

## Dataflow® RTU Uses:

- Water/Wastewater
- Pipeline
- Irrigation
- Flow, Level, Temperature, pH, Pressure, Monitoring
- Oil/Gas Distribution
- Environmental Monitoring
- Sewage Lift Stations
- Security/Intrusion/Tamper Alarms
- Transportation
- Food Processing
- Manufacturing Processes
- Hydro Stations
- Pump Stations
- SCADA Applications
- Access Control



## *Ritron RF Telemetry—The Wireless Connection*

The Dataflow RTU is a commercial version of a product successfully designed and manufactured by Ritron for the U.S. Department of Energy's Sandia Laboratories.

Each Dataflow RTU is ready for operation and consists of a unique micro-power RTU and plug-in synthesized radio transceiver module. The unit's many features and capabilities combine to provide one versatile, low-cost package. It allows you to easily connect industrial instrumentation and control signals from multiple sites using RF wireless technology.

With the Dataflow RTU, applications range from simple point-to-point applications using two or three units, to applications using as

many Dataflow RTUs as required when a Programmable Logic Controller (PLC) or computer is used as the master control unit.

The Dataflow RTU enables you to save valuable employee time and reduce costs by eliminating the need to dispatch personnel to a site for data collection purposes. With the Dataflow RTU and its many battery powered options you can collect information on a routine basis; from remote sites that are difficult to reach and where there is no power, to sites that you previously thought were impossible. The Dataflow RTU can reduce your data collection costs and at the same time provide more information, and on a near real-time basis.

**DATAFLOW® RTU**  
Analog & Digital I/O RF Telemetry System

# DATAFLOW<sup>®</sup> RTU

Analog & Digital I/O RF Telemetry System

## Rapid Deployment, Less Cost, Versatile Features

Since the Dataflow RTU is a single integrated package, the system is turn-key and ready to use. It can be rapidly deployed, is easy to maintain and therefore less costly. It eliminates the need for costly microwave systems, high maintenance hard-wired installations, leased line or wireline cellular phone service and their monthly recurring charges.

Dataflow RTUs can extend instrumentation and control signals between locations several miles\* apart. An instrumentation or control network can be constructed using as many Dataflow RTU remotes as required when a Programmable Logic Controller (PLC) or computer is used as the master control unit.

A unique feature of the Dataflow RTU is its digital repeater mode. In the digital repeater mode the Dataflow RTU can be used to create a viable RF path thereby greatly increasing the range of a given system. Another digital repeater application is: A Natural Gas Company can install Dataflow RTUs along its pipeline and program them to function as digital repeaters, the repeaters collect data along the pipeline and retransmit it the length of the pipeline, sending it to a central location for action and analysis.

\*Optional directional antennas can provide ranges of 10 to 50 miles depending on terrain and antenna height. Actual system performance and range is determined by surrounding terrain (obstructions man made or natural) as well as the type of antenna and installation practices used.

## Dataflow RTU Features/Benefits:

**RF Wireless 2-Way Communications** -2-way RF technology provides enhanced system capabilities, such as those required for access control applications. Wireless technology enables greater mobility, rapid deployment and quick set-up. This reduces or eliminates installation delays, provides lower total cost, less down time and higher reliability.

### Programmable Digital & Analog Inputs/Outputs

- Six Inputs programmable as either Digital or Analog
- Two Analog Outputs configurable to 0-5V or 0-20mA
- Two Latching Relay Outputs that hold their condition without power

The RTU's combination of flexible, programmable inputs and outputs are designed to meet the needs of the widest possible applications. Additional inputs and outputs are obtained by connecting standard MODBUS compatible I/O expansion devices to the Dataflow RTU's Serial Communications port.

### Reliable & Efficient RF Communications Protocol

Over the air communications between RTUs use 1200 bps Manchester coded direct FM modulation with the MODBUS protocol's inherent Error Detection and Acknowledgment process. This modulation type combined with the fully integrated radio provides effective scan times faster than other systems that use FSK modems with voice grade radios. Typical unit to unit latency time is less than 1/2 second.

### MODBUS Protocol RS-485 Serial Communications Port For System Expansion

-Allows the Dataflow RTU to communicate transparently with a wide variety of industry devices. This increases the number of possible applications where the RTU can be successfully utilized. This serial port supports speeds from 1200 to 9600 bps.

**Field Programmable Options** -A common serial programming interface configures both the RTU and synthesized plug-in radio transceiver module. This allows for fast set-up and programming of the unit to customer requirements.

