



DAS - Data Acquisition System

The industry's most powerful independent data recorder.



- Provides independent documentation of cargo temperatures during transport
- Developed and tested to comply with all European temperature recording requirements
- Compatible with TracKing, Thermo King's web enabled temperature management tool
- Fully interactive with most truck and trailer controllers

Independent temperature recording.

Thermo King's DAS is a secure, totally independent temperature recorder that keeps a precise record of cargo temperatures from the time the cargo is loaded to final delivery. It includes its own memory and internal real-time clock, and can accommodate up to six independent, directly connected temperature sensors.

At the same time, the DAS connects to the refrigeration unit's controller to provide additional data.

Compatible with both TrackKing and Wintrac, data can be downloaded in an easy way.

TrackKing



Multiple benefits for you and your customers.

Totally independent recorder

The DAS functions totally independently of the refrigeration unit. It does not rely on the unit's built-in controller for temperature recording, but instead provides an independent record of temperatures.

Meets all current regulatory requirements

Designed and tested to meet all current global regulations for temperature monitoring and recording, including:

- 37/2005 and 852/2004 European regulations
- EN 12830 - European Norm for temperature recording
- IP-65 requirements for Europe
- CE requirements for Europe
- Year 2000 (Y2K) compliant
- HACCP compliant



Secure, tamper proof data

The DAS has no keypad, buttons or switches. It is totally self-contained and totally independent. It continues recording the temperatures, even

when the refrigeration unit is shut down. The temperature data accumulated and stored in memory can't be tampered with, erased or lost. Data is stored indefinitely and remains secure until the 512K memory is full, at which time new data will begin to overwrite the oldest data in the memory.

Records up to six different temperatures

The DAS can accommodate up to six independent temperature sensors, allowing you to log temperatures in up to six different locations in the truck or trailer. Times and dates are recorded with the temperatures, along with selected supportive data for the unit controller.

Connecting the DAS to TrackKing, current temperature real time reading of the independent temperature sensors is possible.

Over one year of data storage

The amount of data that can be stored in the DAS will depend on the number of sensors being used and how often temperatures are recorded. For example, the data can be preserved for over one year in a basic configuration of 2 sensors recording at 15-minute intervals.

Available on truck or trailer

The DAS is available on new TK truck and trailer micro-processor equipped units. It is also available as a retrofittable part for your *SMART REEFER* or *MAX* trailer units.

Interactive with host unit controller.

Connects to unit controller for supporting unit information

While the DAS is a stand-alone temperature recorder, it also connects to the refrigeration unit's microprocessor controller. By connecting to the unit controller, you can obtain supporting data such as set point, mode of unit operation, unit temperatures, alarm signals, door openings, etc., which can be helpful in understanding temperature fluctuations.

Easy to operate

If desired, the unit controller's keypad and display can be used to view the current DAS temperatures, input a "start-of-trip" marker or initiate a printout.

Opportunity to reduce operating costs

By maintaining accurate temperature and operational data on every refrigeration unit and every trip in your fleet, and by reviewing the information over time, you may be able to spot recurring trends, inefficiencies or situations that can be either capitalised upon or corrected to reduce your overall operating costs.

By using DAS together with Tracking, your data becomes available whenever you want, wherever your refrigeration unit is.



The DAS gives you all this and more.

Easy to set-up parameters and data download

The DAS is compatible with easy to use Thermo King Wintrac software. This software was developed to operate in conjunction with Thermo King data recorders.

In addition to making it easy for you to set data parameters, it also provides you with considerable flexibility in displaying the data in graphic form.



- Quick, easy set-up and/or viewing of temperature parameters
- Convenient setting of trip headers for "start of trip"
- Fast, easy downloads for "end of trip"
- Flexible viewing of data in graph or table form

The DAS is compatible with TrackKing, Thermo King's web enabled GPRS / GPS temperature management tool.

- Real time current temperature data from DAS independent temperature sensors
- Wireless over-the-air DAS data downloads
- Easy to use web enabled system (www.tktracking.com)
- Current position of your refrigeration unit



Easy data retrieved

A plug-in communications port makes it easy to output the data to a printer to obtain data in tabular form.

A second communications port is available to be used with a PC (in tabular or graph form) or can be used for wireless interaction and data retrieval using TrackKing.



Opportunity for increased revenues

When your refrigeration units are equipped with the DAS, you can provide your customers with increased assurance that their cargo will be delivered in top quality condition. This may allow you to command a higher price for your service.

