

Temperature Solutions



- **Circular Paper Chart Recorders**
- **Electronic Data Loggers**
- **Temperature Alarms**
- **nEDi/ThermoBoxes**
- **Large Displays**



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Mini-Chart Temperature Recorders

STANDARD

- Flexible Bulb & Capillary Sensor
- Chart Rotation 12 / 24 Hour, 7 / 31 Day
- 4 year Battery Life (typical)
- Door Lock (2 Keys)
- Simple Installation (no wiring)
- Panel or Wall Mount



Mini-Chart temperature recorders are a popular choice for monitoring and recording storage temperatures in a wide range of applications.

They provide a clear, permanent temperature record, which is easy to read.

The paper disks are convenient to store and provide a continuous record of temperature history.

Low cost consumables make the Mini-chart an attractive solution to meeting “**Due Diligence**” requirements.

General Technical Specification

Dimensions	144 x 144 x 67 mm
Panel Cut-out	138 x 138 mm
Capillary Length	2.5 M or 5.0 M (2.5 Standard)
Sensor dimensions	76 long x 9mm Diameter
Pen life	6 months (typical)
Accuracy	+ / - 1.5%
Chart Motor Battery	Lithium AA (typical life 3-4 years)
Chart Rotation	12 / 24 Hour, 7 / 31 Day (Factory Set)
Chart Diameter	125 mm

Calibration

Calibration Certificates to U.K.A.S traceable standards can be supplied with all temperature instruments.

On site calibration services can be offered where required.

Telephone

01462 638200

Consumables

Thousands of charts and pens available for all makes of recorder!

Mini-Chart Temperature Recorders

ELECTRICAL

- **PT 'Class A' Sensor, RH or Process Input**
- **Chart Rotation 12 / 24 Hour, 7 / 31 Day**
- **Selectable Pen Response Time (Factory Set)**
- **Hi Lo Alarms (See Table)**
- **Door Lock (2 Keys)**
- **Panel or Wall Mount**



This range of recorder uses PT100 or PT1000 electrical temperature sensors.

Humidity, Pressure and Process inputs i.e. dc Voltage or Current can also be specified.

They are popular in applications where the recorder is mounted remotely from the sensor or where a particular pen response is required.

They can be ordered with various pen response times to record "product temperature"

They are powered from either 240 Vac, or 12 / 24 Vdc. Full battery backup is available as an option.

General Technical Specification

Dimensions	144 x 144 x 67 mm
Panel Cut-out	138 x 138 mm
Sensor Type	PT100, PT1000, RH, or dc Current / Voltage
Number of pens	1 or 2
Chart Rotation	12 / 24 Hour, 7 / 31 Day
Accuracy	+ / - 1.5 %
Pen life	6 months (typical)
Chart Diameter	125 mm
Power Supply	240 / 110Vac, or 12 / 24Vdc

Single Pen With Alarms Pen 1

Mini-Chart T	Mini-Chart TAL	Temperature
Mini-Chart H	Mini-Chart HAL	Humidity
Mini-Chart 20	Mini-Chart 20AL	0-20mA
Mini-Chart 420	Mini-Chart 420AL	4-20mA
Mini-Chart 1V	Mini-Chart 1VAL	1 Volt DC
Mini-Chart 5V	Mini-Chart 5VAL	5 Volt DC

Dual Pen Pen 1 Pen 2

Mini-Chart TT	Temperature	Temperature
Mini-Chart TH	Temperature	Humidity
Mini-Chart 20	0-20mA	0-20mA
Mini-Chart 420	4-20mA	4-20mA
Mini-Chart 1V	1 Volt DC	1 Volt DC
Mini-Chart 5V	5 Volt DC	5 Volt DC



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Temperature Ranges

MINI-CHART

Common Temperature Ranges

- 25 °C to + 25 °C	General Purpose
- 30 °C to + 30 °C	
- 5 °C to + 25 °C	Chillers, Blood Banks
- 10 °C to + 20 °C	Pharmaceuticals
- 10 °C to + 40 °C	Incubators &
0 °C to + 50 °C	Air-conditioning
- 35 °C to + 15 °C	Standard Freezers
0 °C to - 50 °C	Blast Freezers, Medical / Blood Products
0 °C to - 100 °C	Cryogenic Freezers

Other Ranges Available

- 100 °C to - 50 °C
- 90 °C to + 10 °C
- 50 °C to + 50 °C
- 25 °C to + 50 °C
- 25 °C to + 75 °C
- 15 °C to + 60 °C
0 °C to + 100 °C
0 % to 100 % RH

Special Ranges

We can supply virtually any range of chart as a special order.

This can normally be achieved within 2 weeks.

Calibration Service

On site annual calibration at competitive rates. Let Abacus take the worry out of your compliance procedures.

No Delay

Most products are ex stock. Over 95% of products which are manufactured to order are despatched within 10 working days!

Telephone

01462 638200

CR87 Series

- Switchable Temperature Ranges
- Switchable Chart Rotation Times
- Battery Back up Option
- Digital Display
- Portable

The CR87 series of chart recorders offers a choice of temperature ranges and chart rotation speeds.

They are particularly useful in experimental or test applications where temperature ranges and batch times vary.

They are portable but can be wall mounted in more permanent applications

They operate from a DC mains adapter, which is supplied with the unit., and have a battery back up option using 8 x AA batteries.

The CR87HTC has the same features but offers temperature ranges up to 500 °C.



General Technical Specification

CR87BC / CR87HCT	
Chart Speed Accuracy	+/- 1%
Rotation Mode	Single Turn or Continuous
Accuracy	+/- 1 °C or +/- 1%
Chart Diameter	150mm
Digital Display	3.1/2 Digit 15mm LED
Power Supply	12 Vdc / 240 Vac Mains Adapter

Ranges

Temperature

CR87BC
-40 to 0 °C
-30 to +10 °C
+10 to +50 °C

Chart Rotation

6 Hours
24 Hours
7 Days
31 Days

Ranges

Temperature

CR87HTC
0 to 120 °C
0 to 250 °C
250 to 500 °C

Chart Rotation

6 Hours
24 Hours
7 Days

Special Order

CR87P	
Recording Range	0 to 500 PSI

Special Order

CR87E	
Event Recorder	24 to 180Vdc 24 to 240Vac



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Dual Pen

CR4

- Dual Pen
- High & Low Alarm Function
- Switchable Temperature Ranges
- Switchable Chart Rotation Times
- Multifunction via sensor modules

The CR4 chart recorder offers dual pens, and 5 different input options.

They are particularly useful in experimental or test applications where temperature ranges and batch times vary.

Various sensor options are available, the CR4 will automatically recognise which



type of sensor is attached and display the appropriate legends.

