DataTrace RF

Real-time, process data collection, reporting, and analysis.

The best of both worlds

Historically there were two ways to collect data from your process: wired logging systems or wireless data loggers. Wired systems delivered real-time data but were difficult to setup and not always reliable. Wireless data loggers were easy to setup and maintain and were very reliable, but could not provide data until the end of the process.

Now, you can have the best of both worlds with the DataTrace® RF System. The reliability of over 25 years of process data logging experience with the DataTrace system, **combined with state-of-the-art radio frequency (RF) technology**, gives you a real-time view of your progress.

Control Your Process, Your Budget, and Your Time

The DataTrace RF System is the latest high performance data logging system from the people who invented wireless data logging. DataTrace RF includes all the features and performance you have come to expect from previous DataTrace systems, such as the Micropack III, and adds the capability to transmit data to the PC in real time through our proprietary DTLinc RF network. The ability to view your process or validation data instantly saves your valuable time, and it can prevent costly processing mistakes. It is no longer necessary to wait until a process is completed to see your results. Simply program the loggers using the DataTrace RF software, place them in your process and start receiving data instantly at the PC through the DTLinc network. Now, you can make decisions on the fly after reviewing the status of your process or equipment validation tests.

The DataTrace RF system was designed for fast and easy setup, data collection and report preparation. Real time data can be displayed on the PC in a variety of formats, including a tabular summary, a history spreadsheet, a graph, overlaid on a photo of your process, or as a thermal map. And, you never have to worry about losing data. Not only does DTLinc's AutoRecover feature ensure that 100% of your data is transmitted to the PC in real time, but the logger's internal memory stores all of your process data for later transfer to the PC via a traditional infrared serial interface. All other tasks, including data review, report generation and system maintenance have been simplified and streamlined

to make the DataTrace RF system the easiest to use, yet most powerful data logging system available today.

Your data is stored in DataTrace's highly secure FDA 21 CFR Part 11 compliant software and reported in any format you require. Whether your work involves chamber validation, food process control, or sterilizer monitoring, a comprehensive report can be easily generated that helps you meet your regulatory requirements.

Other DataTrace RF system features include:
- Small size, which allows placement within the product to be measured for unmatched accuracy, giving you confidence in your results
- Completely wireless loggers, which simplify set-up, thus saving time
- Reliable DTLinc Network, which provides real-time process data
- Single integrated system, which monitor one or multiple process parameters, saving you time and ensuring regulatory compliance
- Intuitive software, which can be easily mastered in minutes, enhancing your productivity
- 8,000 NIST-traceable data points, which are incorporated in each compact logger for high precision and accuracy, providing confidence in your data quality and ensuring regulatory compliance
- AutoRecover™, which ensures that 100% of you data is received by the PC
- Compatibility with earlier MPIII Loggers, which allows for smoother integration
- Synchronized time base, which simplifies data display and reporting
- Real-time Lethality data, for steam sterilizer applications

All from the company that originated wireless data logging, giving you confidence in your purchase today and the future.

DTLinc Network – The DataTrace RF Advantage

A real time RF data logger system is only as good as its communication network. You need a radio network that is reliable, easy to set up, fast, and robust. Mesa's proprietary DTLinc RF network provides a reliable communication protocol that is uniquely designed for high performance data loggers.
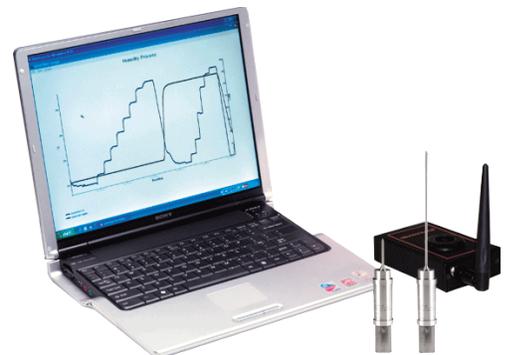
But how does it work? Without getting too technical, it helps to understand a little about radio data logger systems to really appreciate the advantages of DTLinc and the DataTrace RF system.