Opportunity to lower cost of liability insurance

Because the DAS gives you a documented record of on-board temperature conditions, you may be able to lower your liability insurance costs.

Accurate temperature documentation.

Protect your profits with accurate temperature documentation.

Today, maintaining precise temperatures for perishable goods through the entire processing and distribution chain is more critical than ever. From the time produce is picked in the field, or from the instant processing commences for meat, fish or poultry, proper maintenance of temperature is being demanded throughout the food chain. What's more, your customers, their customers and government agencies are requiring that you have the ability to accurately and independently document those temperatures. The DAS data logger will protect your business for years to come.



DAS Specification

Description:

Stand-alone data recorder with independent memory and independent real-time clock which can accommodate up to 6 independent temperature sensors. The DAS can interact with most Thermo King truck and trailer micro-processor controllers and is fully retrofittable with most current truck and trailer models. The DAS conforms to all global technical and safety standards, including EN 12830, rating IP 65, EN 50081-1, EN 50082-2, EN regulation 37/2005, EN regulation 852/2004 CE-Mark and HACCP.

Dimension:

The data logger's approximate dimensions are 127 mm x 127 mm x 41 mm (5 x 5 x 1.6 inches) to easily retrofit into available compact space in the control box or an alternative suitable location.

Housing:

Durable, robust polycarbonate black case with translucent cover, mountable within unit control box.

Operating Voltage:

Standard 12 volt dc nominal automotive battery/charging system (11 to 16 vdc)

Temperature Monitoring

Recording range:

-35°C to 55°C (-31°F to 131°F), exceeds EN requirements

Operating range:

-40°C to 85°C (-40°F to 185°F), exceeds EN requirements

Accuracy

Exceeding European requirements with less than +/- 1°C.

Printed report resolution

Less than .5°C resolution

Standard recording format:

Temperature recorded and stored in 15 minute intervals for single and multi-temperature applications

Sensors:

Temperature:

Up to 6 independent sensors to handle single and multi-temperature zones. Length of probes can extend to 18 meters (60 feet) using standard 16 to 18 gauge insulated wire for easy and durable installation.

Setpoint:

Able to record setpoint and alarm codes from the unit microprocessor controller to track temperature management against setpoint. These functions are performed without effecting data logger's independent recording capabilities and without affecting the thermostat's accuracy or control of the refrigeration unit.

Storage:

Capacity:

Four times the memory capacity (512K) of other data loggers, which allows for storage of temperature recordings, modes of operation, alarms, etc.

Example:

- In excess of 1 year with 2 sensors in 15 minute interval logging

Stored data includes:

- Setpoint
- Unit operating mode
- Time and date
- Temperature
- Active alarms
- Defrosts
- Optional events such as door openings

Time Management:

Accurate time is based on an independent, battery backup, "real time" clock

Sample Logging Intervals:

Standard 15 minute intervals, but can be set for each trip at intervals of 1, 2, 5, 10, 15, or 30 minutes or 1, 2 or 4 hours.

Interfaces:

Thermo King Microprocessor Controllers:

- Truck: μ P-T
TTMT
- Trailer: TG-VI
 μ P-V
 μ P-VI
MP-CR
Multi-temperature μ P-IV

Digital Display of DAS sensor temperature:

Available when connected to compatible Thermo King unit microprocessor controllers through the unit controller display and keypad.

Standard Printer Output:

A printer may be connected to the 6 pin download port. The interface speed is 2400 baud with a resolution of 0.1°C (0.1°F).

Personal Computer Download:

PC running Wintrac software for Windows may be directly connected for data download via a cable at 38,200 baud.

Wireless Data Download:

Over-the-air data download and real time current temperature reading possible using TracKing.

Additional external capability (optional):

- 4 Inputs
- 2 Outputs

Compliance:

Designed and tested to meet all prevalent global data recording requirements including:

- EN regulations 37/2005 and 852/2004
- European requirement EN-12830
- Rating IP 65 (enclosure protection)
- EN 50081-1 & EN 50082-2
- CE compliant
- HACCP
- Y2K compliant



Providing equipment and services to manage controlled-temperature environments for food and other perishables, our Climate Control Technologies sector encompasses both transport and stationary refrigeration solutions. Our product brands include Thermo King®, a world leader in transport temperature control system and Hussmann®, a manufacturer of refrigeration and food merchandising equipment.

www.thermoking.com www.hussmann.com www.ingersollrand.com

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