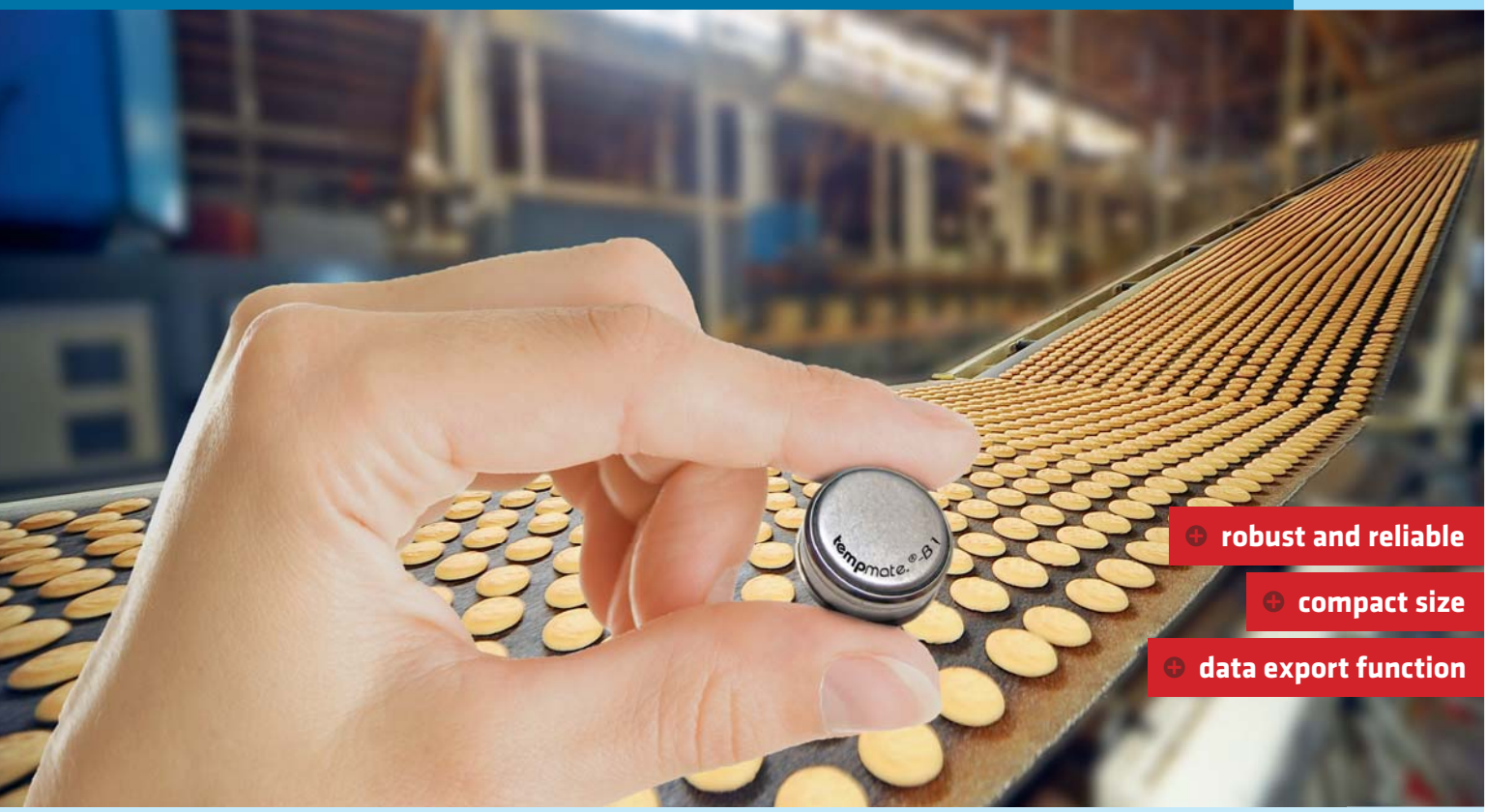
tempmate.®

tempmate.®-B series

Self-Contained Mini Temperature and Humidity Data Loggers



LOGISTICS AND TRANSPORT

PROCESS MONITORING

FOOD & PRODUCE

Independent Mini Temperature and Humidity Data Logger for Process Monitoring.

tempmate.®-B data loggers can be used to monitor temperature and humidity in a wide range of applications. From simple office environment monitoring, through process monitoring and monitoring temperature sensitive products in transit. The compact size offers unequalled opportunities.

