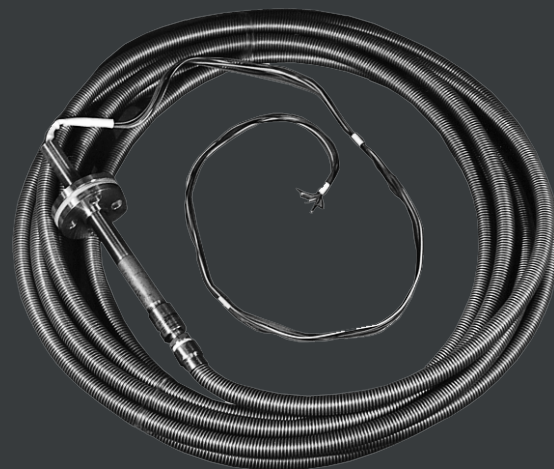


MCG 351

Average Temperature Probe

For terminal operations managers, custody transfer officers, process engineers, and EPC specifiers who require accurate average temperature data for corrected volumes and regulatory compliance, the MCG 351 delivers $\pm 0.25\text{ }^{\circ}\text{C}$ performance using 1–16 platinum RTD elements distributed along the probe length. Unlike single-point sensors that risk stratification errors, the MCG 351 automatically selects only the submerged elements and computes a true averaged temperature, aligning with API MPMS requirements.

Designed for harsh tank environments, the probe features 316 stainless-steel flexible hose construction, hermetically sealed leads, and an anchor-weighted design that ensures vertical stability in tall tanks. It supports both standard service ($-50\text{ }^{\circ}\text{C}$ to $+102\text{ }^{\circ}\text{C}$) and high-temperature applications up to $+204\text{ }^{\circ}\text{C}$, allowing use across a wide range of refined products, chemicals, and heavy oils. When paired with the MCG 2350 converter, the probe becomes intrinsically safe for hazardous areas and integrates seamlessly with L&J transmitters and radar gauges. Together, these features provide a globally accepted solution for custody transfer accuracy, tank inventory integrity, and long-term operational reliability.



Key Features

True Averaged Measurement

Multiple platinum RTD elements capture vertical temperature variations, eliminating bias from stratification and ensuring accurate corrected volumes for custody transfer.

API-Compliant Design

Meets global API MPMS averaging requirements, reducing temperature-driven custody disputes and improving confidence in official inventory calculations.

Wide Temperature Capability

Supports both standard and high-temperature ranges, enabling use with chilled chemicals, refined products, and high-temperature asphalts.

Intrinsic Safety Option

Achieves hazardous-area compliance when paired with the MCG 2350 converter, providing safe temperature measurement in classified environments.

Robust Mechanical Durability

316 stainless-steel hose, hermetically sealed conductors, and anchor-weighted construction withstand corrosive fluids and ensure long-term stability.

Seamless System Integration

Connects directly to L&J gauges and transmitters, enabling automated temperature selection, digital averaging, and standardized communication.

Typical Applications



CUSTODY TRANSFER CORRECTION

Provides averaged temperature data essential for accurate corrected volumes, protecting against disputes and ensuring audit-ready compliance.



REFINED PRODUCT TERMINALS

Resolves temperature layering in multi-grade products to keep billing accurate and maintain trust between suppliers and customers.



CRUDE OIL STORAGE

Detects stratification that leads to significant volumetric errors, ensuring fair measurement in large, vertically layered crude tanks.



CHEMICAL STORAGE TANKS

Supports accurate density and quality calculations in sensitive chemical processes where temperature precision affects product specification.



HIGH-TEMPERATURE SERVICE

Suitable for hot products such as asphalt or heavy oils, maintaining probe integrity and accuracy under demanding temperature conditions.



TALL VERTICAL TANKS

Multi-element configurations up to 82 ft ensure reliable averaging for deep tanks where single-point readings are insufficient.

Benefits



Revenue Protection

High accuracy and multi-element averaging prevent financial loss from temperature-induced custody transfer errors.



Standards Compliance

Meets globally recognized averaging standards, simplifying audits and ensuring defensible measurement practices.



Measurement Redundancy

Multiple RTD elements ensure stable readings even if a single element is compromised or temporarily out of service.



Application Versatility

Configurable element counts, temperature ranges, and connection styles fit diverse tank types, liquids, and operational conditions.



Low Maintenance

Hermetically sealed leads and stainless-steel hose resist corrosion and mechanical wear, minimizing long-term service requirements.



