Your Trusted Laboratory Maintenance Partner

Laboratory Maintenance Service and Support

At Haier Biomedical, we understand that your laboratory equipment plays a crucial role in the success of your work. That's why we offer a comprehensive range of maintenance services designed to keep your equipment in peak condition, ensuring maximum uptime, compliance, and long-term reliability.

Haier Biomedical UK offers three levels of service contracts tailored to suit your individual service and maintenance needs. We have a dedicated UK based service support team and factory trained engineers.

Haier Biomedical UK can also provide flexible bespoke contracts and include services additional preventative maintenance visits, annual calibrations, temperature mapping and IQ/OQ/PQ services.

Product Covered

- Cryogenic Freezers (-150°C)
- ULT Freezers (-80°C)
- Freezers (-20°C to -40°C)
- Refrigerators (+2°C to +8°C)
- Blood Refrigerators
- Plasma Freezers
- Liquid Nitrogen Storage (-196°C)
- Cold Rooms
- Freezer Rooms
- CO_2 Incubators
- Standard Incubators
- Climate Chambers
- Class II Safety Cabinets
- Laminar Flow Cabinets
- Fume Hoods
- Autoclaves
- Sterilisers
- Temperature Monitoring

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2025 V2

Haier Biomedical
Intelligent Protection of Life Science

UCool+

Remote Temperature Monitoring Solutions

Overview

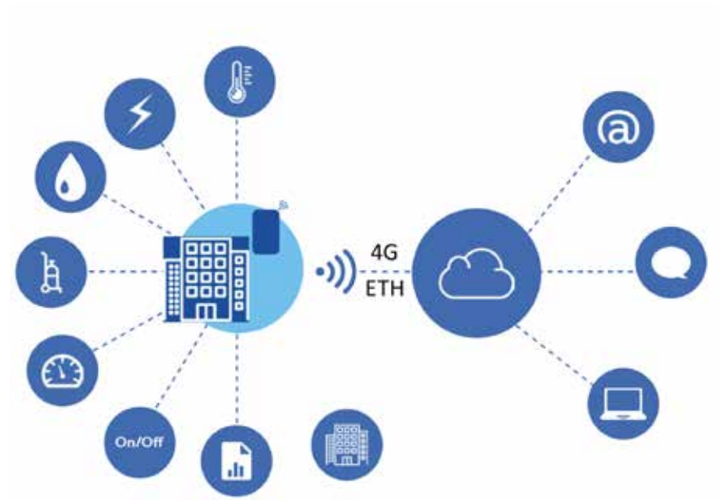
Using the flexible connection offered by 4G GSM & LoRa RF communication technologies, Haier Biomedical provides a range of remote monitoring & control solutions, allowing you to maintain real-time vision of your critical assets' status even when you are not there in person.

Using the UCool EMS browser-based software, users can view historic data, configure sensors, and action alarms from any internet connected device. The automated alarming system - delivered via email, SMS, telephone and push notifications - alerts users to parameter excursions quickly and efficiently, prompting resolution and preventing costly wastage.

Primarily focused on monitoring temperatures from -200°C to +200C°C, the platform also facilitates the monitoring of other key parameters (humidity, status, CO_2 etc.), allowing you to oversee your assets status on a single system. Combined with the advances in built-in IOT monitoring from Haier Biomedical, you can see more information than ever about your equipment to allow users to make educated decisions and maintain business continuity.

Fundamental Functions

- Remote monitoring function via web portal and mobile application
- Remote alarms: supporting SMS, voice and email alarms
- Status monitoring (On/Off, Open/Closed etc.) to track key parameterssuch as power failures and door openings
- On device storage of up to 10,000 records to keep your data safe
- Real-time monitoring of your critical assets, using LoRa WAN RF and 4G GSM technologies
- Location function to allow both real word tracking and digital positioning of sensors



Why LoRaWAN?

