

MCG 2000MAX

Level Transmitter

Terminal operators, plant engineers, maintenance teams, and EPC specifiers need reliable level monitoring, hazardous-area compliance, retrofit flexibility, and seamless integration with existing SCADA/DCS systems. For those users, the MCG 2000MAX provides accurate, continuous tank-level transmission using patented Absolute Magnetic Encoding. This technology prevents data loss after power interruptions and eliminates recalibration, ensuring dependable measurements across a full 0–128 ft range. Designed for modern and legacy installations, the MCG 2000MAX supports 2-wire loop-powered operation, multiple communication protocols, and optional discrete or analog I/O for alarms and process signaling. Infrared calibration via a graphical LCD enables safe configuration without opening the housing in hazardous environments. With standard 1/32" accuracy (1/64" optional), ultra-low power consumption, surge protection, and ATEX/IECEx/UL approvals, the transmitter provides a long-life, maintenance-efficient solution. Compatible with mechanical gauges such as the Varec 2500 and S&J 92021, it converts mechanical readings into digital data including level, temperature, and optional pressure inputs—supporting both new installations and brownfield modernization projects with minimal downtime.



Key Features

Absolute Encoding Reliability

Magnetic encoding ensures level data is retained after power loss, preventing drift, recalibration needs, or measurement reset errors.

High-Resolution Accuracy

Standard 1/32" (0.8 mm) resolution supports precise inventory control, with optional 1/64" resolution for custody-grade applications.

Extended Measurement Range

Up to 128 ft capability covers tall storage tanks, enabling accurate monitoring across petroleum, chemical, and industrial vessels.

Retrofit Compatibility

Direct coupling to Varec and S&J mechanical gauges reduces installation effort, enabling modernization without tank shutdowns.

Ultra-Low Power Design

Consumes less than 0.04 W, ideal for 2-wire loop-powered systems requiring efficient, low-maintenance long-term operation.

Hazardous-Area Compliance

UL, ATEX, and IECEx approvals support deployment in global classified areas, ensuring safe and compliant field operation.

Typical Applications



INVENTORY MANAGEMENT

Digitizes float-gauge movement into precise electronic data that supports audit-ready reconciliation and prevents costly measurement discrepancies.



RETROFIT UPGRADES

Replaces mechanical transmitters without tank entry, modernizing existing infrastructure while reducing installation time and engineering cost.



PETROLEUM & CHEMICALS

Operates reliably in corrosive or hazardous atmospheres due to sealed electronics and global safety certifications.



PHARMA & FOOD PLANTS

Provides accurate, non-invasive level data that improves compliance, minimizes contamination risk, and meets stringent process standards.



WATER & WASTEWATER

Converts basic float readings into dependable signals for SCADA monitoring, preventing overflows and reducing manual inspections.



MECHANICAL GAUGE COUPLING

Interfaces with Varec 2500, S&J 92021, and similar gauges to deliver electronic level, temperature, and optional alarm data.

Benefits



Data Integrity

Absolute Magnetic Encoding ensures level readings remain accurate after outages, eliminating re-zeroing and preventing inventory discrepancies.



Operator Safety

Infrared calibration and optional remote display reduce climbing and exposure to hazardous tank-top environments during routine checks.



Reduced Maintenance

Solid-state encoding and simplified internal components prevent mechanical wear, lowering service frequency and long-term costs.



Easy Integration

Supports HART, Tankway, 4–20 mA, and other protocols, enabling fast connection to legacy or modern control systems.



Regulatory Support

High accuracy and hazardous-area approvals help satisfy custody, environmental, and compliance requirements across global facilities.