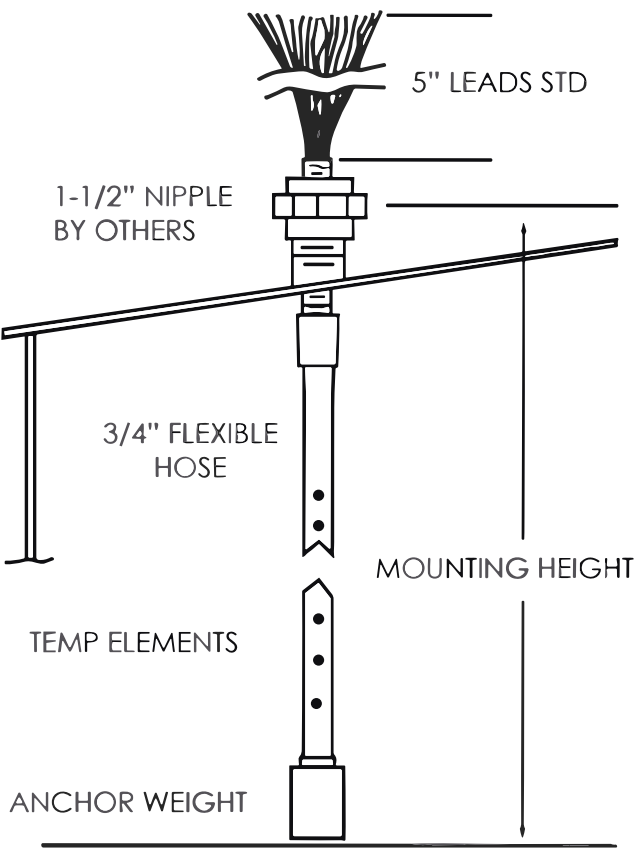
Simple Integration

Designed to work seamlessly with the MCG 2350 converter and L&J gauging systems, streamlining installation and commissioning.

