# Product Description

Please contact us at support@temptrack.com.au or on 1300 871 223 if you require further information and/or pricing.

# 1  TempTrack Systems

1.1     Overview

TempTrack Systems are temperature and humidity monitoring and alerting technology for use where product quality is critical and can be adversely affected by changing environmental conditions. The system is fully automated and provides the best chance of preventing valuable stock loss, while also ensuring regulatory compliance with industry standards. TempTrack systems have been deployed since 2003. Stringent regulatory compliance standards have resulted in a high demand from the medical industry and vaccine storage facilities across multiple sites where extreme temperature monitoring to -80°C and -200°C is commonplace.

1.2     Medical Research and TempTrack

Monitoring temperature and humidity is now more critical than ever before during medical research programs and clinical trials. New product development and the storage of new and trial medical products demands stringent quality temperature standards. Many large clinical trials facilities all around Australia have deployed TempTrack for monitoring the temperature (standard and extreme temperatures) and humidity of their laboratories and storage devices. We are proud to play a part in supporting them to turn medical innovations into treatments for people.

# 2 System Overview

2.1   The Temp˚Track™ monitoring system is flexible, mobile and dynamic. It can be expanded at any point to meet the growing needs of an organisation. The base system is suitable for monitoring several points (point to point system), and can scale up to monitoring multiple points with multiple logging devices (point to multi point system) across an organisation, and multiple points across large organisations with multiple sites (networked system).
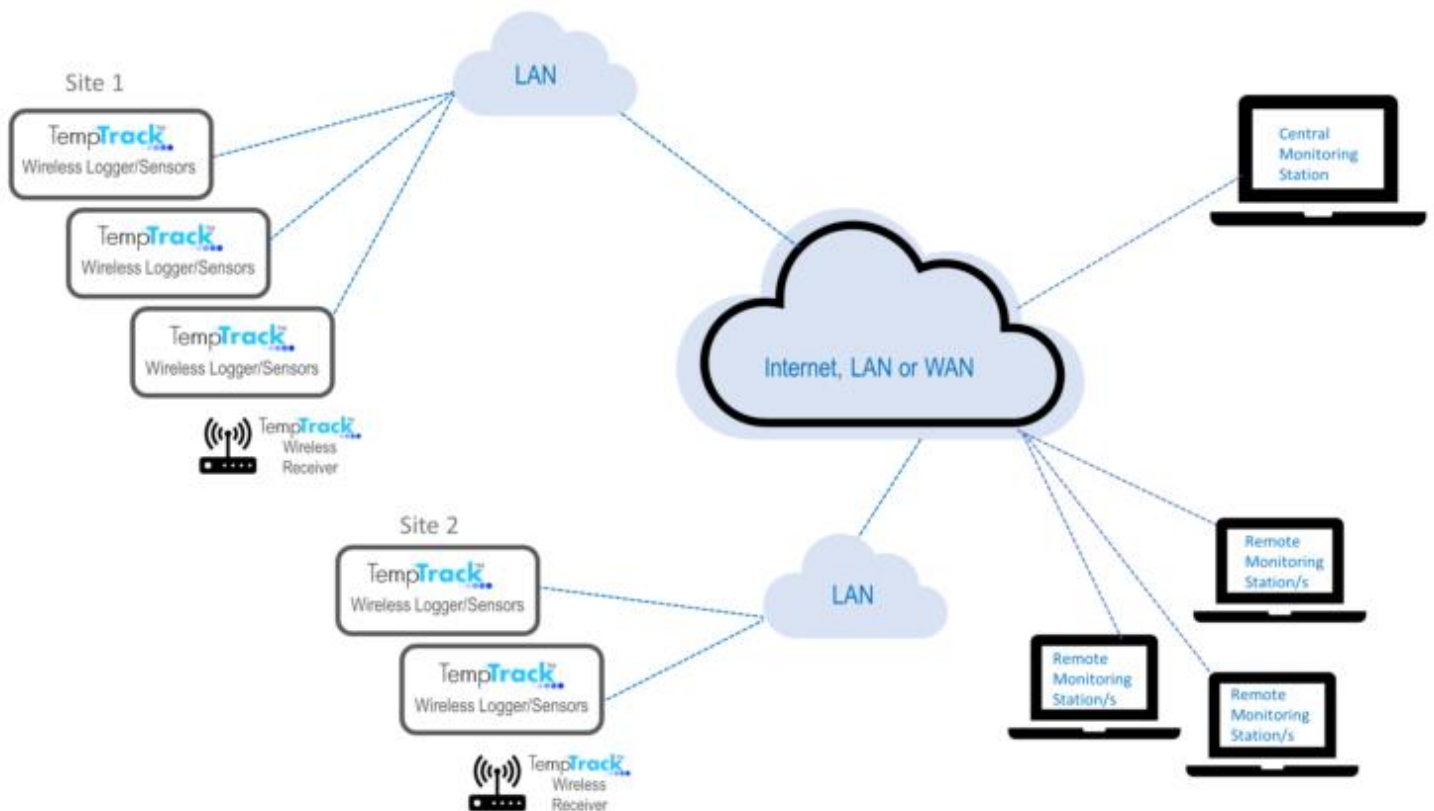
2.2   Point to Point Monitoring System
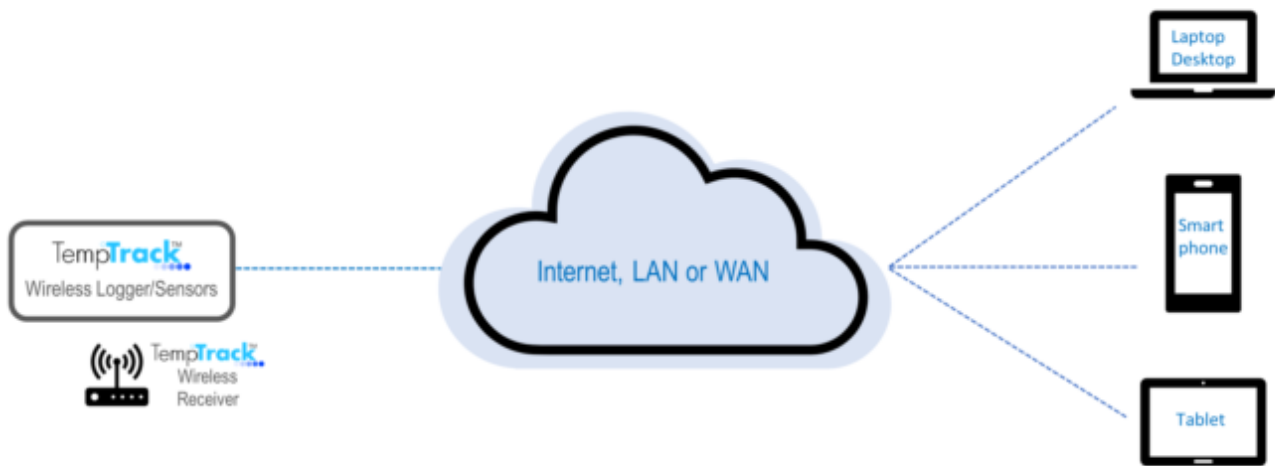


