



Signatrol Data Logging
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Signatrol.com
Data Logging Solutions

Distributed by

Signatrol.com
Data Logging Solutions

PRODUCT GUIDE

Welcome

to our new-look Product Guide.

In line with our continuing success and expansion, we've completely revamped the layout of our Product Guide to give it a fresh new look, and re-planned the content to make it even easier to access the information you need, and place your order. We're also proud to introduce some brand-new products this year, to complement and extend our range - they're summarised opposite, with further details in the main text pages.

The Signatrol vision

Data logging has come a long way in recent years, but in today's ever-changing working environment there are so many parameters to monitor and record and different circumstances to deal with, that data loggers once quite capable are now simply not up to the job. Meeting such needs is enough of a challenge in itself, but anticipating the demands of the future takes a particular kind of foresight and dedication. That's where we come in.

Here at Signatrol, we are specialists in data loggers - in fact, we don't make anything else, which means we're able to devote all our energies to ensuring that for every need and every customer there is a data logging solution to suit, designed and developed to offer every feature and capability it's possible to include, ready for the high-pressure demands of today and tomorrow. And to ensure we keep abreast of needs and developments, we constantly monitor what the marketplace is demanding and what our competitors are offering, and strive to do better, offer more, and foresee every possible opportunity for improvement.

Between us, our team of engineers and designers have accrued many years of successful experience in the field of process instrumentation, and that expertise is your assurance of superb design, absolute durability and optimum performance in every situation. Our data loggers are built to the highest standards, and deliver reliable, informative performance well beyond the minimum requirements - and even beyond that, we promise that any specialised requirements can be met with individually tailored solutions.

And as if all that wasn't enough, we've kept to our very competitive pricing structure too - so combined with low-maintenance design and high reliability, the ownership cost of Signatrol products is about as low as it's possible to get.

If you know our products and our service, you won't need any more convincing. And if you don't, now is the time to find out what you've been missing!

Brian Turner, Managing Director

What's New

We have a number of exciting new and up-rated products to add to our catalogue, including -

SL7000

We call it the ultimate data logger. Easily user-programmable, adaptable to almost any parameters, it provides 16-bit accuracy across four universal inputs, with additional internal and external temperature and humidity options, a user-replaceable battery with a 3 year life, and the ability to store up to 128,000 readings. *Want to know more? Go to pages 12-13*

SL51M-Minitag

A self contained single channel temperature data logger with the ability to record over 2000 data points and coloured bright yellow for easy identification and retrieval. This is our lowest cost temperature logger for transportation applications. *Want to know more? Go to page 7*

SL53T and SL54TH

The SL53 is the high temperature version of the button logger which can log up to 125°C. It is self contained, battery powered and small (only 177mm Dia x 6mm thick) enough to go into bottles, cans etc. The SL54 records both temperature and RH. *Want to know more? Go to page 6*

SL50-ACC-01

This button accessory is designed to give added protection to the SL50 series button loggers to enable them to be used in high pressure applications. *Want to know more? Go to page 7*

TempIT Version 4

This is the latest version of our universal software platform which extends the scope of TempIT to encompass multi channel logging. A fully functional version TempIT-Lite is available as a free download from the web site. *Want to know more? Go to pages 4-5*

How to use this Product Guide

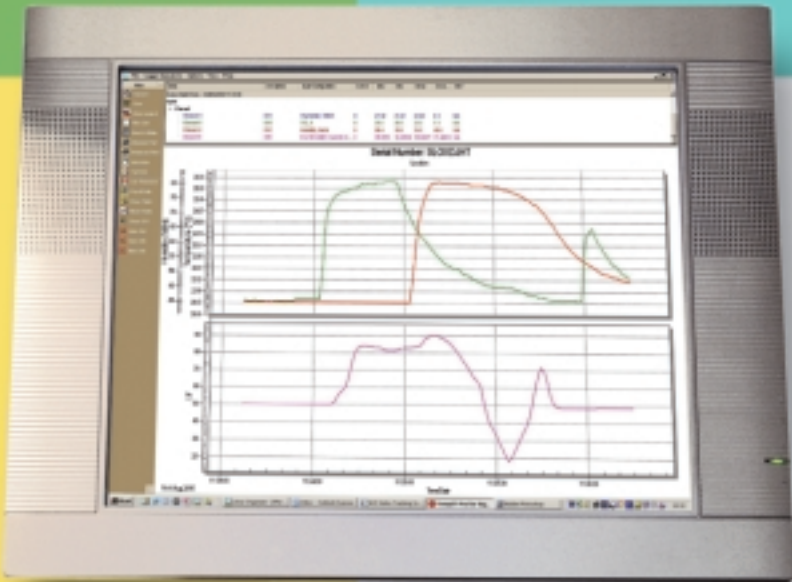
First of all, if you want more information, there are two things you can do: go online at **Signatrol.com** and download the full data sheet, or call us on **(+44) (0)1684 299399** and speak to our sales or technical staff, who will be able to answer all your queries and direct you to the right solution for your needs. You'll also notice, while you're going through the Guide, that every product has a simple 'why-to-buy' message, to highlight its particular star quality!

And ordering couldn't be simpler. Just go to the page for the product you want, and put together an order code that reflects your requirements from the ordering data at the bottom of the page. Then either buy online or call us direct if you prefer to talk through placing your order, or want to discuss a particular requirement. Delivery can be as quick as 24 hours later, and our after-sales team is always on hand to offer help and advice should you need it.

Signatrol.com (+44)(0)1684 299399

TempIT Data Analysis Software

POWERFUL, YET
EASY TO USE



TempIT data analysis software is available in three formats; **TempIT-Lite** which provides all essential graphing functions, **TempIT-Pro** which incorporates additional features such as a data table, export to spreadsheet functions and the ability to email graphs. **TempIT-HS** is a high security version that supports electronic signatures, stores data in a secure format and provides a full audit trail, essential when high data security is needed or where FDA 21CFR Part 11 compliance is required.

All versions of TempIT have the ability to show the temperature in °C or °F units, auto scale or fixed axis and the ability to change trace colour and width.

Features

- Lite Version - FREE
- Simple to use
- Multi graph capability
- Full X-Y Zoom Facility
- Data Table
- Export Facility
- MKT Calculation

TempIT-Lite TempIT-Lite provides all the features necessary for configuration and issue of the data loggers, as well as a graphical viewer for analysing data from the SL50, SL120, SL130, SL150 and SL7000 series data loggers. A historical trace is produced which shows the stored temperature profile with full X-Y zoom.

TempIT-Pro* The professional version of TempIT, TempIT-Pro contains all the functionality of TempIT-Lite but with the added benefits of a data table, export to spreadsheet function and the facility to e-mail graphs anywhere in the world. The data table is also available on a separate page.