They are portable but can be wall mounted in more permanent applications.

They operate from a DC mains adapter, with optional back up via 8 x AA batteries.

General Technical Specification

CR4	
Rotation Mode	Single Turn or Continuous
Chart Diameter	150mm
Digital Display	Backlit LCD 2 lines 16 Characters
Chart Speed Accuracy	+/- 1%
Pen Accuracy	+/- 1°C or +/- 1% (RH +/- 2.5%)
Alarm Contact	48Vac/dc 0.1A resistive
Alarm Delay	0,10,30,60 or 120 mins
Power Supply	12Vdc / 240Vac Mains Adapter

Sensor Sets

KTH	Combined Temperature and Humidity
KTT	Dual Temperature Sensors
KTP	Temperature and Threaded Pressure Adapter
KPP	Dual threaded pressure adapters
KTE	Temperature and Event Adapter

Ranges

Chart Rotation	Temperature	Pressure	Event	Humidity
1.5 Hours	-30 to + 50 °C	0 to 50 PSI	24 to 180Vdc	0 to 100 %
3 Hours	-30 to + 10 °C	0 to 150 PSI	24 to 270Vac	
6 Hours	+5 to + 45 °C	0 to 500 PSI		
24 Hours				
7 Day				
31 Day				

Large Super Bright LED Displays

XLD & LD

- 100 or 60 mm 7 Segment Displays
- 2 or 3 Digit
- High Visibility
- Remote Sensor
- Temperature, Humidity, or Process inputs
- Scalable Display
- High and Low Alarms

This range of displays has been designed to give maximum visibility in areas of high ambient light. The large LED digits make for easy reading at a distance.

They can be supplied with or without Alarms. The alarm option gives both High and Low alarms with separate volt free contacts. When in alarm the display will flash alternatively between the value and either HI or LO giving a clear indication of a fault.

The enclosure is tough and durable and if required can be supplied sealed to IP65.



General Technical Specification

Dimensions (Case)	250 x 160 x 65mm Deep
LD Display Height	60mm
XLD Display Height	100mm
Number of Digits (LD)	3
Number of Digits (XLD)	2
Range (LD)	+/- 99.9
Range (XLD)	+/- 99
Accuracy	+/- 0.5%
Power Supply	240 / 110Vac (Internal Mains Supply) or 12 / 24Vdc

Order Code Inputs Display

Order Code	Inputs	Display
LD-T	Temperature	-99.9 to +99.9 °C
LD-1	0 to 1 volt dc	Scalable to any value between -99.9 to +99.9
LD-5	0 to 5 volts dc	Scalable to any value between -99.9 to +99.9
LD-10	0 to 10 volts dc	Scalable to any value between -99.9 to +99.9
LD-020	0-20 mA	Scalable to any value between -99.9 to +99.9
LD-420	4-20 mA	Scalable to any value between -99.9 to +99.9

Order Code Inputs Display

Order Code	Inputs	Display
XLD-T	Temperature	-99 to +99 °C
XLD-1	0 to 1 volt dc	Scalable to any value between -99 to +99
XLD-5	0 to 5 volts dc	Scalable to any value between -99 to +99
XLD-10	0 to 10 volts dc	Scalable to any value between -99 to +99
XLD-020	0-20 mA	Scalable to any value between -99 to +99
XLD-420	4-20 mA	Scalable to any value between -99 to +99



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Refrigeration Alarm

MPA-2A

- High & Low Temperature Alarm
- Mains Failure Alarm
- Door Alarm
- Defrost Input
- Full Battery Back Up
- Door Lock (2 Keys)
- Panel or Wall Mount



The MPA-2A has been specifically designed for refrigeration applications.

It has simple to use menus, a clear LCD display, alarm sounder output and volt free change over alarm contacts.

Connection is by vibration proof sprung terminal strip with clear permanent terminal labelling.

The internal re-chargeable backup battery provides audible and high visibility alarms even if the power has failed.

The door is lockable to prevent unauthorised tampering.

The MPA-2A is the perfect companion to our Mini-Chart range providing a comprehensive solution for temperature recording and alarming applications.

General Technical Specification

Dimensions	144 x 144 x 67 mm
Panel Cut-out	138 x 138 mm
Sensor	PT1000
Resolution	0.1 °C
Accuracy	0.5 °C
Temperature Range	-99 to +99 °C
Door Contact Input	Internally powered for volt free contacts
Defrost Contact Input	Internally powered for volt free contacts
Alarm / Defrost Delays / Mute	2 to 90 minutes
Audible Alarm	Sounder – Piezo Buzzer
Visual Alarm	High Intensity LED Array
Outputs (Relay Contacts)	Volt Free NO / C / NC (fail safe to NC) 1.25A / 240 Vac
Power Supply	240 Vac / 12, 24 Vdc

Temperature Alarm Unit

PROTECTOR A

- High & Low Temperature Alarm
- Mains Failure Alarm
- Alarm Contact Input
- Alarm Over Ride Contact Input
- Full Battery Back Up
- Wall Mount



The Protector A has the same technical specification as the MPA2-A but is housed in a robust wall mounted enclosure which, if required, can be sealed to IP65.

Connection is by vibration proof sprung terminals mounted inside a protected

terminal compartment. Knockouts are provided for up to 4 compression glands.

The internal re-chargeable backup battery provides audible and high visibility alarms even if the power has failed.

General Technical Specification

Dimensions	165 x 160 x 85mm
Sensor	PT1000
Resolution	0.1 °C
Accuracy	0.5 °C
Temperature Range	-99 to +99 °C
Alarm Contact Input	Internally powered for volt free contacts
Alarm Override Contact Input	Internally powered for volt free contacts
Alarm / Alarm Override / Mute Delays	2 to 90 minutes
Audible Alarm	Sounder – Piezo Buzzer
Visual Alarm	High Intensity LED Array
Outputs (Relay Contacts)	Volt Free NO / C / NC (fail safe to NC) 1.25A / 240 Vac
Power Supply	240 Vac / 12, 24 Vdc



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Six Channel Temperature Alarm Unit

PROTECTOR 6

- **6 x High & Low Temperature Alarm**
- **Mains Failure Alarm**
- **Alarm Contact Input**
- **Alarm Over Ride Contact Input**
- **Full Battery Back Up**
- **Wall Mount**



The Protector 6 has the same technical specification as the Protector A but it can have up to 6 temperature inputs.

Each of the 6 channels has independent high and low alarm set points and alarm delays. (Note, the alarm override contact is common to all 6 channels).

The Protector 6 is housed in a robust wall mounted enclosure which, if required, can be sealed to IP65.

Connection is by vibration proof sprung terminals mounted inside a protected terminal compartment. Knockouts are provided for up to 4 compression glands.

