

WiTry* Kit: Wireless Vibration and Temperature Monitoring Made Easy

We are very pleased to announce one of the most eagerly awaited products in our history: wireless vibration and temperature monitoring.

Using System 1* software, this new wireless sensing hardware affordably extends online monitoring to your essential assets—all within an integrated environment that combines online, offline, permanent, and portable monitoring strategies. At the heart of this system is our innovative new wSIM* (wireless sensor interface module) technology. Each wSIM node supports up to one temperature (thermocouple) and one vibration (accelerometer) sensor, for two integrated channels of wireless monitoring capability. Anywhere from one to thousands of wSIM nodes can be deployed using state-of-the-art mesh networking technology. It is even interoperable with sensors from multiple vendors such as Honeywell, Yokogawa, Rockwell, Emerson, other divisions of GE, and many more.

In addition to the innovative technology the wSIM system employs, we are also employing an innovative commercial approach: our WiTry kit. The WiTry kit is a pre-packaged collection of all necessary hardware and software (it even contains a pre-configured notebook computer with System 1 software) for five temperature and five vibration points, with the ability to add more points as needed. You can purchase the WiTry kit outright, or rent it via a monthly program, allowing you to prove for yourself the benefits of wireless condition monitoring in your own plant with a simple, affordable, entry-level package, before you decide to deploy it more broadly within your organization.

Listening to our customers

The wSIM system is the result of listening to our customers' most important needs. They told us they wanted to be able to permanently monitor essential assets more



easily and economically with a solution that:

- ...is minimally intrusive to their existing IT infrastructure.
- ...is ultra-simple to deploy, requiring no special crafts-people such as instrument technicians for wiring, mechanical technicians for mounting, or specialized skills for system configuration and start up.
- ...is flexible, allowing points to be easily moved from one location to the next or one machine to the next.
- ...provides not only static overall vibration values, but full dynamic waveforms at configurable intervals, allowing more detailed diagnostics, just as from a wired condition monitoring point or from a portable data collector/analyzer.
- ...features self-powered sensors or extremely long battery life, so resources are spent maintaining machinery, not the instrumentation system.
- ...offers robust signal communications reliability, comparable to wired systems.

- ...is built to withstand the physical abuse of industrial environments.
- ...is compatible with all relevant global regulations for radio frequency communications, requiring no special approvals or licenses.

The wSIM delivers on each of these points.

What's in the kit?

The WiTry kit contains everything you need to get started in wireless condition monitoring, including a pre-configured laptop with the requisite System 1 software already loaded, the Ethernet gateway, the transducers and mounting studs, and the wSIM devices as summarized in the table at right.

The kit is designed to take the stress out of going wireless by making it simple to order and simple to deploy.

We have even included an equal number of threaded and magnetic mounting studs, allowing maximum flexibility for how and where you deploy your sensors.

How easy is it to deploy?