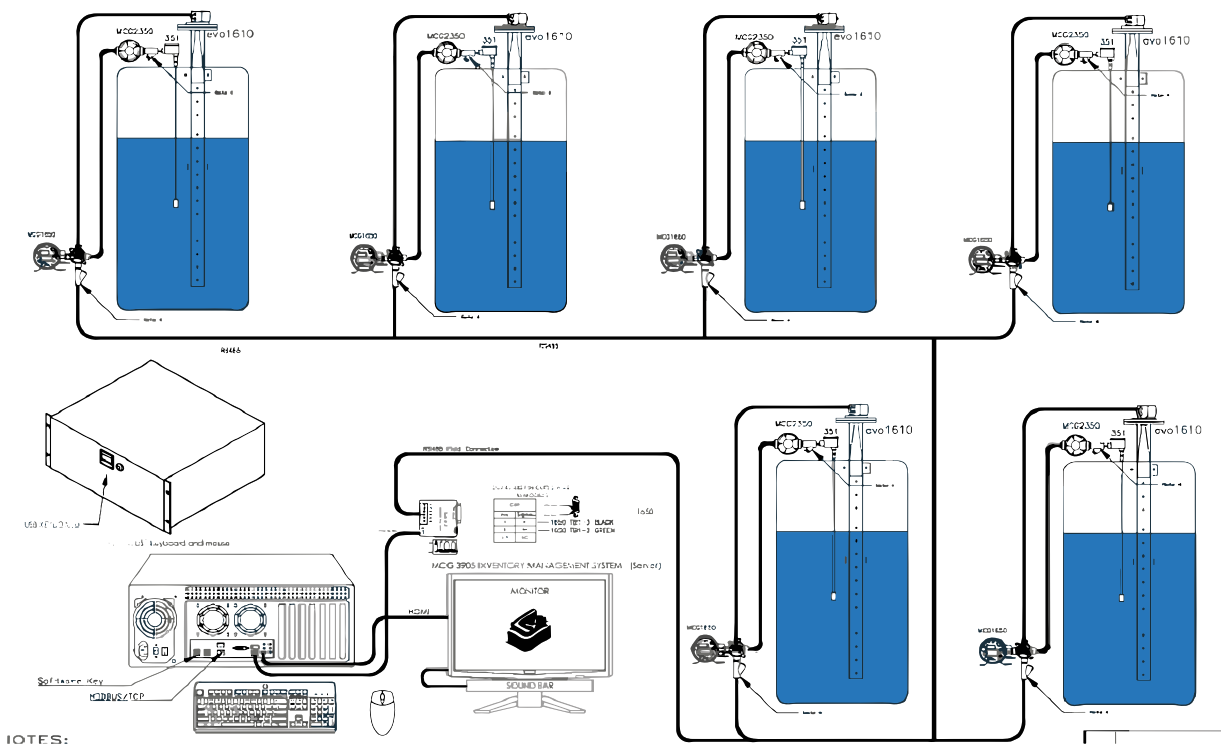
Technical Specifications & Key Features

Accuracy:	±0.45 °F (±0.25 °C)
Temperature Range:	- Standard: -58 °F (-50 °C) to +215 °F (+102 °C) - High-Temperature Option: -58 °F (-50 °C) to +400 °F (+204 °C)
Construction:	316 stainless steel flexible hose, hermetically sealed leads
Standard Connections:	3/4" NPS or 1" NPS (other NPS/NPT/flanged options available)
Pressure Rating:	Hose assembly tested to 171 psig
Insulation Test:	600 V RMS, resistors to housing
Elements:	1-16 platinum RTD elements depending on tank height (2 ft to 82 ft)
Safety:	Intrinsically safe when used with MCG 2350 converter
Mounting:	Anchor weight standard for vertical stability
Approvals:	UL, C-UL, ATEX, CE (with MCG 2350)

Dimensions



Typical System Layout



MCG 351 Average Temperature Probe

Includes: Standard connection - 3/4" M.S.S. flange, no anchor bar, 5 feet of Lead Wire.

Model Number Selection:

The model number will consist of a base number MCG 351 followed by 10 digits. These digits will represent 7 sets of option tables:

MCG 351 - AB - CD - EF - GH - IJ

AB • ELEMENTS / LENGTH	
01	1 Element, 2' - 7' ft. tank (.61 - 2.13 m)
02	2 Elements, 7' - 12' ft. tank (2.14 - 3.66 m)
03	3 Elements, 12' - 17' ft. tank (3.67 - 5.18 m)
04	4 Elements, 17' - 22' ft. tank (5.19 - 6.71 m)
05	5 Elements, 22' - 27' ft. tank (6.72 - 8.23 m)
06	6 Elements, 27' - 32" ft. tank (8.24 - 9.75 m)
07	7 Elements, 32' - 37' ft. tank (9.76 - 11.28 m)
08	8 Elements, 37' - 42' ft. tank (11.29 - 12.80 m)
09	9 Elements, 42' - 47' ft. tank (12.81 - 14.33 m)
10	10 Elements, 47' - 52' ft. tank (14.34 - 15.85 m)
11	11 Elements, 52' - 57' ft. tank (15.86 - 17.37 m)
12	12 Elements, 57' - 62' ft. tank (17.38 - 18.90 m)
13	13 Elements, 62' - 67' ft. tank (18.91 - 20.42 m)
14	14 Elements, 67' - 72' ft. tank (20.43 - 21.95 m)
15	15 Elements, 72' - 77' ft. tank (21.95 - 23.47 m)
16	16 Elements, 77' - 82' ft. tank (23.47 - 24.99 m)

CD • CONNECTIONS	
01	Standard Connection, 3/4" M.S.S. flange
02	2" 150 # ANSI R.F. Carbon Steel flange
03	2" 150 # ANSI R.F. Stainless Steel flange
04	2" 300 # ANSI R.F. Stainless Steel flange
05	4" 150 # ANSI R.F. Carbon Steel flange
06	4" 150 # ANSI R.F. Stainless Steel flange
07	4" 300 # ANSI R.F. Stainless Steel flange
08	3" 150 # ANSI R.F. Carbon Steel flange
13	8" 150 # ANSI R.F. Carbon Steel flange

E • TEMPERATURE RANGE	
0	Normal Temp 215° F Max
1	High Temp 400° F Max

F • CALIBRATION	
1	Copper (Cu) (per element)
2	Platinum (Pt)

*Required probe height is from point of probe insertion to tank floor.
Specify exact height on order. Longer Heights available consult factory.

G • BS&W	
0	No BS&W
2	BS&W

H • ANCHOR WEIGHT	
1	With Anchor Weight
2	Without Anchor Weight

IJ • LEAD WIRE	
00	No Lead Wire, (Top Condulet HSG supplied with terminal blocks)
01	5 ft.(1.5 m) lead wire length (Standard)
02	15 ft.(4.6 m) lead wire length
03	35 ft.(10.6 m) lead wire length
04	50 ft.(15.2 m) lead wire length
05	75 ft.(22.7 m) lead wire length
06	100 ft.(30.3 m) lead wire length
07	150 ft.(45.5 m) lead wire length
08	200 ft.(60.6 m) lead wire length
09	250 ft.(75.7 m) lead wire length
10	300 ft.(90.9 m) lead wire length

Summary

With over a century of tank measurement expertise, L&J delivers globally trusted solutions for custody transfer and inventory integrity. The MCG 351 ATP combines proven platinum RTD technology with rugged design and regulatory approvals, ensuring accurate, safe, and compliant operations across the largest installed base of storage tanks worldwide.

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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

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