2.3   Point to Multi Point Monitoring System
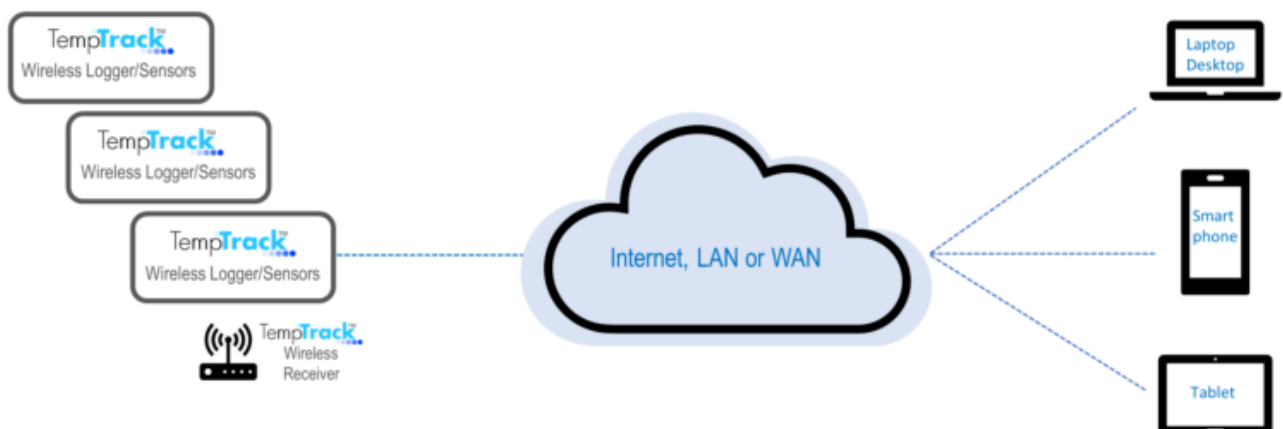
## 2.4    Networked System



## 2.5    Connection Interfaces

The wireless loggers can be connected to a computer through any of the following interfaces:

a.  Wired access - Serial port access to the Logger via a serial cable. Maximum distance between logger and PC is up to 10m only.
b.  Wireless access - Communication between logger and PC up to 100m line of sight, longer distances up to 5km possible with high gain wireless modules with external antenna.
c.  GPRS access - Communication between logger and PC can be established anywhere within coverage of the public mobile network.
d.  Ethernet access - Communication between logger and PC can be established by connecting the logger directly to any ethernet port on a computer network.

# 3 Features of the TempTrack System

### 3.1 Fully Automated

a. Temp°Track™ (TT) fully automates real-time temperature monitoring, alerting and recording 24/7.

b. The system automatically transmits live sensor readings, enabling monitoring of sensor levels and alarm conditions from the logger and the computer/s simultaneously 24/7.
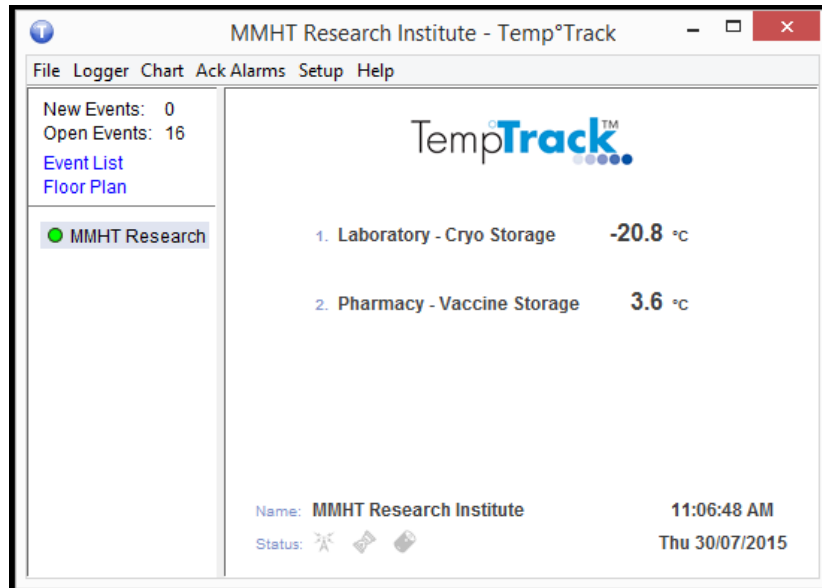


### 3.2 Equipment

c. The system consists of ethernet wireless receivers (enables communications between loggers/sensors and pc/tablet/mobile), battery powered wireless logger(s) and sensor(s), and the PC software.

d. The system accommodates a range of sensors i.e., temperature, humidity, pressure, voltage, current, door ajar and can also be customised to accept other sensors such as pH level, light intensity, and $CO_2$.

e. Temperature sensor options are standard (fridges, coolrooms), and -20°C, -80°C, -200°C (freezers).

f. The wireless logger has two ports for connecting external sensors, plus an optional internal sensor.

g. The loggers are battery powered (3x AA alkaline batteries).