Key Advantages of LoRaWAN

Scalability – Designed to host 1,000's of devices within a single network, there is ample room for future expansions within your system. This will allow you to take advantage of more of Haier Biomedicals smart devices as they are added to the UCool+ range, without additional infrastructure.

LoRa LP – Long range and low power, the UCool+ devices can modulate their transmissions to ensure consistent connection to bridges even over longer distances. Those close to a bridge can reduce their transmission power, increasing battery life, whilst those further away can increase transmission strength to ensure strong communications.

Performance – With the increased capacity, the network has been designed to reduce traffic by using a broader range of signals within the regional LoRa WAN range. This translates to reduced downtime, reduced losses, and improved signal strength.

Security – By design, the system automatically implements end-to-end encryption between devices and the network. Along with improved authentication methods, you can rest assured your data is secure from prying eyes throughout its journey.

Product Advantages

- Tool-free, simple installation without complex network configuration
- Remote monitoring via the browser software from any internet connected device or via the mobile application
- Local storage in the event of network disruption of up to 10,000 data records, exportable in anti-tamper PDF
- Wide temperature range (-200°C to +500°C) for liquid nitrogen through to incubators and autoclaves
- LoRa WAN certified communication allows for up to 2,000 sensors on a single system
- European hosted server compliant to GDPR for the UK and Europe
- On-device temperature offset available, to allow adjustment following calibration
- Remote alarming via email, SMS, telephone, and App Push notifications
- Multiple permission levels, allowing administrators to define user access rights
- Fully accredited, CFR Part 11, CE(EU), FC & ISO/IEC 27001
- Applicable for the global market, the LoRa WAN spectrum is available specific to your local requirements

LoRaWAN Infrastructure

Model UG65

LoRaWAN Bridge

The primary gateway in the range, the UCool+ LoRa WAN Main Bridge connects your compatible UCool+ devices to the UCool+ platform. Operating as a 'packet forwarder', the Bridge allows virtually real-time transmission of data via the 4G mobile network from device to the platform, providing low-latency and faster updates. Comprising of 8 radio transceivers, the Bridge can connect up to 2,000 end devices over a distance of up to 15km LoS.

Features

- Up to 2,000 devices
- Optional UPS battery backup
- Built-in network server for direct communication to the UCool+ platform
- Onboard status lights

LoRaWAN Outdoor Bridge

Supporting external applications, the Outdoor Bridge offers the option to have infrastructure placed centrally on site, even if that is in an exposed area. Offering the same features as the Indoor Bridge along with IP67 protection and extreme temperature operation, the device also has an internal super-capacitor to send an alert to designated users in the event of a power outage.

Features

- Up to 2,000 devices
- Built-in network server for direct communication to the UCool+ platform
- Optional twin external hi-gain antennas to improve coverage
- Super-capacitor to facilitate power outage alerts

Model UG67

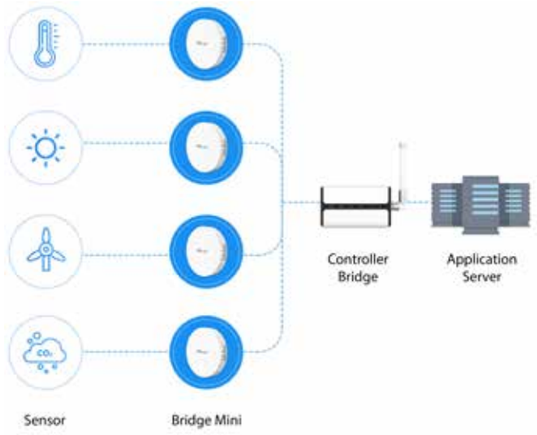
Model UG63

LoRaWAN Mini Bridge

Used in the 'Parent-Child' configuration, this Bridge works as a range extender over ethernet networks, communicating to the primary gateway on site to allow data transmission to the platform. A budget friendly option to allow increased site coverage using your network.