**Digital Repeater Mode** -Individual Dataflow RTUs can be programmed to function as repeaters giving the system greater range.

**Micro-Power Operation** -This feature enables Dataflow RTUs to be placed at remote locations where there is no source of power. In its lowest power mode, with system integrity and update transmissions made several times an hour, the unit will run for 3-6 months on internal alkaline batteries. The same system will run indefinitely when the RTU is equipped with the integrated solar power option.

**Versatile Power Supply Options** -The Dataflow RTU can be powered in a variety of ways depending on the requirements of the application

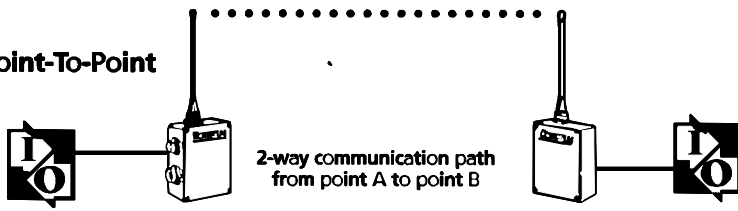
- Internal AA Alkaline or AA NiCad Battery Holder
- Internal NiCad Rechargeable Battery Pack
- Integrated Solar Panel/Charger
- External DC Power - By supplying an AC to DC power supply the unit can be operated from 110/220VAC.
- AC with Battery Back-Up and Power Fail Message


**Watertight Housing And Connectors** -A water tight enclosure and connector system prevents dirt, dust or moisture ingress. The Dataflow RTU is designed to perform without interruption even in harsh environments.


**Fail-Safe/Loss-Of-Signal Mode** -The Outputs of the Dataflow RTU can be programmed to revert to a Fail-Safe condition if loss-of-signal occurs.

# Here are a few typical Dataflow RTU Applications:

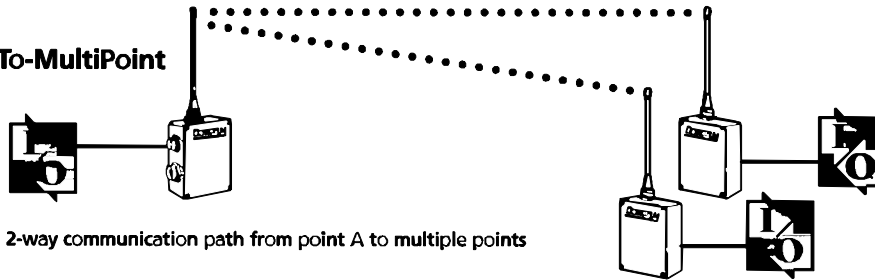
## 1. Point-To-Point



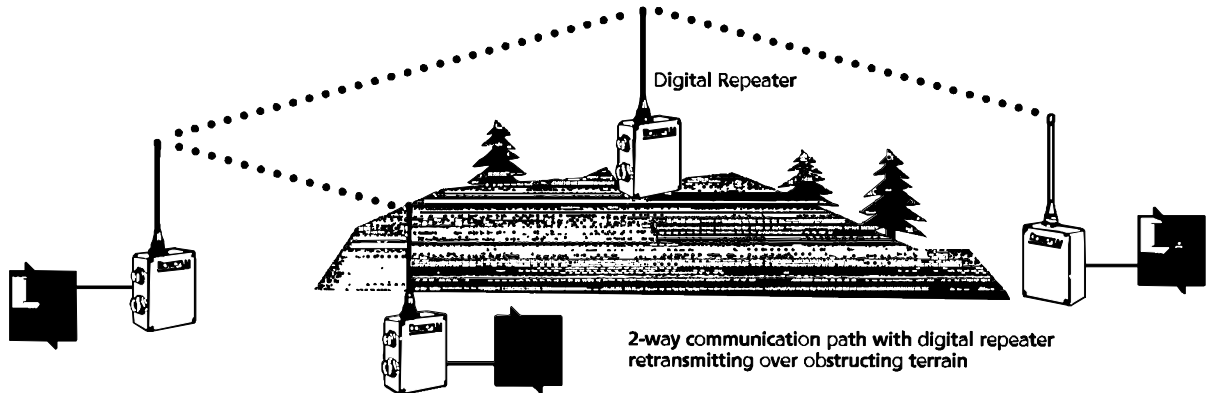
 = Input or Output Device (switches, gauges, meters, sensors, chart recorders, lights, sirens, relays, etc.)