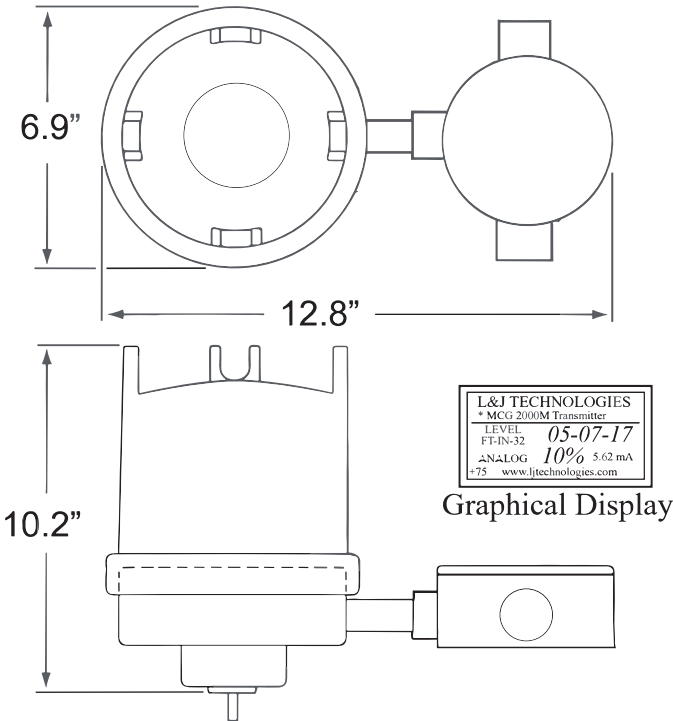
Lower Downtime

Retrofits existing gauges without tank outages, enabling rapid modernization and consistent operation across multi-site installations.

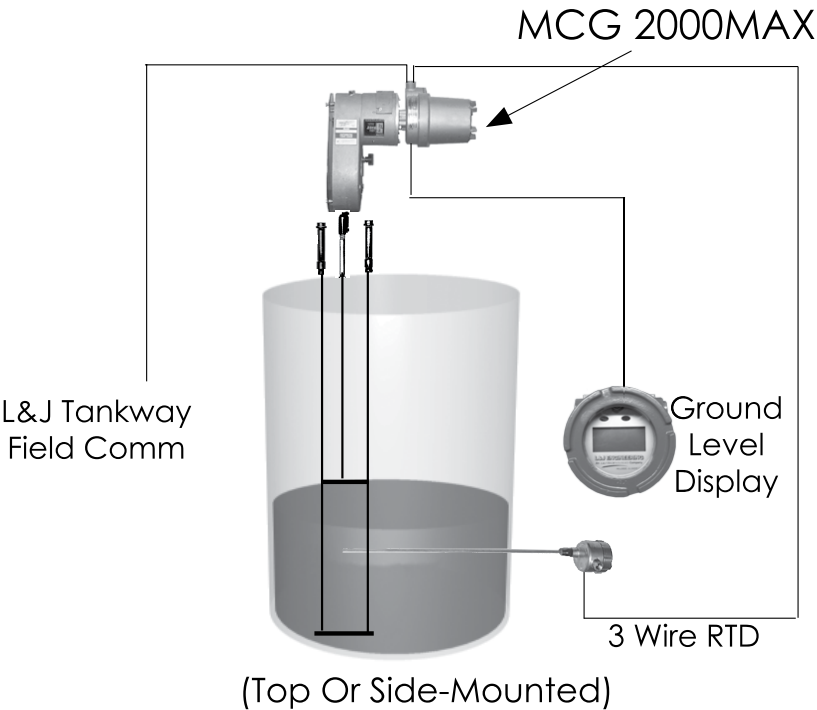
Technical Specifications & Key Features

Accuracy / Resolution:	1/32" (0.8 mm) standard; 1/64" optional
Range:	0–85 ft (26 m)
Technology:	Magnetic Absolute Transmitter with Absolute Magnetic Encoding (immune to power loss)
Power:	Ultra-low power 0.04 W; options: 24–220 VAC, 12–70 VDC, 24 VDC loop powered, or battery
Outputs / Protocols:	4–20 mA, L&J Tankway, HART (others available)
Field Wiring:	2-wire (loop powered) or 4-wire; 65 VAC available
Construction / Enclosure:	Compact housing; UL-rated Class I/II/III; adapters for other gauges
Integration:	Optional remote LCD display or direct connection to control systems
Additional Features:	Level, Temperature, Optional Discrete/Analog I/O Infrared Calibration via Integral Display Advanced Flash Memory Technology No Batteries or EEPROMs ATEX/IECEx Approved Built-in Lightning/Surge Protection

