



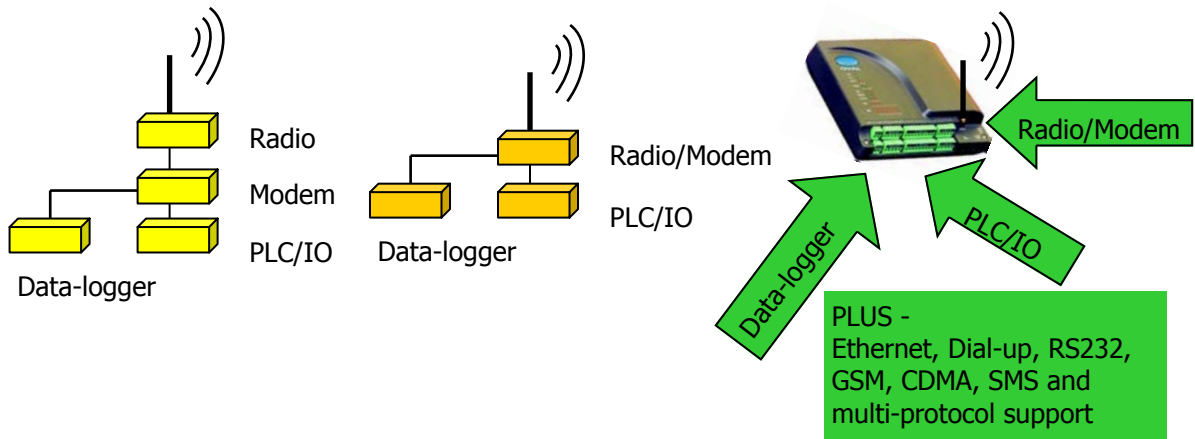
Why the use of an integrated wireless RTU solution may save you time and money!

What wireless Remote Telemetry Unit (RTU) technology are you using? For RTU applications you need:

- Fast and efficient wireless data transfer
- local Programmable Logic Controller (PLC) control capabilities
- data-logging to time stamp your data
- proven and easy-to-connect interfaces to HMI/DCS systems.

It is possible to put these components together and provide a solution if you have the resources, time and skills. However, the wireless data technology and telemetry and control worlds have experienced several major breakthroughs in recent years and you may not be taking advantages of these improvements with your RTU solution. An integrated wireless RTU solution offers you more capabilities and a competitive advantage over your competition.

<p>1. The old way Separate Radio Separate Modem Separate PLC/IO modules Separate Data-logger Custom Cabling Four technical Manuals Four software packages (if you are really lucky!) Labour and time on the bench They may not all connect the way you want.</p>	<p>2. The more modern way Separate Radio/Modem Separate PLC/IO Modules Separate Data-logger Custom Cabling Three technical Manuals Three software packages Labour and time on the bench They may still not all connect the way you want!</p>	<p>3. The integrated wireless RTU way Integrated RTU with in-built Radio Modem, PLC, in-built IO and Data-logger Specific Cabling supplied One technical Manual Minimal labour and time on the bench (hours not days!) One source of support It does what you want it to do!</p>
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When purchasing wireless RTU data communications equipment for a new SCADA or remote monitoring system, you have three options:

1. The "old" way is "the old familiar solution" and has been around for 30 years. Many integrators and consultants believe separates provide the lowest cost solution. But low cost solutions do not necessarily provide the best value for you and your customers. Advances in RF and modem technology, along with changing regulatory requirements, make an integrated wireless RTU solution very cost effective in terms of time as well as money.
2. The more modern way has made making the radio link easier to use. You still take a PLC, a radio modem and patch in a data-logger. However, it may not be possible to do this. You have to put them together and make them work and you are still presented with a variety of equipment, cables and software programs.
3. The integrated wireless RTU solution is a "designed" solution. The single package includes a fast

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data radio modem, a fully functioning internal PLC, on-board IO, an in-built data-logger, a software package and documentation to make it all work. Complex systems can be designed in a matter of hours not days.

