

signatrol



SL7104

MULTI-CHANNEL UNIVERSAL INPUT DATA LOGGER

A versatile battery powered 6 channel universal input data logger which is fully programmable using the high security TempIT software. Ideal for an infinite number of applications such as monitoring furnace temperatures, oven profiling, monitoring goods in dry ice whilst in transit, flow in a pipe and general process monitoring to name only few.

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DATA LOGGER WITH FLEXIBLE COMBINATION OF INPUTS

The SL7104 data logger has a vast number of input combinations. Ranging from a single temperature and 4 universal inputs each of which can be individually configured to accept any combination of the following sensor types (listed right). Each universal input is configured in the high security TempIT-Pro software to accept most of the common industrial sensors Pt100, thermocouple, mA, mV, Volts, thermistors, slidewire, Cu and Ni.

It's possible to have any combination of these sensors & the configuration can be changed at any time providing a great deal of flexibility. This gives a total of 6 channels - internal temperature, internal pulse counter and four universal inputs.

There is an LCD display which will cycle through each of the inputs providing local indication. Each SL7104 data logger is powered by a user replaceable battery, with a typical battery life in excess of 5 years.

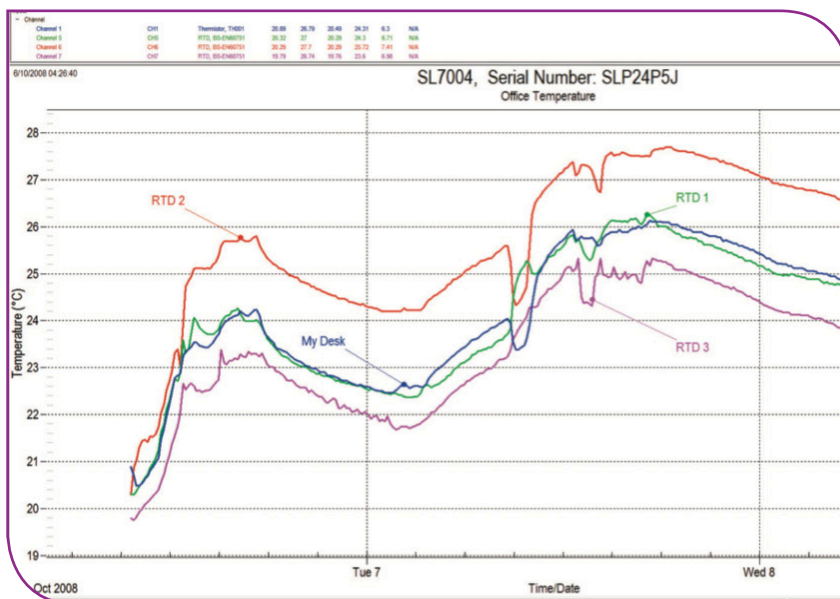
SENSOR TYPES

- RTD / Pt100
- Thermocouple (Types J, K, T, R, S, B, N) (isolated tip) mA (4/20mA)
- 0-10 Volts DC
- mV
- Thermistors
- Slidewire
- Cu
- Ni
- Pulse Counter

The SL7104 data logger has a large memory capacity with the ability to store up to 128,000 readings.

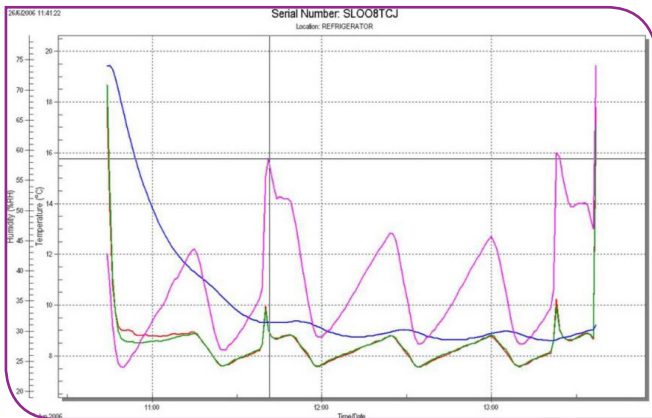
Each SL7104 data logger is supplied with the high security TempIT-Pro configuration and analysis software. The TempIT-PRO software allows full configuration as well as the ability to download the stored readings, produce a graph and save the readings.

