



L&J engineering's Wireless Systems

Wireless | Level Gauging

evolving wireless solutions

Reliability. Convenience. Simplicity.

L&J Engineering's line of wireless-ready products for the inventory management industry deliver just that.

With reduced field wiring, low maintenance costs, easier installation, and immediate access to information, wireless technology removes the barriers of traditional wired solutions.

Although wireless technology is not a complete replacement for wires, wireless technology enables you to address issues that were hard to solve cost-effectively with wired alternatives.

At L&J Engineering, our goal is to provide our customers with the most innovative features not found in other products. Our cost-effective and easy-to-integrate wireless technology can make life a lot easier at your facility.



Why wireless?

L&J Engineering has offered the industry's best level gauging solutions for over 35 years, and continues its tradition of innovation and superiority with wireless-ready products like the MCG 1600SFI Radar Gauge, MCG 2000MAX Transmitter and MCG 1500SFI Servo Gauge and the evo 2600 Radar Gauge.

Key Wireless Advantages

- **Reduced Installation & Operation Costs**
Cost savings is one of the major advantages to using wireless networks for level gauging applications. Wireless field networks are easier and less costly to install than traditional wired systems, simply because they're wireless. Wireless technology saves time and money by not having to run conduit and wiring over long distances.
- **Enhance Productivity**
When it comes to enhancing overall workforce productivity, L&J Engineering's fast and simple integration of wireless transmitters, radar gauges and level alarm probes help ensure continued efficiency and profitability. Going wireless can slash the time and effort necessary to add a new measurement point and will get tanks up and running sooner which means lower self-imposed penalties.
- **Easy to Retrofit to Existing Equipment**
Retrofitting wired gauges can be time consuming and expensive, especially when having problems with the old wiring throughout the tank farm. By going wireless, you can eliminate a majority of these problems and solve technical issues as well.





Wireless Specs

Key Wireless Specifications

- Capacity: 50 Gauges per Base Station
- Frequency: Frequency Hopping Spread Spectrum of 900 MHz or 2.4 GHz
- Range: 5 miles for 900 MHz; 2 miles for 2.4 GHz
- Approvals: Complies with Part 15 of FCC Rules
- Information which can be transmitted:
 - Product Level
 - Water Level
 - Temperature
 - Pressure
 - Discrete Status
 - Diagnostic Information

Wireless Solutions

L&J engineering's Wireless communication option is an easy, simple solution for your facility. By integrating wireless communication with one of our level gauging devices, the gauge transmits a wireless signal back to the wireless base station which then sends the information back to the inventory management system.

For applications that impose difficult physical barriers and others that require a need for advanced technology, L&J engineering has the solution. Our wireless product line includes:

- Transmitters
- Overfill Protection
- Radar Gauges
- Servo Gauges
- Wireless Base Stations
- Inventory Management Systems

L&J engineering's Float and Tape Gauge Transmitter

With its battery powered option, the MCG 2000MAX is leading the way in the wireless transmitter industry. The MCG 2000MAX couples to your float and tape gauge and transmits the level of product in the tank. By connecting other devices, you can measure spot or average temperature, pressure, and discrete status. Its versatile design and patented absolute magnetic encoding all make L&J engineering's MCG 2000MAX the ideal wireless float and tape gauge transmitter.

MCG 2000MAX - Transmitter

- Magnetic Absolute Xmitter technology
- Ultra Low Power Operation
- Absolute Magnetic Encoding for Level Detection
- Level, Temperature and Optional Discrete/ Analog I/O
- Infrared Calibration via Local Display
- Advanced Flash Memory Technology
- No Batteries or Eproms
- 2-Wire Loop Powered Option and Battery Powered Option Available
- Multiple Protocols (L&J Tankway, Hart, etc.)
- Wireless Communication Available



L&J engineering's Overfill Protection

The MCG1095 Wireless High Level Alarm Probe brings reliable, efficient wireless technology to overfill protection systems. Remote self-testing makes regular testing of the MCG 1095 easy and convenient. The MCG 1095 includes a solenoid to physically move the displacer as an actual level would. When coupled with the L&J MCG 7000 Alarm System, all probes can be automatically tested at pre-programmed intervals, complete with a printout of probe conditions.