Dimensions



Typical System Layout



MCG 2000MAX Transmitter

MCG 2150 Remote Calibrator

(One Required)

Model Number Selection:

The model number will consist of a base number MCG 2000MAX followed by 10 digit letters. These digits will represent 7 option tables:

MCG 2000MAX - AB - CD - EF - GH - IJ

A • ENCODER TYPE	
0	Standard encoder with UL
1	Standard encoder with ATEX/IECEX
4	Standard encoder with C-UL

CD • INPUTS AND TEMPERATURE	
00	None
02	Average Temperature*
05	4-20mA Input (Temperature)
11	Spot Temperature
17	4-20mA Input (Temperature), Spot Temperature
36	4-20mA Input (Temperature), Average Temperature*

Calibration Type (Pl or Cu) is software-selectable in this model.
The default is Platinum.
*Requires MCG 2350 Average Temperature and a MCG 350/351 Average Temperature bulb (Ordered Separately).

B • COUPLING	
1	Varec
2	S&J (92020, 92021,92030)
3	S&J (92006, 92153, 92154)
4	S&J (8000, 2935)
5	Protectoseal
6	Varec (9504) No Housing
7	Varec (1600,1800,1900) No Housing
9	GPE No Housing
A	GSI 2500
B	Whessoe 2026
C	S&J (92500)
D	S&J 92021 - Spirally Guided Cover
E	S&J 92500 - Spirally Guided Cover

EF • SWITCHES / RELAYS	
00	None
01	Two CAM Switches, 5A @ 120 VAC
02	Three CAM Switches, 5A @ 120 VAC
03	Four CAM Switches, 5A @ 120 VAC
20	2 Relays, .4 Amp @ 120 VAC (alarm relay) (Hi & HiHi only)
21	4 Relays, .4 Amp @ 120 VAC (alarm relay) (Lo, LoLo, Hi, HiHi)

I • POWER	
0	48 VDC - Standard (12-70 VDC)
5	65 VAC
7	2-Wire, 24 VDC Loop Powered (4-20mA, HART, Foundation Fieldbus)

J • CONTROL POINTS	
0	None (2 Discrete Ins, Standard)

NOTE: For ease of installation customer may desire the following.
MCG 2100 (Field Calibrator)
MCG 2150 Remote Calibrator

GH • OUTPUT	
00	L&J Tankway
01	4-20mA Output (Must Select Opt I, 7 or 8)
03	L&J Tankway, Ground Level Display*
06	Dual 4-20mA Output (Level & Temp)
08	Varec 1800, 1900 (4-Wire,1/2 Duplex)
09	Varec 1600 (20 Wire Matrix)
10	GPE 31422, 31423 Protocols
11	Modbus on L&J Tankway
12	RGL/NMC
13	4-20mA Output, Ground Level Display*
14	Modbus on RS-485 (2-Wire)
15	Enraf
16	HART
18	HART (HIU Compatibility)
24	No Output, Ground Level Display*
29	Ti-Way Protocol
34	Modbus on RS-485 (4-Wire)
40	GSI Protocol (RS-485)
42	Profibus DP
44	Wireless, Ground Level Display*
46	Saab TRL/2
49	Foundation Fieldbus (Use Table V Option 7 for Power)
51	GPE 31420 (0-2.5 VDC Output)
53	GPE 31422 / GPE 31423, Ground Level Display*
56	WirelessHART
XX	Special Protocols and Emulations Available

* Must quote MCG 1350 Ground Level Display Separately

Summary

With over a century of leadership in tank gauging, L&J Technologies delivers the MCG 2000MAX, transforming legacy float gauges into digital, custody-grade systems. Featuring Absolute Magnetic Encoding, ultra-low power operation, and hazardous-area approvals (ATEX/IECEX, UL), it ensures accurate, maintenance-free measurements even during power interruptions. Retrofit-friendly design and multiple protocols (4–20 mA, L&J Tankway, HART) enable seamless integration into existing or modern control systems. Ideal for petroleum, chemical, pharmaceutical, food & beverage, and water treatment industries, the MCG 2000MAX provides safe, reliable, and cost-efficient tank level management worldwide.

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