The internal re-chargeable backup battery provides audible and high visibility alarms even if the power has failed.

General Technical Specification

Dimensions	165 x 160 x 85mm
Sensors	Up to 6 x PT1000
Resolution	0.1 °C
Accuracy	0.5 °C
Temperature Range	-99 to +99 °C
Alarm Contact Input	Internally powered for volt free contacts
Alarm Override Contact Input	Internally powered for volt free contacts
Alarm / Alarm Override / Mute Delays	2 to 90 minutes
Audible Alarm	Sounder – Piezo Buzzer
Visual Alarm	High Intensity LED Array
Outputs (Relay Contacts)	Volt Free NO / C / NC (fail safe to NC) 1.25A / 240 Vac
Power Supply	240 Vac / 12, 24 Vdc

Wall Mount Alarm

TA-1R

- High & Low Temperature Alarms
- Programmable Alarm Set-Points
- Programmable Alarm Delay
- Volt Free Alarm Contact
- LED Temperature Display



The TA-1R alarm unit is ideal for situations where a low cost single channel temperature alarm is required.

It can be wall mounted with 4 screws using the wall mounting kit supplied.

It operates from a low voltage 12Vdc power adapter, which is plugged into a standard 13A 240Vac socket.

The high and low alarm set points can, if required, be password protected for security.

Connections are via vibration proof protected screw terminals in a terminal enclosure on the rear of the unit.

The TA-1R can be connected to an auto dialler to provide alarm warnings to up to 4 people (phone land line required).

General Technical Specification

MODEL

TA1-R

Sensor	1 x Waterproof PTC type (Supplied)
No of outputs	1 x NO (Closed in Alarm) Volt Free Contact 5A @12Vdc, 4A@240Vac
Temperature Range	-55 to +99 °C
Resolution / Accuracy	1 °C / <0.5% f.s
Alarms	1 x High, 1 x Low
Display	2 x 12mm LED
Power Supply	240Vac / 12Vdc adapter (Supplied)
Dimensions	Dimensions 160 x 85 x 38mm
Case	High Impact ABS
Operating Conditions	0 to 50 °C 30 to 80 RH



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GSM Radio Logger

T4

- **Temperature Fault Text Message Alarm**
- **Mains Fail Text Message Alarm**
- **Remote Interrogation Via Text**
- **Remote Upload Via Modem**
- **Battery Back up**
- **Digital Display**



The T4 offers the ultimate in security for refrigerated stock.

The temperature logging facility offers a performance, which far exceeds all known “Due Diligence” requirements. Its intelligent features allow maximum protection for temperature sensitive products with the absolute minimum of nuisance alarms.

Warnings of refrigeration plant failure, mains failure, door open as well as temperature alarms can, if required, all be sent as text messages, to up to 6 mobile phones.

Recorded data uploads are no longer a chore. Daily, weekly or monthly uploads can be done with ease via modem from anywhere in the UK. Upload and print either a graph or table and your temperature history is ready for inspection.

If computers are not your thing, then we can do it all for you. We dial up your T4, upload the data, print it and then post it to you for your records.

Telephone
01462 638200

General Technical Specification

Sensors	Up to 4
Temperature Range	- 40 to + 99 °C
Resolution	0.25 °C
Accuracy	+/- 0.5 °C
Temperature Logging Frequency	2 to 60 minutes
Storage Capacity	1600 readings, 42 Days storage (4 sensors every 15 minutes)
Switch Inputs	2 x Volt Free Contact

General Technical Specification

Alarms	Temp Hi / Lo 2 x Switch Open 2 x Switch Tamper Power Fail
Local Alarms	Red LED, Yellow Status Internal Sounder
Battery Backup	1 Hour (Text “Power Failure”) Sent after 10 seconds
Digital Display	2 Rows 16 Character LCD
Power Supply	12 / 24 Vdc (Mains Adapter Supplied)

SMS Server Room Alarm

T4 SENTINEL

- Critical Equipment Protection
- High Temperature SMS Text Alarms
- Mains Supply Fail SMS Text Alarm
- Chiller Fail SMS Text Alarm
- Temperature History
- Battery Back up



Increasingly Server Rooms are getting more and more crowded with Critical Systems Equipment.

The result is that the majority of Server Rooms require air-conditioning. Should the air-conditioning fail or under perform then the likely hood of a temperature related failure increases dramatically.

The T4-Sentinel has been designed specifically to provide warning of potential Server Room failure due to faulty or under performing air conditioning.

It monitors and records the temperature in critical areas of the room and should any of these go outside pre set limits it activates a local alarm and sends SMS text messages to up to 6 mobile phones providing advance warning of failure 24-7, 365 days of the year. Two input contacts are also available to monitor air conditioning fault or un-authorised entry.

Maintenance staff and IT managers know instantly if there is a problem and can act quickly to avoid a system failure.

The Sentinel stores a three-month record of temperature history to aid fault diagnosis and to provide guidance for planned maintenance schedules.

General Technical Specification

Sensors	Up to 4
Temperature Range	10 to 40°C
Resolution	0.25 °C
Accuracy	+/- 0.5 °C
Alarms	4 x Temp Hi / Lo 2 x Contact 2 x Contact Switch Tamper Power Fail
Local Alarms	Red LED, Yellow Status LED Internal Sounder
Storage Capacity	1600 readings, 84 Days storage (4 sensors every 30 minutes)
Battery Backup	1 Hour (Text "Power Failure") Sent after 10 seconds



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16 Channel Data Logging System

ATM+ Now with Radio Probe Option

- Flexible Modular Configuration
- 30 Different Input Modules (Factory Set)
- Large Memory Capacity
- Manual or Automatic Upload of Data to PC
- Real Time Graphs & Alarms
- High Accuracy & Resolution
- LCD Display
- LED Channel Alarms
- Radio Probe Option
- Text Alarm Message Option
- Remote Access Facility Via Modem



The ATM+ system is a stand-alone, modular, 1 to 16 channel data recorders, which can be configured for any application using a comprehensive range of input modules.

There is the option to mix wired and radio probes making the system extremely flexible.

The units are fully configurable with extensive data logging and alarm options. The impressive PC software package displays 'real-time' graphs and permits manual or automatic uploading of data from single or multiple units via RS-232, RS-485, land line or GSM modem. The unit can send Text Alarm Messages and will respond to incoming text messages with a reply giving more detailed alarm information.

