C	24.8 T6kTemp C	25.4 T7kTemp C	24.6 T8kTemp C	25.4 T9kTemp C	24.3 T10kTemp C	24.8 T11kTemp C	24.8 T12kTemp C
12	2008/1/16	175957	25.3 T1kTemp C	24.8 T2kTemp C	26.5 T3kTemp C	24.8 T4kTemp C	26 T5kTemp C	24.8 T6kTemp C	25.4 T7kTemp C	24.6 T8kTemp C	25.4 T9kTemp C	24.3 T10kTemp C	27.3 T11kTemp C	24.8 T12kTemp C
13	2008/1/16	175959	25.2 T1kTemp C	24.8 T2kTemp C	26.5 T3kTemp C	24.8 T4kTemp C	26 T5kTemp C	24.8 T6kTemp C	25.4 T7kTemp C	24.6 T8kTemp C	25.3 T9kTemp C	24.3 T10kTemp C	26.6 T11kTemp C	24.8 T12kTemp C
14	2008/1/16	180001	25.1 T1kTemp C	24.8 T2kTemp C	25.9 T3kTemp C	24.8 T4kTemp C	25.4 T5kTemp C	24.8 T6kTemp C	25.3 T7kTemp C	24.6 T8kTemp C	25.3 T9kTemp C	24.3 T10kTemp C	26.6 T11kTemp C	24.8 T12kTemp C
15	2008/1/16	180003	25 T1kTemp C	24.8 T2kTemp C	25.9 T3kTemp C	24.8 T4kTemp C	25.4 T5kTemp C	24.8 T6kTemp C	25.2 T7kTemp C	24.6 T8kTemp C	25.2 T9kTemp C	24.3 T10kTemp C	26.6 T11kTemp C	24.8 T12kTemp C
16	2008/1/16	180005	24.9 T1kTemp C	24.8 T2kTemp C	25.9 T3kTemp C	24.8 T4kTemp C	25.4 T5kTemp C	24.8 T6kTemp C	25.2 T7kTemp C	24.6 T8kTemp C	25.2 T9kTemp C	24.3 T10kTemp C	25.9 T11kTemp C	24.8 T12kTemp C
17	2008/1/16	180007	24.9 T1kTemp C	24.7 T2kTemp C	25.3 T3kTemp C	24.8 T4kTemp C	25.3 T5kTemp C	24.8 T6kTemp C	25 T7kTemp C	24.6 T8kTemp C	25.2 T9kTemp C	24.3 T10kTemp C	25.9 T11kTemp C	24.8 T12kTemp C
18	2008/1/16	180009	24.9 T1kTemp C	24.7 T2kTemp C	27.8 T3kTemp C	24.8 T4kTemp C	25.2 T5kTemp C	24.8 T6kTemp C	25 T7kTemp C	24.6 T8kTemp C	25.1 T9kTemp C	24.3 T10kTemp C	28.2 T11kTemp C	24.8 T12kTemp C
19	2008/1/16	180011	24.9 T1kTemp C	24.8 T2kTemp C	27.8 T3kTemp C	24.8 T4kTemp C	31 T5kTemp C	24.8 T6kTemp C	25 T7kTemp C	24.6 T8kTemp C	25.2 T9kTemp C	24.3 T10kTemp C	28.2 T11kTemp C	24.8 T12kTemp C
20	2008/1/16	180013	24.9 T1kTemp C	24.9 T2kTemp C	27.8 T3kTemp C	24.8 T4kTemp C	26.5 T5kTemp C	24.8 T6kTemp C	25.1 T7kTemp C	24.6 T8kTemp C	25.2 T9kTemp C	24.3 T10kTemp C	28.2 T11kTemp C	24.8 T12kTemp C
21	2008/1/16	180015	25.1 T1kTemp C	25 T2kTemp C	27.9 T3kTemp C	24.8 T4kTemp C	26.5 T5kTemp C	24.9 T6kTemp C	26.6 T7kTemp C	24.7 T8kTemp C	25.2 T9kTemp C	24.3 T10kTemp C	30.2 T11kTemp C	24.8 T12kTemp C
22	2008/1/16	180017	25.1 T1kTemp C	25.1 T2kTemp C	28 T3kTemp C	24.9 T4kTemp C	26.5 T5kTemp C	24.9 T6kTemp C	26.6 T7kTemp C	24.9 T8kTemp C	25.3 T9kTemp C	24.3 T10kTemp C	32.7 T11kTemp C	24.9 T12kTemp C
23	2008/1/16	180019	25.2 T1kTemp C	25.1 T2kTemp C	30.2 T3kTemp C	24.9 T4kTemp C	26.5 T5kTemp C	25 T6kTemp C	25.8 T7kTemp C	25 T8kTemp C	25.4 T9kTemp C	24.3 T10kTemp C	31 T11kTemp C	25.2 T12kTemp C
24	2008/1/16	180021	25.2 T1kTemp C	25.1 T2kTemp C	29.1 T3kTemp C	24.9 T4kTemp C	26.2 T5kTemp C	25.1 T6kTemp C	26.6 T7kTemp C	25.2 T8kTemp C	25.4 T9kTemp C	24.3 T10kTemp C	31 T11kTemp C	25.4 T12kTemp C
25	2008/1/16	180023	26.2 T1kTemp C	25.2 T2kTemp C	28.4 T3kTemp C	25 T4kTemp C	26.1 T5kTemp C	25.4 T6kTemp C	26.5 T7kTemp C	25.3 T8kTemp C	25.4 T9kTemp C	24.3 T10kTemp C	29.4 T11kTemp C	25.5 T12kTemp C

