L&J Technologies

A COGNESENSE BRAND

# MCG 1200M

## Analog/Digital Transmitter

For operators and engineers who need a safe, reliable way to integrate legacy analog devices into modern digital control systems, the MCG 1200M provides a robust, protocol-flexible platform for tank gauging and process instrumentation. It converts 4–20 mA, RTD temperature, pulse, and discrete-signal inputs into industry-standard outputs including L&J Tankway, Modbus, HART, WirelessHART, and other host protocols. The graphical LCD delivers expanded local visualization, while wireless infrared calibration enables safe configuration in hazardous areas without opening the enclosure.

Unlike generic analog converters, the 1200M includes plug-in highway modules, built-in loop power, scalable pulse handling, and field-upgradeable firmware for long-term adaptability. It reduces wiring complexity by digitizing signals at the field device and provides broad compatibility with gauges, transmitters, RTDs, and pulse-based metering devices. With global hazardous-area certifications and an explosion-proof housing, the 1200M is engineered for reliable deployment across refineries, terminals, chemical plants, and global SCADA networks—ensuring seamless modernization of mixed-technology tank farms and process installations.

## Key Features

### Seamless Integration

Converts analog, RTD, pulse, and discrete inputs into multiple digital protocols, enabling straightforward integration of diverse legacy instruments into unified control systems.

### Safe infrared calibration

Allows full configuration without opening the housing, ensuring safer commissioning and maintenance in hazardous or restricted-access environments.

### Graphical LCD visualization

Displays significantly more data than legacy indicators, improving local diagnostics, setup clarity, and real-time operator awareness at the tank.

### Built-in loop power

Supplies 24 VDC excitation to field instruments, reducing external power needs and simplifying wiring during installation or retrofit projects.

### Field-upgradeable firmware

Supports future protocol enhancements and functionality improvements, extending service life without requiring hardware replacement or system downtime.

### Plug-in protocol modules

Modular highway cards provide Tankway, Modbus, HART, WirelessHART, and Profibus support, enabling flexible system design and site-standardization across facilities.

## Typical Applications

### TANK INTEGRATION

Converts analog gauge outputs into digital protocols, enabling complete visibility of tank levels and temperatures within modern inventory-management systems.

### TEMPERATURE MONITORING

Processes RTD and average-temperature probe signals to support custody-transfer accuracy and temperature-compensated inventory calculations.

### SCADA CONNECTIVITY

Adds a wide variety of field sensors to central SCADA networks without extensive rewiring, allowing efficient modernization of existing infrastructure.

### HAZARDOUS LOCATIONS

Uses infrared setup and explosion-proof construction to enable configuration and operation in classified areas without opening the enclosure.

### MIXED-SENSOR FACILITIES

Consolidates analog, discrete, and temperature inputs from diverse devices, simplifying integration and reducing interface hardware across complex sites.

### PULSE-BASED METERING

Handles pulse-input data such as pulses-per-minute, pulses-per-hour, and totalized counts, enabling digital integration of flow, metering, and batch systems.

## Benefits

### Bridges analog gaps

Converts legacy analog devices into modern digital protocols, ensuring unified tank data visibility across control, inventory, and safety systems.

### Improves setup safety

Infrared configuration avoids opening enclosures in hazardous zones, reducing risk and enabling quicker, safer commissioning procedures.

### Minimizes wiring effort

Digitizes signals at the field device, eliminating long analog cable runs and reducing installation, troubleshooting, and maintenance labor.

### Supports future upgrades

Firmware updates and modular protocol cards allow ongoing system modernization without replacing installed hardware or disrupting operations.

### Simplifies device standardization

Accepts inputs from gauges, RTDs, pressure transmitters, and pulse sensors, letting facilities unify data handling with a single RTU platform.

