

CUES

Chilled Unit Energy Saver

Installation Guide

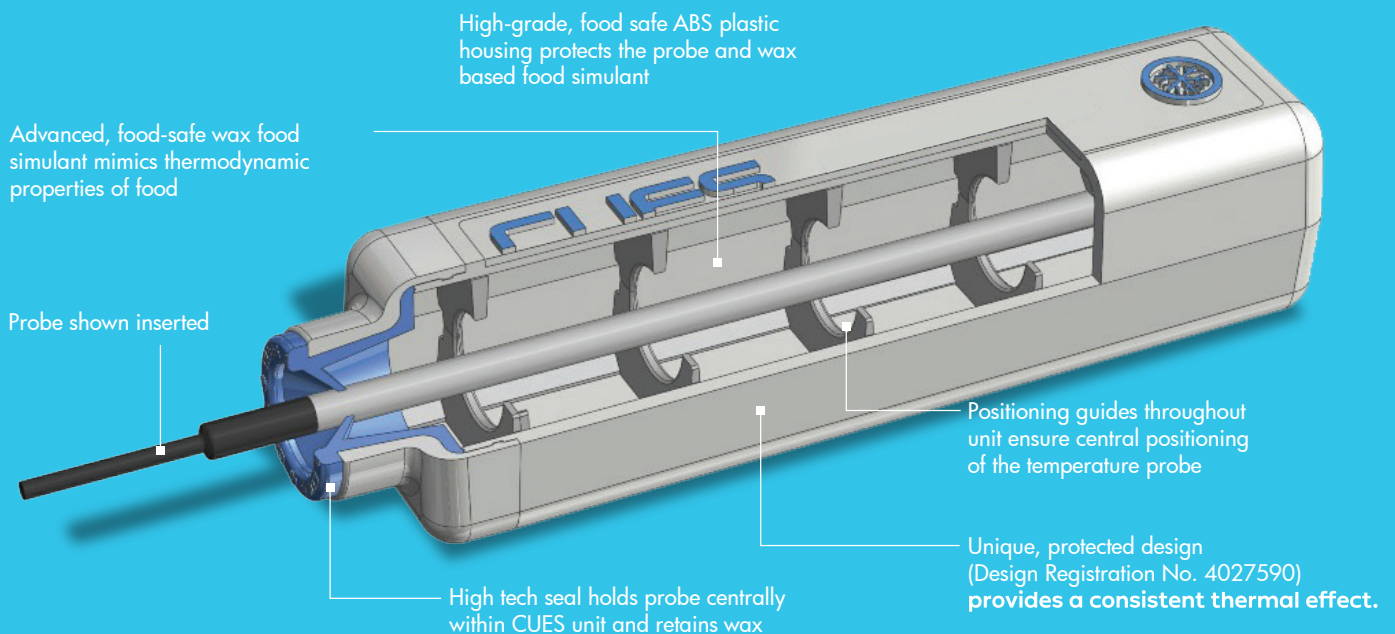
CUES, our Chilled Unit Energy Saver is designed to reduce the energy consumption of commercial refrigeration by providing conditions that mimic the temperature properties of food.

A refrigerator thermostat (probe or thermostator) monitors air temperature in the refrigerator. Opening of the cabinet door invariably causes the incoming warm air to momentarily raise the temperature in the refrigerator, causing the compressor to cycle, in an attempt to reduce the temperature.

CUES is scientifically engineered to simulate the properties of food. The food safe, lightweight, ABS housing surrounds a high tech wax, which simulates a typical food product in a pre-packed condition.

Patented* food safe wax food simulator design mimics thermal properties of food.

*Patent pending no: GB 1305236.0.



Installation Guide – CUES should only be installed by a qualified refrigeration engineer.

- 1 Check your target application is not listed on the unsuitable applications listed below*.
- 2 Locate the position of the sensors (thermistors / probes / capillaries) within the refrigerator. They will normally be on the inside of the refrigerator, behind an easily removable panel at the back or bottom of the unit.
- 3 Insert the refrigerator probe through the blue membrane cap at the end of the CUES unit (If necessary it may be helpful to pierce a very small opening in the membrane to ease entry). You should slide it all the way in; the internal guides will ensure that it is positioned within the centre of the internal chamber. The end stop will prevent you from pushing it in too far; however, you should avoid forcing the probe in too far as you may damage the refrigeration probe.



Installation Guide Continued

- 4 In some cases you will be able to position the CUES unit securely inside the housing without the need for additional fixing.
- 5 The refrigeration unit should now be working more efficiently, resulting in a lower core food temperature (typical temperature drop of 1 - 2°C) as a result of the fewer but longer, deeper cooling cycles.

Post Installation – only to be performed under supervision of your refrigeration engineer.

To achieve optimal energy saving results you should monitor the refrigeration temperature for a period of 1 – 2 weeks following installation.

- 6 In almost all cases you will now be able to adjust the refrigeration temperature setting upwards in order to achieve the original operating 'core' temperature. From experience this has proven to be an important beneficial element of the CUES installation, resulting in significant additional energy savings.

Temperature Mimicking Sensors are not intended to monitor the air temperature of the refrigerated location in which they are being used.

*Unsuitable applications:

- CUES is not suitable for applications where the thermostat is in direct contact with the evaporator.
- CUES should not be fitted to blast chillers, ice-makers or domestic units.
- CUES is not suitable for probes exceeding 10mm in diameter.



The Practicalities of Installing CUES

- 1 The thermostat must be inserted as far as possible into the CUES unit. The more of the body of the thermostat that is visible the less effective CUES will be.

- 2 When CUES is fitted you must allow time for the contents of the CUES unit to mimic the food temperature. As the CUES is most likely to be at the external ambient temperature the compressor will be forced to run until CUES reaches the target food temperature. In the short term this will cause an increase in compressor run time and therefore an increase in electricity consumption.

- 3 CUES will have a greater effect on refrigeration units where the thermostat is positioned close to the door. This is simply because the thermostat will be influenced to a greater extent by the ambient air rushing in when the door opens.

- 4 If the thermostat is positioned furthest away from the door CUES will have a lesser effect.

- 5 When performing a trail log the following information before CUES is installed.
 - A. Working hours
 - B. Contents of refrigerator
 - C. Stock movement
 - D. How many times the door opens/closes during the test
 - E. Ambient temperature surrounding the refrigerator
 - F. Electricity usage

- 6 When CUES is installed ensure points A to E are similar enough to make a real comparison.

- 7 Allow 24 hours for the CUES temperature to stabilise before starting any tests.

- 8 We recommend data is logged for a full working week without and with CUES as the refrigerator usage will usually change from day to day.

- 9 Thermostats can be inaccurate by as much as 5% and still keep the refrigerator within its design temperature range. To overcome this we suggest that a CUES Food Block Probe is placed with the refrigerator contents. After 24 hours the probe would have stabilised and the real food temperature will be displayed. This may enable you to reset the thermostat by the difference between the thermostat setting and the true reading given by the probe. The CUES Food Block Probe is certified accurate by UKAS*