Fig. 2. Typical Excel data-only screen

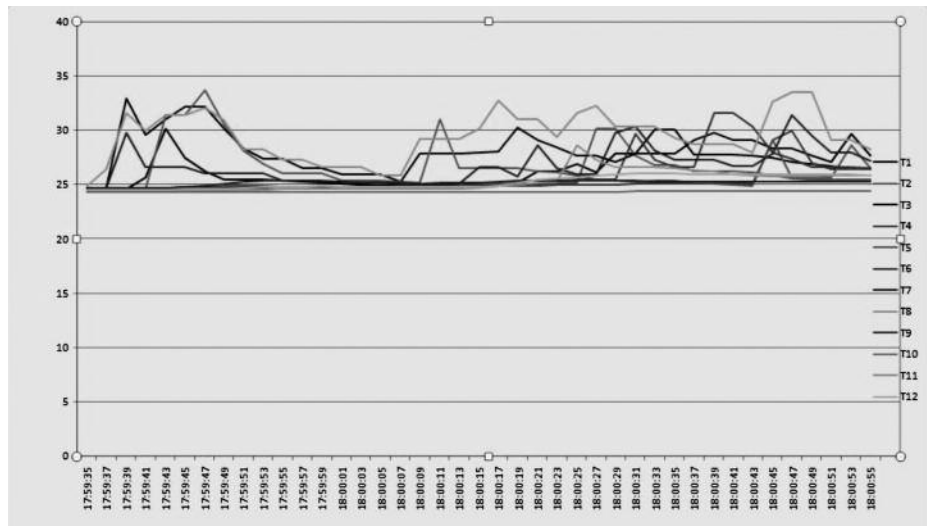


Fig. 3. Typical Excel graphics-only screen

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## SPECIFICATIONS

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Embedded microcontroller	Custom one-chip LSI device
Display type	Liquid-crystal with green backlight
Display size	2.05 x 1.5 in. (52 x 38mm)
Parameter measured	Temperature (in °F or °C)
Measurement range	With Type K thermocouples: -148° to 2372°F (-100° to 1300°C) With Type J: -148° to 2102°F (-100° to 1150°C) With Type T: -148° to 752°F (-100° to 400°C) With Type E: -148° to 1652°F (-100° to 900°C) With Type R: 32° to 3092°F (0° to 1700°C) With Type S: 32° to 2732°F (0° to 1500°C)
Measurement accuracy	With Types K, J, T and E thermocouples: ± (0.4% of reading + 2.0°F max) With Types R and S: ±(0.5% of reading + 2.0°F)
Measurement resolution	With Types K, J, T and E thermocouples: 0.1° (F or C) below 1000°F, 1° (F or C) above 1000°F With Types R and S: 1° (F or C)
Sampling time options	0, 1, 2, 5, 10, 30, 60, 120, 300, 600, 1800 or 3600 seconds (0 seconds to 1 hour)
Settable parameters	Date, time, decimal point or comma decimal division, auto power off, beep sound, loop recording enable or disable, temperature unit, sampling time
Storable/recallable readings	Maximum, minimum
SD card capacity	1 GB to 16 GB
Operating temperature	32° to 122°F (0° to 50°C)
Operating relative humidity	0 to 85%
Power source	8 Alkaline “AA” batteries or optional 9-VDC AC adapter
Power consumption	7.5 mADC (normal operation, with backlight off and SD card not saving data); 25 mADC with backlight on and card saving data; 36 mADC with backlight on and card saving data
Dimensions	8.86 x 4.92 x 2.52 in. (225 x 125 x 64mm)
Weight	2.1 lb. (944g)

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## MAINTENANCE & TROUBLESHOOTING TIPS

Keep your probes and thermocouples clean.

When the icon  appears in the left corner of the display, it's time to replace the eight "AA" batteries that power the instrument (although measurements will remain valid for several hours after the low-battery indicator first appears). Replacing the batteries requires removing the two screws that hold the battery compartment cover in place, as explained in Step 1 of the setup procedure on page 6. After inserting fresh batteries in the correct orientation, tighten the screws to secure the cover.

If the meter "freezes" (like a computer) and buttons become unresponsive, try resetting the instrument by pushing the RESET button on its right side (callout 1-12 of Fig. 1) with the end of a paper clip.

Remove the batteries when storing the instrument for an extended period of time.