h. The loggers are placed on the outside of the fridge/freezer, and the sensors are placed inside the fridge/freezer. Battery life is significantly compromised when logger products (not sensor/probe) are placed inside the  fridge/freezer.
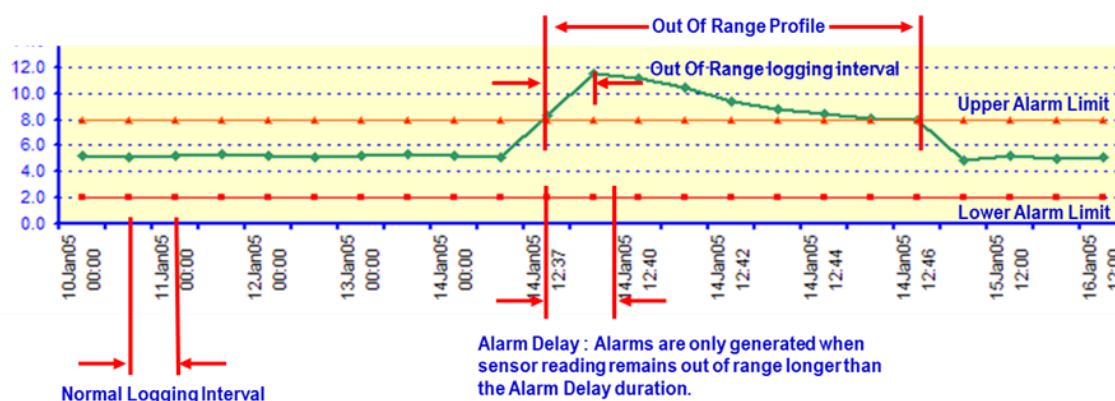
Product Description

### 3.3 Software

a. The software features a split server-client architecture which enables the software to be configured as; a point to point/multipoint system – Software hosted on a local PC with a local client user interface; or a networked system – Server software hosted on a central PC server with a remote client software installed on multiple PC's connected to the server for live temperature monitoring.

### 3.4 Alarm Alerting

a. When temperatures move outside the range you set, alarm alerts are activated and issued. Alarm alerting is via email and/or sms.
b. Both email and sms can be configured from the software and can be configured so that multiple users receive the alerts. The alarm alert will continue until the alarm alert is acknowledged.
c. The innovative alarm handling enables the user to set an out-of range (OOR) logging interval, upper and lower alarm limits, and an alarm delay period per sensor. When sensor readings exceed the limits, data is logged according to the OOR logging interval (typically set at a faster rate) to capture the temperature profile for the event.
d. If you elect alarm alerting via email, then there are nil additional costs. If you elect alarm alerting via sms then you will incur between 0.03-0.08 cents/sms. You can create either a BulkSMS or Clickatell account.
e. The TT software can generate alarm alerts for No communication, No Mains Power, and Low Battery.





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## MMHT Research Institute - Logger Settings

| General | Sensor Limits | Sensor Timing | Sensor Activation | Sensor Zone | About |

| Sensor | Unit | Lower Limit | Upper Limit |
|---|---|---|---|
| Laboratory - Cryo Storage | °C | -30.0 | -10.0 |
| Pharmacy - Vaccine Storage | °C | 2.0 | 8.0 |

Rectangular Snip

OK    Cancel

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## MMHT Research Institute - Logger Settings

| General | Sensor Limits | Sensor Timing | Sensor Activation | Sensor Zone | About |

| Sensor | In Range | | Out of Range | |
|---|---|---|---|---|
| | Log Interval | Time of Day | Log Interval | Alarm Delay |
| Laboratory - Cryo Storage | 10 minutes | Midnight | 2 minutes | 10 minutes |
| Pharmacy - Vaccine Storage | 10 minutes | Midnight | 2 minutes | 10 minutes |

