signatrol

HIGH SECURITY

BS EN 12830:2018

FOOD & BEVERAGE

PHARMACEUTICAL

PROCESS MONITORING

LOGISTICS & TRANSPORT

SL50 SERIES

MINIATURE BUTTON TEMPERATURE AND TEMPERATURE & HUMIDITY DATA LOGGER

The low cost and simple to use miniature battery powered SL50 series temperature and temperature & humidity data logger, together with its high security TempIT software, are used in a vast number of applications within the pharmaceutical, medical, food & beverage, environmental monitoring and logistic industries.

The high security TempIT software platform ensures that the data recorded is a true and faithful record of the actual conditions your sensitive items have been exposed to. These are essential requirements when wanting to achieve the various facets of an FDA21 CFR Part 11 validated system or, as part of a hazard analysis & critical control point (HACCP) based food safety programme.

Compliant to BS EN 12830:2018, this compact (17.35mm x 5.89mm) button like data logger with a battery life of up to 10 years, data storage capacity of up to 8,142 readings along with several accessory options allows you to use this device in a seemly endless number of applications. From measuring temperature and humidity in a warehouse, to measuring the water temperature in an industrial washing machine or, from measuring the temperature cycle within an autoclave to measuring the cooking cycle temperature from within the centre of a steak pie, this tiny data logger gives you an infinite number of options to measure your temperature and humidity requirements.

HOW TO GET STARTED

1. THE DATA LOGGER

- You have 9 variants to choose from. Choose which temperature range you require. Please refer to page 4.

- Choose which option you want, a high accuracy with an individual calibration certificate or, a lower accuracy unit without a calibration certificate.

2. A USB COMMUNICATIONS /PROGRAMMING LEAD

You will require a USB communications cable to program and download data from your data logger.

3. DOWNLOAD OUR FREE SOFTWARE

Download our free high security TempIT-LITE software from our website. If you then find later that you need to analyse your data in greater detail, then you can simply upgrade to our low cost TempIT-PRO option. Please refer to page 3 for more information. Once you have this you are good to go.

Starter kits are available providing you with everything you need to get started. Please see page 8. These can be purchased easily via our website, phone or email and can be dispatched the same day if orders are received by 12.00 noon.

What else do I need to consider?

Is your application in a wet, steam or pressurised environment? If so, you may need to use one of our compact enclosures. Please refer to pages 6 & 7 for more details.

Does your data logger need to be mounted securely? For more information, please refer to pages 7 & 8.

Do you require periodic re-calibration? Signatrol's Calibration Service Centre provides you with a low cost, fast 3-day turn-a-round service ensuring minimal disruption to your process. Please contact *calibration@signatrol.com* for your calibration requirements.
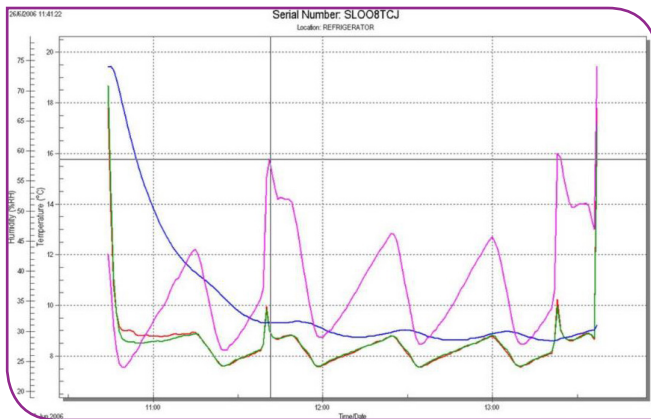
Do you require any technical support? Setting up our data loggers using our USB programming cable and our intuitive software is really very simple. However, free technical support can be provided either by emailing *helpdesk@signatrol.com* or over the phone by speaking to one of our engineers.

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TempIT SOFTWARE

Miniature Battery Powered Temperature & Humidity Data Logging for Process Monitoring.