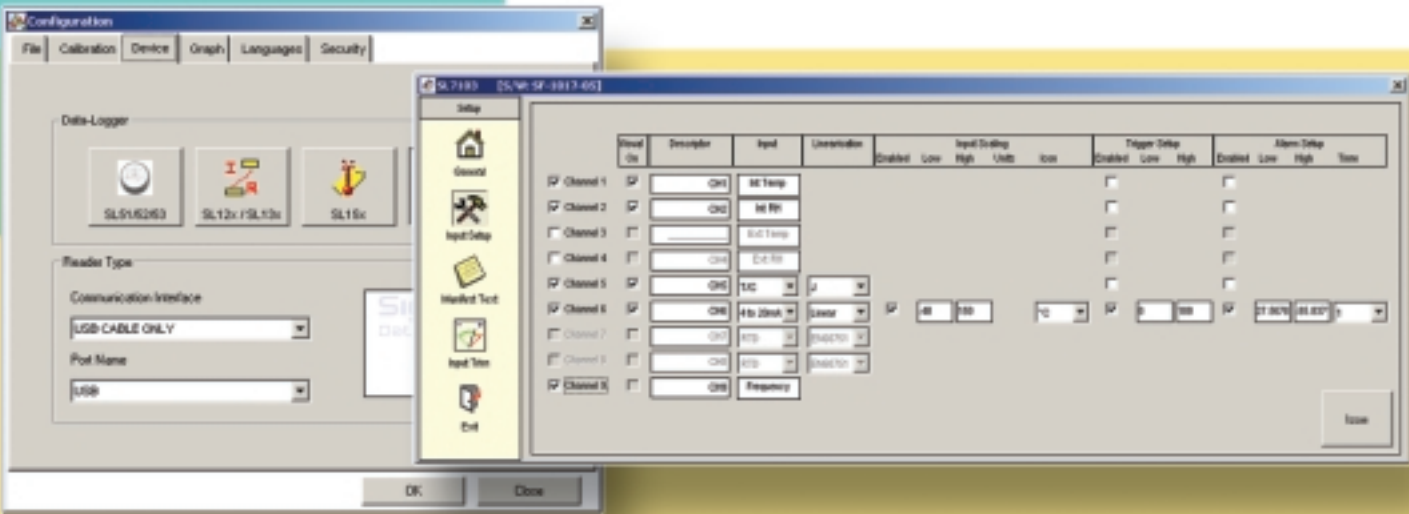
Data can be easily exported in comma-separated value format (CSV). That can be imported into spreadsheets programmes like Excel or Lotus 1-2-3. An in-built email facility enables graphs to be sent to remote locations. Emailing the graph is a useful function for goods inwards inspectors who need to have quality approval before accepting shipments.

TempIT-HS With TempIT-HS High Security software, the users are registered with Signatrol. This high security software handles all the requirements for a system complying with FDA 21 CFR PART 11. It manages and controls users, supports electronic signatures, stores the data in a secure format, keeps track of calibration information, provides manual or automatic archiving and keeps track of all operations, providing a full audit trail.

(Note: TempIT-HS is currently only available in version 3 and does not support SL7000 series devices.)

Please contact our Sales Office for availability.

** Now available; dongle-protected for multiple PC operation.*



Function

	TempIT-Lite version 4	TempIT-Pro version 4	TempIT-HS version 3
Issuing of Loggers	✓	✓	✓
Issuing of SL151T-HS tags (Version 3 only)			✓
View Manifest	✓	✓	✓
View Graph	✓	✓	✓
X-Y Zoom	✓	✓	✓
1 Trace			✓
Up to 2 Traces each individually scaled	✓		
Multi-Trace individually scaled		✓	
Auto scale function on Y axis	✓	✓	✓
Change units between °C and °F	✓	✓	✓
View Graph	✓	✓	✓
View data from SL151T-HS tags	✓	✓	✓
Save data from SL151T-HS tags in non secure format	✓	✓	
View data table		✓	✓
Export data in CSV format		✓	✓
Email graph		✓	✓
Electronic signature support			✓
Save data from SL151T-HS tags in secure encrypted format			✓
Automatic archiving			✓
Manage users			✓
Manage calibrations			✓
Audit trail			✓

Order Codes

TempIT-Lite
TempIT-Pro*
TempIT-HS

Infinite user licence, free of charge from www.signatrol.co.uk
Single computer use, one off charge
Single computer use, one off charge depends upon number of users

SL50 series



Single Channel 'Button' Temperature Data Logger

The SL50 Series are self-contained single channel temperature data loggers with the ability to record over 8000 data points. They operate in a temperature range of -40°C to +125°C and can record temperature, or temperature and humidity, depending upon the model chosen. They are very small (about the same size as a watch battery) which enables them to be inserted into small items and packages.

The SL50R Button Reader™ interfaces to the RS232/USB port of a PC and is totally compatible with the TempIT operating software (see pages 4/5) which enables the logger to be set up and the data read and displayed in graphical format. Data can be stored and retrieved at a later time. The software can be up-graded to TempIT-Pro which provides various additional features such as Data table, email graphs and automated MKT Calculations etc.

**OUR LOWEST
COST LOGGER**

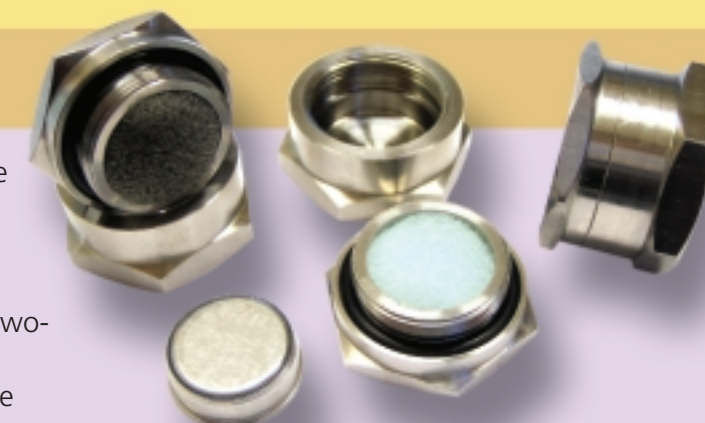


SL51M Minitag

This is a self-contained single channel temperature data logger with the ability to record over 2000 data points, operating within a temperature range of -20°C to +50°C and is available with a choice of button loggers attached, either the SL51T or SL54TH. The tags are coloured bright yellow for easy identification and retrieval, and can be fixed in place either by using the internal magnet or by using a security tie through the mounting hole provided.

SL50-ACC01

The SL50-ACC01 is a water-tight enclosure that allows the SL51T, SL52T and SL53T data loggers to be used in more hostile environments than the standard buttons. Constructed from 316 stainless steel, the two-part enclosure is sealed on an o-ring and provides greater protection in high pressure situations (up to 10 Bar), deep water (over 100m) or fluid monitoring, as well as aggressive chemical applications



Specification at 20°C

	SL51T	SL52/53T	SL54TH
Sensor (Internal Sensor)	Temperature -40 to +85°C	Temperature SL52 -40 to +85°C SL53 0 to +125°C	Temperature / RH Temp: -20 to 85°C RH: 0 to 100%
Sensor Accuracy	1°C from -30 to +70°C 1.3°C outside this band	SL52 0.5°C from -10 to +65 SL53 0.5°C from +20 to +75	0.5°C from -10 to +65 RH: ± 5%
Battery Life	10 years or 1M Temperature Measurements @ Ta<50°C	Depends upon sample rate and ambient temperature ¹	
Sampling Rates (User selectable)	1 to 255 minutes	1 sec to 24 hrs ^{1 2}	
Memory Size (Readings)	2048	8192 – Low Resolution Mode ³ 4096 – High Resolution Mode ³	
Resolution	8 bit – 0.5°C	8 or 11 Bit (0.0625°C) ³	Temp: 8 or 11 bit RH: 8 or 12 bit
Size	17 mm diameter x 6 mm height.		
Case Material	305 stainless steel		
Weight	4 g		
Sealing	Water Resistant	Waterproof to 1 metre	N/A
Communication	RS232 Serial / USB		
Sampling Methods	Continuous (First-in/First-out) or Stop when full. ²		
Alarms	High and Low		
Owner Manifest Data	Up to 36 Characters		
User Manifest Data	Up to 72 Characters		

¹ Sample rate affects battery life as does high temperature exposure See full data sheet.