Features

- Requires Main Bridge to function
- Up to 2,000 devices
- Requires an ethernet connection
- Optional UPS battery backup



Using the UCool+ Bridge system allows for complete coverage of your site, even for larger or more complex projects. Working with your Haier Biomedical representative, you can design a system which either:

- Use single or multiple Bridge Pros to operate completely independently of your building infrastructure
- Use single or multiple Bridge Minis to create a wired network to cover any blind spots, using the buildings ethernet network, feeding back to a central Bridge Pro which is responsible for network transmission

LoRaWAN Solar Bridge

Designed for operation in areas with minimal infrastructure, the Solar Bridge is able to operate for up to 4 days on stored solar power without an external power supply. This enables easy deployment in remote, rural areas but can also be used to support urban projects, expanding coverage even in areas without reliable infrastructure.

Features

- Up to 2,000 end devices
- Separate 45W solar panel offers long term operation in low light
- IP67 protection, and -30°C to +70°C operation
- Optional DC power input to use existing solar infrastructure

Model SG50

Bridge UPS Battery Backup

Designed for the UCool+ Main and Mini Bridge

Features

- Up to 2,000 end devices
- Separate 45W solar panel offers long term operation in low light
- IP67 protection, and -30°C to +70°C operation
- Optional DC power input to use existing solar infrastructure

Model UPS01

The LoRa WAN system is designed for long distance communication of up to 15Km line of sight (LoS). Of course, in urban centres structures can block these paths, but the communication signal can still travel up to 2Km, ensuring your devices on site are always within range.

Pro Solo

UCool Pro Solo & Duo

Offering long battery life and broad functionality, the Pro Solo & Pro Duo models can monitor temperatures from Liquid Nitrogen storage through to Autoclaves and industrial ovens. The large LCD segment screen offers information at a glance, even in the event of network disruption. The large on-board memory allows for long term storage of data, ensuring your data is safe and secure. The Type-C USB connector allows for data download, and can even be used to power the device using a 5V supply. Onscreen indicators show connection status, battery level and alarm status. With single or dual input options, they can be easily adapted to your requirements.

Pro Duo

Features

- Large, always on display
- On board secure data storage with local data download
- Powered via 5V Type-C USB connection (not supplied) or batteries
- Long battery life of up to 10 years
- User serviceable, with replaceable probes and batteries
- Magnetic mounting as standard
- -200°C to +500°C, to a typical accuracy of ±0.5°C

Model EM-320TH

UCool Lite TH

Designed to monitor temperature and humidity to a high degree of accuracy, this internal sensor device is suitable for ambient or non-condensing humidity environments. Capable of operating down to 0°C and up to +60°C, the Lite TH is a great option for cell incubation or archive storage.

Features

- Long battery life of up to 5 years
- User replaceable battery
- High accuracy (±0.2°C, ±2% RH)
- IP67, food-safe enclosure

UCool Lab

Displaying the current ambient conditions in your space, the UCool Lab sensor immediately identifies when conditions are outside of specification using the built-in light bar indicator. The large display shows key information at a glance, including battery and connection status.

Features

- Measuring range of -20°C to +60°C (device dependent)
- User replaceable battery
- Battery life up to 9 years
- Built-in alarm indicator