The TempIT-Pro software also allows you to export the data to a spreadsheet, view the data in a tabular format, add comments and arrows to the graph and use the automatic calculations like MKT, FO, A0 etc.



TempIT SOFTWARE

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 FO, AO, 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 SL7104 data logger to be issued with all the relevant parameters set, 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 AO, FO 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 machines, 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.

COMMON SPECIFICATIONS

POWER	User Replaceable Internal Battery - 3.7v AA Lithium
BATTERY LIFE	Typically 5yrs sample rate > 2 minutes
AMBIENT TEMPERATURE RANGE	-30°C to +70°C -22°F to +158°F
MEMORY SIZE	128,000 Readings
MEMORY UTILISATION	Wrap Around (First in, First Out) or Stop when Full (Default)
SAMPLE RATES	1 Second to 24 hours for all channels
LOGGING OPTIONS	Spot Reading or Maximum, Minimum, Average over a number of readings.
START LOGGING OPTIONS	Programmable Delay Period (10 minutes to 1 year) Start on external magnet swipe Start when counter input goes high Start on event trigger <i>Please note: There are no stop logging functions available.</i> <i>Once started, the data logger will keep taking readings until the memory is full or it will overwrite the oldest reading and provide a rolling window.</i>
MEASUREMENT RESOLUTION	All Universal Inputs - 16 Bit Internal Temperature - 12 Bit
PULSE COUNTER INPUT	Used to start logging or as a counter. Maximum Count = 65535 per sample period. Maximum Frequency = 32768Hz. Logic 0 < 0.9Vdc. Logic 1 > 1.9Vdc Trigger: Negative Edge User settable filter link 32768Hz or 50Hz. (default: 32768Hz) Can be used with common collector outputs when using an external shunt resistor.
CHANNEL INDICATORS	8 Green LED's to indicate logging status, changing to Red, to indicate alarm conditions.
COMMUNICATION INTERFACE	USB
LOW BATTERY WARNING	Low Battery displayed when battery life has less than one month to go.
IP / WATERPROOF PROTECTION	IP50 - Limited protection from dust ingress. No protection for liquid ingress. Waterproof enclosures are available as an option.
DIMENSIONS	124mm (L) x 78mm (W) x 32mm (H)
WEIGHT	165 grams
MATERIAL	ABS Plastic - Moulded from RoHS compliant material
WARRANTY	3 Years (excluding battery)

MEASURING RANGES

INTERNAL TEMPERATURE	-30°C to +70°C (-22°F to +158°F)
EXTERNAL TEMPERATURE SENSOR (PART # SL-ACC7000-01)	-30°C to +70°C (-22°F to +158°F)
PT100 (EN 60751) PT100 (JISC) 2 OR 3 WIRE CONFIGURATION	-200°C to +700°C (-328°F to +1292°F) - Wide Measuring Mode -200°C to +260°C (-328°F to +500°F) - Narrow Measuring Mode -100°C to +457°C (-148°F to +854°F) - Wide Measuring Mode -100°C to +260°C (-148°F to +500°F) - Narrow Measuring Mode
THERMOCOUPLE TYPE K THERMOCOUPLE TYPE J THERMOCOUPLE TYPE T THERMOCOUPLE TYPE S THERMOCOUPLE TYPE R THERMOCOUPLE TYPE B THERMOCOUPLE TYPE N	-200°C to +1370°C (-328°F to +2498°F) -200°C to +1200°C (-328°F to +2192°F) -200°C to +400°C (-328°F to +752°F) 100°C to +1760°C (+212°F to +3200°F) 100°C to +1760°C (+212°F to +3200°F) +700°C to 1820°C (+1292°F to +3308°F) -180°C to +1300°C (-292°F to +2372°F)
NI120 NI100	-80°C to +230°C (-112°F to +446°F) -60°C to +180°C (-76°F to +356°F)
CU10 CU100	-200°C to +260°C (-328°F to +500°F) -100°C to +260°C (-148°F to +500°F)
THERMISTOR TH-001 TH-002 (VISHAY 2381-640-6151) TH-003 (VISHAY 2381-640-6223) TH-004 (SEMITEC 103AP-2)	-40°C to +105°C (-40°F to +221°F) -30°C to +90°C (-22°F to +194°F) -35°C to +105°C (-31°F to +221°F) -40°C to +105°C (-40°F to +221°F)
SLIDEWIRE	0 to 100%
mV 10 VOLT 1 VOLT	-110mV to +110mV (Over Voltage protected to 24VDC) 0VDC to 11VDC (Over Voltage protected to 24VDC) 0VDC to 1.1VDC (Over Voltage protected to 24VDC)
4/20mA	0.1 to 21mA
PULSE COUNTER	Up to 65,535 pulses per sample period