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IP 55 Protected

Temperature Range –40°C to +140°C

EX Protection

Stainless Steel Body

EN 12830 Compliant

GDP Compliant

FDA 21 CFR Part 11 Compliant

tempmate.®-B series
If size matters.

Curious about your cold chain? tempmate.®-B continuously monitors all relevant data.

The **temp**mate.®-B series are self contained single channel temperature data loggers with the ability to record up to 8,000 data points. Depending upon the model chosen, they will measure from -40°C to +140°C. They are very small (about the same size as a watch battery) which enables them to be inserted into small items and packages.

The **temp**mate.®-B4 loggers are 2-channel mini data loggers for temperature and humidity.

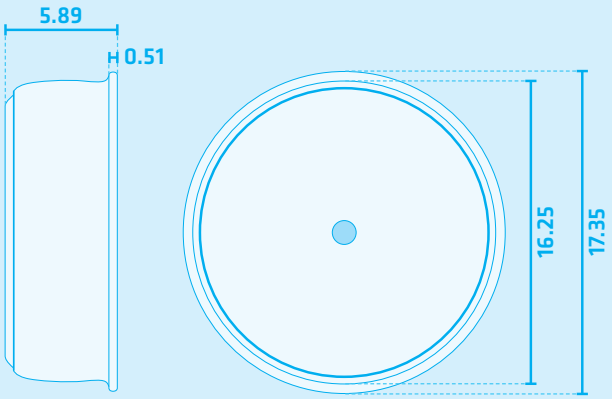
Your Benefits at a Glance

- Compact size
- Cost-effective
- Calibration certificates optionally available
- Robust and reliable
- Wide range of accessories
- Easy and intuitive operation
- Free Software
- Data export function

Technical Specifications

	tempmate.®-B1	**temp**mate.®-B2	**temp**mate.®-B3	**temp**mate.®-B5	**temp**mate.®-B4
	 1-channel data logger for temperature [1]	 1-channel data logger for temperature [1]	 1-channel data logger for temperature [2]	 1-channel data logger for temperature [3]	 2-channel data logger for temperature and humidity [4]
Temperature range	-40 °C to 85 °C	-40 °C to 85 °C	0 °C to 125 °C	15 °C to 140 °C	-20 °C to 85 °C
Accuracy	± 1°C at -30 °C to 70 °C otherwise ± 1.3°C	± 0.5°C at -10 °C to 65 °C	± 0.5°C at 20 °C to 75 °C	± 0.5°C at 80 °C to 140 °C ± 1°C at 15 °C to 80 °C	± 0.5°C at -10 °C to 70 °C ± 5 % RH ± 2 % RH (calibrated)
Power supply	Internal, permanently installed 3.0V lithium battery				
Battery life	10 years or 1 million samples	about 1 years at 80°C and about 5 years at 30°C (10 min sampling) see battery life calculator at our website www.imec.de			
Sampling	1 to 255 minutes	2 seconds to 24 hours			
Memory size	2048 readings	8192 measured values with 8 bits (4096 RH) or 4096 measured values for 11 bit (2048 RH)			
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 the air)				
Dimensions	Ø 17 mm × 6 mm				
Weight	4 g				
Housing Material	305 stainless steel				
Protection class	IP55- splash proof; housing for higher protection classes are available				
Ex-fitness	Meets UL # 913 (4th Edit), Intrinsically Safe Apparatus, approval under Entity Concept for use in Class I, Division 1, Group A, B, C and D Locations				
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 measurement frequency	max. 12 months at 1 minute measurement frequency			
Start with Alarm	no	possible			

1) Also available with a 3-point calibration at the factory.
2) Also available with a 3-point calibration at the factory. Then with a higher accuracy of ± 0.2°C in the range from 80°C to 125°C.
3) Will always come with a 3-point calibration at the factory.
4) The tempmate-B4 is also available with a factory calibration. Then with a higher accuracy of ± 2% RH.