² 'Stop when full' is the only option for scan rates < 1 minute / sample.

³ Resolution is programmable 8 or 11 bits. More data can be stored in 8 bit mode and battery life is enhanced.

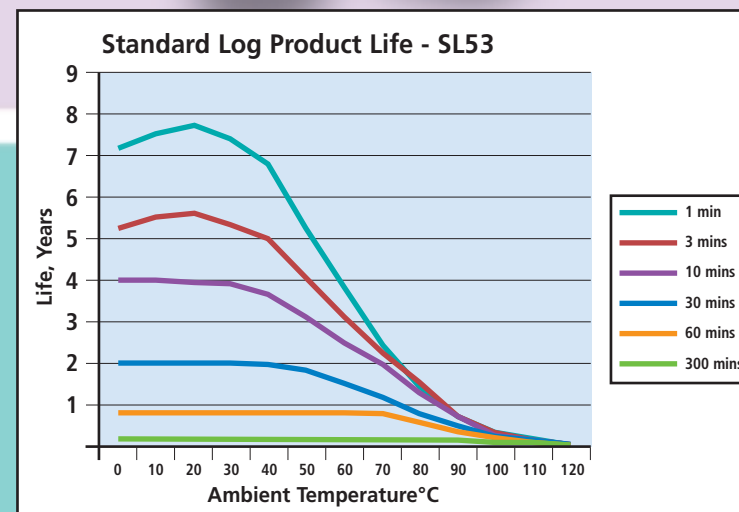
Applications

Food processing verification, pharmaceutical storage, laboratories, transportation of temperature-sensitive goods, equipment run time, HVAC system testing and balancing, etc.

Order Codes

SL51T
SL51M
SL52T
SL53T
SL54TH
SL54M
SL50R-232
SL50R-USB
TempIT-Lite
TempIT-Pro
SL50-ACC01

Button Logger -40°C to +85°C
Button Logger -20°C to +50°C
Button Logger -40°C to +85°C Sealed, High Performance
Button Logger 0 °C to +125°C Sealed, High Performance
Temperature and RH Button Logger
Temperature and RH Minitag
Interface Cable for use with any button to RS232 Port
Interface for use with any button to USB Port
FOC from website
Upgrade from TempIT-Lite; see page 4
Stainless Steel enclosure for applications up to 10 Bar



Features

- Self-contained temperature logger
- Monitor from - 40°C to +125°C
- Water-resistant to 1 metre
- TempIT compliant

SL120 series

Data Loggers

**VERSATILE
SINGLE-CHANNEL
COST-EFFECTIVENESS**

Use the SL120 to:

- Monitor goods in transit
- Perform checks on 4-20mA loops
- Check on ambient conditions in cold stores
- Optimise temperature control in HVAC applications
- Record experimental data to use as teaching aids in schools and colleges
- Discreetly monitor working conditions



The SL120 series of data loggers are very small and compact in design - only 60mm long - and provide an accurate record of temperature or process signals, depending upon the model chosen.

Up to 16,000 records can be stored in the logger which uses the powerful TempIT software package running on a PC, to download the configuration and to retrieve the data. High and Low alarms can be set with a programmable time period for which the alarm limit must be exceeded before it is recognised as an alarm. Any alarm condition detected is clearly shown on the chart and, in the case of the SL121, is annunciated by flashing an on-board LED and audio 'bleeper'.



SL120 located
on reader

Sensors and Types

	120/121/T	120/121/TR	120/121/I	120/121/V
Sensor	Internal Thermistor	External Thermistor	Current	Voltage
Range	- 40 to +70 °C	- 40 to +125 °C or 60 to 250 °C depending upon probe used	0-22 mA	0-1V DC or 0-10 V DC
Response Time for 63%	5 Mins	6 Seconds	200 mSec	200 mSec
Accuracy	+/- 0.5 °C	+/- 0.5 °C	0.06% FS	0.06% FS
Over Voltage / Current Protection	N/A	N/A	Yes	Yes
Reverse Connection Protection	N/A	N/A	Yes	Yes

Features

- Small yet robust
- Cost-effective temperature recording
- Security tie option
- Environment monitoring
- High accuracy and resolution (12-bit)
- IR transfer for fast download
- LED and audio alarm annunciation (SL121)
- Current and Voltage versions

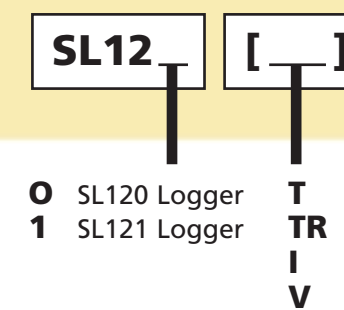
Specification at 20°C

	SL120	SL121
Ambient Temperature Range	-40 to +70°C	
Resolution	12-bit	
Logging Interval	2 sec - 24 hours	
Communications - Logger	Infrared link to reader	
Communications - Reader	RS232 Port / USB (order as appropriate)	
Owner Manifest	64 characters	
User Manifest	450 characters	
Battery Life	5 years typical @ 20°C	
Protection	Sealed to IP65 with encapsulated electronics	IP50
Material	Robust 'key fob' type, light grey ABS	
Enclosure	60 x 35 x 20mm, with key ring hole	
Fixing	Mounting hole to take security tie	
Max. number of readings	2048	16384 ¹
Download time	20 secs	100 secs for 16k readings
Alarm Indication	None	Red/Green LEDs + audio bleep
Software Requirements	TempIT-Lite (FOC) or TempIT-Pro	

¹ Programmable up to the maximum

Order Codes

* Note: sensors are purchased separately.



Readers

SL120R-RS232 IR Reader with RS232 cable
SL120R-USB IR Reader with USB cable

Accessories

ACC120-01 Remote temperature assembly for SL120TR
4mm Dia x 75 mm SS 1M FEP Cable (Contact Sales for details of other available sensor configurations)
Range - 40 to +125°C
ACC120-02 As ACC 120-01 but range 60 to 250°C
ACC120-03 Spare 4-20mA or voltage connecting lead

SL130T

High Temperature Data Loggers

VALIDATE AUTOCLAVES AND WASHER-DISINFECTORS TO HTM2010 OR HTM 2030

The SL130T is a single channel temperature data logger designed to record temperatures in environments up to 140°C (time-limited above 85°C).

It is manufactured from PTFE* material which is impervious to most common chemicals and is ideal for use in areas of food production. A Stainless Steel

sensor, which is protected by the enclosure design, protrudes from the outside of the case to ensure a quick response.

Readings are stored to the internal memory which are subsequently downloaded via an Infra Red communications link to a PC computer running TempIT software (see pages 4/5).