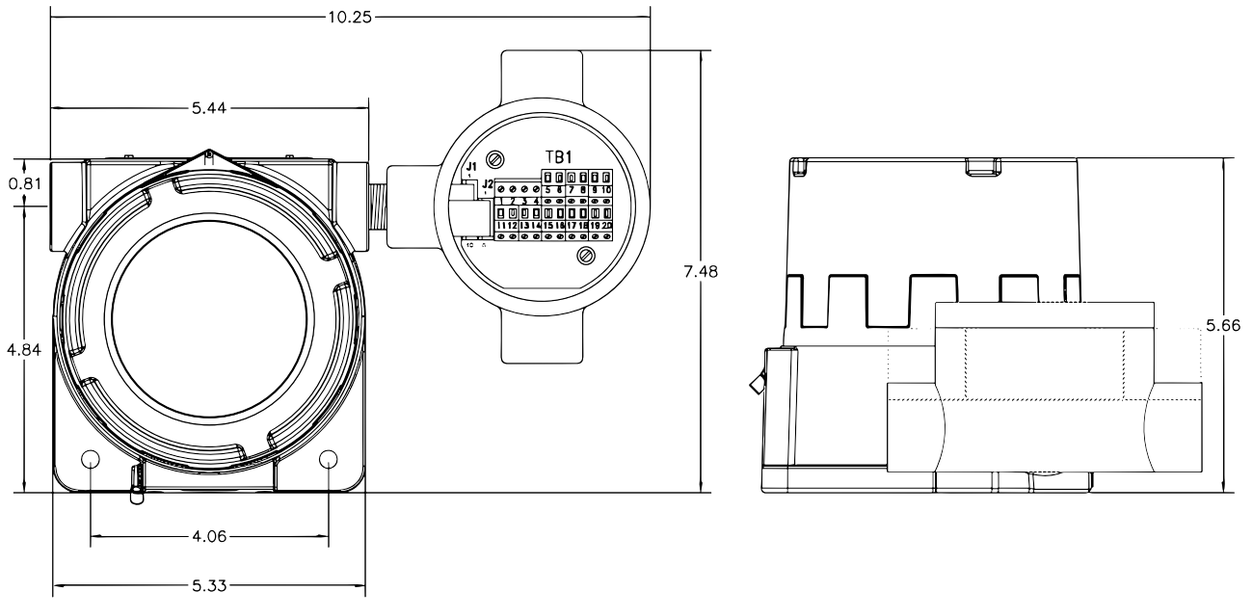
### Enables global deployment

Comprehensive hazardous-area approvals, including UL and ATEX, ensure compliance for international installations and standardized engineering designs

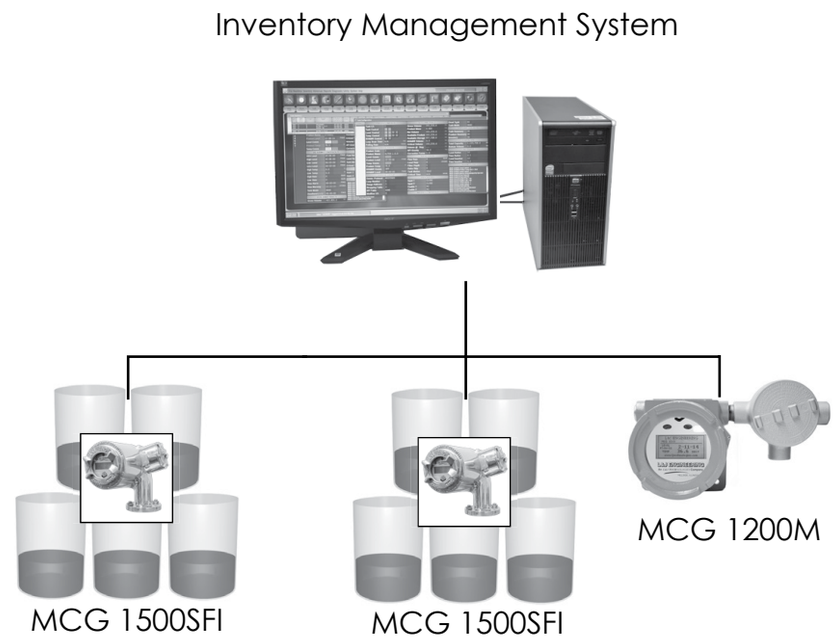
## Technical Specifications & Key Features