MEASUREMENT ACCURACY

INTERNAL TEMPERATURE	$\pm 0.5^{\circ}\text{C}$ (-30°C to +70°C). Also used for Cold Junction Measurement
EXTERNAL TEMPERATURE SENSOR (PART # SL-ACC7000-01)	$\pm 0.3^{\circ}\text{C}$ @ 25°C $\pm 0.5^{\circ}\text{C}$ over the range 0°C to +50°C $\pm 1.0^{\circ}\text{C}$ over the range -30°C to 0°C and 50°C to 70°C
PT100 (EN 60751) PT100 (JISC)	$\pm 0.1^{\circ}\text{C} + 0.1\%$ rdg - Narrow Measuring Mode $\pm 0.2^{\circ}\text{C} + 0.1\%$ rdg - Wide Measuring Mode
THERMOCOUPLE TYPE K THERMOCOUPLE TYPE J THERMOCOUPLE TYPE T THERMOCOUPLE TYPE S THERMOCOUPLE TYPE R THERMOCOUPLE TYPE B THERMOCOUPLE TYPE N	$\pm 0.1\%$ FSD $\pm 0.5^{\circ}\text{C}$ $\pm 0.1\%$ FSD $\pm 0.5^{\circ}\text{C}$ $\pm 0.1\%$ FSD $\pm 0.5^{\circ}\text{C}$ $\pm 0.2\%$ FSD $\pm 0.5^{\circ}\text{C}$ $\pm 0.2\%$ FSD $\pm 0.5^{\circ}\text{C}$ $\pm 0.2\%$ FSD $\pm 0.5^{\circ}\text{C}$ $\pm 0.1\%$ FSD $\pm 0.5^{\circ}\text{C}$
NI120 NI100	$\pm 0.2^{\circ}\text{C} \pm 0.1\%$ rdg
CU10 CU100	$\pm 3^{\circ}\text{C} \pm 0.5\%$ rdg $\pm 0.2^{\circ}\text{C} \pm 0.1\%$ rdg
THERMISTOR TH-001 TH-002 (VISHAY 2381-640-6151) TH-003 (VISHAY 2381-640-6223) TH-004 (SEMITEC 103AP-2)	$\pm 0.5^{\circ}\text{C}$ $\pm 0.6^{\circ}\text{C}$ (0 to +70°C) or $\pm 1.2^{\circ}\text{C}$ (-30°C to +90°C) $\pm 0.5^{\circ}\text{C}$ $\pm 0.5^{\circ}\text{C}$ (0 to +70°C) or $\pm 0.8^{\circ}\text{C}$ (-40°C to +105°C)
SLIDEWIRE	$\pm 0.02\%$ FSD
mV 10 VOLT 1 VOLT	$\pm 0.01\%$ FSD
4/20mA	$\pm 0.01\%$ FSD (for Isolated Loops) Accuracy may be reduced for non-isolated loops. Some applications may require the use of an external isolator (not supplied). Maximum Volt drop in a 4/20mA loop = 4VDC Will also accept 0/20mA signals