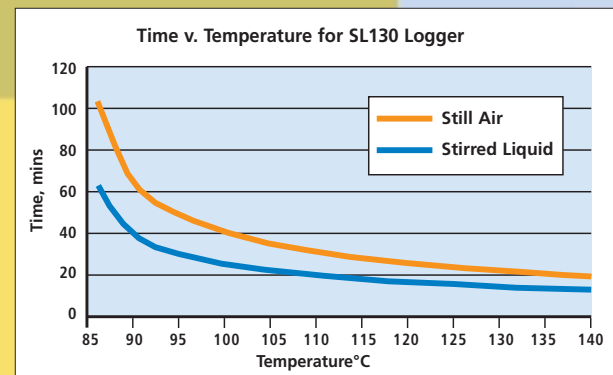
* Environmental: PTFE is unaffected by use in outdoor applications, and by ultra-violet light, weak acids >pH3, strong acids <pH3, strong alkalis <pH11, chlorinated hydrocarbons, and hot water.

Specification

Temperature Range	-30 to +140°C
Sensor	Internal Thermistor
Accuracy	± 0.4 °C ± resolution
Resolution	12-bit < 0.06 °C
Logging Interval	2 sec - 24 hours
Max. number of readings	8192
Response time (63%)	4 Seconds in a stirred liquid bath, 30 seconds in still air
Programmable alarm points	High and Low alarms with programmable trigger period
Alarm Indication	On Trace
Owner Manifest	64 characters
User Manifest	450 characters
Protection	IP68 with encapsulated electronics
Enclosure material	Robust PTFE construction *
Communications	IR link to reader

Features

- Washer-disinfector validation
- Autoclave validation
- Waterproof to IP68
- PTFE construction
- Fast response



Order Codes

SL130T Data Logger
SL120R-232 IR reader RS232 Interface
SL120R-USB IR reader USB Interface
TempIT-Lite Operating Software (free from Internet site)
TempIT-Pro Operating Software with Data Table and MKT calculation

SL150 series



In-Transit Temperature Data Loggers

**VIRTUALLY INDESTRUCTIBLE
LOGGER, IDEAL FOR
TRANSPORTATION MONITORING**

The SL150 is used by carriers and QA departments of food, pharmaceutical and other industries to provide easily accessed, precise temperature data of goods in transit or storage. Housed in a robust sealed plastic tag, the SL150 can be located inside a packing case, on a pallet or attached directly to the product. Powered by an internal battery, the SL150 will log at programmable intervals. Setting of tag details or alarm thresholds, and downloading the stored data, is achieved by simply placing the logger onto a wireless reader which links directly to a PC, where TempIT software can display any required information.



READER

The SL150 reader connects to a standard PC serial port and the Tag is simply placed on top of the reader for configuration and data download.

UNCONDITIONAL WARRANTY

So confident are we in the robustness of this product that we guarantee it for 12 months against failure, and will replace any unit that does, regardless of the cause.

Features

- Secure Data
- Compact and Robust
- Fully Sealed Construction
- Food Grade ABS
- Unique Wireless Downloading
- 1 Year Unconditional Warranty

Specification at 20°C

	SL150	SL151
Power	Internal Battery	
Battery Life	4 years	
Logging Interval	2 sec - 24 hours	
Temperature Range	-30 to +60°C	
Accuracy	+/- 0.5°C	
Resolution	12-bit (0.06°C)	
Number of Readings	1948	16384
Reading Rate	1 min to 225 mins	30 secs to 100 hours
Maximum Journey	11 months	4 years
Alarms	2	
Green Active LED	No	Yes
Red Alarm LED	No	Yes
Ingress Protection	IP68	
Manifest Data	67 characters	450 characters
Response Time	7 minutes	
Delayed Start	No	Yes
Stop when full	Yes	

Order Codes

SL150T Data Logger tag only
SL151T Data Logger tag only
SL150R 1 Wireless reader

SL7000 Universal Data Logger

HIGH PERFORMANCE AND FLEXIBILITY



Features

- Universal Inputs
- 1, 2, 3, 4, 5, 6, 7, 8 and 9 channels
- 16-bit resolution
- LCD display option
- User-replaceable battery
- Typical 3 year battery life
- Digital input

The SL7000 is a data logger with a very flexible combination of inputs - from a single temperature input, up to 4 universal inputs combined with an internal temperature and RH, as well as an optional external temperature and RH sensor. All units also feature a digital input which can be used as an event trigger or as a counter input. Powered by its own user-replaceable battery with life in excess of 3 years, the SL7000 can record up to 120,000 readings at intervals from 1 second to 24 hours. It features unprecedented 16-bit accuracy and resolution for all universal inputs, and is competitively priced regardless of the application. An on-board LCD display (optional) shows selected channel information, and integral LED displays provide immediate scanning and alarm status information.

Specification at 20°C INPUTS

Universal Inputs	<ul style="list-style-type: none">• Pt100: 2 or 3 wire °C or °F (BS EN 60751/JIS1604)• Ni100, Ni120: 2 or 3 wire °C or °F• Cu10: 2 or 3 wire °C or °F• Thermocouples J, K, T, R, S, B, N °C or °F• Thermistor (various types) °C or °F• (0-20 mA) scaled in engineering units• +/- 100mV dc scaled in engineering units• (0-1)V DC scaled in engineering units• (0-10)V DC scaled in engineering units• Slidewire scaled in engineering units (100ohm to 10kohm)
Resolutions	All universal inputs 16-bit Internal and External Temperature 12-bit Internal and External RH 8-bit
Counter Input	Used to start logging or as a counter Maximum Count: 65535 per sample period Maximum Frequency: 32768 Hz
Start Options	Programmable Delay Period (10 minutes to 1 year) Start on external magnet swipe Start on event trigger
Channel Indicators	8 green LEDs to indicate logging status, changing to red to indicate alarm condition
Comms Indicator	1 yellow LED to indicate comms activity
Sample Rate	1 second to 24 hours for all channels
Display	Optional 3.5 digit LCD with channel indication and low battery warning
Communication Interface	USB isolated (5-pin mini-USB connector)
Sample Method; Selectable	Point Averaging Maximum Minimum

Non-display version



Specification (continued)

GENERAL

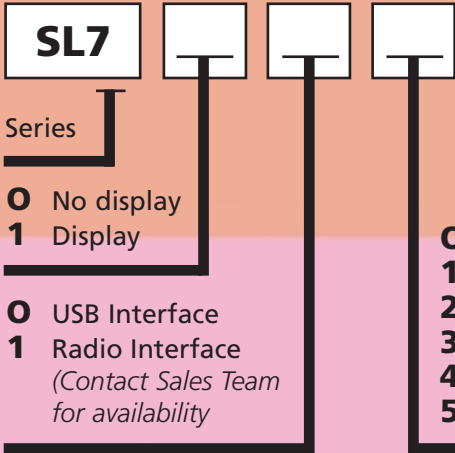
Memory Size	0 or 2 universal inputs 60,000 readings 4 universal inputs 120,000 readings
Battery Life	Typical 3 years (2700mAh)
Ambient Operating Range	-30 to +80°C
Manifest Text (User)	256 characters
Manifest Text (Owner)	256 characters
Alarm Setpoints	Independent High and Low Latching per channel
Low Battery Warning	Displayed when battery life has less than one month to go

External Temperature / RH Sensor

As an optional extra, the ACC7000-01 provides an additional temperature and RH input. This unit is pre-calibrated, and simply plugs into the base of the main unit.