| | |
|---|---|
| **Display:** | Local graphical LCD (10x more data than legacy displays). |
| **Inputs:** | Up to 4× 4–20 mA, 2× pulse, 3-wire RTD (copper/platinum), discrete I/O up to 8. |
| **Outputs:** | Up to 2× 4–20 mA; digital protocols including Tankway, Modbus, HART, WirelessHART, Profibus DP, Enraf emulation, and more. |
| **Power Options:** | 12–70 VDC, 24 VDC loop power for connected devices. |
| **Enclosure Rating:** | UL Class I, Groups B, C, D; Class II Groups E, F, G; Class III. ATEX II 2 G EEx d IIB; II 2 D. |
| **Programming:** | Wireless IR calibration via MCG 2150. |
| **Construction:** | Explosion-proof housing with graphical display and flash memory. |

## Dimensions



## Typical System Layout




## Model Number Selection

The model number will consist of a base number MCG 1200M followed by 10 digit letters.
These digits will represent 7 option tables:

| AB • ANALOG INPUTS / TEMPERATURE | |
|---|---|
| 00 | None |
| 02 | Average Temperature* |
| 05 | 4-20 mA Input (Single) |
| 06 | 4-20 mA with Average Temperature* (No Barriers) |
| 08 | Dual 4-20 mA Input |
| 11 | Spot Temperature |
| 14 | Spot Temperature, with Barriers |
| 17 | 4-20mA with Spot Temperature |
| 32 | Dual Spot / Dual 4-20 mA Input |

| E • RELAYS | |
|---|---|
| 0 | No Relays |
| 1 | 2 Relays |
| 2 | 4 Relays |
| 3 | Relays |
| 4 | 8 Relays |

| F • CONTROL POINTS | |
|---|---|
| 0 | None |

| CD • SINGAL OUTPUTS | |
|---|---|
| 00 | None |
| 02 | L&J Tankway |
| 04 | 4-20 mA Output |
| 06 | L&J Tankway / Dual 4-20 mA (Level & Temperature) |
| 08 | Dual 4-20 mA Out (Level & Temperature) |
| 10 | GPE 31422, 31423 |
| 12 | Varec 4-Wire |
| 16 | L&J Tankway / 4-20 mA Out (Level) |
| 18 | RS-232 Output |
| 24 | Modbus on RS-485 (2-Wire) |
| 26 | RGL/NMC Interface |
| 28 | Modbus on L&J Tankway |
| 30 | Modbus on RS-485 (4-Wire) |
| 32 | Enraf |
| 34 | HART |
| 36 | Ti-Way Interface |
| 37 | TRL/2 |
| 39 | Ti-Way Interface (TI150 Emulation) |
| 40 | WirelessHART |
| 42 | Profibus DP |

| GH • PULSE INPUTS | |
|---|---|
| 00 | None |
| 01 | One |
| 02 | Two |

| I • POWER SUPPLY | |
|---|---|
| 0 | 48 VDC - Standard (12-70 VDC) |

| J • DISPLAY | |
|---|---|
| 1 | Level |
| 2 | Temperature |
| 3 | Pressure |
| 4 | Volume |
| 5 | Rate |
| 6 | Level & Temperature |
| 7 | Level & Pressure |
| 8 | Level & Volume |
| 9 | Level & Rate |
| A | Level, Temp, & Density |

## Summary

The MCG 1200M is part of Cognesense's century-long legacy of providing reliable tank measurement and integration solutions. By choosing the MCG 1200M, you gain more than just hardware, you secure a trusted partner with expertise, global certifications, and long-term support. By combining a compact, flexible RTU that converts analog, RTD, pulse, and discrete inputs into modern digital protocols in one unit, you get a a reliable bridge between legacy devices and today's control systems along with lower costs. By digitizing signals at the source, the 1200M streamlines commissioning and improves system scalability. With field-upgradeable firmware, global certifications, and broad sensor compatibility, it supports efficient modernization and long-term integration reliability across tank farms and process facilities.

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This document is for information purposes only. All designs subject to change. Certified dimensions, specifications, and performance data available upon request