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The frustration of separates

Let's look at some initial considerations. Separate transceiver and modem solutions require time to purchase and set up. If you are lucky, the analog radio vendor has a modem that will work for your application. If not, you are responsible for making sure the components work together. And now, you must deal with two companies – two POs, two delivery dates, two invoices and two products (that need to work and be mounted together). The transceiver and modem must be integrated before sending data. This process can be frustrating even for an experienced technician. There are two sets of everything. An interface cable needs to be custom built so the modem and radio can communicate. Deviation and audio specifications must be synchronized in the transceiver and modem pair to optimize performance. Later component substitution could require re-adjustment. With the separate components, an experienced technician could take hours to set up the first radio and modem combination. This labour costs money.

Resources required for a separate solution	Resources required for an integrated wireless RTU solution
<ol style="list-style-type: none"> 1. Signal Generator 2. Audio Analyzer 3. Technician with RF expertise 4. Custom made cables 5. Custom mounting set up 6. 13.8 VDC/5A regulated power supply 7. A PC for setup 8. Two product Manuals <p>And Lots of time!</p>	<ol style="list-style-type: none"> 1. 13.8 VDC/5A regulated power supply 2. A PC for set-up 3. One product Manual <p>And data in as little as 10 minutes.</p>

You're finally at the point where you're ready to apply power and data. What about the interface to the rest of the system? Is more custom cabling required to talk to your PLC or RTU? If it doesn't work, who do you call? The RF provider? The modem provider? The RTU or PLC provider? Who do you go to for help? In many cases, you're left to figure it out on your own. This means more time and money. It's frustrating – the system doesn't work, the customer wants to know the delivery date, deadlines are near and your reputation is at stake!

With a lot of time and energy, you have everything working on the bench. Now you need to figure out how to mount not one but two pieces in your remote equipment cabinet. The different footprint and shape of the two units may require custom drilling and/or mounting plates. At this point, you question the wisdom of buying a separate radio/modem/PLC/ data-logger solution. All this time and money were not a consideration during the initial decision and payback analysis process (if one was done!).

The ease of an integrated wireless RTU solution

Today's proven solution, the integrated wireless RTU, eliminates the time and cost associated with the separate components discussed above. You deal with a single company and one product.

When your integrated wireless RTU arrives, you receive a complete wireless RTU device with PLC and data-logger capability. There are no levels to set; this was all done at the factory. There are no cables to be made and there is only the one software package to learn. Should you need to call, there's one number to dial for complete technical service.

The wireless RTU manufacturer will have documented interfaces available for all popular PLC, RTU, DCS or HMI equipment. You could be set up and ready to send data in as little as 10 minutes! The benefits of wireless RTUs don't stop here. Beyond the advantages already mentioned, an integrated wireless RTU provides additional bonuses that can save time and money during installation as well as throughout the life of your customer's automation and control system. These benefits can set you apart from your competition and enhance your reputation in the eyes of your customers.



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- If your separate solution includes an analog radio paired with a 30-year old modem standard, your RTS/CTS delay may be in excess of 400 milliseconds not to mention the key-up time for the radio! That's a lot of time spent waiting before any application data can be sent. The AD2000 wireless RTUs, designed specifically for wireless data environments, send data within as little as 50 milliseconds.
- Integrated wireless RTUs have over the air rates up to 4800 bps and offer data port input rates from 1200 to 38,400 bps. Some older systems supply data at 1200 bps or less.

When choosing an integrated wireless RTU solution, you can be assured the RF and modem circuitry were designed as a single unit. With the design of the integrated wireless RTU, the manufacturer can provide features to benefit you and your customer. For example, the AD2000 integrated wireless RTUs utilize RF components designed specifically for transmitting data and modem designs for the challenging wireless environment.

Another outstanding and often under-utilized feature of an integrated wireless RTU is radio diagnostics. With diagnostics, the wireless RTU can report its status which provides valuable information to guard against costly system downtime. The unit's performance, health and status information and radio link Received Signal Strength Indicator (RSSI) are sent unobtrusively with each data transmission. The information can be presented in a format that is easily interfaced with your SCADA application and HMI software. If a system failure occurs, how do you determine what needs to be repaired? It could be the RTU or PLC, antenna system or the wireless modem. Do you send an RF service technician to a remote site only to find the modem or transceiver is working fine? Are you going to bill the trip charge plus the hourly charge for the time it takes to determine they were working properly? You've lost valuable time and still need to identify and isolate the source of the problem. The in-built radio diagnostics available to you in the integrated solution saves you those charges, allowing you to poll the wireless data communications link and rule it out as the point of failure. How many times in the past could this capability have saved you and your customers time, money and lots of frustration?

