Why LabAlert

Manual collection, recording and storage of data, plus the associated tasks have always placed time constraints on the lab/facility’s staff. LabAlert is the Solution

- Eliminates the need for staff to visit each piece of equipment to do manual data collection
- Eliminates manual documentation of daily log sheets
- Eliminates inaccurate readings (subject to interpretation)
- Eliminates the duty of replacing and storing recorder charts
- Eliminates mixed brands and types of thermometers which may result in inaccurate data
- Reduces potential liability issues – manual documentation process may not adhere to compliance standards

LabAlert not only safeguards your product and assets, it frees up your valuable staff by eliminating daily manual collection, recording and storage of data, allowing them to focus on the tasks at hand.

Our 24/7/365 monitoring system provides immediate access to data, notification of operating parameter deviations and secure data storage to protect valuable samples, products and equipment. It is designed for clinical/research labs, production/pharmaceutical facilities and biorepositories.

LabAlert is an independent wireless monitoring solution designed to confirm performance over a broad range of laboratory equipment. Based on the latest wireless technology, the system uses stand-alone sensors and cloud or server based management protocols.

LabAlert is ideal for all segments of life science, biotech, pharma and industrial laboratory markets where protection of highly valuable materials, vaccines, frozen specimens, cell cultures and production processes are critical to quality and investment.

LabAlert is designed for use in facility-wide applications or as a part of global corporate enterprise solutions. Data capture modules can be installed on products where basic monitoring of diverse parameters is required.
Universal Data Capture

Universal application, works with most manufacturers’ product

- Analog Output (e.g. temperature, CO₂, humidity, etc)
- 4-20 mA – with 250 ohm resistor upon request
- 0-5V DC

Performance Benefits

- 24/7 real-time monitoring via smartphone, tablet or computer with immediate access to performance information
- Secure data acquisition and storage with backup archives
- Centralized solutions for monitoring multiple systems, regardless of location
- Setpoint deviation push notifications to mobile devices
- Supports FDA 21 CFR Part 11 compliance
- Flexible and scalable measuring parameters

Account Management

- User access levels range from simple viewing to full administrator rights
- Intuitive user interface
- Easy setup and programming

Monitoring Capabilities

LabAlert is designed for use with a variety of sensors or onboard data points that are integrated into laboratory equipment.

- Air temperature range -200°C to +200°C
- Water temperature, incoming/effluent
- CO₂
- O₂
- Relative humidity
- Pressure
- Liquid level
- Airflow
- Water flow
- Door status
- Component temperature
- Amperage
- Energy Consumption

Universal Application

- Analog output (e.g. temperature, CO₂, humidity, etc)
- 4-20 mA with 250 ohm resistor upon request
- 0-5V DC

Performance Benefits

- 24/7 real-time monitoring via smartphone, tablet or computer with immediate access to performance information
- Secure data acquisition and storage with backup archives
- Centralized solutions for monitoring multiple systems, regardless of location
- Setpoint deviation push notifications to mobile devices
- Supports FDA 21 CFR Part 11 compliance
- Flexible and scalable measuring parameters

Account Management

- User access levels range from simple viewing to full administrator rights
- Intuitive user interface
- Easy setup and programming

Monitoring Capabilities

LabAlert is designed for use with a variety of sensors or onboard data points that are integrated into laboratory equipment.

- Air temperature range -200°C to +200°C
- Water temperature, incoming/effluent
- CO₂
- O₂
- Relative humidity
- Pressure
- Liquid level
- Airflow
- Water flow
- Door status
- Component temperature
- Amperage
- Energy Consumption

Laboratory Equipment Parameters

<table>
<thead>
<tr>
<th>Product</th>
<th>Temperature</th>
<th>CO₂</th>
<th>O₂</th>
<th>Humidity</th>
<th>Door Status</th>
<th>Liquid Level</th>
<th>Pressure</th>
<th>RPM</th>
<th>Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cryogenic Freezers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ULT Freezers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab Freezers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab Refrigerators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incubators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LN₂ Storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Chambers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ovens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centrifuges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility Ambient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BioSafety Cabinets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Baths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Other parameters available. Contact PHC Corporation of North America for information.
Cloud-Based, Remotely Hosted

The cloud-based system adds an extra margin of safety by offering immediate access for management of critical data necessary to make informed decisions. Because the cloud-based system does not require software or a local server, overall costs are lower than a LAN-based system that requires software installation and maintenance.