Order Codes



Accessories

- SL-ACC7000-01
- SL-ACC7000-02
- SL-ACC7000-03
- SL-ACC7000-04
- SL-ACC7000-05
- TempIT-Lite
- TempIT-Pro
- TempIT-HS

- External Temp/RH Probe
- Replacement Miniature USB connecting lead
- Replacement Lithium Thionyl Chloride Battery
- External power supply (cannot be used with ACC7000-01)
- Spare 14 way input connector
- Operating Software (FOC)
- Upgrade to professional version
- High Security Version

SL400

Radio Telemetry System

**REMOTE
WIRELESS
DATA LOGGING
WITH FAST
INSTALLATION
AND TOTAL
VERSATILITY**

The SL400 from Signatrol is the next generation of radio data collectors. The system comprises of a base station permanently connected to a PC, and up to 200 remote monitoring stations, each with a maximum of 4 sensor inputs (giving a theoretical total of 800 channels per

site). Great savings can be achieved over a

wired system, both in initial installation costs and in time and convenience, as all the information is accessible at the desktop.

Each remote transmitter can be mounted up to 1000m from the base station, and is battery-powered with up to 5 years battery life when sampling every 20 minutes. They are also available with an optional LCD display, giving local indication of temperature and relative humidity. Alarm modules are available that focus on one particular transmitter and provide either an audible or relay output if pre-programmed limits are exceeded. The radio system uses the pan-European*, licence-free transmission frequencies of 434MHz.

Readings are stored on the PC via standard JAVA-based software, but if the computer is turned off, the battery-backed base station will store the readings in its own internal memory, automatically downloading next time the computer is powered up. The software allows the operator to view the measured values in a number of formats, from simple bar graphs to multi-line traces, and the data is viewed using a conventional web browser. Multiple users can view the stored and realtime information, and remote access is possible using modems. Alarm notification can be sent using e-mail or SMS text messaging.

THE COMPLETE SERVICE

Many services are available when purchasing the SL400 series radio data collector:

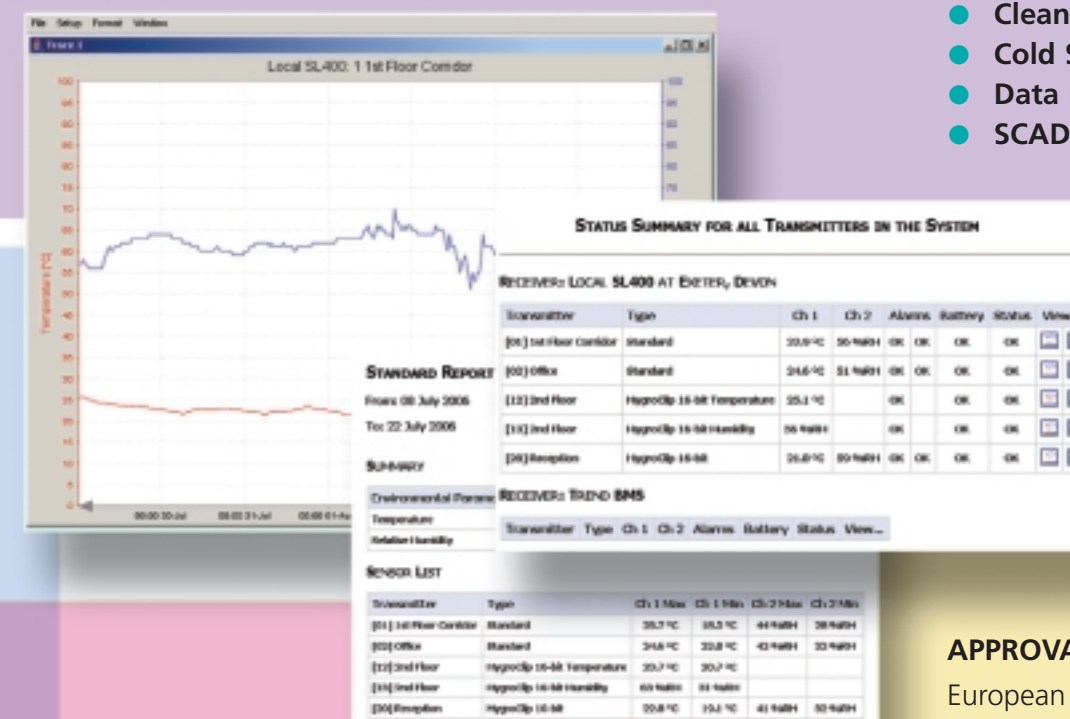
- Initial Site Assessment
- On-Site Maintenance Agreement
- Extended Warranty Contract
- Routine Re-Calibration Service
- Telephone Support

The SL400 series Radio Data Collectors are designed specifically to be used in a variety of different environments to monitor changes in Temperature, Relative Humidity, Low Differential Pressure, Process Signals, Lux, Ultra Violet and Volt free contacts.

Examples of such environments are:

- Museums
- Warehouses
- Process Measurements
- Clean Rooms
- Cold Stores
- Data Hotels
- SCADA Integration via OPC

Using JAVA technology, all points and graphs are viewable from any location using a simple web browser.



Order Codes

SL412

SL412

- SL412-1
- SL412-2
- SL412-4

SL413-1FIXED

SL413

- SL413-1
- SL413-2
- SL413-4

SL417

- SL417-1
- SL417-2
- SL417-4

SL418

- SL418-1
- SL418-2

SL400

SL416

Outside Temperature & RH, no Display

Temperature & RH, no Display

- Single channel
- Dual channel
- Quad channel

3 Wire Pt100

3 Wire Pt100

- Single channel
- Dual channel
- Quad channel

Process Signal Inputs mA or DC Voltage

- Single channel
- Dual channel
- Quad channel

Alarm Unit

- Integral buzzer
- Mains-rated relay

Base Station

Narrowband basestation, 434MHz

Narrow Band 16 Bit repeater.

APPROVALS

European Standard ETS300/220

INTERFACING TO EXISTING ETHERNET NETWORKS

Using the optional SLACC-20 network adaptor, the SL400 maybe connected remotely on an existing Ethernet network, allowing the base station to be accessed from anywhere on a local area network.

SOFTWARE FEATURES

- Trending
- Historical Replay
- Alarm Indicator
- Hard Copy Generation

HARDWARE REQUIREMENTS

- Pentium PC
- 10MB Programme Space*
- 8MB RAM
- Windows 2000 or XP

*Data files require extra space

*PC required but not supplied.
In this image, PC not to scale
with SL400 product items.*

Features

- Fast installation
- No unsightly wiring
- Easily expanded
- Low maintenance
- Easily interfaced to most SCADA packages
- Centralised data collection for data storage and analysis

SL960 series

High Precision Data Loggers

SELF-CONTAINED
PRESSURE
DATA LOGGING



SL963

SL964

The SL963 and 964 are self-contained battery-powered data loggers for measuring and recording pressure and level. The SL963T allows measurement of pressure and ambient temperature, whilst the SL963TD has a built in LED display, and the SL963X is certified for hazardous area installations.

The SL964 is suitable for measuring fluid level and temperature, and is particularly suited to portable installations, or where a conventional power supply cannot be provided. A high-accuracy stainless steel submersible pressure transducer provides level measurement for recording by the high-resolution data logger, mounted in a IP67 weatherproof enclosure. Both loggers store up to 130,000 readings, with a battery life of up to 10 years. An interconnecting cable is factory-fitted to the required length, via which data is fed to a PC via a RS232 interface.