Model AM102

UCool+ Specifications

Features	Lab	LiteTH	Pro Solo	Pro Duo
Measuring parameter	Temperature & Humidity	Temperature & Humidity	Temperature or Status	Temperature and/or status
Measuring range	-20°C to +60°C 0%RH to 100% RH	-25°C to +60°C 0%RH to 95%RH	-200°C to +500°C	-200°C to +500°C
Probe type	Internal	Internal	Class B, A or PT100	Class B, A or PT100
Probe material	NA	NA	PVC, Silicon, Teflon	PVC, Silicon, Teflon
Flying lead length	NA	NA	3m	3m
Accuracy	±0.2°C ±2%RH	±0.2°C ±2%RH"	Up to ±0.5C	Up to ±0.5C
Battery life	<9 years	<5 years	Temp: <5 years Status only: <10 years	Temp: <5 years Status only: <10 years
Alternative power source	N	N	5V via Type-C USB	5V via Type-C USB
User replaceable probe	N	N	Y	Y
User replaceable battery	Y	Y	Y	Y
Display	Option available	N	Y	Y
Dimensions (LxWxH, mm)	68 x 65 x 21	85 x 60 x 20	110 x 75 x 30	111 x 75 x 30
Operating temperature	Screen: 0°C to +40°C No screen: -20°C to +60°C"	-25°C to +60°C	0°C to +60°C	0°C to +60°C
Operating humidity	0%RH to 95%RH (Non-Condensing)			
Onboard data storage	N	3,000 records	<10,000 records	<10,000 records
Local data download	NA	N	Y	Y
On board alarm indicator	Y	N	Y	Y

UCool Leak Detection

Supplementing our temperature monitoring range, our Leak detection system is great for monitoring areas with water processing, including in laboratory and plant spaces. Whether it is an ice machine or part of the core water handling for the building, there are sensors to monitor a variety of situations to suit your requirements. These all work within the UCool+ LoRa WAN infrastructure, and will help prevent costly damage from leaking equipment.

Features

- Spot, Cable and Membrane versions
- Triggers from 0.5mm conductive liquid level
- Up to 10-year battery life
- Built-in local alarm (Leak Mini only)

UCool 4G Pro PT100

Built to provide temperature monitoring in areas without LoRa WAN coverage, this unit can communicate directly with the server using the 4G GSM network. This means you won't need a Bridge in the vicinity, enabling you to monitor individual remote equipment in a more economic manner. The device has two external PT100 temperature inputs, a door switch and internal ambient temperature/humidity sensor. With a built in audible and visual alarm, the 4G Pro is great for single equipment monitoring tasks.

Features

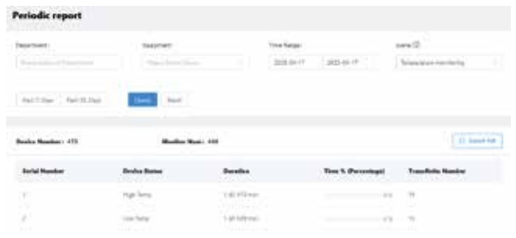
- Built-in, rechargeable battery
- 4G communication, no Bridge required
- 5 monitoring points in one unit
- Built-in audible & visual alarm

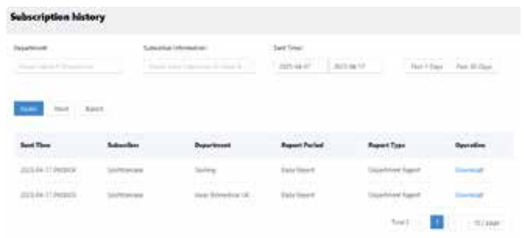
Haier Global Equipment Monitoring System

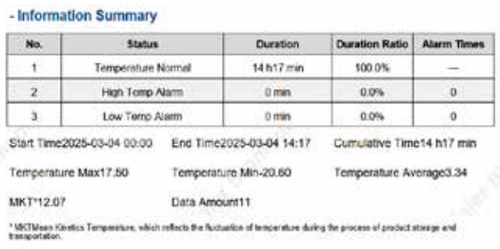
Data secured by devices is transmitted to our central server, located in Frankfurt, Germany, and is then accessed via our browser-based software and mobile applications. The software allows for the complete administration of the monitoring system, from viewing collected data to configuring alarm thresholds. Users can self-manage their systems, allowing them to add and remove devices and users as required. An automatic reporting functionality, allows data to be sent to key parties via email at daily, weekly and monthly intervals to keep users informed. Alerts for sensors performing outside of set thresholds are delivered via email, SMS and telephone to assigned users. The customisable alarm logic allows users to define the time, day and how alerts are delivered.

