Using the KT-9

Pin mode

Taking a reading in the PIN mode (*read-zero* method) is a simple three step procedure:

1 Press the PIN against the sample.

2 Remove the KT-9 after the beep (it is measuring the *zero*).

3 The result is displayed after the second beep.

No-Pin mode

Taking a reading in the NO-PIN mode (*zero-read-zero* method) is a simple four step procedure:

1 Press the RIGHT button to take a zero reading in free-space.

2 Place the sensor head against the sample and press the RIGHT button again.

3 Remove the KT-9 after the beep (it is checking *zero* again).

4 The result is displayed after the second beep.

Core mode

Diameter selection – You will need to specify the core diameter in order to get a correct reading, as this diameter is critical to the geometric correction that the KT-9 performs. You will be automatically presented with the *d*: (diameter) menu when the CORE mode is selected from the *A*: (access) operating menu.

The core diameters are specified in 1 inch increments from 3 to 12 centimetres. A special value of *2.54* is used to specify a 1 inch diameter core.

Taking a reading in the CORE mode (*zero-read-zero* method) is a simple four step procedure:

1 Press the RIGHT button to take a zero reading in free-space.

2 Place the sensor head against the core sample and press the RIGHT button again.

3 Remove the KT-9 after the beep (it is checking *zero* again).

4 The result is displayed after the second beep.

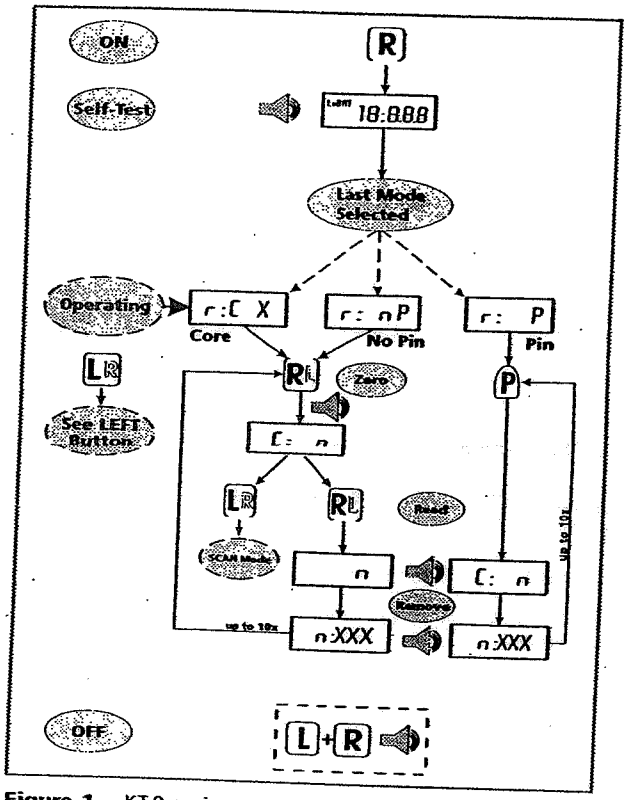

Figure 1 KT-9 main operating flowchart

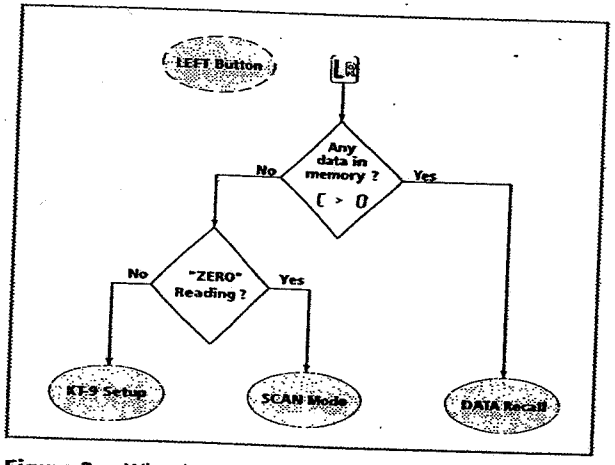

Figure 2 What happens when you press the LEFT button

Data recall and memory

Storing a measurement

Please refer to Figure 4 for a schematic representation of the data flow.

RIGHT 1 Press the RIGHT button after a reading is complete (usually, the second beep) to store the reading in memory. In the PIN mode, this is automatically done by taking the next reading.

LEFT 2 If you do not wish to store a particular reading, you must immediately press the LEFT button, before proceeding to take further readings.

The KT-9 can store up to **10** samples in its memory stack. The display after the tenth sample is taken will show:.

F :XXX

The *XXX* represents the value of the reading and the *F* indicates that the memory is now full.

If you continue to taking additional readings after the tenth, then the eleventh sample is moved into memory location ten. All the other samples are moved down one memory location, resulting in the first sample being lost.

Retrieving a measurement

You can retrieve prior readings (*in last to first order*) as follows:

LEFT 1 When there is more than one reading in memory, pressing the LEFT button recalls prior readings in a last to first order, i.e. popping values off a stack.

RIGHT 2 To continue recording data *without* averaging or clearing the stack, press the RIGHT button before or when you reach the average.

Automatic averaging

Please refer to Figure 4 to see where and when the averaging operation takes place.