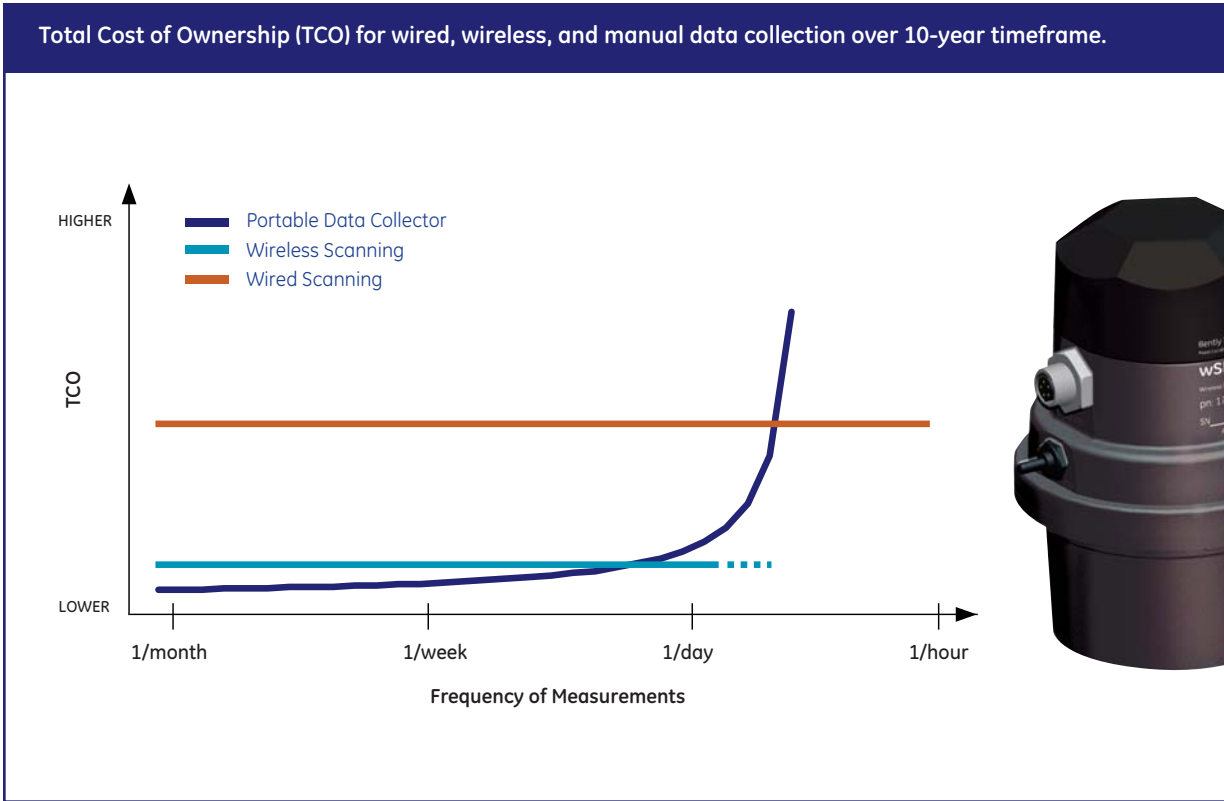
The wSIM is straightforward to deploy. The wireless network is self-joining through our innovative mesh network technology. This means that sensors are automatically detected and added to the network, without any additional steps needed. The network is also self-healing, meaning that whenever a sensor signal path is interrupted, the mesh ensures alternate signal transmission paths and automatically adds the interrupted path, as soon as it becomes available again.

This keeps your system interconnected and communicating with System 1 software at all times.

It's as simple as these 3 steps:

1. Attach the wSIM and transducers to your machine using the magnetic- or stud-mount adapters.
2. Attach the Ethernet wireless gateway to the provided System 1 laptop computer.
3. Confirm the nodes are recognized by the network and begin monitoring your assets.

WiTry Kit – Contents	Quantity
Starter Kit	
wSIM (battery powered)	5
Accelerometer	5
2 m accelerometer cable	5
Threaded accelerometer mounting stud	5
Magnetic accelerometer mounting stud	5
Thermocouple	5
Laptop computer	1
System 1 (application package + 10 points)	1
802.15.4 Ethernet Gateway	1
Factory Acceptance Test	1
Travel box	1
Expansion Kit (only available with Starter Kit)	
wSIM (battery powered)	3
wSIM (Energy Harvester powered)	2
Accelerometer	5
Threaded accelerometer mounting stud	5
Magnetic accelerometer mounting stud	5
2 m accelerometer cable	5
Thermocouple	5
System 1 license (10 additional points)	1
Factory Acceptance Test	1
Travel box	1
Accessories	
wSIM (battery powered)	1
wSIM (Energy Harvester powered)	1
Accelerometer	1
2 m accelerometer cable	1
Threaded accelerometer mounting stud	1
Magnetic accelerometer mounting stud	1
Thermocouple	1



What about power?