Rectangular Snip

OK    Cancel

## 3.5 Remote monitoring and Floor Plans

a. Remote monitoring is a feature of the monitoring system.
b. Real-time monitoring on a floor plan of one or more areas. The floor plan feature allows the user to load a floor plan and to populate the floor plan with sensors. The location, status and sensor reading of the monitoring points can be viewed.
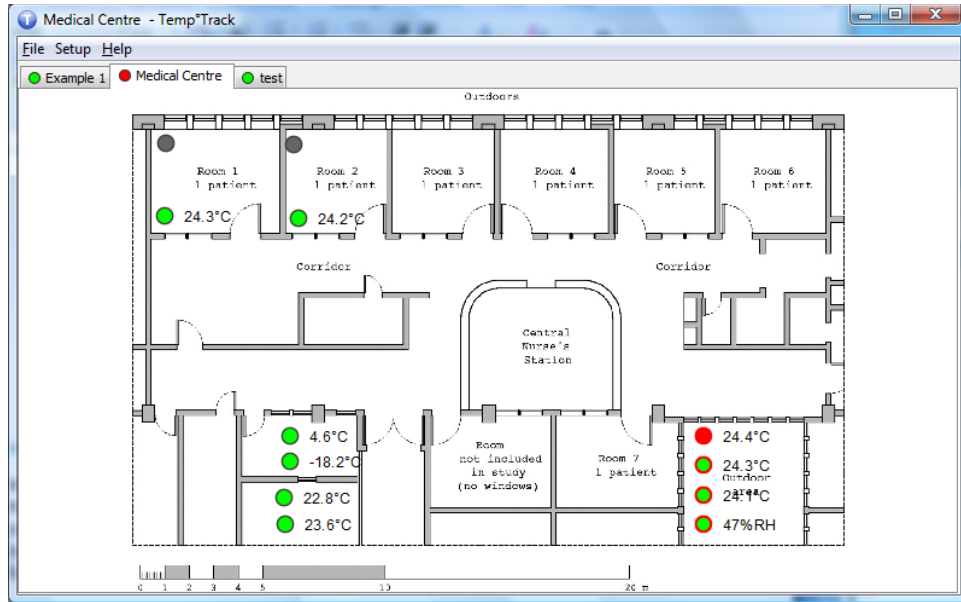


## 3.6 Reporting/Charts/Audits

a. Comprehensive reporting (reports/graphs) is available either automatically or manually, and reports can be sent to multiple users.
b. Data is automatically downloaded into a database, so when you require data and/or reports for audits, it is easy to retrieve. The user has immediate access to a visual display of data (current and historical) in graphical form.
c. The compare chart feature enables the user to easily compare sensor readings of a sensor to be calibrated to a reference sensor as proof of calibration, allowing users to self calibrate their sensors against a NATA traceable reference sensor.

**Sensor Chart**

Wed 29/07/2015 12:14 PM – Thu 30/07/2015 12:14 PM

TempTrack

## Laboratory - Cryo Storage (MMHT Research Institute)

| | | | |
|---|---|---|---|
| Type: | Temperature (°C) | Site: | MMHT Research Institute, Melbourne, Australia |
| Min.: | -21.0°C | Location: | Melbourne, Australia |
| Max.: | -0.5°C | | |
| Avg.: | -17.5°C | | |

