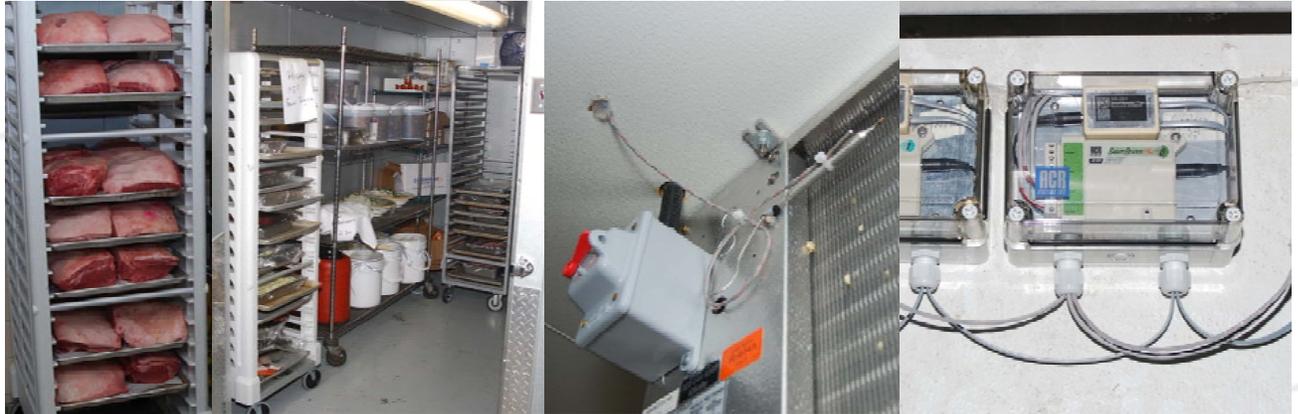


Monitor Cold Storage

Fridges and freezers are relied on to keep food product safe for consumption. When these systems fail, temperature records are crucial for determining health risk and preventing inventory shrinkage.

What is needed is 24/7 monitoring that does not rely on infrastructure such as power or computers to record data. This can also benefit the organization by giving an alert before a loss occurs and provide definitive proof of an incident's severity. It can also help you decide whether product is spoiled. A self-contained 10-year battery powered data logger makes this possible, with the added benefit of providing a time and date stamped audit trail required by public health departments.



Due diligence prevents food-borne illness and can ultimately help save reputations. It is prudent to protect both the general public and business unit from suffering the consequences of negligence.

Challenge:

In a busy work place, routine tasks can be overlooked, especially when relying on casual labor. Managers are responsible for having contiguous records of storage temperatures, ensuring that public health guidelines are adhered to and losses are prevented. It is incumbent on staff to perform these tasks with consistency - the challenge is making sure that the temperature data is accurate and reliable, as it is critical for taking action. At the same time, any automation of the process needs to reduce rather than increase burden to help make the enterprise more efficient.

Are you faced with having to:

- make quick decisions affected by heavy work load?
- provide a complete record of storage temperatures for inspection?
- find the most comprehensive solution at the lowest cost?

Most integrated temperature recording relies on system power and does not record during power failures, or only for limited time based on UPS. They require IT infrastructure to take readings from distributed I/O, risking data loss. Wireless systems require individual batteries to be replaced at regular intervals, with no guarantee they will be working at the critical moment.

Solution:

Store temperatures at the source, eliminating the potential for gaps in data caused by infrastructure failure. Use multi-channel Temperature Data Loggers to take advantage of economical sensors and the ganging up of localized monitoring points on one device. Alert thru telephone connection; alternatively provide signal to a monitored alarm or building management system.

Use Thermistor (Thermal Resistor) sensors, tuned to specific temperatures, to give accurate readings for specific ranges. Coolers and freezers are required to stay below operational thresholds in order to keep product safely stored. Brief excursions can be tolerated - the amount of time the value is out of range before alarming can be set to prevent false reporting - 20 minutes for example.



For convenience sake, a wired network of data loggers is connected to a host computer thru direct Interface Cable. Alternatively the Data Loggers can be accessed remotely over a phone line using a modem, or over the internet. This allows personnel to connect to the site using a computer running TrendReader software to download the data, producing a graph of the current situation.

Table 1 – Typical Tolerances

Application	Measurement Range	Threshold
Cooler	0 to 40°C (32 to 104°F)	8°C (46°F)
Freezer	-20 to 20°C (-4 to 68°F)	-8°C (18°F)
Deep Freeze	-40 to 0°C (-40 to 32°F)	-18°C (0°F)

Thresholds depend on regional guidelines - values given are typical.