Specification at 20°C

	SL963	SL964
Pressure Range	0 to 100mB minimum 0 to 1000B maximum	0 to 1 MWG minimum 0 to 250 MWG maximum
Ambient Temperatures	0°C to +70°C - standard -25°C to +85°C - optional -25°C to +70°C - SL963X only	
Accuracy	< +/- 0.25% full scale	
Resolution	< 0.01% full scale (14-bit)	
Sample Rate	Programmable between 2 secs and 24 hours, in 2 sec intervals	
Power Supply	Lithium Battery; user-replaceable 3.6V / 1.9Ah, size AA	
Battery Life	1 reading per minute - 1 year 1 reading per hour - 10 years 6 readings per hour - 5 years	
Data Memory	130,000 measurements.	Non-volatile memory

Features

- Self-powered
- Display option
- Temperature option
- EXi option
- Pressure / level

Order Codes

SL963	Pressure only data logger
SL963T	Pressure and Temperature Data Logger
SL963TD	SL963T + Integral display
SL963X	Intrinsically Safe pressure logger
SL963TD- DATA	Communications lead for SL963TD
SL963X-DATA	Communications lead for SL963X
SL960-DATA	Communications lead for SL963 and SL963T - includes software
SL964GL	Pressure only level logger
SL964G	Temperature and Pressure Level Logger
SL964-DATA	SL964 communications lead

Please specify: Pressure range, operating temperature, medium, process connection, whether gauge or absolute, and cable length for SL964.

SL1000

High Performance Data Logger

THE BEST FOR
FAST, HIGH-
PERFORMANCE
DATA LOGGING



The SL1000 series are 16-bit, high performance data loggers. The range consists of two versions, the standard SL1000 with sample rates from 1 second to 1 day, and the fast sample rate version with all 8 channels sampled at rates from 1mS to 1 second. The fast logger has 12-bit resolution.

Whilst the fast log version is only available in 8 channel format, the standard data logger is available with 8, 16 or 24 channels. Each channel can be configured for mA, mV, Volt or thermocouple input. An optional current excitation card is also available to excite Pt100 sensors. Each logger is supplied with an integral LCD display that allows on-the-spot fault finding, which encourages peace of mind that all is well before the logging is started. The SL1000 data loggers are available with two memory options: 512k memory allows 250,000 samples and the 1MB version will hold 500,000 samples.

Specification at 20°C

	SL1008/16/24	SL1008F
Measurement Interval	1 sec to 24 hours	1mS to 1 sec
Inputs	8, 16 or 24 True Differential	8 True Differential
Input Types	10V, 1V, 100mV, 50mV, 20 mA, T/C Types B, E, J, K, N, R, S, T.	
Number of readings; 512kB version 1MB version	250,000 500,000	
Accuracy; Voltage & Current T/C	+/- 0.04% FS +/- 0.5°C	
Power	Mains converter - 12-15V DC @ 400mA	
Battery back-up	Yes	
Temperature Range	-20°C to +60°C	

Order Codes

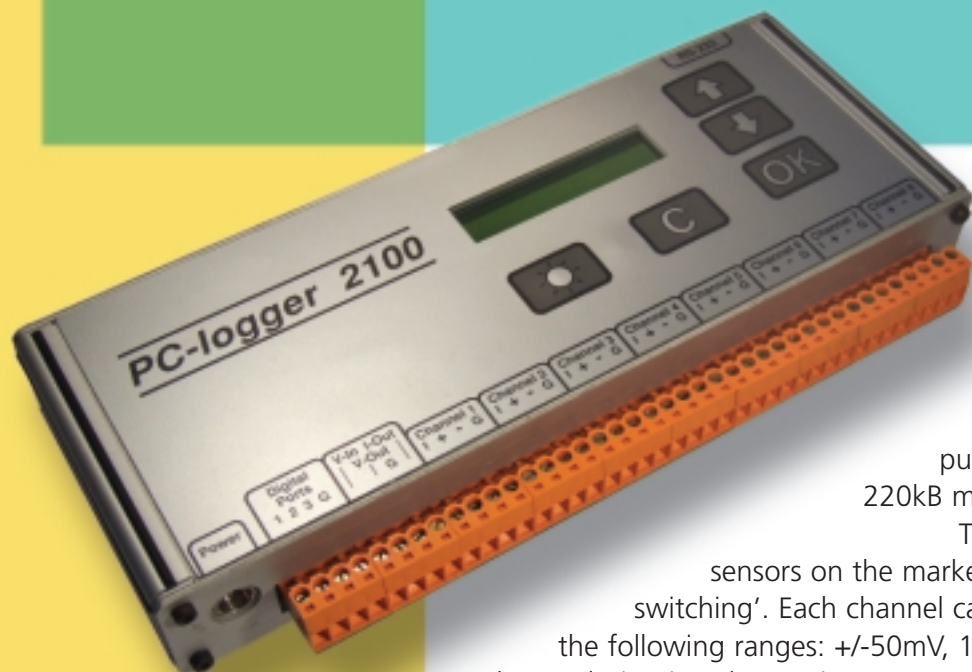
SL1008F	High speed logger
SL1008	8 channels, 512kB memory
SL1008+	8 channels, 1MB memory
SL10016	16 channels, 512kB memory
SL10016+	16 channels, 1MB memory
SL10024	24 channels, 512kB memory
SL1000-SOFT	Easyview operating software

Features

- 8, 16 or 254 analogue inputs
- 16 bit resolution
- Fast logging option
- Up to 500,000 readings
- Universal input

Signatrol.com (+44)(0)1684 299399

SL2100 High Versatility Data Logger



HI-RES
UNIVERSAL
8-CHANNEL
LOGGER

The SL2100 is a versatile data logger with 8 analog inputs, 3 pulse counters, an alarm output and 220kB memory.

The logger can handle practically all sensors on the market thanks to the 'software range switching'. Each channel can be individually configured to one of the following ranges: +/-50mV, 100mV, 1000mV, 10V or 0(4)-20mA. The resolution is at least 1 in +/-25,000 which, in the highest range (+/- 10V), gives a resolution of 0.4mV!

Specification at 20°C

	SL2100
Inputs	8 True Differential
Input Types	10V, 1V, 100mV, 50mV, 20 mA, T/C Types B, E, J, K, N, R, S, T.
Digital Inputs	3 Volt free contact or TTL - switch state or accumulator mode
Accuracy; Voltage & Current T/C	+/- 0.01% FS +/- 0.7°C
Power	Mains convertor - 12-15V DC @ 400mA
Battery Back-up	Yes
Temperature Range	-20°C to +50°C
Number of Readings	112,000
Digital Outputs	One - maximum voltage 20V, maximum current 100mA
Sample Rate	1 second to 24 hours, in 1 second steps
Ingress Protection	IP50
Software Alarms	Yes
Delayed Start	No
Stop when full	Yes
Material	Extruded aluminium