General Technical Specification

MODEL	ATM+
No. of inputs	Up to 16 Channels mixed wired / Radio
No of networked ATM+ Main Units	99 on a RS485 Bus
Sample intervals	1 Second to 24 Hours (different sample times can be set on individual channels)
Alarms	2 per Channel, Fully Configurable Hi/Hi, Hi/Lo, Lo/Lo

MODEL	ATM+
Alarm Outputs	Internal Sounder Local C/O Relay Contacts Red / Yellow LED per channel (32 Total) Text Messages to up to 6 Mobile Phones
Display	LCD Giving Channel Identity and Value
Power Supply	240Vac / 24Vdc
Dimensions	220 x 180 x 90mm

16 Channel Data Logging System

ATM+ SOFTWARE

The Windows compatible ATM+ Software provides comprehensive channel-by-channel setup. The identity, range, logging frequency, and alarm functions can all be set to suit the probe location and function.

A real time graph facility provides a very useful tool enabling a detailed picture of plant or system performance to be viewed in real time with a 10 second screen update.

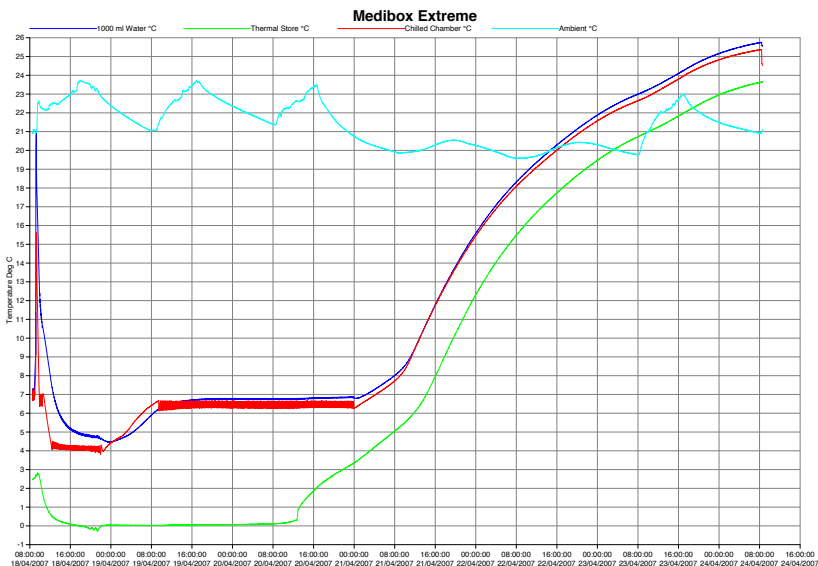
There is the option for automatic uploads to a pc either when connected directly or remotely via modem. The data is uploaded hourly, daily or weekly as required with no operator input.

Once uploaded the data can be viewed either in tabular form with full statistical analysis available giving maximum, minimum and average readings for each channel.

Alternatively it can be viewed as a graph with trace colour selection, individual or all channel display and a full zoom option.

The data is fully protected against 'tampering' however it can be exported for analysis using a spreadsheet or database.

The printing options allow the data to be printed as a whole or selected sections only allowing detailed analysis.



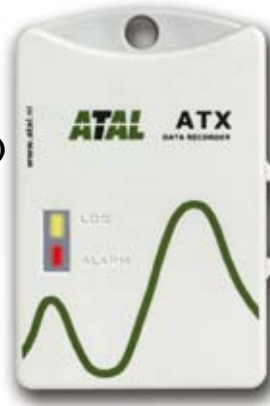
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Professional Series

ATV/ATX

- **Waterproof to IP67 (Not RH)**
- **Rugged Construction**
- **Alarm Indication (Max or Min)**
- **LCD Display (ATV)**
- **IR Software Link**
- **Magnet Start Option**
- **3 Year Battery Life**
- **Windows XP Compatible**



This range of waterproof loggers offers professional specification solutions for monitoring temperature, humidity, and process signals.

They come with a range of channel and input options, are impervious to condensation and will withstand hose down cleaning (not RH models).

Being fully portable they can be packed amongst product or in shipping containers

to provide an accurate temperature profile of any journey. They have a locking eyelet for security.

They have either internal or external probes (see product code spec).

For additional input combinations including voltage, current and pulse please phone our sales office for details.

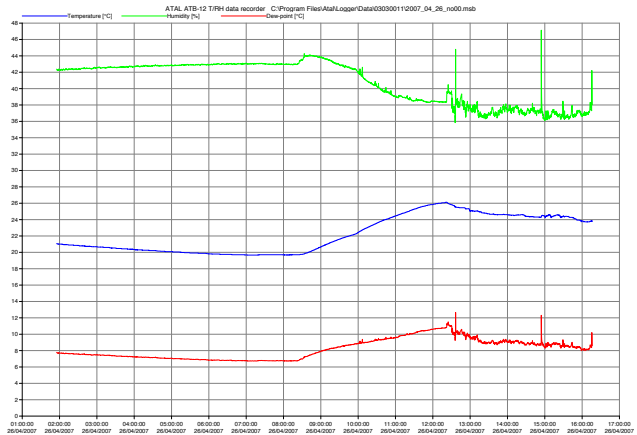
MODEL	ATX/ATV-01	ATX/ATV-02	ATX/ATV-03	ATX/ATV-04
Channels	1 x Temperature	1 x Temperature	2 x Temperature	2 x Temperature
Int Sensor ATX	-40 to +80 °C	N/A	N/A	-40 to +80 °C
ATV	-30 to +70 °C			-30 to +70 °C
Range Ext Sensor	N/A	-90 to +260 °C	-90 to +260 °C	-90 to +260 °C
Resolution	0.1 °C	0.1 °C	0.1 °C	0.1 °C
Accuracy	+ / - 0.4 °C	+ / - 0.4 °C	+ / - 0.4 °C	+ / - 0.4 °C
Memory	32,000	32,000	32,000	32,000
Sample Rate	10 sec to 24 Hours	10 sec to 24 Hours	10 sec to 24 Hours	10 sec to 24 Hours
Battery life	3 years	3 years	3 years	3 years
Display	2 x LED / LCD	2 x LED / LCD	2 x LED / LCD	2 x LED / LCD
Dimensions ATX	93x64x26	93x64x26	93x64x26	93x64x29
ATV	93x64x29	93x64x29	93x64x29	93x64x29

MODEL	ATX/ATV-05	ATX/ATV-11	ATX/ATV-12
Channels	4 x Temperature	1 x Temp, 1 x RH	2 x Temp, 1 x RH
Int Sensor ATX ATV	N/A	-40 to +80 °C -30 to +70 °C 0 to 100% RH	-40 to +80 °C -30 to +70 °C 0 to 100% RH
Range Ext Sensor	-90 to +260 °C	N/A	-90 to +260 °C
Resolution	0.1 °C	0.1 °C 0.1% RH	0.1 °C 0.1% RH
Accuracy	+ / - 0.4 °C	+ / - 0.4 °C, +/-2.5% RH	+ / - 0.4 °C, +/-2.5% RH
Memory	32,000	32,000	32,000
Sample Rate	10 sec to 24 Hours	10 sec to 24 Hours	10 sec to 24 Hours
Battery life	3 years	2 years	2 years
Display	2 x LED / LCD	2 x LED / LCD	2 x LED / LCD
Dimensions ATV ATV	93x64x26 93x64x29	93x64x26 93x64x29	93x64x26 93x64x29

ATX/ATV Software

The software is multi-functional, versatile, complete, and very easy-to-use. Both novice and experienced PC users will be able to get started quickly with the ATAL measuring- and data recording systems.