The web-based platform permits fast and easy setup and expansion with no stand-alone software needed.

- Provides customizable user interface dashboards for product, location or facility naming with single view live metrics and downstream data.
- Uses encrypted data transmission and storage.
- Continuously transmits data to mirrored servers in separate locations for increased protection.
- Check on your lab or facilities from anywhere and at any time.
- Data and deviation alerts delivered to your smartphone, tablet or computer.
- Meet monitoring needs easily with affordable pricing model.

Easy Installation, Setup & Operation

- Log into cloud server with username and password.
- Customize all products, sensors and gateways with names and ID numbers in dashboard as desired.
- Sensor transmitters are activated locally; gateway node is activated locally.
- Cloud server receives sensor data from gateway node via internet.
- Data is logged into cloud server and managed according to user configuration.
- Proactive notifications, records and reports are managed through the dashboard according to user preference.
- Monitor one piece of equipment, monitor your lab, monitor your entire facility, monitor multiple facilities.
- Wireless transmitters allow easy equipment relocation in lab or facility. Additional sensors can be added at any time.
- Local or remote computer, tablet, smartphone or other portable device can be configured for secure access to the cloud server.

Monitor one piece of equipment, monitor your lab, monitor your entire facility, monitor multiple facilities.

CUSTOMIZABLE ALERTS

- Web/app-based interfaces let you set up customizable dashboards to centrally monitor your equipment in a single view.
- Alerts are easily customizable to meet the demands of your lab – monitor temperature ranges, humidity levels, CO₂ concentrations and more.
- Programming can be done within the user interface and can be adjusted at any time, for any unit or group of units.

FDA COMPLIANT, CENTRALIZED RECORDS

- Secure, supports FDA 21 CFR Part 11 compliance.
- Maintain all of your records in a single, organized and centralized location.
- LabAlert allows you to reduce (or eliminate) cumbersome manual data recording processes. Stored data is accessible at any time.
### At a Glance

<table>
<thead>
<tr>
<th>Feature</th>
<th>LabAlert Advantage</th>
<th>LabAlert</th>
<th>Competitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Economical and versatile choice - cost decreases with increase in units monitored</td>
<td>Not economical with larger number of units</td>
<td></td>
</tr>
<tr>
<td>Compatibility</td>
<td>Compatibility with multiple stand-alone software &amp; equipment</td>
<td>Not compatible to other systems</td>
<td></td>
</tr>
<tr>
<td>Hosting</td>
<td>Remote hosted on cloud, accessible via web browsers or free smartphone app / can be locally hosted with stand-alone software</td>
<td>Only web or local</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>ZigBee® Standard or Wi-Fi - 2.4 GHz</td>
<td>Wired or wireless</td>
<td></td>
</tr>
<tr>
<td>Scalability</td>
<td>Ability to expand infinitely for multiple units</td>
<td>Do not have flexible capabilities</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>Preventive maintenance reminders and reports with service alerts</td>
<td>Simple summary of real-time data + historical chart data</td>
<td></td>
</tr>
</tbody>
</table>

*ZigBee is a trademark of the ZigBee Trade Alliance.*
Simple Setup

Sensor Transmitter
- Sensor is mounted onto product to monitor desired parameter
- Batteries* are installed in wireless transmitter
- Sensor wire is connected to wireless transmitter
* ZigBee® 3+ years battery life