Order Codes

SL2100 8 channel data logger
SL1000-SOFT Easyview operating software

Easyview Software for SL1000 and SL2100

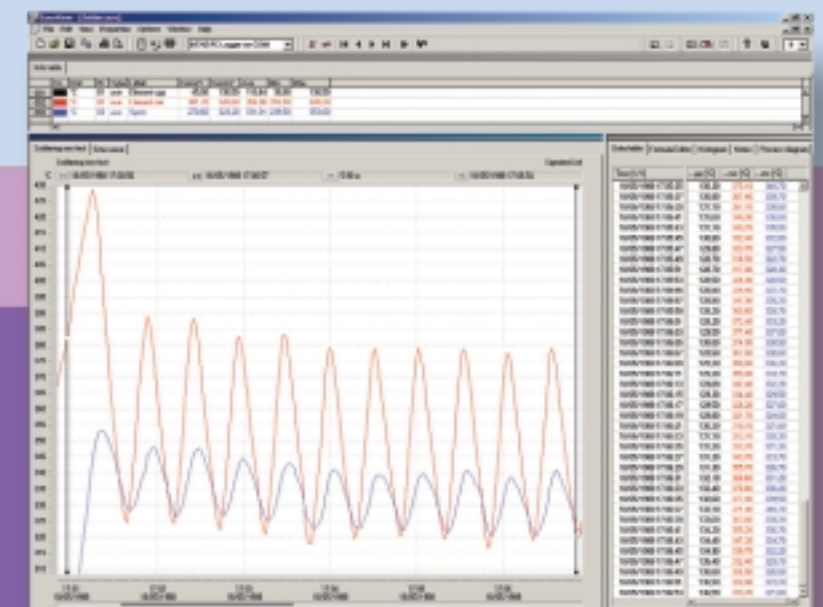
OUR MOST POWERFUL
DATA LOGGING
SOFTWARE

Easyview software is used for the configuration and data retrieval from the SL1000 and SL2100 series data loggers. The software has features and functions for the very demanding scientist or engineer without being over complicated for non-technical users.

Wizards are used to configure the data logger (or OPC client) guiding the operator in the right direction and showing the options available. This means that the configuration of the data logger (or OPC client) is quick and straight-forward.

A number of 'Plug-ins' are available including OPC and DDE Client and Servers, Web Publisher or Easycall where, for example, data could be retrieved from five stations at midnight every day, to add to existing monthly recordings.

All in all, the Easyview software is the most powerful and versatile data logging platform available.



OPC (Object linking and embedding for Process Control) is an industry standard software platform created by a number of leading suppliers of hardware and software in the process control industry. The goal of the standard is ' Plug and Play', and by using the standard OPC client-server model, an OPC-compliant device can be quickly and seamless connected to the Easyview display software.

For more information on OPC visit the OPC foundation at www.opcfoundation.org.

Order Code

SL1000-SOFT Easyview operating software

Features

- 8 analogue inputs
- 3 pulse counters
- Alarm output
- 16 bit resolution
- On-board display
- 112,000 samples

Thermal Barriers

**LOG DATA AT THE
HEART OF HOT AND
COLD PROCESSES**

With the introduction of more stringent food quality programmes, it is now more important than ever for food manufacturers to have documentary evidence that the produce has been cooked or chilled for the required time periods.

The SL Thermal Barriers allow a SL7000 data logger to pass through any oven or chiller and provide through-process data logging and temperature profiling. The system is regularly used in tunnel ovens, rotary ovens, rack ovens, spiral freezers and blast freezers. It is also suitable for applications in powder coating and stove enamelling.

When used in conjunction with Signatrol data loggers, an accurate profile of the heating or cooling application can be displayed in graphical or data table format. There are no trailing wires to get tangled in the conveyor or process, and the whole system passes through the application giving an accurate profile of process against time.

Typical Application: Thermal Barrier with Data logger and thermocouples in a rack oven.



Order Codes:

SL-TB130
SL-TB110
SL-TB90
SL-TB70
SL-TB50

Features

- **Robust construction**
- **Resistant to ingress of air, water and steam**
- **Suitable for hot and cold processes, from -150°C to +600°C**
- **Can remain in-process for up to 6 hours**

Probes

**PROBES AND
SENSORS FOR EVERY
PURPOSE**



Signatrol can supply a wide range of probes and sensors, all compatible with their data loggers, to suit a wide variety of applications.

With such a wide range of types and configurations, all orders are individually assessed and specified accordingly.

Please call our sales team with your requirements.

GSM Modems

Signatrol offer a variety of different types and configurations of modem for connection to monitoring sources via telephone links. But there is now a another option for completely self-contained remote monitoring and retrieval:

**FAST AND EFFICIENT
DATA TRANSFER**

- **Dual-band EGSM900 and GSM1800**
- **Compliant to GSM phase 2/2+**
- **Control via AT commands**
- **Supply voltage range 8V - 30V**
- **Mini-SIM card reader**
- **Operating status LED**

GSM Tri-Band Modem - SL-ACC19

Remote GSM modem that allows the SL700 series data loggers to be connected to the telephone system where conventional telephone lines are either not installed or harsh environments that would make installation too expensive. Using the GSM mobile telephone network, data can be retrieved from a data logger positioned almost anywhere in the world. The GSM modem can be used as a remote alarm unit, automatically dialing out to a mobile telephone or pager if predetermined alarms settings are exceeded.

The SL-ACC19 can be used with any GSM compatible SIM card (not supplied)

Applications include:
Remote monitoring of storage tanks, flow meters, river or reservoir levels... even fridges and freezers.

Order Code SL-ACC19

Terms and Conditions

All transactions are subject to our standard terms and conditions of sale which are available on request or from our web site. A brief summary of the main terms and conditions follow.

1 INTERPRETATION

- 1.1

In the Conditions:
“Company”
“Customer”

“Conditions”

“Order”
“Contract”
“Goods”

“Services”

“Writing”
- means Signatrol Limited.

means the person, firm or company, who accepts a quotation of the Company for the sale of the Goods and/or the Services or whose Order for the Goods and/or Services is accepted by the Company.

means the standard terms and conditions of sale set out in this document (unless the context otherwise requires) including any special terms and conditions agreed in Writing between the Customer and the Company.

means Customer's instructions to supply Goods or Services.

means the contract for the purchase and sale of the Goods and/or Services.

means the goods (including any instalment of the goods or any parts for them) which the Company is to supply in accordance with the Conditions.

means the installation, technical support, back-up and other services which the Company may provide in accordance with the Conditions.

includes telex, cable, electronic and facsimile transmission and comparable means of communication provided that any communication by facsimile transmission shall be followed by a hard copy thereof sent by post.

2 BASIS OF SALE

- 2.1

The Company shall sell and the Customer shall purchase the Goods and/or Services in accordance with any written Order of the Customer which is accepted by the Company, subject to the Conditions, which shall govern the Contract to the exclusion of any other terms and conditions. No variation to the Conditions shall be binding unless agreed in Writing by an authorised representative of the Company.

3 ORDERS AND SPECIFICATIONS

- 3.1

No Order submitted by the Customer shall be deemed to be accepted by the Company unless and until confirmed in Writing by the Company. Each Order so accepted shall constitute a separate contract.
- 3.2

The Company reserves the right to make any changes in the specification of the Goods.
- 3.3

No Order which has been accepted by the Company may be cancelled by the Customer except with the agreement of the Company.