The software is fully compatible with Windows 95, 98, NT, 2000 and XP.



Calibration Service

On site annual calibration at competitive rates.
Let Abacus take the worry out of your compliance procedures.

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ThermaData

TB RANGE

- **Waterproof to IP66/67**
- **Rugged Construction**
- **Alarm Indication (Max or Min)**
- **LCD Display (not TB)**
- **USB Cradle / Software**
- **Windows XP Compatible**



This range of waterproof rugged Temperature Loggers offers a low cost solution for monitoring temperature applications such as Laboratory / Food Fridges and cold rooms etc.

They are impervious to condensation and will withstand hose down cleaning. Being fully portable they can be packed amongst

product on pallets or in shipping containers to provide an accurate temperature profile of any journey.

They have either internal or external probes (see product code spec). The external probes can be fixed or detachable with a water proof connector.

MODEL	TB / TD	TBF / TDF	TB1F / TD1F	TBC / TDC	TB2F / TD2F
Range Int Sensor	-40 to +85 °C	N/A	-40 to +85 °C	N / A	N / A
Range Ext Sensor	N/A	-40 to +125 °C	-40 to +125 °C	-40 to +125 °C	-40 to +125 °C
Resolution	0.1 °C	0.1 °C	0.1 °C	0.1 °C	0.1 °C
Accuracy	+ / - 0.5 °C	+ / - 0.5 °C	+ / - 0.5 °C	+ / - 0.5 °C	+ / - 0.5 °C
Memory	4,000	4,000	2 x 2,000	4,000	2 x 2,000
Sample Rate	0.1 to 255 minutes	0.1 to 255 minutes	0.1 to 255 minutes	0.1 to 255 minutes	0.1 to 255 minutes
Battery life	2 years	2 years	2 years	2 years	2 years
Display	2 x LED / LCD	2 x LED / LCD	2 x LED / LCD	2 x LED / LCD	2 x LED / LCD
Dimensions	76mm Dia x 23mm	76mm Dia x 23mm	76mm Dia x 23mm	76mm Dia x 23mm	76mm Dia x 23mm
Weight	91 Grams	102 Grams	103 Grams	120 Grams	113 Grams

ThermaData Software

The ThermaData Software is a comprehensive but easy to use suite, which combines logger set-up with data display. The Logger is placed into the cradle and all data can be uploaded to the PC for display and archive.



Hobo Range

U12-001 Temperature U12-002 Temperature & Humidity

Small, accurate Dataloggers for Temperature or Temperature and Relative Humidity.

These devices have internal sensors and USB interface for fast downloads.



Water Proof Pendant Logger

The pendant range 'plug into' an optical base station which has a USB PC connection.

Other inputs and configurations are available. Please call for details.



MODEL	U12-001	U12-002	Pendant
Range	-20 to +70 °C	-20°C to +70°C / 5% to 95% RH	-20°C to +70°C
Accuracy	+/- 0.35°C (0 - 50°C)	+/- 0.35°C (0 - 50°C), + 2.5 % (10-90%)	0.47°C at 25°C
Memory	64K (43,000 Samples)	64K (43,000 Samples)	8 or 64K
Sample Rate	1 Min to 18 Hours	1 Min to 18 Hours	1 Sec / 18 Hrs
Size	58 x 74 x 22 mm	58 x 74 x 22 mm	58 x 33 x 23 mm
Weight	46 grams	46 grams	18 grams

HoboWare Software

(Available as Pro or Lite versions)

- **Easy launch and readout via USB interface**
- **Programmable start time/date**
- **Programmable sampling rate (1 sec to 18 hrs)**
- **Data can be viewed in three formats: graphical tabular and deployment statics**
- **Zoom and axis controls**
- **Control axis, series and legend properties**
- **Displays memory used and battery voltage**
- **One-click' easy upload into Excel and other programs.**



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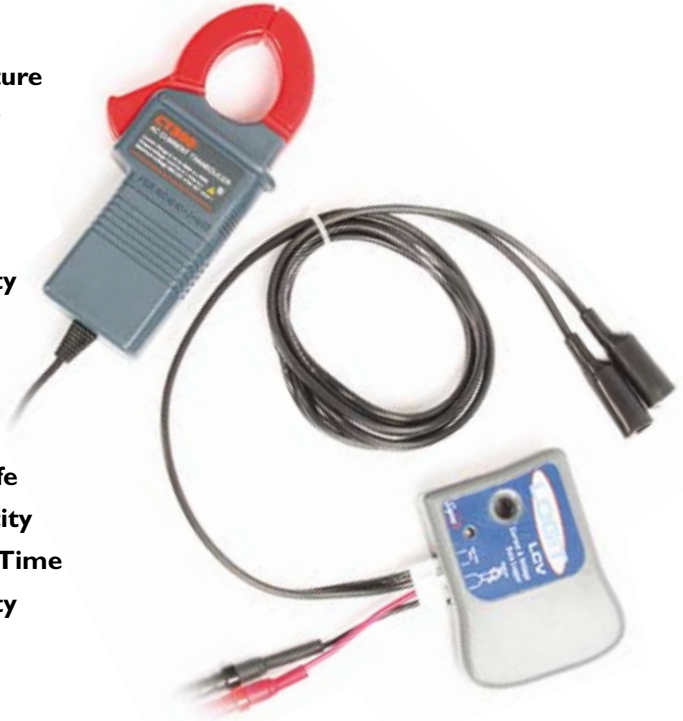
Email: sales@abacusinstruments.com
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LOGiT Series

PORTABLE

- **Temperature / Temperature**
- **Temperature / Humidity**
- **Temperature / Pressure**
- **Current / Voltage**

- **100 Days storage capacity
(2 channel 15 minute
log intervals)**
- **Roll Over option**
- **Visual Alarm LED**
- **3 year typical Battery Life**
- **30 Character User Identity**
- **Selectable Start Date & Time**
- **Calibration Offset Facility**



The Logit series of battery powered, portable, two input data loggers provide a low cost solution to many temperature / refrigeration related logging applications.

The easy to use LLS software provides set-up, upload, and full printing options whether a colour graph or table format is required.

