



## Top 10 things to look for in a 4G LTE Industrial Gateway

A SIERRA WIRELESS WHITE PAPER

**Industrial applications often require equipment that can operate in geographically dispersed and remote locations, in places that don't have a convenient power supply and are subject to harsh conditions.**

Think of an oil pipeline that travels through the mountains, a water-pumping station in the desert, or a weather-monitoring station at altitude—there are no nearby power lines (or phone lines), temperature changes can be extreme, and the location is likely to be difficult for service crews to access.

The equipment used in these environments needs to withstand harsh conditions and needs to operate, without interruption, for years at a time. The best options are those with power consumption low enough to enable the system to run on locally installed solar power, and are optimized for performance in rugged conditions.

## Top 10 things to look for when evaluating 4G Industrial Gateways:

### 1. Is it designed for industrial use?

Not all gateways can withstand the harsh conditions associated with industrial applications, especially those that involve supervisory control and data acquisition (SCADA) over geographically dispersed areas. Look for an industrial-strength casing, with rugged mounting hardware built in (so there are fewer points of failure), and check the operating specs to make sure the device can withstand temperature extremes, rough handling, and long-term deployments.

### 2. Will it work with solar power?

Many SCADA applications rely on solar power because they operate in an area far away from power and phone lines. Check the power consumption of the gateway, to be sure it will work with any solar panels already onsite or scheduled for installation. Upgrading solar panels to support higher power output can be very expensive, so it's best to find a gateway that works with the existing, low-cost infrastructure. Power consumption of less than 1W in idle mode is a good place to start.

### 3. Can it withstand voltage drops and transients?

Diesel-powered compressors, generators, and other machines that use an internal combustion engine, subject electronic equipment to variations in voltage that can disrupt operation. Look for cranking protection, that helps the gateway withstand these variations and prevents the device rebooting when the voltage drops momentarily. Also, look for Load Dump protection, which helps the gateway to resist the severe spikes in voltage associated with loose or disconnected battery terminals.

### 4. Will it survive extreme weather conditions?

Look for a gateway that can survive in any environment, whether it's arctic cold or desert heat, by selecting one with a wide operating range, from -30 to +70 °C for example. Also, check to ensure that the gateway remains fully operational across its entire temperature range, since some systems deliver only limited or reduced performance when temperatures extend beyond typical ratings.

### 5. Can I manage it from a central location?

Industrial applications can involve hundreds or thousands, of devices, operating over a very large geographical area. In terms of efficiency, operating costs, and maintenance schedules, it's important to be able to manage all these devices from a single application that supports a full range of capabilities, including device monitoring, remote firmware upgrades, and the ability to make bulk changes, even years after the initial deployment.

### 6. Is it easy to install?

Make sure that your gateway will fit in the space available, and that it can be mounted the way you need it to be mounted. Special features, such as rugged mountings, DIN rail mounting options, corner-aspect LEDs, and integrated heat



sinks can simplify the installation task, make deployment more efficient, and save on operating costs.

**7. Is it certified for rugged, secure use?**

There are several standards that verify a gateway's durability. Look for certifications and approvals for MIL-STD 810G, IP64, SAE J1455, and E-Mark. If your gateway will operate in a hazardous environment, the Class I Div II certification is essential.

**8. Will it communicate with the rest of my equipment?**

Gateways equipped with commonly used ports are easier to expand and easier to integrate into your existing setup. Features like RS-232 for serial connectivity, Gigabit Ethernet for local communications, and GPIO for expandability, all help to simplify deployment.

**9. Will it work with multiple cellular services?**

In the United States, the primary cellular carriers require different configurations. Some gateways offer network operator switching, which enables a single product to work with either carrier. That means that you only need to stock one gateway, even if your installation covers territories that use a combination of services.

**10. Will it work worldwide?**

LTE gateways are compatible with legacy networks. 2G and 3G gateways are not designed to work with 4G networks, but 4G LTE devices are often backward compatible, and will work with 2G and 3G networks. This increases the flexibility of your installation, and allows for international expansion as you're not limited to a geographical region.

For more information about Sierra Wireless industrial gateways, please visit [sierrawireless.com/airlink](http://sierrawireless.com/airlink)

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