MCG 1095 - Wireless Level Alarm Probe

- Industry's only true complete self-testing wireless level alarm system
- Meets State fire codes for independent alarms
- Remote Self-testing
- Battery/Line Power options available
- Wireless Communication



L&J engineering's Radar Gauges

Compact, non-contact and high accuracy all make L&J engineering's series of radar level gauges ideal for wireless installations. With both the MCG 1600SFI and the all new evo 2600 radar gauges, L&J engineering continues to pave the way by utilizing the most cutting edge features in continuous level gauging technology.

evo 2600 - Radar Gauge

- $\pm 3\text{mm}$ Accuracy Standard
- 4-20ma Loop Powered
- 26 GHz Frequency
- FMCW Technology
- e.WAVE Display
- e.CAL Intuitive Setup Wizard
- Wireless Communication Available



MCG 1600SFI - Radar Gauge

- $\pm 0.5\text{mm}$ Accuracy Standard
- Custody Transfer Accuracy
- FMCW Technology
- Handheld Infrared Calibration via Local LCD Display
- Antennas Tailored for Specific Applications
- Housing Dimensions & Weight: 6.6" H x 9.0" W, 8 lbs
- SIL 2, UL/CUL Listed, ATEX Approved
- Wireless Communication Available



L&J engineering's Servo Gauge

Minimal moving parts helps to ensure L&J engineering's MCG 1500SFI Servo Gauge an unprecedented degree of accuracy and reliability. The MCG 1500SFI features $\pm 0.4\text{mm}$ accuracy.

MCG 1500SFI - Servo Gauge

- $\leq \pm 0.4\text{mm}$ Accuracy
- Measures product and interface levels with custody transfer accuracy
- Infrared Calibration
- Advanced flash memory technology
- Ground level display option eliminates tank climbing
- Minimal moving parts (3) ensure reliability
- Measures level and density
- Wireless Communication Available



L&J engineering's Wireless Base Station

L&J engineering's 5102 Wireless Base Station provides an interface between the radios on the level gauging devices on the field and the inventory management systems in the control room.

MCG 5102 - Wireless Base Station

- Connects directly to L&J engineering's Inventory Management Systems
- Easy upgrade to existing inventory management system
- Automated wireless gauging of local and remote tank fields
- Cost effective installation
- Frequency Hopping Spread Spectrum Technology
- L&J Engineering level gauges and transmitters communicate to Wireless Base Station



L&J engineering's Inventory Management Systems

Monitoring the status of product inventory is important, that's why L&J engineering has made it easier for the end user. Built on the Windows™ family of operating systems, L&J engineering's Inventory Management Systems provide real time data for plant personnel to see at their convenience. Measured values are displayed and based on tank specific configured parameters. Information recorded and displayed is available over a network, on client terminals or is available for export in standard formats. The information can also be transmitted digitally to a PLC, DCS or another accounting system.

MCG 3630 - Touch Panel Tank Monitor

- Displays Level, Temperature, and BS&W from Multiple Tanks
- Touch Screen User Input
- Wireless Option Available
- Multi-Protocol Compatible
- Supports Host Communication



MCG 3900 - Inventory Management System

- Customizable Graphic User Interface
- Multi-Loop / Multi-Protocol / Multi-Vendor
- Monitors up to 1000 tanks on 32 loops
- Multi-server / Multi-client / Multi-field
- Supports L&J S.M.A.R.T Diagnostics
- Supports Non-L&J Gauges & Protocols
- Sophisticated Connectivity Features
- Plug-in Software Expansion
- Relay Alarm Outputs
- User-definable Printed Reports
- Printed Alarm and Inventory Reports

