RF500 Wireless Monitoring

Exceptional data integrity. Complete peace of mind.

COMARK
A Fluke Company

RF500

Provides effortless 24/7 monitoring of temperature, humidity and door events.

Catering

Key benefits include:

- **Accurate records without compromise**
- **Secure multi-user access to data via the internet at any time**
- **Alarm notification via email, phone or pager**
- **Transmitters that are waterproof and accurate, and have a long battery life**
- **Compliance with legislative and regulatory requirements**
- **Plus, it's easy to install, use and maintain**

The system achieves unprecedented levels of efficiency and reliability through its use of the latest low-power RF technology with built-in mesh networking, and transmitters with bi-directional communications.

The RF500 System

The RF500 Wireless Monitoring System is an accurate, reliable and flexible method of collecting real-time temperature, humidity and door event data.

It uses a network of remote sensors and probes to collect and transmit information to a Gateway unit which manages the system and collects and stores the data. The result is efficient and versatile round-the-clock monitoring for just about any industry.

Advanced features include:

ADR – Automatic Data Retrieval. In the event of a power failure, data is stored in the RF500 transmitter then automatically transmitted to the Gateway as soon as the network is restored, so no data is lost.

Mesh Network – established through powered transmitters. This enables the system to automatically adjust to any changes in the environment, rerouting signals as required to ensure that the data is always returned to the Gateway.
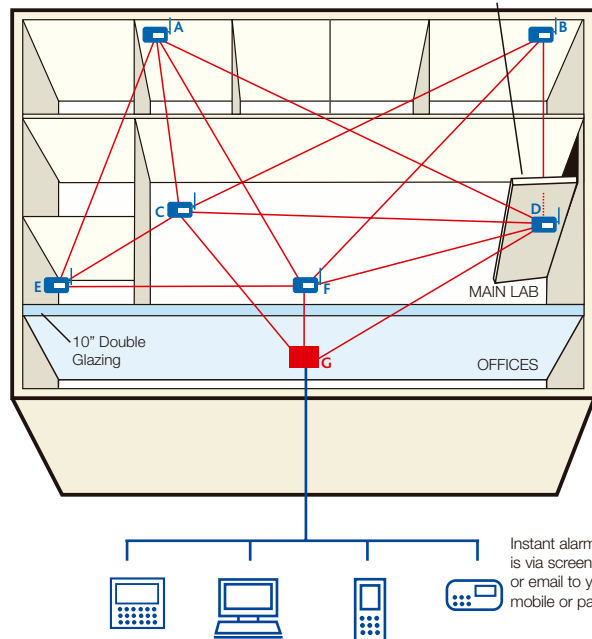
Manual checks on temperature and humidity are a thing of the past. The RF500 does it automatically, reducing labour costs, eliminating errors and ensuring complete records are maintained in accordance with regulatory requirements.

In the event of readings falling outside pre-set limits, alarm notification via screens, SMS*, email or voice allows immediate corrective action to be taken. This can make all the difference in terms of saving your product and protecting your reputation.

The RF500 answers market demands for a quick, reliable system which is easy to understand and operate but can just as easily be reconfigured or expanded in line with changing needs.

* Third party service provider required.

Signal via route B-D blocked by open chill room door. System automatically re-routes signal via B-F or B-C.

10" Double Glazing

MAIN LAB

OFFICES

Instant alarm notification is via screens, sms, voice or email to your PC, PDA, mobile or pager.

The above schematic shows how, in the event of signals being blocked by shifting stock, open doors or parked vehicles, RF500 transmitters automatically seek an alternative route.

RF500 - Exceptiona

Stop, start etc.

High alarm limit shown in red

Low alarm limit shown in blue

Export function

Mean Kinetic Temperature value

Audit trail provides visibility of actions, times and users

Login password protected

Viewing Data

The powerful RF500 Gateway unit requires no specialist PC software. It connects directly to the local area network, permitting 24/7 single or multi-user access via internet browser.

Programming or data access is achieved via a PC or PDA from any location. Multi-user access can be controlled via built-in safeguards configured to ensure staff only have access to information relevant to their needs and can only make changes deemed appropriate by the system administrator. There are no hidden charges for licences and there is no limit on the number of users – you dictate how many or how few people have access.

With a full audit trail, electronic signatures and data protection to meet the requirements of 21CFR Part 11, RF500 is ideal for any high security application where protection of your products and good name is paramount. Rapid identification and notification of alarm conditions provides all the necessary assurances for due diligence and HACCP procedures.