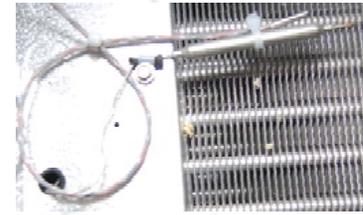
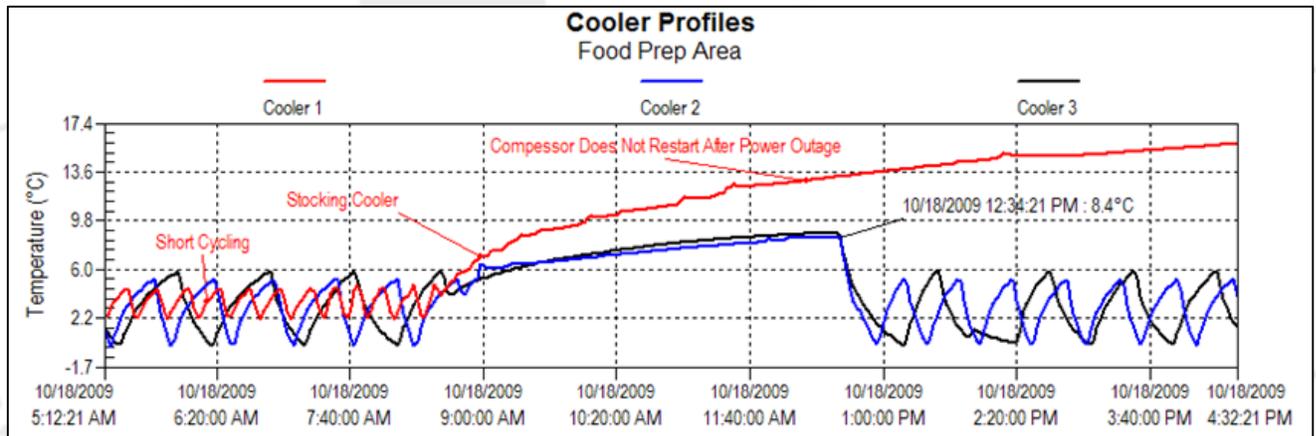


Figure 1 – Thermistor

It is important that the sensor cable be looped so that condensation does not collect on the probe tip – see Figure 1.



The example scenario above is taken after a power failure when a refrigeration unit may not come back on line, as seen for Cooler 1. In this case, the problem could have been prevented by realizing that before the outage the unit was Short Cycling in comparison to the adjacent units. Coolers 2 & 3 kept the stored goods within acceptable limits, confirmed by the graph and time/date stamped reading of 8.4°C. All the readings are available for printout or export to other programs, either by saving file or cut/paste into clip board.

Deploying the data logger and downloading the information is easy...

IMPORTANT: ALWAYS WEAR SAFETY GLASSES WHEN USING ROTATING TOOLS

1. Drill 3/8in (10mm) hole to feed the sensor into the cold zone, tie-wrap into position and fill hole with RTV silicone – connect to Data Logger.
2. Double-click on the corresponding Icon in TrendReader software installed on your computer, to view the real-time readings, setup the channel configuration and sample interval, then disconnect.
3. On a periodic basis backup the Data Logger to see the recorded data in graphical form and print in tabular form for inspection audits.

TIP: For Remote Telemetry, refer to Networking and Remote Communication Overview Application Document 00-0657.

Ordering Information:

Equipment	Description	Catalog No.
SRP1-32K	Data Logger, Thermistor, SmartReader Plus 1, 1 Cooler/Freezer for 400 days	01-0008
SRP8-32K	Data Logger, Thermistor, SmartReader Plus 8, up to 7 Coolers for 100 days	01-0015
SRP8-128K	Data Logger, Thermistor, SmartReader Plus 8, up to 7 Coolers for 400 days	01-0129
ET-016	Probe, Thermistor, Cooler, -35° to 95°C (-30° to 200°F), 6m (20ft)	35-0001
ET-004-GP	Probe, Thermistor, Freezer, -60° to 55°C (-75° to 130°F), 6m (20ft)	35-0028
WB-100	Enclosure, Weatherproof Box, 18x13x10cm (7.0x5.0x4.0in), 1 per Logger	01-0057
WBC-100	Strain Relief, Enclosure, Feed Thru, up to 4 Cables (Sensor and/or Comm.)	21-0011
TR-Serial	Software, TrendReader, CD & IC101 Interface Cable	01-0225
TR-USB	Software, TrendReader, CD & IC102 Interface Cable	01-0226

Session days based on logging interval of 1 hour (Graph example set at 2min interval for troubleshooting purposes).