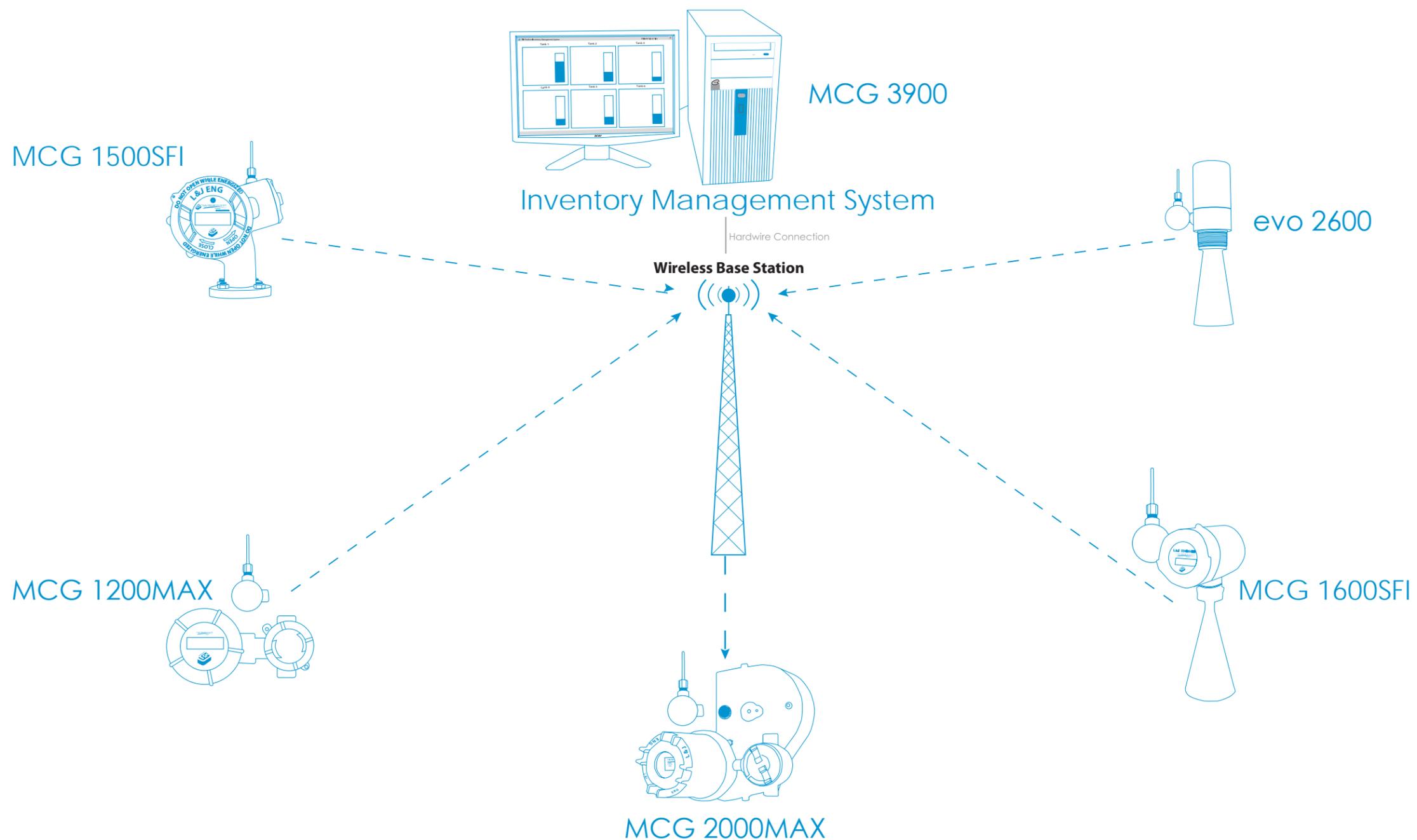


Wireless Point to Point Networking

L&J Engineering's point to point networking option allows simple wireless communication throughout your facility by communicating directly to the wireless base station.

In order for the wireless point to point network to be effective, the radios on the level gauging device need to have a clear line of sight to the wireless base station.

Once the radios attached to the level gauging devices are able to clearly communicate with the Wireless Base Station, information is then transmitted back to the Inventory Management System.



Wireless Accessories

L&J engineering is constantly finding ways to make the job easier for the end user. L&J engineering offers these accessories to make fine tuning field devices easy, safe, and efficient.

MCG 1350M Ground Level Display

With the MCG 1350M, L&J makes it no longer necessary to climb to the top of the tank to access the desired information or perform any of the programming functions. The Ground Level Display is a remote, explosion-proof, LCD readout enclosure that is typically located at eye level at the bottom of the tank at a nearby building. It's identical in form and function to the display on the main unit. It enables complete programming and calibration functions via the hand-held infrared calibrator, the MCG 2150.



MCG 2150 Handheld Infrared Calibrator

As the industry's only Infrared Calibrator, the MCG 2150 allows the operator to setup, program and calibrate the radar gauge without ever removing the explosion proof housing. The MCG 2150 is a compact, easy to use, battery powered, intrinsically safe wireless unit that requires no physical coupling to the gauge.



L&J engineering

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L&J engineering



Liquid Level Gauging,
Temperature Detection &
Inventory Management



Liquid Level Switches



Point/Multi-Point Level Controls
& Continuous Level Sensors



Tank Vents, Flame and
Detonation Arresters,
Fittings & FRP Equipment



Digester Gas Equipment
Waste Gas Burners



Mold Level & Strip
Guiding Measurement
& Control Systems for
Metals/Steel Industries

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