NEW
and improved

RF500 Wireless Monitoring

Exceptional data integrity. Complete peace of mind.

COMARK
A Fluke Company

RF500

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

2 YEAR WARRANTY

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 SMS**
- **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.

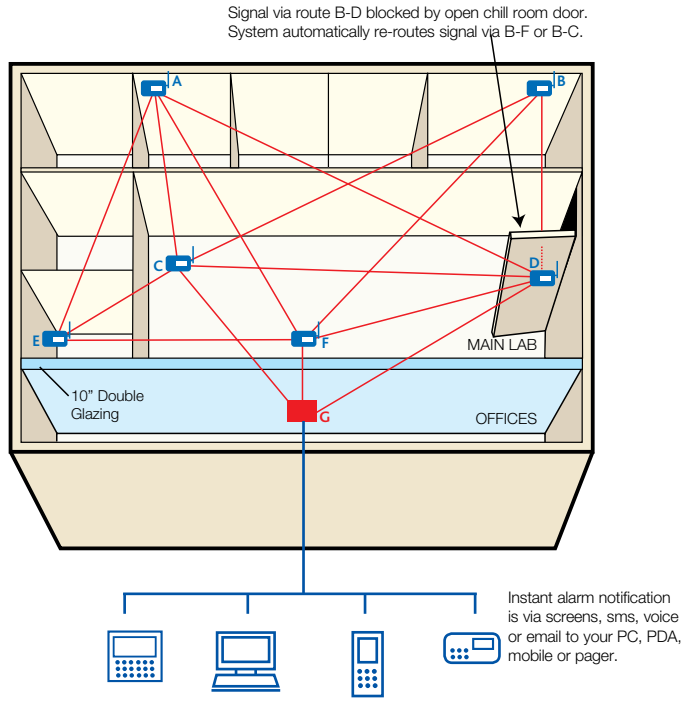
Mesh Network – established through powered transmitters. This enables the system to automatically adjust to any changes in the environment, rerouting signals as required to ensure that the data is always returned to the Gateway.

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.

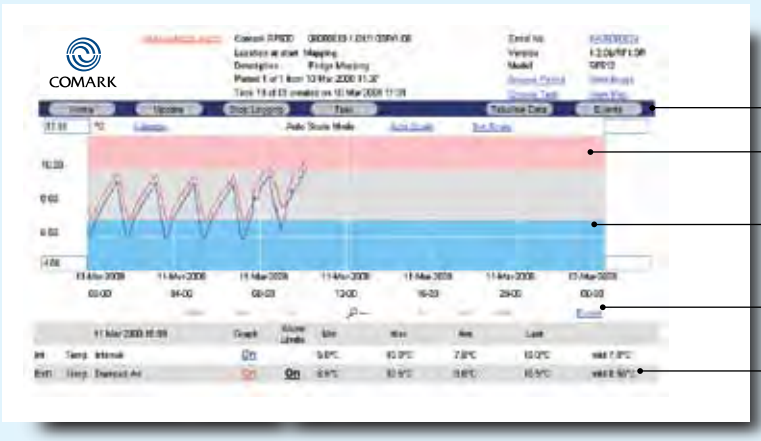
In the event of readings falling outside pre-set limits, alarm notification via screens, SMS*, email or voice allows immediate corrective action to be taken. This can make all the difference in terms of saving your product and protecting your reputation.

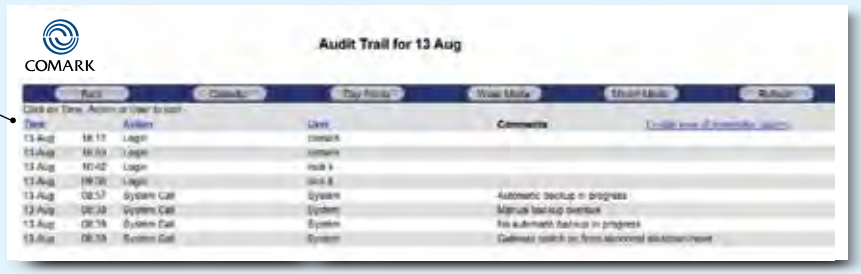
The RF500 answers market demands for a quick, reliable system which is easy to understand and operate but can just as easily be reconfigured or expanded in line with changing needs.

* Third party service provider required.



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.