Applications

The RF500 system is suitable for use in any industry where specific temperature or humidity levels need to be maintained and monitored.

Ideal for monitoring:

- Fridges and freezers
- Coolers, chillers and cold stores
- Warehousing, distribution and transport
- Storage areas for drugs or vaccines
- Incubators and test chambers
- Perishable goods such as blood products and costly test reagents

Practical functionality allows you to:

- Stop and start logging
- View or program tasks
- View data as graphs or tables and toggle between the two
- View events for a selected day

Export function allows data to be saved in comma separated values (CSV) file formatted to the local PC.

Mean Kinetic Temperature values can be calculated for critical areas such as drug and vaccine storage.

RF500

Market leading data integrity.
No awkward gaps in your records.

Pharmaceutical

Food manufacturer

Alarms include:

- Notification via screens, email, SMS* or voice, with the ability to select which personnel are notified in line with work rotas.

- Alarm delay option – system will not indicate out of range status until the temperature has been out of range for a set period of time, ideal for defrost cycles and restocking.

- Dynamic alarms selectable by time, allowing more than one alarm level for a single sensor. Typical uses are cycling incubators or long defrost cycles.

- *Third party service provider required.*

Transmitters

Transmitters are waterproof and include an LCD for instant data display and an LED for local alarm indication. Three models cover every temperature and humidity requirement and each incorporates advanced RF technology to maximise range and satisfy the highest levels of data integrity.

RF512 has an integral temperature sensor plus connectors for two external thermistor probes and an external door sensor.

RF513 has integral temperature and humidity sensors and a connector for an external door sensor.

RF516 is a precision temperature transmitter with an integral temperature sensor plus connectors for one external PT100 probe and an external door sensor.

Other common features include:

- Low battery indicator on the transmitter and via the web-view

- Probe faults transmitted and shown in the web-view

- Choice of 3 year battery life or mains power for RF512 and RF513 transmitter types

Accessories

Accessories include single and duplex penetration and air probes, door event sensors and siren/klaxon for alarms. Please contact the Comark Sales Office or your Comark representative for full details.

- Large LCD allows local view of temperature, RH (RF513), and door opening information plus alarms and RF status

- LEDs for active/alarm indication

- Antenna

- Selectable scales ˚C or ˚F, %RH or DP (RF513)

- Compact size waterproof case with BioCote® antimicrobial surface protection.

- Secure Lumberg connector for probes

- Door event sensor

- AC/Mains power connector

plete peace of mind

RF500

Applications include catering, foodservice, food manufacture, pharmaceutical healthcare, warehousing and retail.

Warehousing

Retail

Case History 1

Customer: A Healthcare Trust

Requirement: To upgrade existing temperature monitoring methods.

Previous methods relied on a combination of equipment displays, data loggers, chart recorders and manual recording which, in terms of remote blood banks alone, was taking a member of staff 2 hours per day.

The new system needed to be fully automatic, capable of operating 24 hours per day, 365 days per year

across four hospital sites with six pathology labs, eight blood banks and a total of 180 monitoring points.

Solution: An RF500 system with 14 Gateway units has fulfilled all the customer's requirements. It allows data from all locations to be viewed locally and remotely by different people within the trust and includes an email alarm system for each separate Gateway, as well as visible alarms on each transmitter.

Monitoring points range from -80°C freezers, fridges, cold rooms and incubators, and the system provides almost permanent mapping for super-critical areas such as blood fridges. The robust RF signal has proved effective with no loss of data even across large busy labs fitted with state-of-the-art electronic equipment.

Benefits:

- Compliance with MHRA and CPA requirements
- Peace of mind because all areas are alarmed
- No more manual readings, so no human error
- All data available to key people from their own office
- Choice of alarm methods for notification day or night

Case History 2

Customer: Food Manufacturer (Sauces)

Requirement: The company needed to be able to prove to the British Retail Consortium (BRC) that its cooking cycles had been completed correctly.

Historically, this was done by manually recording temperatures from chart recorders or other devices

and maintaining written records. The company also wanted to monitor temperatures in their chilled storage warehouse.

Solution: The RF500 system supplied can be programmed to provide independently variable logging rates for each individual transmitter, in line with the task being carried out. The single coordinated system has answered all the customer's needs, including compliance with the company's criteria which required 100% reliability in terms of logging rates and accuracy. The customer is also satisfied that all the data captured will stand up to scrutiny.