Power options are either Lithium C-cell battery technology, which should last at least two years even under the most frequent data collection intervals, or innovative Energy Harvester technology, which converts the vibratory motion of the machine itself to power for the wSIM. Whether using the battery or the Energy Harvester, we have designed the system to be virtually maintenance-free.

What kinds of measurements can be made?

Using the included vibration transducers, bearing, machine casing, and other relevant machinery, piping, or other vibration measurements can be made. By properly configuring the wSIM node and System 1 software, vibration can be measured in either acceleration, integrated acceleration (velocity), or enveloped acceleration units.

Using the included thermocouples, machine housing, bearing housing, or any other relevant machinery condition temperatures can be measured.

Is it interoperable?

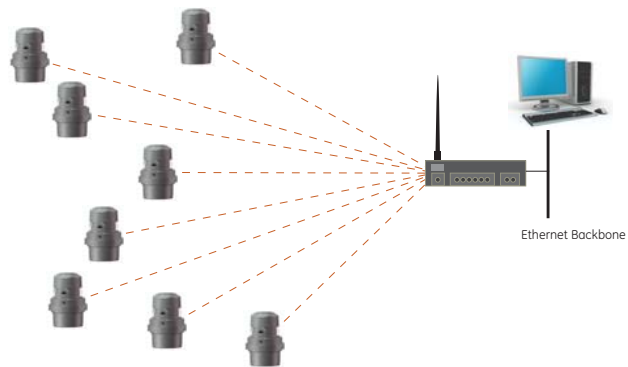
Yes. GE is proud to be an active participant in the emerging ISA100 family of standards for wireless industrial control and automation. These standards help ensure not only that technology is specifically designed to endure the rigors of industrial plant environments, but also that sensors and other devices, such as HMIs from multiple vendors, are interoperable with one another.

Is it proven technology?

Absolutely. The wSIM system was prototyped and rigorously tested in real-world environments with the help of some of GE's most demanding customers in rugged onshore and offshore environments.

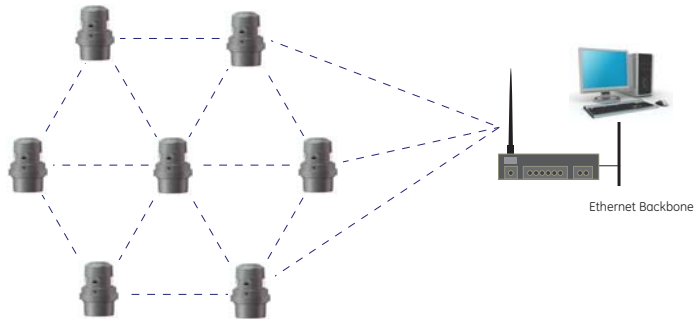
Conventional Point to Point

In a conventional network, each field device can only communicate with the wireless gateway, not one another.




MESH Topology

In a mesh network, each device is a peer that can talk to other peers, resulting in multiple signal transmission paths, higher reliability, and higher deployment flexibility.



Learn more

During the next year, we'll have much more to say about this innovative system as even more exciting capabilities are released that continue to push the envelope for ease-of-installation and lower life-cycle costs for online condition monitoring.

For now, you can learn more by contacting your nearest GE sales professional specializing in our Bently Nevada* Asset Condition Monitoring products, or www.ge-energy.com/bently where you'll find brochures, datasheets, information on others that are successfully using our wireless technology, and much more. 

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IDEAL APPLICATIONS

While the following list shows several particularly relevant applications, the wSIM system can be used wherever you have assets that would benefit from periodic online monitoring and do not require auto-shutdown machinery protection capabilities. It can also be used as an easily deployed evaluation tool for a broad range of assets before making the decision to permanently monitor.

- Outlying machinery requiring abnormally long wire runs
- Machines in batch service
- Small gearboxes
- Circulating water pumps
- Lube oil pumps
- Air compressors
- Motor/pump sets in tank farms
- Fin fans