General Technical Specification

Resolution	0.05 °C, 0.1% RH, 0.15 PSI, 0.1Aac, 0.1 Vac, 0.01 mAdc
Accuracy	+/- 0.5 °C, 2% RH, + / - 1.5 PSI, 5% Aac, 1.0Vac, 0.05 mAdc
Logging Frequency	Selectable 1 second to 6 Hours
Storage Capacity	10750 readings, 100 Days storage (2 sensors every 15 minutes)
Battery	9V PP3, Life Typically 3 Years
Dimensions	76 x 64 x 28mm
Weight	71g

LTH

Function	Temperature / Humidity
Probes	Internal
Measuring Range	0 to 60 °C, 0 to 99.9% RH (Non Condensing)
Operating Range	-40 to + 60 °C (Lithium Battery) 0 to + 60 °C (Alkaline Battery)

LPT

Function	Pressure / Temperature
Pressure Sensor	Threaded Stainless Steel, 1.8 Metre Cable, Encapsulated Sensor
Temp Probe	4.5 Metre Cable
Measuring Range	-40 to +65 °C, 0 to 500 PSI
Operating Range	0 to 54 °C

LTT

Function	Temperature / Temperature
Probes	2 x 100mm SS Probes 1.8 Metres Long
Measuring Range	-46 to +150 °C
Operating Range	-40 to + 60 °C (Lithium Battery) 0 to + 60 °C (Alkaline Battery)
Calibration Offset	Set With LLS Software

LCV

Function	AC Current / AC Voltage
Current Sensor	Crocodile Type Current Clamp
Voltage	1.0 Metre Cable Crocodile Clips (Insulated) 1.0 Metre Cable
Measuring Range	0 to 300 Amps, 0 to 500 Volts
Operating Range	-40 to + 60 °C (Lithium Battery) 0 to + 60 °C (Alkaline Battery)
Operating RH	0 to 95% Non Condensing
Calibration Offset	Set With LLS Software

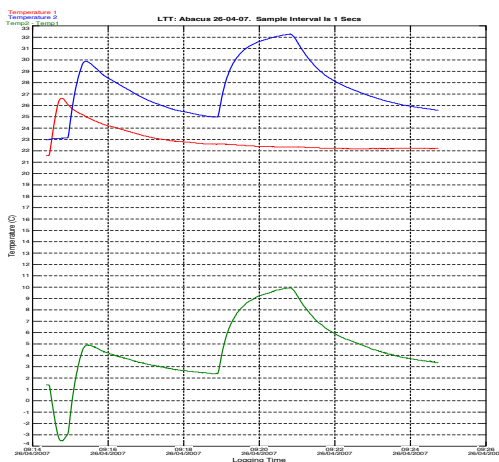
LLS Software

- **Windows 95, 98, XP Compatible**
- **Simple to Use**
- **Graph & Tabular Print-Out**
- **Graph Zoom**
- **Data Export**
- **Password Protected Calibration**

System Requirements

8 MB RAM, 2MB Disk Space

9 Pin Serial COM or USB (Order Specific)



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SL300TH & SL300T

LOW COST

- Temperature / Temp & RH
- Visual Alarm Indication
- Software Calibration Facility
- Data Rollover Option
- Real Time Monitoring Option
- USB PC Interface
- Windows™ 98SE, ME, 2000, XP
- Push Button Start Option



The SL300TH and SL300T are low cost feature packed loggers designed for use in non-aggressive applications. They offer a wide range of facilities and options which

are normally found on much more expensive units.

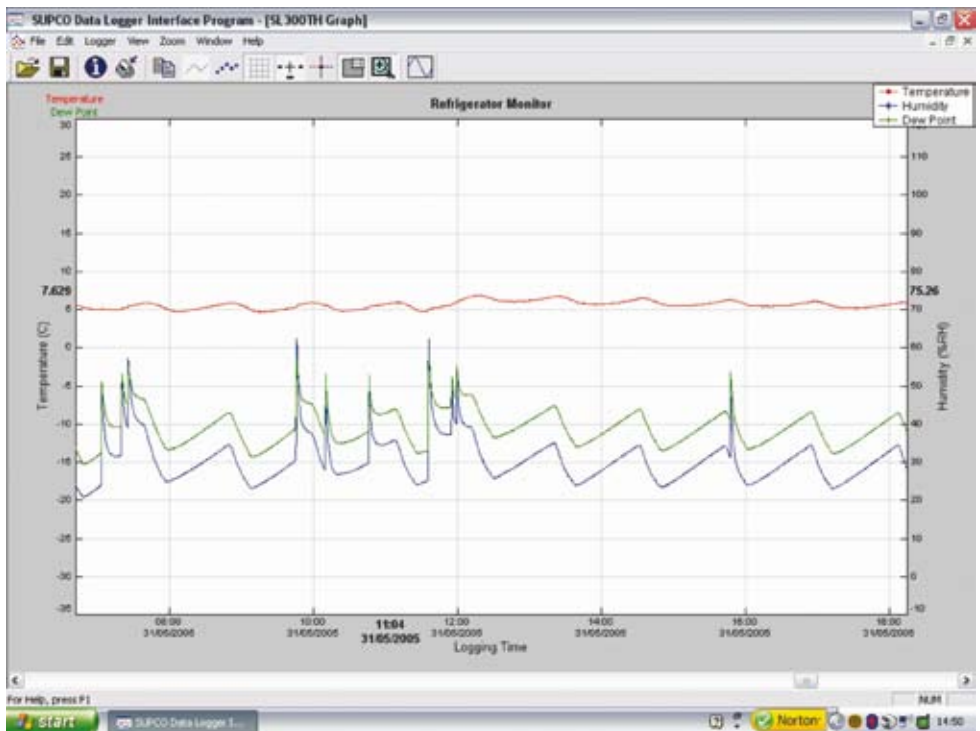
The SL300TH is a Temperature & RH logger. The SL300T is Temperature only.

General Technical Specification

MODEL	SL300TH	SL300T
Temperature Range	-40°C to 70°C	-40°C to +85°C
Temperature Resolution	0.01°C	+/-0.05°C
Temperature Accuracy	+/-0.5°C	+/-0.5°C
Relative Humidity Range	0% to 99% RH, non condensing	N/A
Relative Humidity Resolution	0.01% RH	N/A
Relative Humidity Accuracy	+/-2% RH from 10% to 90% RH	N/A
Calibration	Via software	Via software
Logging Frequency	1 second to 18 hours	1 second to 18 hours
Alarms	High and Low Temp & RH	High and low Temp
Capacity	21,672 points (T,T,RH)	43,344 Points (T)
Data Security	Non-Volatile (Data not lost if battery is removed)	Non-Volatile (Data not lost if battery is removed)
PC Communication	USB port	USB port
Battery	3 V (CR2035) Lithium	3 V (CR2035) Lithium 6 Year Life
Dimensions	7.6cm x 4.0cm x 1.5cm	7.6cm x 4.0cm x 1.5cm
Weight	28g	28g
Software Compatibility	Windows 98SE and above (ME, 2000, XP,Vista). Not compatible with Windows NT.	Windows 98SE and above (ME, 2000, XP,Vista). Not compatible with Windows NT.