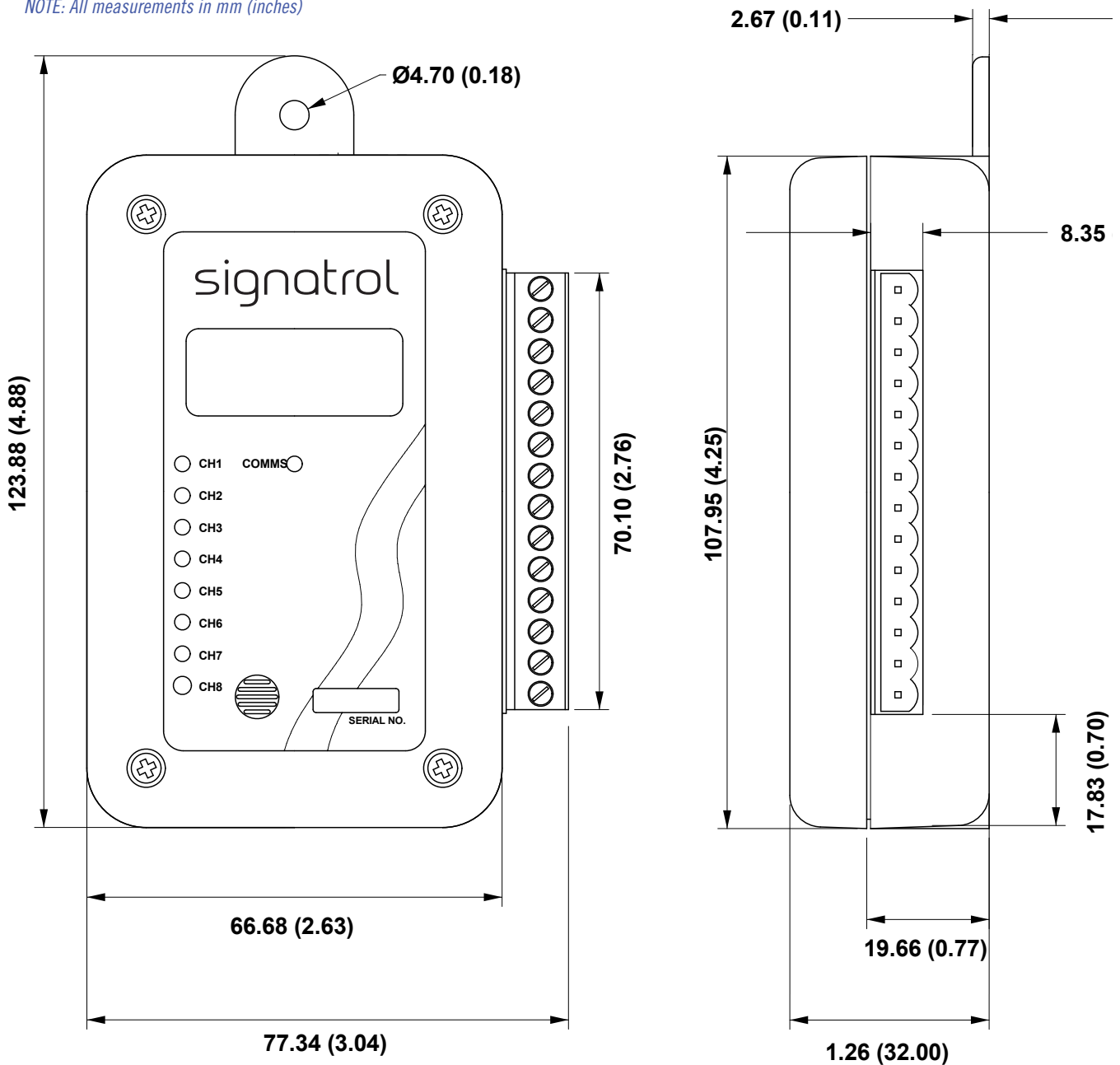
ORDER CODES

6 CHANNEL DATA LOGGER	SL7104
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ACCESSORIES

PART NUMBER	DESCRIPTION
SL-ACC7000-02	Replacement USB interface cable
SL-ACC7000-03	Replacement Lithium Thionyl Chloride Battery
SL-ACC7000-04	External power supply (cannot be used with SL-ACC7000-01)
SL-ACC7000-05	Replacement / spare 14 way input connector
SL-ACC33	IP65 weatherproof enclosure
TEMPIT-PRO-4	Additional software licence for the configuration and analysis software

NOTE: All measurements in mm (inches)



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

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