4 PRICE OF THE GOODS

- 4.1

The price of the Goods and/or Services shall be as stated in the Company's order acknowledgement.
- 4.2

The Company reserves the right, by giving notice to the Customer at any time before delivery, to increase the price of the Goods and/or Services to reflect any increase in the cost to the Company which is due to any factor beyond the control of the Company.
- 4.3

The price is exclusive of any applicable value added tax.
- 4.4

All prices are exclusive of costs for delivery, postage, packing, administration and insurance, which will be additionally charged.

5 TERMS OF PAYMENT

- 5.1

Subject to any special terms agreed in Writing , the Company shall be entitled to invoice the Customer for the price of the Goods and/or Services on or at any time after delivery.
- 5.2

The Customer shall pay the price of the Goods and/or Services (less any discount to which the Customer is entitled) within 30 days of the date of the Company's invoice. The time of payment of the price shall be of the essence of the Contract.
- 5.3

If the Customer fails to make payment on the due date then, without prejudice to any other right or remedy available to the Company, the Company shall be entitled to:

5.3.1

cancel the Contract or suspend any further deliveries of the Goods and/or performance of the Services;

5.3.2

appropriate any payment made by the Customer to such of its invoices as the Company may think fit.

5.3.3

charge the Customer interest (both before and after any judgment) on the amount unpaid, at the rate of 4% per annum above Barclays Bank plc base rate, until payment in full for all outstanding amounts due is made.

6 RETURN OF GOODS

- 6.1

Except where Goods are returned under warranty, the Customer shall not be entitled to return Goods unless the Company has given its prior consent and has issued to the Customer a Returned Materials Authorisation (RMA) number.
- 6.2

Provided such consent has been given, incorrectly or over - ordered standard parts may only be returned within 30 days of the invoice date in unused condition. In such event a handling charge of 15% will be made on such items, with a minimum charge of £10.

7 DELIVERY

- 7.1

Delivery of Goods shall be made by the Company passing the Goods to such carrier as shall be nominated by the Company with instructions to transport the Goods to the delivery address specified by the Customer.
- 7.2

Any dates quoted for delivery of the Goods and/or provision of the Services are approximate only and the Company shall not be liable for any delay in delivery of the Goods or performance of the Services howsoever caused. Time for delivery shall not be of the essence.
- 7.3

Where the Goods and/or Services are to be delivered or provided in instalments, each delivery shall constitute a separate contract and failure by the Company to deliver any one or more of the instalments shall not entitle the Customer to repudiate the Contract as a whole.

- 7.4

If the Customer fails to accept the Goods and/or fails to give the requested delivery instructions then, without prejudice to any other right or remedy, the Company may:

7.4.1

store the Goods until actual delivery and charge the Customer for the reasonable costs (including insurance) of storage.

7.4.2

sell the Goods at the best price readily obtainable and (after deducting all reasonable storage and selling expenses) account to the Customer for the excess over the price under the Contract or charge the Customer for any shortfall below the price under the Contract.

7.4.3

invoice the Customer for all costs and expenses incurred by it in connection with the delay caused in the provision of the Services.

8 RISK AND PROPERTY

- 8.1

Risk of damage to or loss of the Goods shall pass to the Customer at the time when the Company passes the Goods to its carrier as set out in clause 6.1 above.
- 8.2

The property in the Goods shall not pass to the Customer until the Company has received payment in full of the price of the Goods and/or Services.

9 WARRANTIES AND LIABILITY

- 9.1

Subject to the Conditions the Company warrants that:

9.1.1

the Goods will correspond with their specification at the time of delivery and will be free from defect in material and workmanship for the specified period in the Company's published literature or web site.

9.1.2

the Services will be carried out with reasonable skill and care.
- 9.2

The Company shall be under no liability:

9.2.1

in respect of any defect in the Goods arising from any drawing, design or specification supplied by the Customer.

9.2.2

in respect of any defect arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, improper storage, failure to follow the Company's instructions (whether oral or in writing), misuse or alteration or repair of the Goods without the Company's approval.

9.2.3

where any seal has been broken or the Company's trade mark or serial number has been removed, defaced, altered or tampered with unless otherwise agreed in writing.

9.2.4

where the Goods have not been installed in accordance with all installation instructions provided by the Company.

9.2.5

under the above warranty (or any other warranty, condition or guarantee) if the total price for the Goods has not been paid by the due date for payment.
- 9.3

The above warranty does not extend to parts, materials, equipment, components or other products not manufactured by the Company, in respect of which the Customer shall only be entitled to the benefit of any such warranty or guarantee as is given by the manufacturer to the Company.
- 9.4

The above warranty does not extend to any loss or damage sustained in transit.
- 9.5

Subject as expressly provided in the Conditions, and except where the Goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977 and the Unfair Terms in Consumer Contracts Regulations 1994), all warranties, conditions or other terms implied by statute or common law are excluded to the fullest extent permitted by law.
- 9.6

Where the Goods are sold under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements) Order 1976) the statutory rights of the Customer are not affected by the Conditions.
- 9.7

Any claim by the Customer which is based on any defect in the quality or condition of the Goods or their failure to correspond with specifications shall (whether or not delivery is refused by the Customer) be notified to the Company within 7 days from the date of delivery or (where the defect or failure was not apparent on reasonable inspection) within a reasonable time after discovery of the defect or failure. If delivery is not refused, and the Customer does not notify the Company accordingly, the Customer shall not be entitled to reject the Goods and the Company shall have no liability for such defect or failure, and the Customer shall be bound to pay the price as if the Goods had been delivered in accordance with the Contract.
- 9.8

Where any valid claim is notified to the Company in accordance with the Conditions the Company shall be entitled to repair or replace the Goods (or the part in question) and/or carry out corrective installation services free of charge or, at the Company's sole discretion refund to the Customer the price of the Goods and/or Services (or a proportionate part of the price) and the Company shall have no further liability to the Customer.
- 9.9

The Company's liability for damage to tangible property resulting from breach of contract and/or any negligent act or omission of the Company or its employees, agents or sub-contractors shall be limited to £5,000,000 in respect of any one incident or £5,000,000 in respect of any series of incidents arising from a common cause.
- 9.10

Except in respect of death or personal injury caused by the Company's negligence, the Company shall not be liable to the Customer by reason of any representation, or any implied warranty, condition or other term, or any duty at common law, or under the express terms of the Contract, for any consequential loss or damage (whether for loss of profit or otherwise), costs, expenses or other claims for consequential compensation or any other claims for indirect or economic loss whatsoever (and whether caused by the negligence of the Company, its employees or agents or otherwise) which arise out of or in connection with any Order for the supply of the Goods and/or the provision of the Services.
- 9.11

The Company shall not be liable to the Customer or be deemed to be in breach of the Contract by reason of any delay in performing, or any failure to perform, any of the Company's obligations in relation to the Goods and/or Services, if the delay or failure was due to any cause beyond the Company's reasonable control.

10 COPYRIGHT AND SOFTWARE

- 10.1

The Copyright in all documents including (but not limited to) drawings, specifications, manuals and technical information furnished to the Customer by the Company in connection with this Contract shall remain vested in the Company and all such documents shall only be used for their intended purpose.
- 10.2

All Copyright and other intellectual property rights in any software comprised in the Goods shall remain vested in the Company who hereby grants to the Customer a non-exclusive non-assignable licence for the purposes of the operation of the Goods but not otherwise.

11 LAW

- 11.1

The Contract shall be governed by the laws of England and any dispute arising under or in connection with the Conditions or the sale of the Goods shall be subject to the jurisdiction of the English courts.