Viewing Data

The powerful RF500A Gateway unit requires no specialist PC software. This new, compact unit has solid state memory via two SD cards. In the event of failure, data is protected as information is backed-up automatically between the two. There is no hard drive and no fan so there are fewer components to wear out. The new RF500A has low power consumption, an important consideration in any industry and the RF500AP provides the option of power over Ethernet or mains. The Gateway connects directly to the local area network, permitting 24/7 single or multi-user access via the internet.

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 that 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 so products are stored and systems are operated at optimum levels for safety and energy efficiency.

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
- Super User function allows multi-Gateway visibility from one screen.

Export function allows the user to define an automated download of the whole system data via a Comma Separated Values (CSV) Report. Data from individual transmitters can be exported to CSV File as required.

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. Four 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.

RF515 can be connected to a control loop and programmed to measure an extensive range of parameters such as pressure, gas, flow, level, dissolved oxygen, CO_2 and many more.

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 1 year battery or mains power for RF512, RF513 and RF516

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
- High gain 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

RF500A Gateway

Number of Channels	Up to 256
Number of Transmitters	Up to 64
Storage Capacity	Up to 10 years' storage
RF Frequency	2.4 GHz using IEEE 802.15.4
Battery Life	1 hour
Operating Conditions	
Temperature	0°C to +40°C / +32°F to + 104°F
Humidity	10-90% RH non-condensing
Power Adaptor	100-240VAC 310mA 50/60Hz
Battery Backup	4.3Ah Ni-Mh Rechargeable Battery. Running time approximately 1 hour
Power Sources	RF500A and RF500AP: AC power adaptor, rechargeable NiMh battery RF500AP only: Power over Ethernet (PoE) capability. Compliant to IEEE 802.3af
Clock Accuracy	4ppm (2 minutes per year)
Relay Outputs (SW1 & SW2)	Two individual 2.5mm jack sockets. Contacts: 24Vdc 500mA maximum
Power Consumption	12W typical
Dimensions	L 225mm x W 150mm x D 40mm
Weight	1.3Kg

Transmitters – RF512, RF513, RF515 and RF516

Temperature Measurement Range	
Internal Thermistor Sensor – RF512, RF516	-30°C to +70°C/-22°F to +158°F
Integral Thermistor Sensor – RF513	-30°C to +70°C/-22°F to +158°F
External Sensor	-40°C to +125°C/-40°F to +257°F
External Pt100 Sensor	-200°C to +400°C/-328°F +750°F
Humidity Measurement Range	10 to 90% RH
System Accuracy with Standard Sensors	
Temperature	
External Thermistor -20°C to +70°C	±0.5°C/ ±0.9°F
External Thermistor – full range	±1°C/ ±2°F
Internal Thermistor -20°C to +70°C	±0.5°/ ±1.0°F
External Pt100 – over 50°C range between two calibration points	±0.1°C/ ±0.2°F (system including probe)
Pt100 – full range	±0.05°C/ ±0.1°F plus probe
Humidity	
10-90% RH	±3%
Volts/Milliamps at 23°C	0.3% of reading
Pt100 Connection Type	4-wire
Pt100 Sensor Drive Current	400µA Nominal
Resolution	
Temperature	
Thermistor	0.1°C/ 0.2°F
Pt100	0.015°C/ 0.03°F
Door Sensor	7.5 seconds
Humidity	
10 to 90% RH	±0.1%
Volts/Milliamps	
0-10V	1mV
0-1V	0.1mV
4-20mA	1µA
Storage Temperature	-40°C to +85°C / -40°F to +185°F
RF Frequency	2.4GHz using IEEE 802.15.4
Standard Antenna	External, removable, omni-directional with pivot.
	Length: 90mm from pivot.
High-Gain Antenna (optional)	Length: 235mm from pivot.
Radio Range*	Typically 50 metres indoors
Clock Accuracy**	20ppm (1 minute/month) at 25°C/ 77°F
Logging Memory	32000 records
Logging Frequency	Programmable between 1 minute and 60 minutes
Monitoring Frequency	1 minute
LEDs	Red – Warning
	Green – External Power
Case Material	Over-moulded food safe clear Polycarbonate with BioCote® antimicrobial
Environmental Protection Transmitters	Case enclosure designed to meet IP67 BS6059
Battery Type	Replaceable Lithium 'C' Cell Saft LSH14 Light (Part No RFBATT)
Battery Life***	1 year
Dimensions	L 170mm x W 83mm x D 34mm
Weight	200g

* 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. Battery life is up to 3 years with a heavy duty battery. Contact Comark for details.

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**

Distributed by:

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 9001:2008 for the design, manufacture, supply, service, repair and recalibration of electronic measuring instruments and equipment.

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ISO 9001
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