TempIT is our high security configuration and data analysis software. TempIT provides an inviolate record of your data that cannot be tampered with or manipulated in any way, and is available in two versions, TempIT-LITE and TempIT-PRO. In many applications, especially when data loggers are used for monitoring storage and transport conditions of drugs, pharmaceuticals, blood products or any critical or important items or cargo, it is essential that the data is a true and faithful record of the actual conditions the sensitive items have been exposed to. The TempIT-PRO software is often used as part of an FDA 21 CFR Part 11 validated system or, as part of a hazard analysis & critical control point (HACCP) based food safety programme.

SOFTWARE SPECIFICATIONS

	TempIT-LITE	TempIT-Pro
Issuing of SL50 Series Data Loggers	●	●
View and set owner and user manifest	●	●
View graph	●	●
X-Y Zoom	●	●
Auto scale of Y axis	●	●
Change units between °C and °F	●	●
Print Graph in PDF format	●	●
Export Data in CSV format		●
View Data in a tabular format		●
Open multiple logger files and overlay on the same graph		●
Add comments to the graph with pointers		●
"Show Measure" function to calculate rate of change		●
Automatic Calculation of F0, A0, PU's		●
Automatic Calculation of Mean Kinetic Temperature (MKT)		●
Carry out "time above" temperature / value test		●
PDF Print out includes all data in tabular format		●
Can be used as part of a FDA21 CFR Part 11 system		●

TempIT-LITE (Free of Charge)

This enables all SL50 series miniature button data loggers to be issued with all relevant parameters set and data retrieved and displayed using a powerful graphics engine.

TempIT-PRO

This offers all the functionality of the TempIT-LITE version with the following enhancements:

- Export to spreadsheet function in CSV format
- View data in a tabular format
- Multi-trace graphing i.e. displays several data graphs on the same axis at the same time.
- Automatic calculation of mean kinetic temperature (MKT)
- Automatic Calculation of A0, F0 and Pasteurisation Units (PU's)
- Add comments to graphs
- Carry out 'time above' temperature / value test

TempIT-PRO licences are available to purchase for any number of users and is a one-off fee with no ongoing annual subscription costs. All future updates are free of charge.

TempIT-PRO is available in three versions:

- Single machine licence: This enables TempIT-PRO to be installed on a single machine.
- Multi machine licence. This enables TempIT-PRO to be installed on up to 10 machines/PC's.

  For more than 10 users, please contact Signatrol.
- USB key licence: This enables TempIT-LITE to be installed on as many machines as required. To upgrade LITE to PRO on any machine, you simply insert the USB key into an available USB port. The software reverts back to the LITE version once the USB key is removed.

SL50 SERIES - MINIATURE BUTTON DATA LOGGER TECHNICAL SPECIFICATIONS

SL51T
Low Cost
Temperature Only

TEMPERATURE RANGE	-40°C to 85°C
ACCURACY	±1.0°C from -30°C to +70°C ±1.3°C outside of this range

SL51T-A
Low Cost
Temperature Only
ISO UKAS 17025 traceable cal-cert

TEMPERATURE RANGE	-40°C to 85°C
ACCURACY	±1.0°C from -30°C to +70°C ±1.3°C outside of this range

SL52T
Improved Accuracy
Temperature Only

TEMPERATURE RANGE	-40°C to 85°C
ACCURACY	±0.5°C from -10°C to +65°C ±1.0°C outside of this range

SL52T-A
Improved Accuracy
Temperature Only
ISO UKAS 17025 traceable cal-cert

TEMPERATURE RANGE	-40°C to 85°C
ACCURACY	±0.1°C ±0.1% of calibrated span Default calibration points -20°C, +4°C & +25°C. Providing ±0.145°C accuracy.

SL53T
Records Temperatures Up To 125°C
Temperature Only

TEMPERATURE RANGE	0°C to 125°C
ACCURACY	±0.5°C from +20°C to +75°C ±1.0°C from 0°C to +20°C and +75°C to +115°C ±1.5°C from +115°C to +125°C

SL53T-A
Records Temperatures Up To 125°C
Temperature Only
ISO UKAS 17025 traceable cal-cert

TEMPERATURE RANGE	0°C to 125°C
ACCURACY	±0.1°C ±0.1% of calibrated span Default calibration points +80°C, +100°C & +120°C. Providing ±0.14°C accuracy.

