# Reflected Energy Compensation
## What it is and when to use it

## What is reflected energy compensation?

Some of the infrared energy detected by an infrared temperature sensor is not emitted by the target, but is a reflection of its surroundings.

To ensure an accurate reading, the sensor needs to know the temperature of the source of that reflected energy. In most cases, this is the same as the sensor body temperature, so no compensation is required. However, in some applications, the source of the reflected energy is much hotter or colder than the sensor itself.
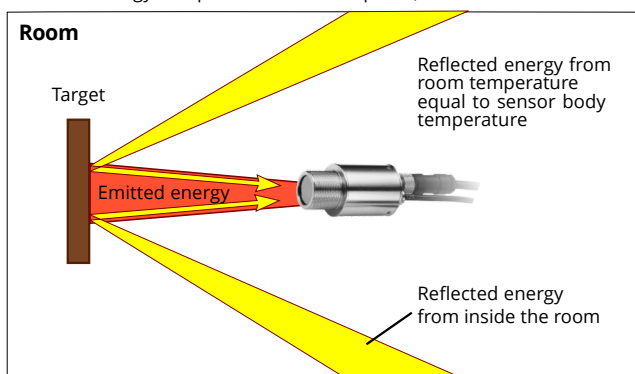
An adjustable setting for reflected energy compensation allows the user to enter the temperature of the surroundings, which in some applications can improve the accuracy of the measurement.

## When is reflected energy compensation not required?

In most applications, the surroundings of the target have the same temperature as the sensor itself (e.g. the sensor and target are in the same room).

In this case, the sensor automatically compensates for the reflected energy, so an adjustable setting for reflected energy compensation is not necessary.

Sensor and target are in the same room:
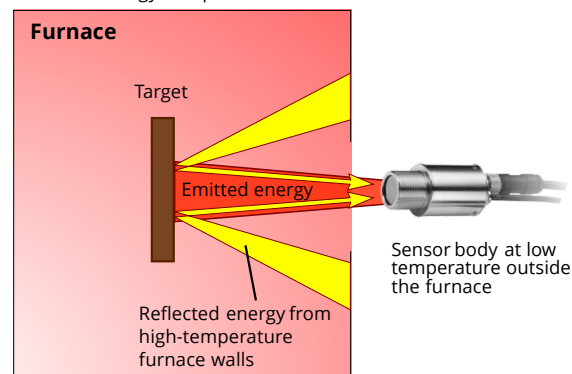Reflected energy compensation is not required, and should be disabled.



## When should reflected energy compensation be used?

If the temperature of the sensor is significantly different from that of the surroundings of the target, then reflected energy compensation should be enabled and set to the temperature of the surroundings of the target.

For example, if the target is inside a furnace and the sensor is outside, the reflected temperature is the temperature inside the furnace.

Target surroundings are significantly hotter or colder than the sensor: Reflected energy compensation should be enabled.
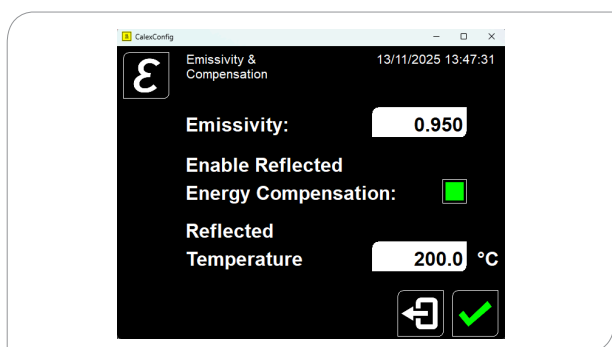


## How is reflected energy compensation enabled?

The following sensors have an adjustable reflected energy compensation setting. Here is how to find it on each of them:
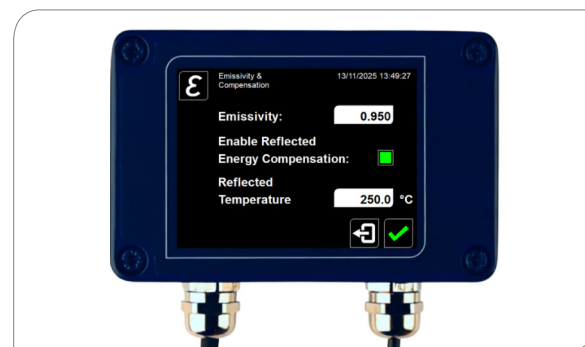
### PyroUSB (all models):

In CalexConfig, the Reflected Energy Compensation setting can be found in the settings menu.



### PyroMini models with touch screen interface:

First, unlock the display by entering the password, then go to the Settings screen, and then Emissivity & Compensation.



### PyroMini (-BB model) and all PyroMiniBus models:

The setting can be changed via the Settings menu of a Calex touch screen terminal, or directly via Modbus commands. Please see the sensor operator's guide for details of the Modbus registers to change.

If you have any questions about reflected energy compensation, please do not hesitate to contact Calex.