

## Emissivity

Many non-contact thermometers and thermal imagers have an additional setting labelled 'Emissivity' that if used can improve the accuracy of the measurements.

Emissivity is a value that is derived from the ratio between the thermal energy given off by a material's surface to that given off by a perfect thermal radiator. Values range between 0 for a perfect reflector and 1 for a perfect radiator.

Before setting this, it is necessary to know the emissivity value of the surface which is being measured. These can be obtained from various tables and online sources. Most building materials lie in a range between 0.90 and 0.98.

For many general measuring applications it is acceptable to set the emissivity to a value of between 0.95 and 0.98.

If you are using several devices of the same type in the same place, then be sure to set each of them to the same emissivity factor.

The instruction manual for your particular device should be consulted for how to change this setting.

### Check the settings

It is easy for someone to inadvertently change one of the settings without you noticing. Always check that the settings are correct before every investigation use.

### Label each device

Once you have established the correction factor of a device write this on a small adhesive label and stick it on the device.

## Commercial calibration

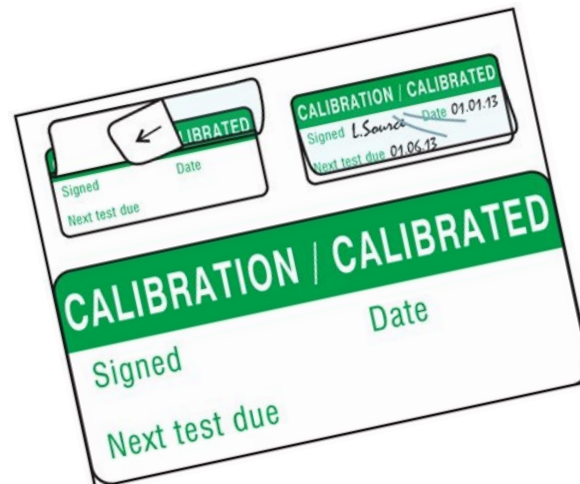
It is often possible to specify a calibration certificate when ordering a new item of measuring equipment. Some manufacturers include this and others will do so at additional cost when ordering.

In addition, there are a number of companies which offer a calibration service for measuring equipment. Some manufacturers also offer calibration services.

Commercial calibration is only necessary for those who wish to make measurements that need to be highly accurate. In reality it is unlikely that such a requirement will be necessary for the average investigator.

Commercial calibration can be costly and it must be carried out periodically to ensure that the device retains its calibration and accuracy.

The decision to use a commercial calibration service should be made based upon the requirements of the investigation and the accuracy of the data they require.



## Calibration

*Calibrating equipment ensures the greatest degree of accuracy. It also assists comparison of data from different devices.*

## Using Equipment

Guidance Notes for Investigators  
of Apparitions, Hauntings,  
Poltergeists and Similar Phenomena

## Investigation Quick Guide



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## Comparative calibration

If you are using more than one device of the same type, e.g., thermometers, it is worthwhile determining a correction value for each device. This step allows the data from different devices to be compared more easily.

Before beginning, make sure each device is set to use the same units of measurement.

One thermometer should be nominated as the master device and this should be used as the reference for all the remaining devices.

Place all of the thermometers together into a closed cardboard box and leave it for at least ten minutes.

Afterwards, quickly note the reading on the master and each other thermometer in turn. This will give you an indication of each device's variance from the master thermometer.

This information can then be used to provide a correction factor which can then be applied to the measurements that are obtained. The master thermometer needs no correction factor applied to its measurements.

A similar technique can also be applied to EMF meters and other similar environment measuring devices.

For greater accuracy comparisons can be carried out using a range of different environments, e.g. at higher or lower temperatures.

## Set the time

It is important that each device and every member of the investigation team is using the same time reference. A technique similar to comparative calibration should be used at the commencement of every investigation visit.

Nominate one device to be the master time-keeper, this can be a wristwatch or smartphone that is a reliable and accurate time-keeper. Smartphones are normally highly accurate as they take their time from a highly accurate network connection.

Synchronise every device which has a time-recording ability to the master time-keeper. This is especially important with devices such as data-loggers which use the time to determine the recording interval and that time-stamp the data. Don't overlook cameras, video cameras and any other devices which have or use an internal clock.

Check that each persons personal time-keeper is also synchronised with the master time-keeper.

## Analogue devices

Many analogue devices including thermometers and barometers will have a means for adjusting and calibrating their measurements.

This is usually by means of an external screw adjustment, which moves the indicator independent of the actual value. Using this allows the display to be accurately set for a known set of conditions.

### Calibrate regularly

Calibration needs to be carried out periodically. Check the calibration of your devices at least twice per year.

### Don't be complacent

Don't presume that your measurements will be accurate because the device has been calibrated. Check !



## Further Information

For those seeking more comprehensive information about calibrating equipment; the Society for Psychical Research has published a useful book.

***Using Equipment Guidance Notes for Investigators of Apparitions, Hauntings, Poltergeists and Similar Phenomena.***

The book is available in soft back format directly from the SPR website: [www.spr.ac.uk](http://www.spr.ac.uk) (books for sale) and also from Amazon in either printed or kindle formats.

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