Data reporting

The platform offers easy access to your data, allowing users to quickly view their sensor readings in graph and tabular formats. User-defined time ranges show as much data as you need, with live indicators showing min/max and an interactive graph allowing you to pinpoint readings. Users can download reports showing vital information and subscribe to these for automatic delivery.





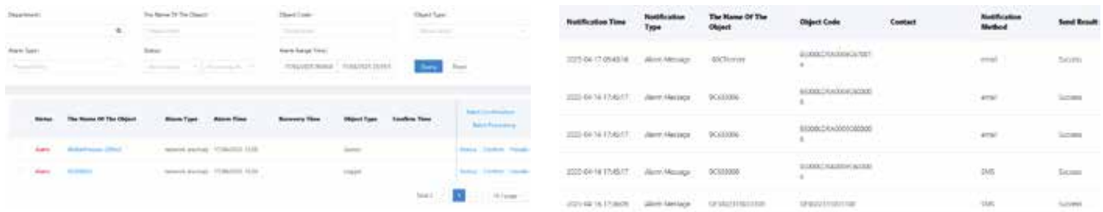


Alarm mapping

Users can set their alarm parameters on the software, setting custom delays and limits to suit their requirements. With the alarm mapping system, sensors can be grouped and have their alarm logic, allowing them to be divided on-site as required, with alarms only going to those users who need them. Alarms can be programmed to be delivered to individual users via different contact methods, with an escalation system to inform higher-level users