Benefits:

- The ability to show that products have been cooked in accordance with customer's instructions
- Meets all data requirements for BRC auditing
- Automated and consistent record-keeping with little risk of human error

Technical specifications

RF500 Gateway

Channels	Up to 512	Power Sources	Mains power adaptor, rechargeable Ni-Mh battery
Transmitters	Up to 128	Battery Backup	4.3Ah Ni-Mh rechargeable battery
Storage Capacity	Up to 10 years storage		plus reserve for safe shutdown.
RF Frequency	2.4 GHz using IEEE 802.15.4	Clock Accuracy	4ppm (2 minutes per year)
Battery Life	4 hours (rechargeable)	Dimensions	L 259mm x W 189mm x D 92mm
Operating Range		Weight	3.7 Kg
Temperature	+5°C to +35°C / +41°F to +95°F		
Humidity	10 to 90% RH (non-condensing)		

Transmitters – RF512, RF513 and RF516

Temperature Measurement Range		Standard Antenna	External, removable,
Internal Thermistor Sensor – RF512, RF516	-30°C to +70°C/-22°F to +158°F		omni-directional with pivot.
Integral Thermistor Sensor – RF513	-30°C to +70°C/-22°F to +158°F		Length: 90mm from pivot.
External Sensor	-40°C to +125°C/-40°F to +257°F	High-Gain Antenna (optional)	Length: 235mm from pivot.
External Pt100 Sensor	-200°C to +400°C/-328°F +750°F	Radio Range*	Typically 50 metres indoors
Humidity Measurement Range	10 to 90% RH	Clock Accuracy**	20ppm (1 minute/month)
System Accuracy with Standard Sensors			at 25°C/ 77°F
Temperature		Logging Memory	32000 records
External Thermistor – 20°C to +70°C	±0.5°C/ ±0.9°F	Logging Frequency	Programmable between
External Thermistor – full range	±1°C/ ±2°F		1 minute and 60 minutes
Internal Thermistor – 20°C to +70°C	±0.5°/ ±1.0°F	Monitoring Frequency	1 minute
External Pt100 – over 50°C range		LEDs	Red – Warning
between two calibration points	±0.1°C/ ±0.2°F (system		Green – External Power
	including probe)	Case Material	Over-moulded food safe clear
Pt100 – full range	±0.05°C/ ±0.1°F plus probe		Polycarbonate with BioCote®
Humidity			antimicrobial
10-90% RH	±3%	Environmental Protection Transmitters	Case enclosure designed to meet
Pt100 Connection Type	4-wire		IP67 BS6059
Pt100 Sensor Drive Current	400µA Nominal	Battery Type	Replaceable Lithium 'C' Cell
Resolution			Saft LSH14 Light
Temperature			(Part No RFBATT)
Thermistor	0.1°C/ 0.2°F	Battery Life***	Up to 3 years
Pt100	0.015°C/ 0.03°F	Dimensions	L 170mm x W 83mm x D 34mm
Door Sensor	7.5 seconds	Weight	200g
Humidity			
10 to 90% RH	±0.1%		
Storage Temperature	-40°C to +85°C / -40°F to +185°F		
RF Frequency	2.4GHz using IEEE 802.15.4		

* Internal RF range cannot be guaranteed as it varies from building to building.
  Requirement for all hardware is always determined on site by a physical survey.

** Transmitters will synchronise their clocks with the Gateway at midnight.

*** When used at 23°C room temperature and Radio Rate of 15 minutes.

BIOCOTE

Selected Comark thermometers, probes and data loggers have an advanced BioCote® antimicrobial impregnated into the instrument cases and probe handles. This inhibits the growth of harmful organisms and is becoming accepted with HACCP and due diligence procedures as an important extra level of defence against cross contamination.

For further details visit the BioCote® website
www.biocote.com

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WARRANTY

All Comark instruments have a minimum one year warranty unless otherwise stated. The warranty period for temperature probes is for six months and all other probes and electrodes are unwarranted because the conditions of use are beyond our control.

The Comark warranty covers manufacturing defects and component failures on all products returned to Comark premises and applies worldwide. The warranty does not affect your statutory rights. In line with our policy of continuous development we reserve the right to alter any product specifications without notice.

All products are covered by our Quality Management System which is compliant with BS EN ISO 9001:2000 for the design, manufacture, supply, service, repair and recalibration of electronic measuring instruments and equipment.

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