LEFT 1 Press and *hold* the LEFT button for about 1 second to display the average of all the values in memory, e.g.

o : 12.7

LEFT 2 Alternatively, if you are scrolling down through the redings, after the first stored reading has been displayed, pressing the LEFT button one more time will display the average

RIGHT 3 Pressing the RIGHT button returns you to the measurement mode without clearing the memory stack.

Clearing the memory

Please refer to Figure 4 to see where and when the clearing operation takes place.

LEFT 1 After obtaining the average of the readings stored in memory, i.e. the display is in *o* : mode, pressing the LEFT button once more will clear the memory.

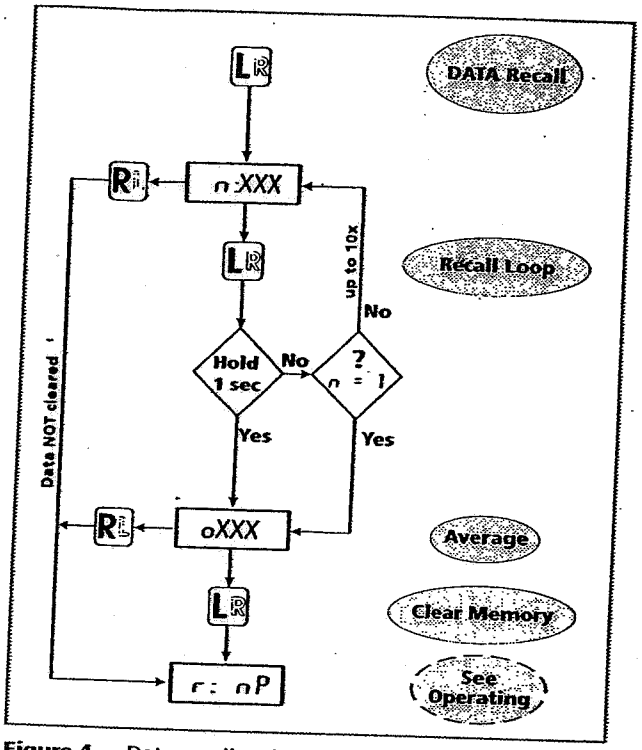

Figure 4 Data recall and averaging flowchart

Scan mode

This is a special sub-mode of the NO-PIN and CORE modes. Please refer to Figure 1 and Figure 2 to see where it is activated. In this mode, the KT-9 continuously samples at a rate of three times per second. The unit also emits an audio tone that is directly proportional to the measured susceptibility.

Taking a reading in the SCAN mode (*zero-read* method) is a simple three step procedure:

1 Clear the memory so that no data are stored.

2 Press the LEFT button while holding the sensor at least 30 cm from any magnetically susceptible bodies for a free-space reading.

3 A pulsing audio tone indicates that the SCAN mode is active. Move the sensor slowly along the sample to measure.

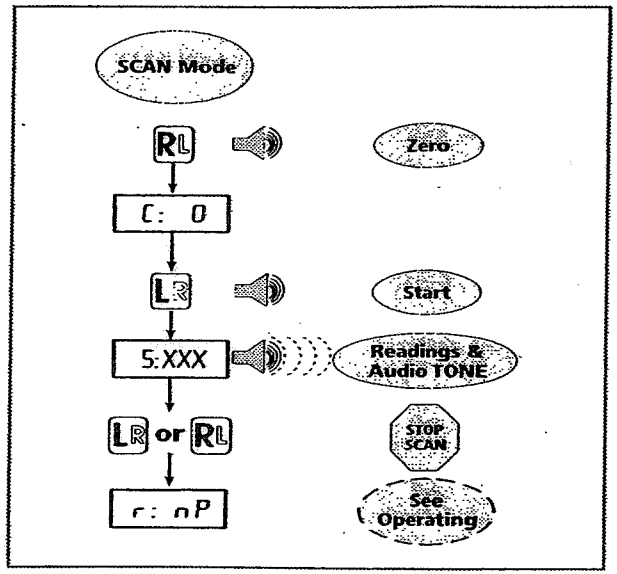

Figure 3 SCAN mode flowchart

If something goes wrong

The KT-9 has very sophisticated error checking capabilities. It can display a variety of error messages when it detects an incorrect function or fault. These error messages are:

Display	Meaning	Action
Err 1	Battery charge is below 5.3V	Replace the battery.
Err 2	Internal memory error	If this message persists, the unit must be returned for repair.
Err 3	Wrong button pushed.	Usually this means the PIN has been depressed while in the No-PIN mode.
Err 4	PIN not depressed long enough.	Repeat the measurement.
Err 5	Susceptibility is *below* -0.99×10^{-3}	Take a measurement against a known sample or calibration standard to verify that the KT-9 is operating properly.
Err 6	Susceptibility is *above* 999×10^{-3}	See above for Err 5
Err 7	Mode error. PIN used for No-PIN or CORE setting	Check if the mode operation is properly set.
Err 8	Communication error with computer during calibration.	1. Check the cable and connectors. 2. Contact EXPLORANIUM.
Err 9	Time out error: no data received from external computer	1. Check the cable and connectors. 2. Ignore, if no computer used.