SL54TH
Temp Up To 85°C & Rel Humidity 100%
Temperature & Humidity

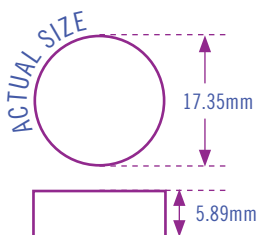|	
TEMPERATURE RANGE	-20°C to +85°C
ACCURACY	±0.5°C from -10°C to +70°C ±1.0°C from -20°C to -10°C and +70°C to +85°C ±5%RH

SL54TH-A
Temp Up To 85°C & Rel Humidity 100%
Temperature & Humidity
ISO UKAS 17025 traceable cal-cert

TEMPERATURE RANGE	-20°C to +85°C
ACCURACY	0.1°C ±0.1% ±2%RH from 10%RH to 90%, ±5% outside of this range.

ACTUAL SIZE

17.35mm

5.89mm

SL55T-A
Records Temperatures Up To 140°C
Temperature Only
ISO UKAS 17025 traceable cal-cert

TEMPERATURE RANGE	+15°C to +140°C
ACCURACY	±0.2°C from +110°C to +140°C ±0.5°C from +80°C to +110°C ±1.0°C from +15°C to +80°C

SL50 SERIES - MINIATURE BUTTON DATA LOGGER TECHNICAL SPECIFICATIONS

PRODUCT	SL51	SL52, SL53, SL54 & SL55
POWER SUPPLY	Internal, non-replaceable 3.0V lithium battery	
BATTERY LIFE	10 years or 1 million samples	Approx 1 year at 80°C and approx 5 years at 30°C (10 min sampling) see battery life calculator on our website www.signatrol.com
SAMPLING	1 to 255 minutes	2 seconds to 24 hours (SL53 & SL55 1 second to 24 hours)
MEMORY SIZE	2048 readings	8192 measured values with 8 bits (4096 SL54) or 4096 measured values for 11 bit (2048 SL54)
RESOLUTION	0.5°C (8 bits)	0.5°C (8 bits) or 0.07°C (11 bits) / 0.64% RH (8 bits) or 0.04% RH (11 bits)
RESPONSE TIME	Approximately 90 seconds (in air)	
DIMENSIONS	Ø 17.35mm × 5.89 mm	
WEIGHT	4g (SL54 5g)	
HOUSING MATERIAL	305 stainless steel	
PROTECTION CLASS	IP55– splash proof; IP68– enclosures for higher protection classes are available (see pages 6 & 7)	
EX-CERTIFICATION	ATEX Certified & Meets EN50014 and EN50020 standards for Group I (Zone 0) gas atmospheres only	
PC CONNECTION	USB interface	
TIME, MAX. DEVIATION	± 2 minutes per month	
RECORDING MODES	Ring buffer or stop when full	
START TIME DELAY	Max. 45 days at 1 minute measuring frequency	Max. 12 months at 1 minute measurement frequency
START ON ALARM	No	Possible
CALIBRATION	Annual re-calibration reminder function setting	

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SL50 SERIES - MINIATURE BUTTON DATA LOGGER ACCESSORIES

We offer a range of waterproof enclosures that have been developed to protect the SL50 series in harsh environments. These are recommended when the data logger is likely or expected to be subjected to pressure variations or to come into contact with fluids.

SL50-ACC01

Stainless steel enclosure that protects the data loggers in harsh environments or where there is likely to pressures in excess of 100mB.

MATERIAL	316 Stainless Steel
PROTECTION	Up to 10bar or 100m submersion
RESPONSE TIME IN WATER	73 s (61% step change) 142 s (10% to 90% step change
RESPONSE TIME IN AIR	373 s (61% step change) 717 s (10% to 90% step change)
O-RING	Silicone (VMQ) FDA 70 ShA

SL50-ACC03

Lightweight enclosure constructed from Polyphenylene Sulphide (PPS Ryton), that protects the data logger at pressures up to 1 bar or depths of 10 m. Maximum operating temperature 125°C.