 = Programmable Logic Controller and/or Computer

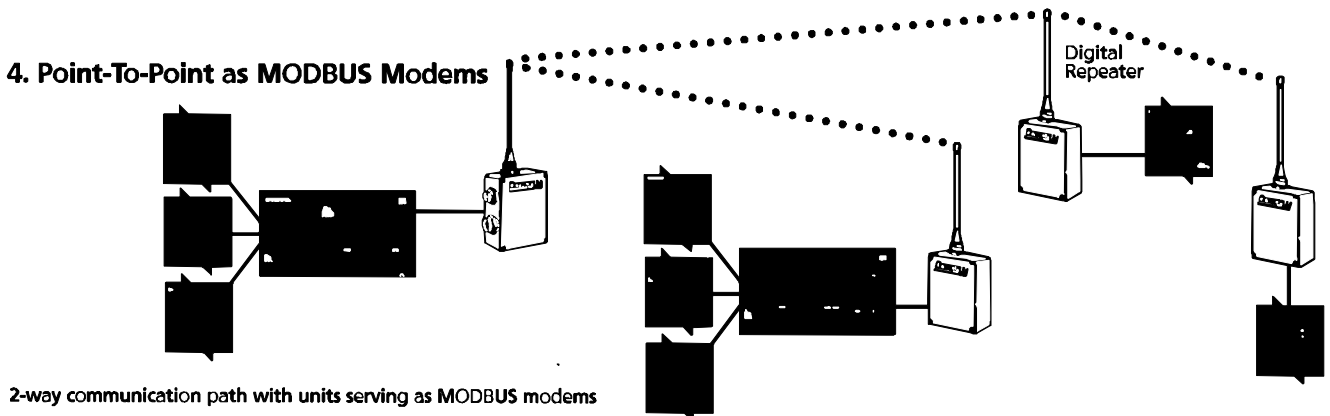
## 2. Point-To-MultiPoint



## 3. Point-To-MultiPoint w/ Dataflow RTU as Digital Repeater



## 4. Point-To-Point as MODBUS Modems



# DATAFLOW RTU SPECIFICATIONS

RF TRANSCEIVER	FCC ID:	AIERTX-450 (406-430 & 450-470 MHz), AIERTX-150 (136-174 MHz)
	TX Power:	2/5 Watts programmable
	Frequencies:	Independently PC Programmable TX/RX
INPUTS	Programmable	6, Referenced to Ground.
	Digital Mode:	On = less than 5K Ohm to ground or less than 1V. Off = more than 80K Ohm to ground or more than 4 V.
	Analog Mode:	0-5 VDC or 0-20 mA with external 250 Ohm resistor. 8 bit resolution
OUTPUTS	Analog:	2, 0-5 VDC, 0-20 mA, 8 bit resolution
	Digital:	2, Isolated Latching Relay Contact Closures 2 Amperes @ 30 VDC, .5 Ampere @ 110 VDC
SERIAL I/O	RS-485	1200,2400,4800,9600 bps, MODBUS Protocol
POWER	10-16 VDC,	300uA sleep, 100 mA receive, 1.5A low power transmit, 2.5A high power transmit
	Opt 1	Internal AA battery holder
	Opt 2	Self contained solar power system w/battery.
	Opt 3	Internal NiCad battery pack
ENCLOSURE	Opt S	Diecast aluminum, watertight. 4.5" x 3.5" x 2.2", 1.4 lb.
	Opt D	None, circuit sub-assembly Only. 4.25" x 3.2" x 1.1", 5 oz.
TEMPERATURE	Operating	-30 to +60 degrees Centigrade
	Storage	-40 to +80 degrees Centigrade

## Profile—Ritron, Inc.

Ritron, Inc. is a trusted international name in the design and manufacture of RF wireless communication products and systems. Founded in 1977 by a small group of outstanding design engineers and entrepreneurs, Ritron's innovative products, dedication to quality, concern for customer satisfaction and American know-how have made it a leader in the business of RF wireless communications. Ritron customers range from small businesses to governments to multi-national corporations and they are supported by a carefully selected Dealer Network.

Ritron products include: JOBCOM brand cost-effective, crystal controlled and synthesized portable 2-way radios. Patriot brand synthesized and programmable portables, mobiles, repeaters, data transceivers, RF telemetry systems and the Telenexus phone line extender system.



Ritron, Inc. P.O. BOX 1998, 505 W. Carmel Drive, Carmel, Indiana 46032

Ph:800-USA-1-USA Ph:317-846-1201 Fax:317-846-4978

<http://www.ritron.com>

PN: 01450222