Gateway Node
- Gateway node communicates wirelessly with each transmitter via node antenna
- Gateway node connects to facility AC power supply
- Ethernet cable is connected to gateway node
- Gateway node transmits to cloud via internet

Cloud Server
- User logs into cloud server with username and password
- Sensor transmitters are activated locally; gateway node is activated locally
- Cloud server receives sensor data from gateway node via internet
- Data is automatically logged into cloud server and managed according to user configuration
- Proactive notifications, records and reports are managed through the dashboard according to user preference
- All data is securely stored

Managing Information
- Local computer, tablet, smartphone or other portable device is configured for secure access to the cloud server
- Local dashboard is configured according to user preference
- Customizable parameters
- Data and alerts are web accessible in real time, anywhere with an internet connection
- Alerts can be acknowledged, resolved and documented with corrective actions
- User can upload customizable floor plans
- User can manage monitored and non-monitored equipment
Transmitter

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Cryogenic/ Vapor Phase, -160°C</th>
<th>Ultra-Low Freezers, -86°C</th>
<th>Lab Freezers, -30°C</th>
<th>Refrigerators</th>
<th>Refrigerator Freezer Combinations</th>
<th>Incubators, Heated and Refrigerated</th>
<th>Incubators, Temperature/Remote Contacts</th>
<th>Incubators, CO₂/O₂/RH/Room Temperature</th>
<th>Ambient/Room Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTC-GATEWAYT</td>
<td>gateway</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-22ZB-P5</td>
<td>transmitter</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-40ZB-P5</td>
<td>transmitter</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-ANLG-40ZB-P5</td>
<td>transmitter</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-UNIV-ZB-P5</td>
<td>transmitter</td>
<td>⬤*</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-TRH20-ZB-P5</td>
<td>transmitter</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-BOTTLE-G</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-CO2V</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-PB-HT</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-PB-ULT**</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-PB-UNIV</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-LN2</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-TRH-KIT</td>
<td>probe</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>NTC-HOSTINGFEE</td>
<td>hosting**</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
</tbody>
</table>

Note: A mesh router, NTC-MESHTR, is required when 11 or more transmitters are used, in a zone area or when transmitter is too far from gateway.

* NTC-UNIV-ZB-P5 w/NTC-PB-UNIV can be used for temperature and remote contact monitoring from -200°C to +60°C.

** Can only be purchased if the customer already has an NTC LT40 transmitter.

*** Hosting fee is required for each transmitter.
Preventive Maintenance, Cost Tracking

- LabAlert includes a unique feature for tracking maintenance (or other selected records) on all equipment whether the unit is being monitored or not.
- For any equipment programmed into your LabAlert account, you can assign regularly scheduled maintenance reminders.
- Track maintenance costs, labor and components.
- Track equipment downtime.

Additional Platforms
Locally Based, Locally Hosted

When locally hosted solutions are required, LabAlert uses stand-alone software installation on a facility server. All monitoring and reporting is managed through the internal facility network.

- Software license provided.
- Software installed by facility IT personnel with assistance from PHC Corporation of North America.
- Provides customizable user interface dashboards for product naming within the facility with single view live metrics and downstream data.

Validation Services

PHC Corporation of North America offers a full line of validation services that range from pre-delivery to full on-site qualification. Services are specifically designed to verify quality compliance to manufacturing and regulatory specifications. Advanced technology is integrated alongside contemporary processes for turnkey solutions using NIST/ISO calibrated instrumentation for calibration, validation and qualification in accordance with current GxP regulations [GMP, GLP, GCP], ISO, UPS, CAP, AABB, CLIA, USDA, local standards and other regulations. We offer assistance in product selection that meets customer applications, including equipment, service and support. ISO/IEC 17025* Validation is available upon request.

*ISO/IEC 17025:2005 specifies the general requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods. (Ref: ISO Web Site, May 2016)