MATERIAL	Polyphenylene Sulphide
PROTECTION	Up to 1bar or 10m submersion
RESPONSE TIME IN WATER	118 s (61% step change) 237 s (10% to 90% step change)
RESPONSE TIME IN AIR	407 s (61% step change) 827 s (10% to 90% step change)
O-RING	Silicone S500-70 FDA Approved

SL50-ACC06 SILICONE ENCLOSURE (Sinking)

Two part silicone enclosure to protect all SL50 series data loggers. Available in packs of five or ten

MATERIAL	Silicone Rubber
PROTECTION	Up to 0.5bar or 5m submersion
RESPONSE TIME IN WATER	90 s (61% step change) 243 s (10% to 90% step change)
RESPONSE TIME IN AIR	270 s (61% step change) 575 s (10% to 90% step change)

SL50-ACC08 SILICONE ENCLOSURE (Floating)

A coloured waterproof enclosure with blue handle for all SL50 series data loggers. Supplied in packs of five or ten.

MATERIAL	Silicone Rubber
PROTECTION	Up to 0.5 Bar or 5m submersion
RESPONSE TIME IN WATER	63% Step Change: 90 Seconds 10% to 90% Step Change: 243 Seconds
RESPONSE TIME IN AIR	63% Step Change: 270 Seconds 10% to 90% Step Change: 545 Seconds
WEIGHT	5g excluding data logger

SL50 SERIES - MINIATURE BUTTON DATA LOGGER ACCESSORIES

We offer a range of mounting options that have been developed to securely fix the SL50 series in many different applications.

SL50-ACC10

Constructed from blue anodised aluminium, the SL50-ACC10 is a fast response enclosure for use with all SL50 data loggers.

MATERIAL	Hard Anodised Aluminum Casing 316 Stainless Steel Screw
PROTECTION	Up to 3.5bar or 35m submersion
RESPONSE TIME IN WATER	28 s (61% step change) 60 s (10% to 90% step change)
RESPONSE TIME IN AIR	117 s (61% step change) 238 s (10% to 90% step change)
O-RING	FDA Food Grade EPDM

SL50 - WALL MOUNTING HOLDER (Pack of 5)

Pack of five wall mount holders for all SL50 series data loggers. Ideal for fixing to walls, racking or pallets.

SL50-CLIP (Pack of 5)

The SL50-CLIP is a small black, plastic key fob that will accept any of the SL50 series data loggers. Can be held in place with a single screw or tie wrap.

SL50-ACC02 - RUBBERISED HOLDER WITH MAGNET

A strong self-adhesive magnet suitable for use with all SL50 series button data loggers for quick and easy fixing.

SL50 SERIES - MINIATURE BUTTON DATA LOGGER ACCESSORIES

We offer a range of mounting options that have been developed to securely fix the SL50 series in many different applications.

A self-adhesive magnet suitable for use with all SL50 series button data loggers for quick and easy fixing.

SL50 INTERFACE-USB

USB communication interface for connecting all SL50 series data loggers to a computer.

CALIBRATION & RE-CALLIBRATION SERVICE

We can provide you with an individual UKAS ISO 17025 traceable calibration certificate with each of your new data loggers as an option. In addition, we can also provide you with a 3-day turnaround UKAS ISO 17025 traceable re-calibration service for your existing data loggers. We provide our standard 3-point default re-calibration or, your own custom 3-point calibration range at no additional cost. Extra points can be added at an additional cost if required. Please contact *calibration@signatrol.com* for your calibration requirements.

STARTER KITS

Starter kits are available providing you with everything you need to get going.

THE KIT INCLUDES:

- 2 or 5 data loggers of your choice

- Each data logger comes with an individual 3-point UKAS traceable calibration certificate

- TempIT-PRO software

- A USB communications / programming cable

Every effort has been taken to ensure the accuracy of this specification and we reserve the right of amendment without prior notice.