Do not drop or disassemble the instrument or immerse it in water.

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## OPTIONAL ACCESSORIES

Optional accessories available from General Tools & Instruments include:

- Type K thermocouples and probes of various diameters, types and measurement ranges
- 9VDC adapter for a 110V power supply

Types J, T, E, R and S thermocouples are widely available from industrial distributors.

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## WARRANTY INFORMATION

General Tools & Instruments' (General's) DT4208SD 12-Channel Temperature Recorder with Datalogging SD Card is warranted to the original purchaser to be free from defects in material and workmanship. Subject to certain restrictions, General will repair or replace this instrument if, after examination, the company determines it to be defective in material or workmanship for a period of one year.

This warranty does not apply to damages that General determines to be from an attempted repair by non-authorized personnel or misuse, alterations, normal wear and tear, or accidental damage. The defective unit must be returned to General Tools & Instruments or to a General-authorized service center, freight prepaid and insured.

Acceptance of the exclusive repair and replacement remedies described herein is a condition of the contract for purchase of this product. In no event shall General be liable for any incidental, special, consequential or punitive damages, or for any cost, attorneys' fees, expenses, or losses alleged to be a consequence of any damage due to failure of, or defect in any product including, but not limited to, any claims for loss of profits.

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## **RETURN FOR REPAIR POLICY**

Every effort has been made to provide you with a reliable product of superior quality. However, in the event your instrument requires repair, please contact our Customer Service to obtain an RGA (Return Goods Authorization) number before forwarding the unit via prepaid freight to the attention of our Service Center at this address:

General Tools & Instruments  
80 White Street  
New York, NY 10013  
212-431-6100

Remember to include a copy of your proof of purchase, your return address, and your phone number and/or e-mail address.





## **Specialty Tools & Instruments**

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DT4208SD User's Manual

Specifications subject to change without notice

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NOTICE - WE ARE NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

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