The in-built radio diagnostics provide a means to monitor and identify the health of your RF network communication links. Many communication failures are preceded by tell tale performance degradation. Monitoring the diagnostic values against the benchmark allows time for corrective action and repairs before the system experiences failures. You didn't know about diagnostics and their benefits? You thought they were too complex to be useful? They were too costly? How can a business afford to be without diagnostics? With an integrated wireless RTU solution, diagnostics provide you peace of mind.

Additional Benefits Of An Integrated Wireless RTU solution

- Speed/Latency – no waiting! Send data in a little as 50 milliseconds.
- Efficiency – meets many spectrum management standards.
- Full error detection at the radio transport layer with industry standard HDLC techniques
- Savings – in-built radio network diagnostics help prevent costly system downtime and facilitate repairs.
- Data security and error checking with CRC
- The integrated PLC and data-logging features allow networked PLC programming. All are a part of a **single** software package.
- The radio data network protocol is designed for fast efficient radio transport, unlike many PLC protocols which are designed only for cable connections thus creating inefficient data transport across radio.
- Remote diagnostics, programming and monitoring of the entire system
- A variety of interfaces are available to support dial-up telephones, leased and private lines, GSM or GPRS or CDMA mobile phone networks, Ethernet, RS232, RS485.
- Multiple protocol support is available (e.g. Modbus, DF1, CCM, DNP3, TI Direct)
- Polling, report by exception data triggering for Point To Point and Point To Multi-Point systems
- Other in-built features like SMS messaging and text string data-logging
- Only a single spare component required - reducing on-going maintenance costs.

Can a separate analog radio/modem/PLC/data-logger or radio modem/PLC/data-logger solution do all of the above at the same price and with the same ease of use?

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Summary

An integrated wireless RTU provides one unit without the hassle of complicated set-up, time consuming interfacing and often unidentified miscellaneous costs. Remember to consider the following points when making the decision between separate PLC/radio modem and integrated wireless RTU data solutions for your customers:

1. Separate transceiver and modem solutions end up costing more when considering all the integration issues and 'hidden' costs.
2. Do you have the in-house expertise to make the separate radio modem solution work? Who do you turn to for technical assistance?
3. 1200 baud modem solutions are based on 30-year-old technology. Shouldn't your system be state of the art?
4. Which manufacturer supplies integrated wireless RTUs optimized for sending data accurately and reliably? Which manufacturer provides support for their wireless RTU, PLC and data-logger as well as the radio network infrastructure?
5. Integrated wireless RTUs use today's technology to meet the efficiency standards required by many of the world's spectrum management regulations.
6. Integrated wireless RTUs have features that save you and your customer time and money over the life of the automation and control system. Build your reputation on providing the best value to your customers.

Do you want to learn more about integrated wireless RTU solutions? Oval has a complete product range covering many frequency bands. Please contact us for further information and save time and money!

WHY USE THE AD2000? Because ...

- ... it is a unique RTU solution in a compact package.
- ... it combines the functions of an RTU, PLC **and** a data-logger.
- ... it is specifically targeted at low to medium I/O applications.
- ... it is designed for radio communications - compared to ad hoc PLC/radio modem solutions.
- ... it is **easy to use** - aimed at technician level not computer science level.
- ... it can be used with existing PLC infrastructure and takes away the hard work of setting up connectivity.
- ... it uses the latest wireless technology.
- ... it has a proven track record with 1000s of units installed.
- ... it includes additional features such as built-in SMS messaging.
- ... the protocols supplied do not cost any more to use.
- ... large multi-point systems can be designed in terms of **hours** not days, thereby saving on engineering design costs.
- ... you can start small and grow as your system requires.
- ... its **price** is competitive.