SL300 SOFTWARE

- Windows™ 98SE, ME, 2000, XP, Vista compatible software
- Delayed or push button start option
- Temperature and Humidity alarm with visual indication
- User selectable stop on memory full or memory rollover for continuous recording
- Real time monitoring
- View graph and text simultaneously
- Calibration Offset
- Displays temperature in °F or °C
- USB Interface standard



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VLT Vision Series



- **Temperature Logging & Printing**
- **High & low Alarms**
- **Alarm delay setting**
- **C or F degrees**
- **Real time temperature Printing (3 printing modes)**
- **Low battery, Chart end and No sensor indicators**
- **Data & settings retained after Power failure**
- **Normally open contacts for remote alarm**

The VLT Vision Logger is designed primarily for transport applications where journey tickets are required. It can also be connected to additional modules which allow, via the Internet, for real time data display and vehicle tracking.

It is also suitable for static installations where print roll is the preferred method of archiving temperature records.

The waterproof sensor supplied is 10 meters long but if required can be extended to 33 meters.

General Technical Specification

Temperature Range	-40 to + 130°C
Resolution	0.1 °C
Accuracy	+ / - 1°C
Sampling Rate	1 to 90 minutes
Ambient Operating Temperature Range	-18C to +65 °C
Ambient Operating Relative Humidity	0 to 95% non-condensing (IP65)
Alarms	High & Low, End of paper, No sensor, Low Battery
Alarm delay	User selectable: No Delay, 10 min., 30 mints, 1 hr., 2 hrs.
Output Contacts	Normally open volt free contact
Output PC	Exporting real time data to RS-232 PC port – No Software needed
3 Printing Modes	Full Text report (small font) / Time & temp. (Large font) / Graphics
Stored Data	290 Historical Data readings - can be printed on request any time.
Print Format	I.D. number, Date, Time, Temperature, alarm status
Thermal Chart Paper Width	2" chart (50.8 cm Width, 40 Meter long) (2 rolled charts supplied)
Display	Numeric LED Display, 4 characters
Display Options	On line temperature display / minimum or maximum on request
Primary power	220-240 VAC, 50/60Hz
Alternative power	12 Volt dc (vehicle operation with adapter)
Logger Battery backup	9 Volt Battery, for logging 50 hours (not supplied)
Clock, setting Battery	3.6 Volt Lithium Battery, 2 Years in average use (supplied)
Mounting	Vertical or horizontal - Free standing, wall or panel mount
Case size and Weight	208.6 x 135 x 69 mm (8.2" x 5.3" x 2.7")
Storage Temperature range	-40°C to + 65 °C

Hand Held Thermometers

ThermaMite 1 & 5



- Low Cost
- Compact
- 108mm SS Insertion Probe
- Range -49 to 199.9 °C
or -30 to +300 °C
- Accuracy +/- 0.5 °C +/- 1Digit
 +/- 1% +/- 1Digit
- LCD Display
- Dimensions 25 x 68 x 121mm

Therma 1 & 5



- Rugged Construction
- Coiled Probe Lead
- Range -49 to 199.9 °C
or -30 to +300 °C
- Resolution 0.1 °C or 1 °C
- Accuracy +/- 0.5 °C +/- 1Digit
 +/- 1% +/- 1Digit
- LCD Display
- Dimensions 36 x 80 x 147mm

AquaTemp 1 & 5



- Waterproof
- Rubberised Case
- One Handed Operation
- Range -49 to 199.9 °C
or -50 to +300 °C
- Resolution 0.1 °C or 1 °C
- Accuracy +/- 0.4 °C +/- 1Digit
 +/- 1% +/- 1Digit
- LCD Display
- Dimensions 28 x 64 x 148mm

Therma Plus



- Waterproof
- Robust Metal Alloy Case
- Interchangeable Probe
- Range -49 to +1372 °C
- Resolution 0.1 °C below 300 °C
 1.0 °C above 300 °C
- Accuracy +/- 0.4 °C
 +/- 1% of Reading
- Dimensions 35 x 60 x 115mm



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Thermobox

THERMOBOX III

- **Controlled Temperature Above or Below Ambient**
- **Internal Temperature + 5 to + 40 °C (+5 At 21 °C Ambient)**
- **Digital Temperature Display**
- **Digital Temperature Set Point**
- **Password Protected Set Point Lock**
- **High and Low Temperature Alarms (Optional)**
- **Operates from 12 / 24Vdc or (240 Vac via adapter)**
- **Temperature Logger Option**



The Thermobox III is a temperature controlled enclosure particularly suitable for use as an incubator or where ever there is a need for a stable temperature environment.

The temperature can be set in 1 degree increments anywhere between +5 and +40 °C allowing for accurate 'temperature profiling' of products.

It is light and portable and can be operated from a mains adapter or a car battery.

It's Peltier cooler and separate heaters combine to give excellent temperature stability and long life.

General Technical Specification

Internal Temperature Range	+5 to + 40 °C
Ambient Operating Range	Set Point 5 °C Ambient up to 21 °C Set Point 40 °C Ambient down to -20 °C
Temperature Stability	+ / - 1.5 °C
Power Supply	240Vac or 12 / 24Vdc
Power Consumption (Max)	60 Watts
Dimensions	590 x 420 x 47mm
Weight	9.0 Kg
Capacity	38 Litres

MEDIBOX LITE

- **Controlled Temperature Above or Below Ambient**
- **Internal Temperature + 4 to + 40 °C**
(+4 at 21 °C Ambient)
- **Internal Temperature Logging (Optional)**
- **Digital Temperature Set Point**
- **Password Protected Set Point Lock**
- **High and Low Temperature Alarms (Optional)**
- **Operates from 12 / 24 Volts dc or 240 Vac**
- **Automatic Voltage Switching**

The MEDIBOX Lite has been designed to provide a reliable temperature controlled environment for the transportation of temperature sensitive products.

It is light, can easily be carried by hand and operates from either the mains or the Cigar Lighter Socket of a car or van. Its many uses include the transportation of blood samples, cultures and semen products.



The MEDIBOX Lite provides a cost effective alternative to the MEDIBOX 50 where the ambient conditions are not as harsh.

Its Peltier cooler and integral heaters combine to give excellent temperature stability.