Frequency

Unlike some other data logger systems, DTLinc operates on 2.4 GHz, which is usable worldwide without a special license. Some other data logger systems operate in the 420 to 450 MHz range, which is only available in Europe on a license free basis, or at 902 to 928 MHZ, which is only available in North America and Australia on a license free basis.

Interference

Many other electronic devices transmit RF frequencies, either as a way to communicate, or as a by product of poor electromagnetic (EM) shielding. These interfering RF signals can cause communications problems, including data loss, unless methods are employed to sort out the true DTLinc communications from the "noise". The DTLinc Network employs a variety of techniques to reduce interferences, including:

- **DSSS**-- Direct Sequence Spread Spectrum technology to spread the RF communication over a narrow range of frequencies, reducing noise.
- **Clear Channel**-- DTLinc verifies that the transmission channel is clear prior to initiating communication.
- **Specific Acknowledge**-- All communication from the data loggers is specifically acknowledged by the host and if the ID is not verified, the communication is ignored. Additionally, if a proper acknowledgement is not received, the transmission is repeated by the logger.

Range

Range is defined as the maximum distance between the data logger transmitter and the host receiver. Range is typically a function of the radio power and the frequency. (The higher the power, the longer the range and the higher the frequency, the shorter the range.) Obstructions that come between the transmitter and the receiver reduce the range, while metal stops the signal entirely. An important design consideration for maximum range is the battery lifetime. The use of a high powered radio may increase the range, but it reduces battery life, possibly to a degree that the data logger system has limited utility. In designing the DataTrace RF system, all of these variables were considered and the system was designed to provide a "line-of-sight" range of approximately 100 ft (30 m). Of course, for most applications, the usable range will be much shorter due to obstructions in the communications path. A DataTrace RF Repeater may be added to the system to increase the usable range. For the vast majority of target applications for the DataTrace RF system, the range will be adequate, either with or without a repeater.

Network Architecture

The Network Architecture refers to the pathways by which RF communication occurs between the various components in the RF system, including:

- Data Loggers (Transmitters)
- Repeaters (Signal Relay Devices)
- Host (Receivers)

DataTrace RF's DTLinc network uses an energy efficient, robust "Point-to-Point" configuration. In this configuration, the data loggers act primarily as transmitters of their data, without "logger-to-logger" communication. An alternative network architecture is a "Mesh" network in which each of the data loggers can act either as a transmitter or a repeater to relay the signal, thus increasing the network range. While there are some advantages to a Mesh network in terms of flexibility, it is poorly suited to validation applications. DTLinc's "Point-to-Point" network uses much less energy than a Mesh network, maximizing battery lifetime, and is ideally suited to its target applications.

DataTrace RF

AutoRecover ™, a DTLinc Exclusive

There will be times when RF communication from the data loggers is interrupted. In most RF systems, this will result in data loss. For your critical validation applications, any data loss is unacceptable. With DTLinc's exclusive AutoRecover feature you never have to worry about data loss again. The DataTrace RF system continuously monitors for 100% integrity in the real time data received at the PC. If missing data is detected, a command is sent out over the DTLinc network to re-transmit this missing data from the data logger's internal memory. The result is that you get 100% of your data, all the time, every time.

Providing high-quality measurement instruments and consumables

Mesa Laboratories, Inc. develops, manufactures and markets high-quality measurement instruments, consumables and accessories relied upon by businesses worldwide, from Fortune 500 companies to high tech start-ups. Mesa's products are used to assure product quality, control manufacturing processes, and to solve problems in niche markets in industrial, pharmaceutical and medical applications, and are characterized by technical excellence and superior industry reputations.

Mesa's products include:
- DataTrace, patented, wireless data loggers for measuring and recording temperature, humidity and pressure
- Medical Meters, standard solutions, and related accessories used by hemodialysis clinics worldwide to ensure quality care and patient safety
- Biological indicators for validating sterilization processes. Mesa Labs has been involved in the production of sterility assurance products since 1949 and is committed to providing the highest quality products and services to its clients.

Mesa Laboratories, Inc. is a public company, founded in 1982, based on the principles of superior product quality and a high level of customer service. We continually strive to provide state-of-the-art products and services to our customers.