**Sensor Chart**
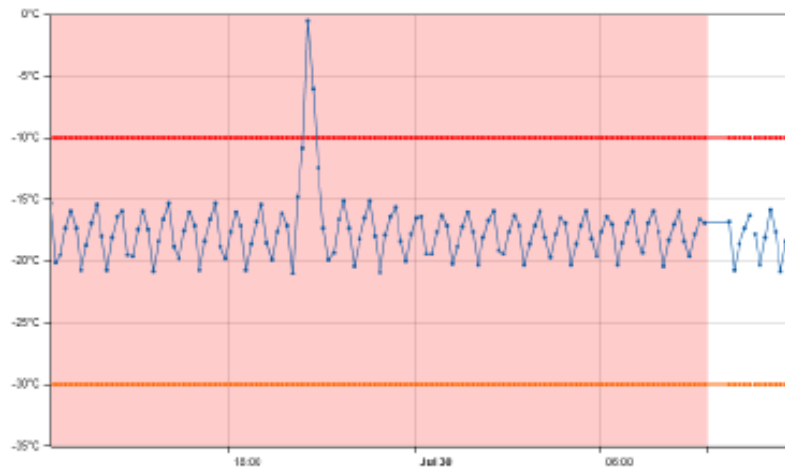


**Sensor Data (140)**

| Time | Value | Low Limit | High Limit | Time | Value | Low Limit | High Limit |
|---|---|---|---|---|---|---|---|
| 29/07 12:23 | -20.1 | -30.0 | -10.0 | 29/07 14:23 | -16.4 | -30.0 | -10.0 |
| 29/07 12:33 | -19.5 | -30.0 | -10.0 | 29/07 14:33 | -15.9 | -30.0 | -10.0 |
| 29/07 12:43 | -17.3 | -30.0 | -10.0 | 29/07 14:43 | -19.5 | -30.0 | -10.0 |
| 29/07 12:53 | -15.9 | -30.0 | -10.0 | 29/07 14:53 | -19.6 | -30.0 | -10.0 |
| 29/07 13:03 | -17.3 | -30.0 | -10.0 | 29/07 15:03 | -17.4 | -30.0 | -10.0 |
| 29/07 13:13 | -20.7 | -30.0 | -10.0 | 29/07 15:13 | -15.9 | -30.0 | -10.0 |
| 29/07 13:23 | -18.7 | -30.0 | -10.0 | 29/07 15:23 | -17.4 | -30.0 | -10.0 |
| 29/07 13:33 | -16.9 | -30.0 | -10.0 | 29/07 15:33 | -20.8 | -30.0 | -10.0 |
| 29/07 13:43 | -15.4 | -30.0 | -10.0 | 29/07 15:43 | -18.4 | -30.0 | -10.0 |
| 29/07 13:53 | -18.0 | -30.0 | -10.0 | 29/07 15:53 | -16.6 | -30.0 | -10.0 |
| 29/07 14:03 | -20.7 | -30.0 | -10.0 | 29/07 16:03 | -15.3 | -30.0 | -10.0 |
| 29/07 14:13 | -18.1 | -30.0 | -10.0 | 29/07 16:13 | -18.8 | -30.0 | -10.0 |

Created Thu 30/07/2015 12:16 PM

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3.7 Future Scalable

   a. The TT system is scalable and portable. Any number of loggers and sensors can be added to your site at any time if the number of monitoring points increases in the future.

   b. Sensors can be reconfigured and moved if required to another area or location. If you decide to monitor across multiple sites, the system is flexible to do this.

3.8    Installation
   a.  Installation is extremely easy and straight forward. The product is designed as a plug and play system, simple to install, cutting expensive labour costs for installation.
   b.  We can configure the system to your IT system prior to shipping to you so there is minimal set up required.
   c.  We can work closely with IT as we prepare the system to ensure an easy set up and can provide remote assistance during and following installation. It is good to get IT on board early.

3.9    Security
   a.  In terms of security & the TT software, TT uses the IEEE international Zigbee wireless protocol (NOT wi-fi), so this eliminates any security risk to your organisation.
   b.  It ensures secure communications, protecting establishment/transport of cryptographic keys, cyphering frames, & controlling devices.
   c.  We have many customers (i.e., police, medical/clinical research labs, hospitals, pharmaceutical) where data security is critical.

3.10   Conformance
   a.  The Temp°Track™ system conforms to the following: C-Tick approval N13750, AS/NZS CISPR 22:2006, CFR47 FCC Part 15, Subpart B (Class B), FDA CFR 21 Part 11 for electronic records (Open systems).

3.11   Sensor Accuracy and Calibration
   a.  The standard temperature sensors are digital microprocessors (factory rated at +/- 0.5°C accuracy), NATA certified, and retains their accuracy within +/- 0.2°C during their lifespan. The temperature reading is passed along the sensor cable as a digital value, so neither the sensor cable nor logger affects the temperature reading.
   b.  Whilst the sensors will retain their accuracy, quality audit processes may require that the sensors are checked against a reference sensor periodically. The system was designed to enable customers to perform self-calibration to minimise ongoing calibration costs.
   c.  Optional annual self-calibration - $100/week rental of NATA reference sensor. We can send you the NATA certified reference sensor for 1-2 weeks rental including full instructions on the easy self-calibration process.
   d.  NATA calibration certificates can be issued when we send the equipment.

3.12   Software updates and remote firmware upgrades
   a.  Users can at any time easily check for software updates for potential fault fixes or minor functional improvements via the Windows start menu.
   b.  Remote firmware upgrades to the wireless logger can also be provided from the helpdesk.

3.13  Ongoing costs
   a.  Annual battery change (3x AA per wireless logger, ~$1/logger)
   b.  Sms alerting, $0.03-0.08/sms (refer 2.4 d)
   c.  There are no ongoing licence charges, only the once off PC & server software licence when the equipment is purchased.
   d.  Optional annual self-calibration (refer 2.11 c)