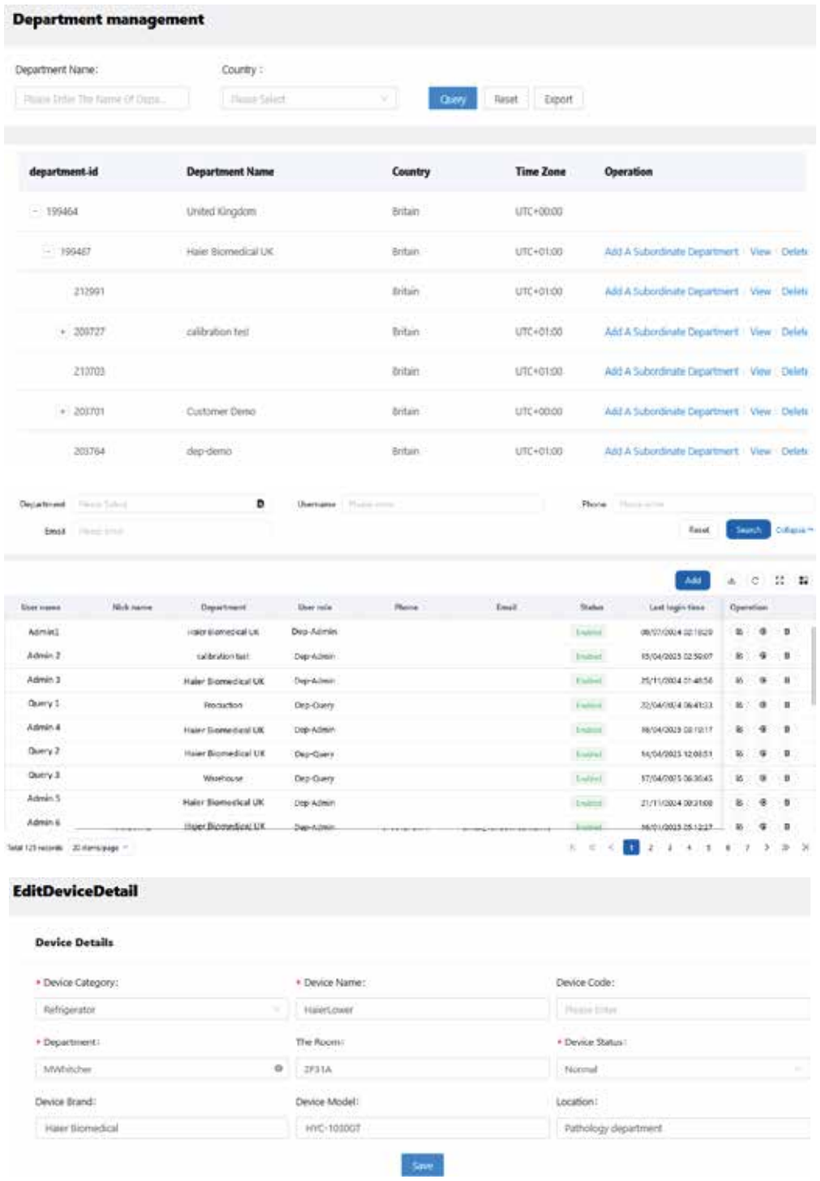
Alarm auditability

The system generates alarms and records them in the 'Alarm List', allowing users to add custom recordings for alarm causes and treatments. This list can be reviewed later to identify specific alarm scenarios and view information on the user who initiated the action and their actions. It can also be exported for local archival as required.



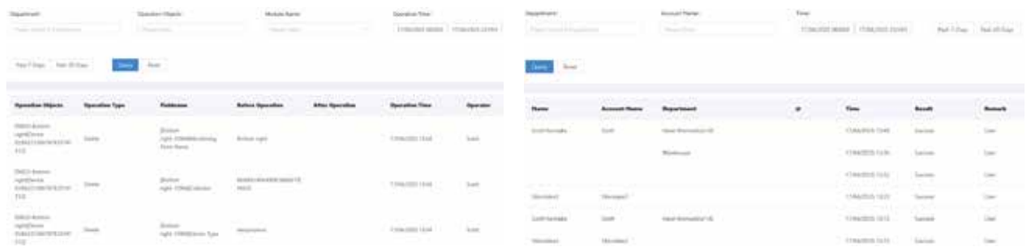
System administration

Users are given the tools to completely manage their system in department structure and user management. The system even allows equipment management, letting you track brands, models and serial numbers associated with your monitoring points. Users can be easily added and suspended from the system, and departments can be created or removed to redistribute sensors to suit business needs.



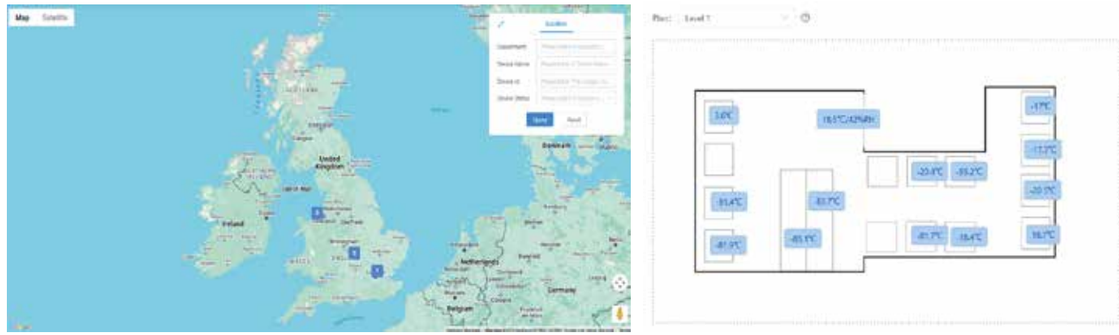
Compliance Visibility

The system has multiple audit functions, allowing you to track user logins, system configuration changes and alarm responses.



Sensor display

Track your sensors' positions via the online platform, allowing you to manage multiple remote sites through a single platform. Colour-coded icons give you a quick visual overview of your site, and multiple custom map pages allow you to zoom in on single rooms of sensors.



Service guarantee

Haier Biomedical has a professional localization service team, can provide on-site installation, on-site training, after-sales service and other services;