General Technical Specification

Internal Temperature Range	+4 to + 40 °C
Ambient Operating Range	Set Point +4 °C Ambient up to 21 °C Set Point 40 °C Ambient down to -20 °C
Temperature Stability	+ / - 1.5 °C
Chill Down Time	
Set point +4 °C Ambient 21 °C	35 minutes
Power Supply	240 / 110Vac or 12 / 24Vdc Auto Switching
Power Consumption (Max)	60 Watts
Dimensions	450 x 303 x 420 High
Weight	6.0 Kg
Capacity	20 Litres



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Portable Blood Banks & Pharmaceutical Transporters

MEDIBOX

- **Controlled Temperature Above or Below Ambient**
- **Internal Temperature -10 to + 40 °C**
- **Internal Temperature Logging**
- **Digital Temperature Set Point**
- **Password Protected Set Point Lock**
- **High and Low Temperature Alarms**
- **Operates from 12 / 24 Volts dc or 240 Vac**
- **Automatic Voltage Switching**



MB 40

MB 70

Vehicle mounting brackets available

The MEDIBOX range of Portable Transporters has been specifically designed to meet the rigorous legislation governing the storage and transportation of Blood and other temperature sensitive products.

It's rugged build quality and high operating specifications mean it can operate in the aggressive environment of vehicles where the ambient temperature can vary widely

during a journey and throughout the seasons.

It's efficient compressor refrigeration plant and integral heaters combine to give excellent temperature stability, whilst it's internal data logger provides a detailed record of the product temperature history.

General Technical Specification

Internal Temperature Range	-10 to + 40 °C
Ambient Operating Range	-20 to + 40 °C
Temperature Stability	+ / - 1.5 °C
Chill Down Time Set point 5 °C Ambient 21 °C	20 minutes
Power Supply	240 / 110Vac or 12 / 24Vdc Auto Switching
Power Consumption (Max)	65 Watts
Dimensions MB 40	630 x 360 x 480 High (Not Inc Handles)
Dimensions MB 70	790 x 500 x 455 High (Not Inc Handles)
Weight MB 40 / 70	18 / 33 Kg
Capacity MB 40 / 70	4l / 73 litres

Temperature Control on the Move

MEDIBOX EXTREME

- Road Transport
- Air Freight
- Rail

- Operates from 240/110 Vac or 24/12 Vdc
- Fully Self Contained
- Auto Switching
- Portable
- Robust
- Mounting Brackets Available

4 days of Precise Temperature Control from a 48 Hour Charge.

The Medibox Extreme is a development based on our road proven Medibox 70. It has been specifically designed for the transportation of temperature sensitive products, **where there is no power source available.**

The fully self contained Medibox Extreme uses a combination of Passive 'Non toxic Thermal Batteries' and a sophisticated control system to maintain the product temperature within the band of 2 and 8 Degrees C.

Following a 48-hour charge cycle the Medibox will maintain product temperature for a minimum of 4 days after it is disconnected.

NEW for 2007



For further information contact:-

Abacus Sales Office

Telephone

01462 638200



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Fax: 01462 638201

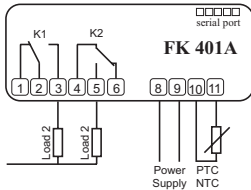
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Heat/Cool Controller

FK401

The FK 401 is a 2-relay on-off digital temperature controller, which can be used to heat or cool, or heat and cool.

It has an internal buzzer to warn of over or under temperature or a control failure. It can be fitted with a serial interface to form part of a RICS multi-unit system allowing viewing and control of parameters from a pc as well as data logging to record temperatures for tuning and for quality records.



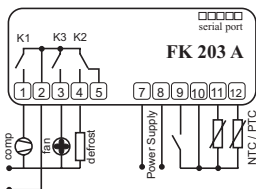
General Technical Specification

Power Supply:	12 / 24V ac or dc
Alarms Buzzer:	Internal
Inputs:	PTC or NTC Probe
Working Range:	PTC -50 to150 °C NTC -40 to 99 °C
Outputs:	Load 1 16A res @240Vac Load 2 8A res @240Vac
Serial port:	TTL (RICS Compatible)
Connections	Screw Terminals
Panel Mounting:	Cut-out 71 x 29 mm

FK203A Refrigeration Controller

FK 203A is a controller specifically designed for refrigerating units. It has 3 contact control outputs for compressor, evaporator fan and defrost heater.

Internal parameters provide protection against compressor overloads due to several starts repeated in a short time. The defrost parameters are programmable as is the evaporator fan operation. Alarms can be set to indicate working conditions outside the limits set. It can be fitted with a serial interface to form part of a RICS multi-unit system allowing viewing and control of parameters from a pc as well as data logging to record temperatures for tuning and for quality records.



General Technical Specification

Power Supply:	12 / 24V ac or dc
Alarms Buzzer	Internal
Inputs:	2 x PTC or NTC (cabinet and evaporator probe)
Digital inputs:	Volt Free, NO or NC
Working Range:	PTC from -50 to 99 °C NTC from -40 to 99 °C
Outputs:	K1 Compressor relay rated at 10 A res @ 250 Vac K2 Defrost relay rated at 8 A res @ 250 Vac K3 Evaporator fan relay rated at 8A res @ 250 Vac
Defrost:	Electric or Hot Gas
Serial port:	TTL (RICS Compatible)
Connections	Screw Terminals
Panel Mounting:	Cut-out 71 x 29 mm

On Site Calibration

Abacus can provide a complete on site calibration service to provide certification with full U.K.A.S traceability.

We are fully conversant with the latest **M.R.H.A.** requirements and can offer advice and guidance to assist in achieving full temperature compliance.

T4 Sensor Calibrations

We supply fully calibrated and certificated sets of replacement T4 sensors, which can be easily fitted by the customer. This alleviates the need for an engineer to attend site hence providing a fully certified system at a fraction of the cost of traditional calibration.

In House Calibration Service

We provide a return to factory calibration service for all portable temperature equipment supplied by us.

In most instances we can provide this service for equipment not originally supplied by us, please call for details.



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Certificate of Calibration

Date of calibration		Customer Address: -
Certificate No. & Serial Number		
Ambient Temperature		
Test Equipment	REFERENCE THERMOMETER (UKAS certificate No. 020406/N** Accreditation No. 0601)	
Procedure	The instrument was stabilised and then calibrated by comparison with the traceable reference thermometer detailed above.	
Instrument Description	Temperature Range	

Results	Test temperature °C	Instrument Reading °C

This is to certify that the above instrument conforms to the manufacturers specification, it provides traceability of measurements to recognised national standards and to units of measurements realised at the National Physical Laboratory or other recognised national standards laboratories.

Results indicate performance of instrument at time of measurement, with no warranty as to specification, repeatability or long-term stability.

Signed _____

EXPIRES



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