Dimensions in mm

tempmate.®-B series accessories

We offer a range of waterproof enclosures that have been developed to protect the **temp**mate.®-B series in harsh environments. These are especially recommended when the logger is likely or expected to be subjected to pressure variations or is likely to into contact with fluids. Below you will see a small selection.

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

↑ SL50-ACC01

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 BS115

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

↑ SL50-ACC10

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

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.

↑ SL50-ACC03

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

The lowest cost waterproof enclosure for the **temp**mate.®-B series data loggers.

↑ SL50-ACC06

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)

Other accessories on request.

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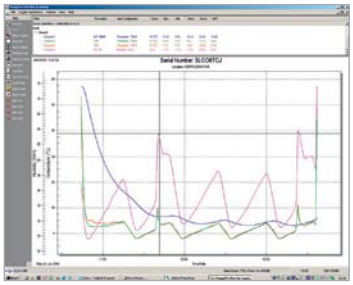
TempIT Software

The TempIT data analysis software is now available in two versions; TempIT-Lite which provides all essential graphing functions. TempIT-Pro which incorporates a data table, has export to spreadsheet functions and the ability to email graphs. The TempIT-PRO software, can also be used as part of an FDA 21 CFR Part 11 validatable system.



TempIT-Lite

Graphical viewer for analysing data from the **temp**mate.®-B data loggers. A historical trace is produced which shows the alarm limits and the stored temperature profile. Full X-Y zoom is available. There is also the "snap to trace" facility where a cursor is placed directly on the trace even if the operator doesn't quite manage to hit the trace exactly. Holding the "shift" key down and clicking on the trace again will bring up a rate of change window where the change in temperature and the time over which the change occurred is clearly shown.

TempIT-Pro

The standard version of TempIT, contains all the functionality of TempIT-Lite but with the added benefits of a data table, export to spreadsheet functions and the facility to email graphs anywhere in the world as long as the computer is connected to the internet. The data table is presented on the right hand side of the main historical trace in a scaleable window that can be moved to hide the table is required. When the "snap to trace" function is used the cursor is placed directly on the trace and the data table jumps to the corresponding point making it easy to read points of interest off the graph. Likewise if a point on the data table is selected this also adds a cursor on the graph at the appropriate point. Data is easily exported is comma separated value format (CSV). That can be imported into spreadsheets programs 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-Pro is available in two versions:

- Single User Licence: This enables TempIT-Pro to be installed on a single machine.
- 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 then USB key is removed.

Software Specification

	TempIT Lite	TempIT Pro-V4
Issuing of tempmate.®-B loggers	⊕	⊕
View Manifest	⊕	⊕
View Graph	⊕	⊕
X-Y Zoom	⊕	⊕
Snap to trace function	⊕	⊕
Rate of change calculation	⊕	⊕
Auto scale function on Y axis	⊕	⊕
Change units between °C and °F	⊕	⊕
View data from tempmate.®-B loggers	⊕	⊕
View data table		⊕
Export data in CSV format		⊕
Email graph		⊕
Electronic signature support		⊕
Multi-trace graphing		⊕
Automatic calculation of mean kinetic temperature (MKT)		⊕
Automatic Calculation of A0, F0 and Pasteurisation Units (PU's)		⊕
Carry out "time above" temperature / value test		⊕
Add comments to graphs		⊕
GDP & FDA 21 CFR Part 11 Compliance		⊕

SL 50-Interface-USB

USB communication interface for connecting all **temp**mate.®-B loggers to a computer. You will probably only need one interface, even if you have a number of data loggers.

If temperature matters. imec

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